ALABAMA
AGRICULTURAL & MECHANICAL
UNIVERSITY

GRADUATE CATALOG
2026 - 2027

Alabama Agricultural and Mechanical University

Graduate Catalog

2026 – 2027

(Fall 2026 through Summer 2027)

4900 Meridian Street
Normal, Alabama 35762

(256) 372-5000

Alabama A&M University (AAMU) is committed to equal opportunity in employment and education. AAMU does not discriminate in any program or activity on the basis of race, color, religion, sex, age, or national origin, or against any qualified individual with a disability.

The *Alabama A&M University Graduate Catalog (AAMU Catalog)* is typically published annually, effective from the beginning of a fall semester to the end of a summer session. The information contained in this publication is current and accurate at the time of printing. However, because changes in economic conditions and/or student program needs may occur at any time within the year period, AAMU reserves the right to adjust fee schedules, admission requirements, academic policies, curricula, and other institutional regulations and requirements as necessary. Students will be notified of changes through office and departmental correspondence and/or institutional posting through traditional or electronic means.

Students are expected to read and become familiar with the information contained in the *AAMU Catalog*. Students are responsible for knowing and understanding regulations and policies, and for meeting all deadlines and requirements of admission, registration and degree programs. Failure to read the information provided will not be considered an excuse for noncompliance.

Alabama Agricultural and Mechanical University is accredited by the Southern Association of Colleges and Schools Commission on Colleges (SACSCOC) to award baccalaureate, master's, educational specialist, and doctoral degrees. Contact the Southern Association of Colleges and Schools Commission on Colleges at 1866 Southern Lane, Decatur, Georgia 30033-4097 or call 404-679-4500 for questions about the accreditation of Alabama Agricultural and Mechanical University.

DISCLAIMER

Although Alabama A&M University strives for accuracy in the University Catalog publication, any publication may contain inaccuracies or typographical errors. Changes, corrections and improvements may be made periodically to these publications and will be incorporated in new versions of these publications. Alabama A&M University may make corrections and/or improvements in its publications at any time without notice. In particular, please check the revision date at the bottom of the curricula pages.

NOTE

Curricula information listed in the Catalogs on the AAMU web site under Academic Affairs takes precedence over curricula information found elsewhere.

Table of Contents

(Any title below is a hyperlink to that section in the Catalog)

University Profile

Location:	Normal, Alabama Northeast sector of Alabama 89 miles south of Nashville, TN
Academic Year:	Two semesters (Fall and Spring) and a summer session (optional)
Office Hours:	8:00 a.m. to 5:00 p.m., Monday – Friday
Graduate Office:	
Telephone:	(256) 372-5266 – main (256) 372-5267 – alternate
Facsimile:	(256) 372-5269
URL:	grad.school1@aamu.edu
Web:	www.aamu.edu/gradstudies
Address:	4900 Meridian Street, Normal, AL, 35762
Academic Calendar:	Academic Calendar
University Map:	AAMU Map

ABOUT THE UNIVERSITY

Alabama Agricultural and Mechanical University (AAMU) was organized in 1875 through the untiring efforts of its founder and first President, William Hooper Council, an ex-slave. The school doors opened on May 1, 1875, as the Huntsville Normal School. Industrial education was added in 1878, generating widespread attention, which helped to garner financial support from the Slater and Peabody Funds and private contributors. Under the second Morrill Act of 1890, AAMU became a land grant institution and moved to its present location in 1891. The University has undergone four name changes during its 130 years of existence. Upon earning junior college status in 1919, the name was changed to the State Agricultural and Mechanical Institution for Negroes. Senior college level courses were added in 1939; the first graduating class received the bachelor's degree in 1941, and the name was changed to Alabama A&M College in 1949. The college became a fully accredited member of the Southern Association of Colleges and Secondary Schools in 1963. In 1969, the name was changed to Alabama Agricultural and Mechanical University.

ABOUT THE CAMPUS

Alabama Agricultural & Mechanical University is a dynamic, public comprehensive liberal arts institution located in Normal, just minutes from Huntsville, Alabama. The University comprises 70 buildings on 2,000 acres. A large agricultural research farm is situated about 10 miles off-campus in Hazel Green, Alabama, and the University's Agribition Center is also located about one mile east of the main campus. Affiliated offices, such as the North Alabama Center for Educational Excellence, are also located several miles from campus.

MISSION STATEMENT

Alabama Agricultural and Mechanical University is a public, comprehensive 1890 Land-Grant institution, committed to access and opportunity, and dedicated to intellectual inquiry. The application of knowledge and excellence in teaching, research and service is responsive to the needs of a diverse student population and the social and economic needs of the state and region. The University offers contemporary baccalaureate, master's, educational specialist and doctoral level degrees to prepare students for careers in the arts, sciences, business, engineering, education, agriculture and technology. As a center of excellence, the University is dedicated to providing a student-centered educational environment for the emergence of scholars, scientists, leaders and critical thinkers, who are equipped to excel through their contributions and leadership in a 21st century national and global society.

SCHOOL OF GRADUATE STUDIES

The basic purpose of the Graduate School is to offer college graduates an opportunity to extend their general and technical knowledge in specific fields; to increase their professional skills; and to become acquainted with the tools and practices of research. All students in the School of Graduate Studies work under the direction of the Graduate Council. No major deviations from published graduate regulations are permissible unless they are approved by the Council.

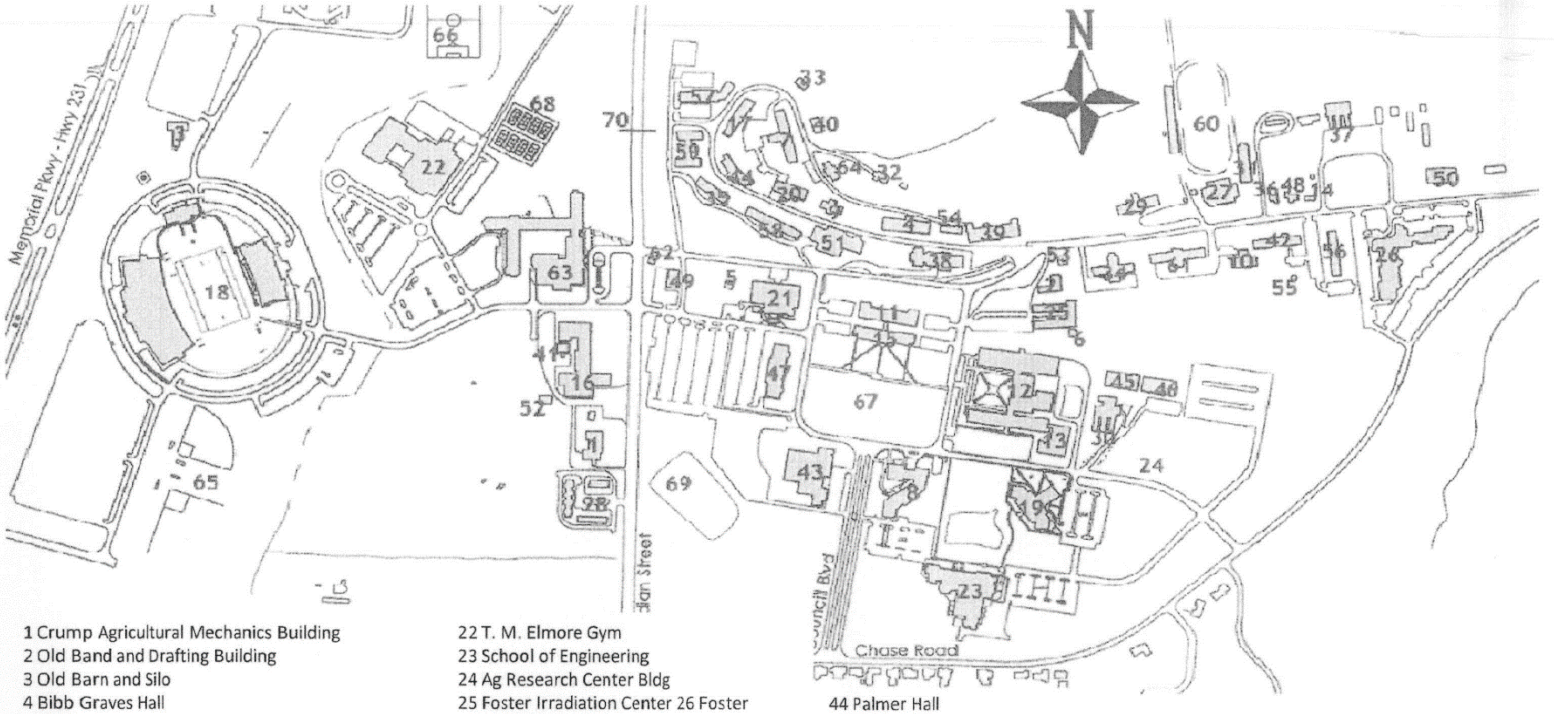
STUDENT LIFE

Alabama A&M University's mission is to provide "excellence in education and a scholarly environment in which inquiring and discriminating minds may be nourished." But this mission extends beyond the classroom walls into student and campus life. To aid in the overall educational experience, the A&M Office of Residential Life and Housing works diligently to provide quality and comfortable living accommodations with a plethora of amenities to make your stay convenient. During your stay at A&M, enjoy your residential life experience and take full advantage of this educational opportunity. Extra-curricular clubs and activities help build the relationships that are part of the college experience. Other services enrich the classroom experience, or provide for your health, well-being, and safety while you are a student at Alabama A&M University.

ALUMNI

Among an extensive list of distinguished alumni are:

- John Stallworth, former Pittsburgh Steelers and Pro Football Hall of Famer
- William E. Cox, publisher, *Diverse Issues in Higher Education*
- Dr. Henry Panion III, Grammy award winning conductor
- Ruben Studdard, season two winner, "American Idol"
- Sun Ra, jazz musician
- Michael Crooms, music producer



AAMU Campus Map

1 Crump Agricultural Mechanics Building
2 Old Band and Drafting Building
3 Old Barn and Silo
4 Bibb Graves Hall
5 Boiler #1
6 Boiler #2
7 Buchanan Hall
8 School of Business
9 Carnegie Library
10 Carpentry Building
11 Carter Science Hall
12 Carver Complex
13 Carver Annex
14 Councill Credit Union
15 Chambers Science Building
16 Councill Training Center
17 W. H. Councill Hall
18 Louis Crews Stadium
19 Dawson Building
20 Drake Dining Hall
21 Drake Memorial Learning Resources Center (Library)
22 T. M. Elmore Gym
23 School of Engineering
24 Ag Research Center Bldg
25 Foster Irradiation Center 26 Foster Living Learning Complex
27 Frank Lewis Gym
28 Gravitt Apartments
29 Grayson Hall
30 Greenhouses
31 Gym Annex
32 Hillcrest (President's Home)
33 Honors Building
34 Hopkins Hall
35 Hurt Hall
36 Infirmary
37 Eugene Kendrick Maintainance Facility
38 Ralph H. Lee University Center
39 McCalep Vocational Building
40 McCormick Building
41 Mechanical Engineering Annex
42 Morris Hall
43 Morrison Building
44 Palmer Hall
45 T. G. Parker Building
46 T. G. Parker Annex
47 Patton Hall
48 Polk Cottage
49 Post Office
50 Poultry Science Building 51 Prentice Dining Hall
52 ROTC Skills Center
53 Campus Police Office
54 Old Security Office
55 Old Silo
56 Stephens Hall
57 Terry Hall
58 Thigpen Hall
59 Thomas Hall
60 Old University Stadium
61 Walker Wood Hall
62 Water Pump House
63 Dr. Ernest L. Knight West Campus Living Learning Complex
64 State Black Archives
65 Baseball and Softball Fields
66 Soccer Field
67 The Quad
68 Tennis Courts
69 The Duck Pond
70 Covered Footbridge

Academic Year Calendar

August 2026	
14-16	Move-in
15	• Bulldog Welcome Experience begins • Freshman Convocation/Torch Lighting Ceremony
17	Faculty return
18	Faculty/Staff Conference
20	• All classes begin • 8-week begins • Late registration begins • Semester bill due
26	Attendance verification period begins
28	Fall UG/GR degree application closes
September 2026	
4	Last day to register or add classes
7	Labor Day Holiday
8	Classes resume
October 2026	
5-10	Midterm exams
12-17	GR Comprehensive Exams
14	Midterm grades due
15	End 1st 8-week
16	Begin 2nd 8-week
28	BoT Subcommittee meeting
29	BoT Subcommittee meeting
30	BoT meeting
November 2026	
2	E-learning Day/Faculty Professional Development
3	Registration for Spring 2027 begins
9	Spring 2027 UG graduation clearance opens in Laserfiche
23-27	Thanksgiving recess (residence halls remain open)
30	Classes resume
December 2026	
2	Last day to drop classes or withdraw from the University
3-9	Final exams for all students
11	• Fall Commencement • Residence halls close at 5pm
14	Final grades due in Banner by 5pm
18	Spring UG/GR degree application opens in SSB
21-31	Christmas Holiday recess
January 2027	
1	New Year's Holiday recess
4	Faculty/staff return
5	Faculty Staff Conference
6	Students move-in
7	• Classes begin • Late registration begins • Begin 1st 8-week • Spring charges due
13	• Attendance verification begins
18	Martin Luther King Holiday
19	Classes resume
22	Spring UG/GR degree application closes in SSB
February 2027	
March 2027	
4	End 1st 8-week
5-11	• Midterm exams • Begin 2nd 8-week
15-19	Spring Break (students & faculty)
18-19	Spring Break (staff)
23	Midterm grades due in Banner by 5pm
April 2027	
1	Academic Honors Day Convocation
23	E-learnind Day/Professional Day
29-5	Final exams for all students
May 2027	
1-5	Final exams for all students
7	• Founder's Day • Spring Commencement • All on and off campus communities close, and students move out
11	Final grades due in Banner by 5pm
31	Memorial Day Holiday
June 2027	
	SUMMER SESSION
1	• Classes begin (Summer Session) • Late registration begins
10	• Last day to register or add courses • Attendance verification begins
21	Juneteenth Holiday observed
July 2027	
5	Independence Day Holiday observed
6	Classes resume
20	Last day to drop classes or withdraw from the University
21-22	Final exams
29	Final grades due for all students by 5pm

Note – Calendar is a snapshot and accurate at the time of publishing.

Eight (8)-Week Academic Calendar

For Online Degree Programs

All dates and deadlines will end at 5:00pm unless otherwise stated. All dates, deadlines, and fees are subject to change without prior notice

Fall 2026

First Session	
Aug 20	• Classes begin • Late registration begins • Add/drop a course begins
Aug 24	Attendance verification period begins
Aug 27	Last day to add a course
Sep 7	Labor Day Holiday
Sep 11	Last day to drop to not incur a charge
Sep 17	Last day to drop (W) or withdraw from the University
Oct 8-14	Final examinations
Oct 15	Classes end
Oct 19	Final grade reports due in Banner by 5pm

Second Session	
Sep 4	• Last day to add a course • Last day to drop to incur a charge
Oct 16	• Classes begin
Nov 23-27	Thanksgiving recess
Nov 30	Classes resume
Dec 2	Last day to drop (W) or withdraw from the University
Dec 4-10	Final examinations
Dec 11	• Fall semester ends • Fall Commencement
Dec 14	Final grade reports due in Banner by 10am

Spring 2027

First Session	
Jan 07	• Classes begin • Late registration begins • Add/drop a course begins
Jan 11	Last day to add a course
Jan 13	Attendance verification period begins
Jan 18	Martin Luther King Holiday
Jan 22	Last day to drop to not incur a charge
Feb 25	Last day to drop or withdraw
Feb 26-Mar 04	Final examinations
Mar 04	Classes end
Mar 09	Final grade reports due in Banner by 5pm

Second Session	
Jan 22	• Last day to add a course • Last day to drop to not incur a charge
Mar 08	• Classes begin
Apr 28	Last day to drop or withdraw
Apr 29-May 07	Final examinations
May 07	• Spring semester ends • Commencement
May 11	Final grade reports due in Banner by 10am

Note – Calendar is a snapshot and accurate at the time of publishing.

Admissions Policies and Procedures

Mr. Dwayne Green, Admissions Director

100 Patton Hall
Voice: (256) 372-5250, Fax: (256) 372-4952,
admissions@aamu.edu

Admission Policies

Applicants for admission to graduate study at Alabama Agricultural & Mechanical University must hold a bachelor's degree from a regionally accredited college or university (or the equivalent of a four-year baccalaureate degree from another country). In many degree programs, the number of applications received from individuals qualified for graduate study regularly exceeds the number of students who can be accommodated. In such cases, only the most highly qualified are offered admission. The number of spaces available in various departments is limited according to the availability of faculty, special resources, and funds for students requiring financial assistance. The decision to admit an applicant is based primarily on a combination of the following criteria:

1. Quality of undergraduate and previous graduate work. As such, applicants must demonstrate adequate academic preparation in their proposed area of study. Those with deficiencies in academic preparation may be required to take additional coursework to strengthen their backgrounds.
2. Official, GRE/GMAT scores for programs that require entrance exams. Test scores over five years old or results brought by the applicant to the Office of Graduate Studies will not be accepted.
3. Letters of recommendation that speak to the applicant's potential for successful completion of the degree program to which the applicant is applying. Usually letters of recommendation are from the applicant's former professors. But, additional recommendations may come from employers or supervisors who are familiar with the applicant's work experience.
4. Supplemental evidence of potential success for graduate studies. Some programs require other evidence of potential for success, such as a portfolio, personal interviews, examples of scholarly work, and or research.
5. Available space in the program, and competitive rating within the applicant pool for the given term of entry.
6. Students who previously attended other graduate schools must be in good standing when seeking admission to a graduate degree program.

Application for Admission

Application for admission must include the following:

1. Completed "official" Alabama Agricultural & Mechanical University Application for Admission to Graduate Studies and a non-refundable application fee.
2. Official transcripts from each collegiate institution attended sent directly to the School of Graduate Studies from the collegiate institution.
3. Official test scores of the Graduate Record Examination (GRE) or the Graduate Management Admission Test (GMAT) is required for many programs.
4. Two letters of recommendation on official Alabama Agricultural & Mechanical University Graduate Admission Reference Forms. These recommendations should speak to the applicant's potential for successful completion of the graduate program to which he/she is applying (usually, letters of recommendation are from the applicant's former professors). Additional recommendations may come from employers or supervisors who are familiar with the applicant's work experience.
5. Submission of a resume or vita is required for many graduate programs.
6. Submission of a letter of intent is required for many graduate programs.
7. Other requirements specified by the particular degree program to which the applicant is applying.

NOTE: Please see the School of Graduate Studies website for more details about application admission packet requirements for each graduate program at Alabama A&M University.

Disposition of Application Materials

Credential or supporting materials submitted for admission to Graduate School become the property of Alabama Agricultural & Mechanical University and are not returned. Copies will not be provided to the student or to a third party outside of the University even at the applicant's request. Copies may be provided to appropriate offices at the University in the interest of academic matters or financial awards relative to the applicant.

Admission Categories

Regular/Full

To be admitted unconditionally, applicants must:

1. Have a minimum cumulative grade point average of 2.75 (4.00 scale) or a GPA of 3.00 (4.00 scale) in the major curriculum during the final two years of undergraduate study at the undergraduate level from a regionally accredited college/university. Students who previously attended other graduate schools in the United States must also be in good standing (i.e., 3.00) at the institution previously attended.
2. Sufficient score on either the GRE or GMAT examination.
3. Hold a baccalaureate degree or its equivalent from a regionally accredited college or university.
4. Meet all program-specific requirements.

NOTE: Please see the School of Graduate Studies website for details on individual graduate program requirements for GRE/GMAT scores or other specific requirements.

Conditional

Conditional admission is available to applicants with a complete admission application packet but do not qualify for full

admission. This could be because of a bachelor's degree GPA being below 2.75, or other departmental requirements.

Students admitted conditionally must possess a cumulative GPA of at least 2.5 on the undergraduate level, or a GPA of 2.3 with a 3.0 in the major curriculum during the final two years of undergraduate study. After completing nine graduate hours, a conditional student must attain an overall graduate grade point average of 3.00 or higher. Failure to achieve the minimum 3.0 GPA after completing nine graduate hours will result in suspension of the student from further graduate study.

Conditional status is also extended to students who do not meet the GRE/GMAT requirements, if the GRE/GMAT is required by the degree program. Students admitted in this category are allowed one semester to fulfill the GRE or GMAT requirement. Students failing to meet these standards can be, at the discretion of the Dean of Graduate Studies, dismissed from graduate study.

Conditionally admitted students who fail to meet other departmental requirements have two semesters (inclusive of summer sessions) to remove all provisions outlined in the original letter of admission. Students who fail to remove conditions at the end of two semesters will be ineligible to receive student loans or other forms of financial assistance.

It is the student's responsibility to be acquainted with all requirements related to a desired program and to fulfill these requirements.

The Office of Graduate Studies updates the records of students, who were admitted conditionally, during the first two weeks of each semester and during the following periods:

April 15-25
July 15-25
November 15-30

Non-Degree

This is a category for students who do not intend to seek an advanced degree from Alabama A&M University. Persons seeking to enroll as non-degree students must possess an undergraduate degree from a regionally or nationally accredited institution. They also must have a cumulative undergraduate GPA of 2.5 (on a 4.0 scale). Non-degree students usually include:

1. Those who intend to transfer graduate credit earned at Alabama A&M University to other institutions.
2. Those who intend to use graduate credits earned for professional certification.
3. Those that enroll for personal satisfaction.

A non-degree student who subsequently seeks full admission must satisfy requirements for admission to the specific program. Non-degree students are only allowed to transfer a maximum of 9 credit hours if they get approval to enter an AAMU graduate degree program.

International Students

Alabama A&M University welcomes applications from students from other countries. Applications should be sent three to six months before the registration date for each term. All applicants must meet Graduate School and departmental requirements as described in this catalog. In addition, international students must submit an official academic transcript accompanied by official/or notarized English translations. These documents must be sent directly from the institution(s) attended. Personal copies are not accepted. All foreign (non-U.S.) transcripts must be translated and evaluated by the World Education Services (WES) or a current member of the National Association of Credential Evaluation. This review must provide conclusive evidence that the applicant is the recipient of a degree comparable to the American bachelor's degree, which normally terminates 16 years of full-time study, 4 years of which are at the post-high school level. The official transcripts must show all post-high school work attempted, including grades or marks in each course, examination grades and standing in examinations and classes, or whatever other credentials are available to give a clear description of the student's academic accomplishments. Other requirements for international students include:

1. Scores of the Graduate Record Examination (GRE) or Graduate Management Admission Test (GMAT). Test results must be sent directly to the School of Graduate Studies from the Educational Testing Services (Alabama A&M University Code: 1003).
2. A certified financial statement indicating the applicant's ability to pay for the cost of education. An original/official bank statement no more than six months old at the time of registration must be submitted to the Graduate School in order to obtain the I-20 for the F-1 student visa. In certain cases, advance payment of tuition and fees may be required.
3. The Test of English as a Foreign Language (TOEFL) is required if an applicant is from a country where English is not the official language or if an applicant's degree is from an institution where English is not the language of instruction. The Alabama A&M University's TOEFL code is 1003. The TOEFL essentials required minimum score for admission is Level 8, the suggested score for a PHD student is Level 10. The TOEFL IBT required minimum score for admissions is 72, the suggested score for a PHD student is 95. To meet the English proficiency admission requirement, students can also us the International English Language Testing System (IELTS); the required minimum score is 6.5, with a PHD student suggested score of 7.0, or the Duolingo English Test; the required minimum score is 105, with a PHD student suggested score of 125.
4. All international students seeking admission into Alabama A&M University's School of Graduate Studies, who have previously attended a U.S. graduate school, must be in good standing (3.0) at the graduate school in which they previously attended. Failure to disclose information about attendance at another U.S. graduate school is grounds for immediate denial of the application or subsequent dismissal.
5. All international students are required to maintain an international student health insurance once admitted to the University. Coverage for a spouse and/or dependent is

available and must be purchased separately at the Student Health Center. A brochure explaining the coverage of the student health insurance program is available at the Student Health Center.

All requirements indicated above must be met before a Form I-20 will be issued.

Admission to graduate study does not carry any implication concerning the award of financial aid. Assistance for graduate students in the form of assistantships is available from some departmental programs and administrative units, but applicants from abroad are in competition with U.S. students for available awards. The University reserves the right, even after the arrival and enrollment of students from another country, to make individual curricular adjustments whenever particular deficiencies or needs are found. Students may be required to take such courses without credit and at their own expense. This could also apply to additional coursework in English as a foreign language whenever necessary.

Re-Admission

A student who has not registered for at least three credits during a twelve-month period will be transferred to inactive status and must file an application for readmission. Readmission is not automatic, nor does it necessarily reinstate the student in the status accorded prior to becoming inactive. Students not enrolled over a twelve-month period, who have not exceeded twenty-four months, may apply directly to the Dean of Graduate Studies for readmission. Students not registered in more than twenty-four months must submit a new admission application (along with required fees and appropriate credentials) directly to the Office of Graduate Studies and have their credentials reviewed by their respective department before a decision on readmission can be rendered.

While Still an Undergraduate

Undergraduate students enrolled in a bachelor's degree program in good academic standing with 75 or more credit hours, including at least 18 hours earned at AAMU, and a cumulative GPA of 3.0 or higher may enroll in graduate-level classes on a Special Exemption (SE) basis with administrative approval. Equivalent standards shall apply to undergraduate transient and non-degree students. The student must apply for permission to enroll in each graduate course using the Special Exemption for Graduate Course Enrollment and Substitution Authorization Form.

The student must receive authorization for course registration for each graduate course from the program coordinator for their primary major, department chairperson for the major, chairperson of the department offering the course (if not the department of the student's major), college dean for the major, dean of graduate studies, and the office of academic affairs through submission of the Special Exemption for Graduate Course Enrollment and Substitution Authorization Form (via Laserfiche) for execution by the Office of Graduate Studies.

The student must fulfill any eligibility requirements for graduate course enrollment, including course Prerequisite or program requirements. Course enrollment may be denied based on space availability, cohort enrollment size restrictions, or other factors determined by the program's graduate coordinator offering the intended course.

Graduate courses taken through Special Exemption (SE) while an undergraduate student may be used as substitutes for specific course requirements in the student's undergraduate degree program as indicated on the Special Exemption (SE) for Graduate Course Enrollment and Substitution Authorization Form or may be taken as non-substitute elective courses.

An undergraduate student may not enroll for more than six (6) hours of graduate coursework in a semester through Special Exemption. An undergraduate student may earn no more than 12 graduate credit hours through an SE.

Credit for courses taken through SE may not be applied to requirements for future enrollment in a masters-level graduate program at AAMU. Undergraduate students wishing to earn credit toward an eligible master's-level graduate program at AAMU must apply for Accelerated Master's Pathway (see GR #64).

Education Program Admissions While Still an Undergraduate

Students seeking admissions into graduate degree programs in Elementary, Special, and Early Childhood Education, who have not completed an undergraduate degree, but are scheduled to complete an undergraduate degree (prior to the term for which they are seeking admission) into an AAMU Education degree program, may be admitted, with provisions, as a teacher education prospect, by the Graduate School. The student may be admitted as provisional, non-degree seeking, until final transcripts are received. The student must provide documented evidence of their (unofficial) undergraduate transcript indicating they are performing at or above the requisite GPA. These students must furnish a final and official transcript showing completion of the undergraduate degree before they are admitted into the Elementary, Special, or Early Childhood Education programs. Students who fail to submit a final transcript with the published date of degree conferral, within thirty (30) days of the semester of admission, will be ineligible to enter graduate teacher education degree programs.

Admission Medical Record

The Admission Medical Record is a part of the Admission Application and must be completed, including the required immunizations, before admission is granted and class registration is permitted.

Application Petition/Appeal Policy

An applicant who is denied admission to any of the University's degree programs may submit a petition to the Graduate School. The Denial of Admission Appeal Form may be obtained from the Graduate School's web page. A copy of the completed petition should be submitted to the Graduate School for review by the Graduate Admissions Review Committee.

Recommendations or resolutions made by the Graduate Admissions Review Committee will be communicated in writing to the applicant. Decisions made by the Graduate Admissions Review Committee are final.

Transfer Credit

Transfer credit must be acceptable to the student's advisory committee and be pertinent to the student's planned degree program. A petition for transfer of graduate credit and one official transcript upon which the transfer courses are recorded must be submitted to the Dean of Graduate Studies. Only courses with grade "B" or better will be approved. Courses with a "P" grade are not acceptable. Alabama A&M University only accepts transfer credit from institutions of higher education that have been accredited by one of the regional accrediting commissions recognized by the Council for Higher Education Accreditation (CHEA).

Students seeking master's degrees may, upon departmental approval, transfer a maximum of twelve credit hours of approved graduate credits from an accredited institution. Credits must have been earned within the past six years. A student who has completed course credits in a certification program at Alabama A&M University may transfer such credits into a master's degree program with the consent of the departmental program or school. Such credits may be transferred only if they fall within the past six years set for the master's degree.

For students admitted to the Educational Specialist program, previous and appropriate post-master's degree credit earned at the Alabama A&M University or any regionally accredited university before a student applies for admission to the Ed.S. Program can be applied toward the Ed.S. degree provided:

1. It meets the time limitation test.
2. The student meets residency requirements.
3. The Graduate Dean of Alabama A&M University approves such credit for acceptance.

The Ed.S. degree may differ from that of the AA-Certificate. Credit earned in an AA program at Alabama A&M is not automatically applicable to an Ed.S. program. Instead, if a holder of an AA-Certificate enters an Ed.S. program at a later date the Ed.S. Advisory Committee will recommend to the School of Graduate Studies, Office of the Dean, how much of the credit earned in the AA certificate should be credited toward the Ed.S. program. The Ed.S. Committee and the School of Graduate Studies, Office of the Dean, in light of the objectives of the department, will decide to accept toward an Ed.S., as much as all, or as little as none, of the credit earned in an AA-Certificate program. The only exception is the residency requirement.

Students seeking a Ph.D. may transfer credits subject to the following conditions:

1. All credits submitted for transfer must be evaluated by the department and approved by the Dean of the School of Graduate Studies.
2. Only such courses, which are the same or similar in content as the courses listed for the particular specialization, will be approved for transfer.
3. A student who has earned the master's degree can transfer up to a maximum of 24 credit hours of credit, whereas a student who does not have a master's degree can transfer up to a maximum of 12 credit hours of graduate credit.

Graduate Credit for National Board-Certified Teachers

There is a possibility for a National Board-Certified Teacher (NBCT) to receive up to 3 credit hours of graduate credit to apply to an elective course in a program of study at Alabama Agricultural & Mechanical University. To pursue this possibility a graduate student must be admitted into one of the College of Education's graduate programs and must have completed the NBPTS process and awarded National Board Certification. To pursue this possibility, the graduate student must do the following:

1. Confer with his/her graduate advisor and the Dean of the School of Education to determine if National Board Certification can be applied to his/her specific program of study. If approved, credits for National Board Certification can only be used as elective credits. All persons receiving approval to use National Board Certification must complete the National Board Certification Credit Acceptance Form and receive approval from his/her graduate advisor, the program Department Chair, the Dean of the School of Education, and the Dean of Graduate Studies. In addition, persons receiving approval to use National Board Certification must submit a new program of study to reflect the elective course(s) in which the credits would replace. In all cases, credits for National Board Certification must be submitted by the start of the second semester of enrollment. The University will not accept National Board Certification credits submitted after the second semester of enrollment.

1. The NBCT must contact ACE and request two transcripts. To do this, he/she can go to the NBPTS website and click on "click here to apply for graduate credit" in the top right corner. That link takes them to the ACE web site. ACE verifies that they are a NBCT and issues them a transcript showing between six and nine academic credits (Alabama A&M University will only accept a maximum of 3 credit hours of National Board Certification credits). There is a $100 application fee for each transcript that the student will pay to ACE for this service. Transcripts must be mailed to Alabama A&M University, Office of Graduate Studies, P.O. Box 998, Normal, Alabama 35762. The transcript that is issued means that NBPTS recommends the NBCT for graduate credit for consideration by the NBCT's university. As stated, it is up to the university to decide if it will recognize those credits.

Foreign Transfer Credits

All non-English transcripts must be translated and evaluated by the World Education Services (WES). This review must provide a conclusive course-by-course evaluation of all coursework the student seeks to transfer.

Residency Status

Requirements for Residency

For the purpose of assessing tuition and fees, AAMU classifies students as Alabama residents or non-residents. Residency, for this purpose, means domicile; domicile means living in the state of Alabama with the intent to make Alabama a fixed and permanent home. For example, students may have more than one home address but only one domicile. All out-of-state students must pay non-resident fees. A student who comes to Alabama for the purpose of attending an institution of higher education is considered a non-resident student. Registration for voting, obtaining an Alabama driver's license, purchasing of property, and employment in Alabama are considered necessary components of establishing residency. Students from outside of Alabama will be assumed to be non-resident students, unless they affirmatively fall within the criteria specified below.

Residency Classification for Tuition Purposes

In Alabama, as in all other states, tuition at publicly supported four-year universities is higher for non-resident students than for resident students. The rules used in determining residency seek to ensure that only legal Alabama residents are assessed the resident fee. Many of these rules appear below:

1. Residency is a person's true, fixed, and permanent home and place of habitation. It is the place where a person intends to remain and to which the person expects to return when the person leaves without intending to establish a new domicile elsewhere. In order to establish a domicile in Alabama, a person must maintain a predominant physical presence in Alabama for 12 consecutive months after moving to the state.

2. No emancipated minor or person 19 years of age or older shall be deemed to have gained or acquired Alabama residency status for tuition purposes while attending any educational institution in this state, unless the individual makes a clear demonstration that he/she has established residency in this state.

3. A financially dependent person who is claimed as a dependent by another person who has not established and maintained an Alabama residency shall be presumed to be a nonresident. This presumption may be overcome by evidence of the student's long-standing presence in Alabama and demonstration of other factors (For complete details, contact the Office of the Registrar).

4. A full-time employee of AAMU, his/her spouse, and dependent children under age 25, may register for the payment of resident fees, even though they have not been residents of Alabama for the preceding 12 months.

5. Military personnel and their dependents stationed in Alabama and on active military duty are entitled to Alabama residency classification for tuition purposes.

For full details about residency, contact the Office of the Registrar.

Changes in Residence Status

Applicants who are classified by AAMU as non-residents but who later claim to qualify as legal bona fide residents of Alabama must file a Petition for Alabama Residency Classification for Tuition Purposes with the Office of Graduate Studies.

To receive consideration, petitions for change of status and all supporting documentation must be filed with the Office of Graduate Studies for the prospective session on or before:

Fall Semester	July 15
Spring Semester	Nov. 15
Summer Sessions	April 15

Financial Information

Fees for Tuition, Housing, Meals

All expenses for a term must be satisfied in full at the beginning of the term as a condition of admission to classes and residential, and access to the privileges and rights of an account paid in full.

Please see the Summer 2024 Tuition and Mandatory Fee Information on the next page.

For further information, please visit their web page. You may access the link here.

Graduation Fees

Graduation fees are non-refundable and non-transferable (from one semester to the next).

Books And Supplies

Textbooks may be purchased from the Bookstore located in the Ralph H. Lee Student Center.

For further information, please visit their web page. You may access the link here.

Restrictions Due To Indebtedness To The University

No student will be permitted to register for a semester until all bills from the previous semester have been paid. Failure to meet financial obligations, as scheduled, will cause a forfeiture of privileges of the dining facilities, residence halls, classroom facilities and other activities.

No transcript or record will be issued for any student who is indebted to the University. This includes, but is not restricted to, a delinquent Carl D. Perkins Loan.

Refund of Room Rent and Board

The application for campus housing and subsequent room assignment is a contract between AAMU and the student for a one-year period. Room rent will not be refunded to a student unless he or she officially withdraws from the University.

Disciplinary Suspension Refund

Suspension is a temporary dismissal from the University for a specific period of time. The student loses all the rights and privileges as a student, and forfeits all fees paid.

Emergency Separation for Military Spouses Policy

Students who withdraw due to being called to active duty or spouses of persons called to active duty may be eligible for a full refund of required tuition, room and board, and fees. All students who receive Title IV funds will be processed according to federal policies. Federal policy statements are available in the Office of Student Financial Aid.

Cancellation of Registration

Students will initiate the process by requesting cancellation in the Registrar's Office. A full refund of tuition and fees will be given if the student is eligible.

Fee Rates Fall 2025 – Spring 2026

All expenses for a term must be satisfied in full at the beginning of the term as a condition of admission to classes and residential facilities, and access to the privileges and rights of an account paid in full. A penalty of $62.00 will be charged on/after August 21, 2025 for late Fall registration and January 08, 2025 for late Spring registration.

GRADUATE Tuition and *Mandatory Fees	
Tuition – Resident	$426.00 per hour
Tuition – Non-resident	$848.00 per hour
*Health Insurance Fee	$79.00
*Information Technology Fee	$125.00
*Wellness Center Fee	$13.00
*Shuttle Fee	$63.00
*Debt Service Fee	$265.00

GRADUATE 7 & Up Hour Fees	
Student Rec and Athletic Fee	$87.00 per hour
Student Activity Fee	$129.00 per hour

UNDERGRADUATE / GRADUATE Board	
Board – 21 meals per week PLUS Bulldog Bucks	$2175.00 $250.00
Weekly 5 – 5 meals per week PLUS Bulldog Bucks	$795.00 $200.00
Weekly 10 – 10 meals per week PLUS Bulldog Bucks	$1145.00 $200.00
Mandatory Commuter Plan Bulldog Bucks Only	 $200.00

UNDERGRADUATE / GRADUATE Room	
Residential Room Rates, **On**-campus per Semester	
Traditional Hall	$1955.00
Traditional Hall Single	$3905.00
Suite Style: Foster and Knight	$2865.00
Normal Hills Single	$5100.00
Hugine Double	$3185.00
Hugine Single	$3770.00
Normal Hills 2-bedroom Master	$3605.00
Normal Hills 2-bedroom Hall	$3505.00
Normal Hills 3-bedroom Master	$3430.00
Normal Hills 3-bedroom Hall	$2760.00

Residential Room Rates, **Off**-campus per Semester	
Constellation: 2-bedroom double	$4500.00
Dallas Mills: 2-bedroom master	$6500.00
Dallas Mills: 2-bedroom hall	$6000.00
Dallas Mills: 1-bedroom single	$8000.00
Huntsville Place: 1-bedroom quad	$5500.00
The Dean: 1-bedroom Single	$8000.00
The Dean: 2-bedroom master	$6500.00
The Dean: 2-bedroom hall	$6000.00
The Dean: 3-bedroom master	$5500.00
The Dean: 3-bedroom Hall	$5000.00
The Elroy 2-bedroom double	$4500.00
The Elroy 1-bedroom single	$8000.00
Waterleaf: 2-bedroom double	$4500.00
Waterleaf: 3-bedroom master	$5500.00
Waterleaf: 3-bedroom hall	$5000.00

Fees are subject to change without notice.

VA Benefit PL 115-221 Sec. 301 (In-State Tuition for VA Beneficiaries) Addendum may be viewed on the next page.

In-State Tuition for VA Beneficiaries

Official School Catalog Addendum – Terms Beginning after 3/1/2019 (PL 115-251 Sec. 301)

The following individuals shall be charged a rate of tuition not to exceed the in-state rate for tuition and fees purposes:

• A Veteran using educational assistance under either chapter 30 (Montgomery G.I. Bill – Active Duty Program) or chapter 33 (Post-9/11 G.I. Bill), of title 38, United States Code, who lives in Alabama while attending a school located in Alabama (regardless of his/her formal State of residence) and enrolls in the school within three years of discharge or release from a period of active duty service of 90 days or more.

• Anyone using transferred Post-9/11 GI Bill benefits (38 U.S.C. § 3319) who lives in Alabama while attending a school located in Alabama (regardless of his/her formal State of residence) and enrolls in the school within three years of the transferor's discharge or release from a period of active duty service of 90 days or more.

• Anyone described above while he or she remains continuously enrolled (other than during regularly scheduled breaks between courses, semesters, or terms) at the same school. The person so described must have enrolled in the school prior to the expiration of the three-year period following discharge or release as described above and must be using educational benefits under either chapter 30 or chapter 33, of title 38, United States Code.

• Anyone using benefits under the Marine Gunnery Sergeant John David Fry Scholarship (38 U.S.C. § 3311(b)(9)) who lives in Alabama while attending a school located in Alabama (regardless of his/her formal State of residence).

• Anyone using transferred Post-9/11 G.I. Bill benefits (38 U.S.C. § 3319) who lives in Alabama while attending a school located in Alabama (regardless of his/her formal state of residence) and the transferor is a member of the uniformed service who is serving on active duty.

• Anyone using educational assistance under chapter 31, Vocational Rehabilitation/Employment (VR&E), also be charged the resident rate. Effective for courses and terms beginning **after March 1, 2019**, a public institution of higher learning must charge the resident rate to chapter 31 participants, as well as the other categories of individuals described above. When an institution charges these individuals more than the rate for resident students, VA is required to disapprove programs of education sponsored by VA.

• The policy shall be read to be amended as necessary to be compliant with the requirements of 38 U.S.C. 3679(c) as amended.

ALABAMA STATE APPROVING AGENCY
P.O. Box 302130 | MONTGOMERY, AL 36130-2130 | 334.293.4500 | WWW.ACCS.EDU

Public Law 116-315, Section 1005

Background: In January 2021, Congress passed Public Law 116-315 amending 38 U.S.C. 3679(c). Section 1005 of the Johnny Isakson and David P. Roe, M.D. Veterans Health Care and Benefits Improvement Act of 2020 removes the requirement for covered individuals to enroll in a course at a public institution of higher learning within three years of being discharged to receive in-state tuition. In addition, the law edits the language in paragraph (2)(A) and adds subparagraph (B) that will make publicly available on the VA website a database explaining any public institution's requirements for beneficiaries to be charged in-state tuition. **Effective: August 1, 2021.**

Request: Based upon the revised definition of a covered individual for the purposes of receiving in-state tuition, we are asking for an update on your educational institution's current compliance status with this amendment.

Educational Institution Name: Alabama A&M University

Print Name: Andrew Hugine, Jr.

Signature of Administrator: Andrew Hugine, Jr.

Date: 06/22/2021

Financial Aid Policies and Procedures

Ms. Sybrenna Harris, Interim Director
211 Patton Hall
Voice: (256) 372-5400, Fax: (256) 372-4952,
sybrenna.harris@aamu.edu

Types of Aid

Alabama A&M University attempts to provide financial support for as many graduate students as possible. The University has a complete financial aid program composed of the following forms of aid:

Assistantships (research or teaching)

A number of graduate assistantships are available in departments that offer graduate degree programs. To maintain a graduate assistantship (Teaching or Research) a student must be enrolled in a minimum of six (6) graduate hours offered by Alabama A&M University during the regular academic semester. During summer sessions students must enroll in 3 credit hours offered by Alabama A&M University to qualify for a graduate assistantship. An assistantship is limited to four semesters (two academic years) not inclusive of summer sessions. Students must apply for extensions. Master of Science students are limited to 20 hours per week maximum on assistantships. The Application for Graduate Assistantship Form can be obtained in the Graduate Studies Office.

Fellowships (research or teaching)

A number of graduate fellowships are available in departments that offer graduate degree programs.

Students interested in graduate fellowships should address inquiries to: The Dean, School of Graduate Studies, Alabama Agricultural and Mechanical University, P.O. Box 998, Normal, AL 35762 or inquire directly with the Department/Programs they desire to enter.

Time Limit on Graduate Funding

The maximum number of years that a graduate student can receive funding via a graduate assistantship or fellowship is three years as a master's student, six years as a doctoral student, or eight years in doctoral programs in which students enter with a baccalaureate degree only. Departments or programs may impose stricter limits. Requests for an extension beyond the maximum terms here specified must be made in writing by the academic unit to the Dean of Graduate School. Established time limits for completion of graduate programs also apply to all graduate assistants.

Loans & Part-time Employment

Student part-time jobs are open to graduate students. Students interested in loans or part-time employment may obtain detailed information by writing to: Director of Financial Aid, Alabama Agricultural and Mechanical University, P.O. Box 907, Normal, Alabama 35762.

Scholarships

The University has designated a limited number of scholarships for graduate students. These scholarships are awarded through an application process. Applications are available in the Graduate Office. In addition, many degree programs also have a limited number of scholarships available for graduate students. For information of departmental scholarships, please contact individual programs for details.

Satisfactory Academic Progress

A student must meet the standards of Satisfactory Academic Progress in order to receive Title IV funds. The concept of Satisfactory Progress goes beyond good standing to mean evidence of positive movement toward the student's degree.

Alabama A&M University is required by federal regulation, to establish standards of Satisfactory Academic Progress Policy for students receiving assistance through the below named programs:

1. Federal Direct Loan Program
2. Federal Carl D. Perkins Loan
3. Federal Work Study (FWS)
4. Federal Supplemental Educational Opportunity Grant
5. Federal Stafford Loan Program
6. Federal Parent Loans
7. Federal Pell Grant
8. Alabama Student Assistance Grant
9. Academic Competitiveness Grant (ACG)
10. National SMART Grant
11. Teacher Education Assistance for College and Higher Education Grant (TEACH)

Graduate students must maintain a cumulative GPA of 3.00. The maximum allowable hours that a graduate student can attempt and remain eligible to receive Title IV funds are outlined below:

Maximum Credit Hours	Description
70	Traditional master's degree
80	Graduate business degree
100	Specialist's degree or 2nd master's (Both includes master's degree hours)
120	Doctoral degree (includes master's degree hours)

- Grades of "I" received during the first two semesters, by graduate students enrolled in Thesis or Dissertation courses are exempt from being included in the total hours attempted.
- Title IV funds will not be granted to graduate students who have attempted more than 120 credit hours.

Each of the following components must be met by the aid recipient:

- Qualitative Component (the grade point average you must maintain
- Quantitative Component (the number of hours you must successfully pass)

- Time Frame Component (the length of time you will be eligible to receive aid).

To receive aid, students must successfully earn the required percentage of attempted hours, obtain the grade point average and not exceed the number of hours of eligibility. All students who desire to become or who are recipients of Title IV funds must meet the Standards of Satisfactory Academic Progress Policy requirements.

However, in all cases graduate students are required to earn at least 67% of the hours which they attempt. All periods of a student enrollment count when calculating Satisfactory Academic Progress, even periods in which the student did not receive Title IV funds.

Financial Aid Appeals Process

Students losing aid may appeal to have their Title IV aid reinstated only under the following conditions:

1. Undue hardship as a result of extenuating circumstances such as
   a. Student's illness
   b. Illness or death of a parent or spouse

All students seeking to redress a financial aid decision must file an appeal within two weeks of the date the student is notified of the financial aid suspension.

For more information on the Appeals process visit the financial aid web site at: http://www.aamu.edu/Admissions/fincialaid/importantinformation/Pages/Satisfactory-Academic-Progress-Policy.aspx.

Students who fail to meet the requirements for Satisfactory Academic Progress may file a financial aid appeal. Appeals can be submitted online via the financial aid website. The appeals must include the reason why the student failed to make "Satisfactory Academic Progress" as well as a plan of action that will allow the student to make SAP at the next evaluation. If an appeal is approved, the student is placed on probation for a one semester period. Students who have not met the requirements after the probationary period are required to submit a new appeal along with an academic plan which will ensure that they are able to meet Satisfactory Academic Progress by a specific point in time. This timeframe must coincide with the maximum timeframe outlined in the University's Satisfactory Academic Policy.

Registration Policies and Procedures

General Registration Guidelines

Every graduate student is expected to become familiar with the University and all Graduate School regulations. The information and educational requirements in the catalog represent a flexible program that may be altered where such alterations are thought to be in the mutual interest of the University and its students.

Once admission has been granted, students are required to complete registration within the set time period stipulated by the university calendar. It is imperative that students enter accurate and complete information on all registration cards/forms.

Cross-Registration

Alabama Agricultural & Mechanical University and the University of Alabama at Huntsville offer graduate students in the Biological Sciences the opportunity to cross register. Each department retains the authority to establish the Prerequisite for admission and the maximum enrollment in its home courses and to grant priority in registration to its own graduate students.

Federal Regulations

Alabama A&M University does not discriminate on the basis of race, color, religion, ethnicity, national origin, age, sex, marital, or handicapped status. This commitment is made by the University and required by federal, state, and local laws and regulations, including Title IX, 86.9. Each student at the University has the right to inspect his/her student records as per Federal Register, Vol. 40 Number 3, Part III, Privacy Rights of Parents and Students.

Course Enrollment

A maximum of nine (9) graduate credit hours is considered a full academic load during the regular academic semesters, Fall & Spring. However, to maintain a graduate assistantship (Teaching or Research) a student must be enrolled in a minimum of six (6) graduate hours offered by Alabama A&M University during the regular academic semester. During summer sessions students must enroll in 3 credit hours offered by Alabama A&M University to qualify for a graduate assistantship.

Fees and Expenses

Tuition rates and fees are posted on the University's web site. The University reserves the right to change fees, charges, rules and regulations without prior notice.

Academic Policies and Procedures

Credit Hours

Per SACSCOC, a credit hour is an amount of work represented in intended learning outcomes and verified by evidence of student achievement that is an institutionally established equivalency that reasonably approximates

1. Not less than one hour of classroom or direct faculty instruction and a minimum of two hours out of class student work each week for approximately fifteen weeks for one semester or trimester hour of credit, or ten to twelve weeks for one quarter hour of credit, or the equivalent amount of work over a different amount of time, or
2. At least an equivalent amount of work as required outlined in item 1 above for other academic activities as established by the institution including laboratory work, internships, practica, studio work, and other academic work leading to the award of credit hours.

Grading

Letter Grades: One of two types of grading systems is assigned to each course: (I) the Letter Grade System, and (II) the P-No Quality Point System. Each department has the responsibility for developing supplemental procedures that will enable the student and interested persons to learn about the faculty's judgment of the student's competence.

Type I	A	Superior
	B	Satisfactory
	C	Below Expectations
	F	Failure
Type II	P	Satisfactory
	F	Failure

Type II (explanation and authorization for its use): The "P" grade is a critical and evaluative grade indicating at least satisfactory graduate attainment. Each department, in cooperation with the School of Graduate Studies, determines when Type II grading will be available for a graduate course. With respect to each of its graduate courses, each department may forbid or request the use of the Type II system.

In addition, the following non-evaluative letters are used, when appropriate:

W	Withdrawal
WM	Military Withdrawal
X	Non-credit Audit
I	Work Incomplete
IP	In-Progress (thesis, dissertation, research)

Auditing

A student may register to audit a course only with the approval of the instructor. The letter "X" will be recorded on the transcript if the student satisfies the conditions agreed upon with the instructor. All students who audit courses are required to be registered as auditors.

Incomplete Work

The letter "IP" is recorded for incomplete work in programmatically designated research, thesis and fieldwork courses. The letter "I" may be given in other courses in which the scope of the student's project requires more time for its proper completion. An "I" grade given for courses other than thesis or dissertation research is to be removed within one semester after the end of the term of registration for the course. A course for which an "I" or "IP" is recorded is not included in the calculation of the GPA, and no credit is awarded until the course is completed with a quality grade. Removal of an "I" must be authorized by the instructor and approved by the School Dean on a Change of Grade Form. A student may not graduate without removing "I" or "IP" grades from his/her record.

Credits and Quality Points

Each credit for which letter grades are recorded has the following quality value: A=4; B=3; C=2; D=1 and F=0. The GPA is defined as the total number of quality points earned in courses divided by the total number of credits attempted. Each credit for which “P” is recorded carries no designated number of quality points but implies a performance in the range of 3 or 4. Courses for which "W", "I", or "AU" are recorded do not contribute either credits or quality points toward graduation. When a course is repeated, only the last grade received is counted in computing the GPA. Graduate students must achieve the minimum GPA established by their programs, in no case less than 3.00, in order to be eligible to take the comprehensive examination, to be admitted to candidacy or to be eligible for graduation.

Withdrawal

A student may withdraw from a course under the conditions listed below:

1. Classes dropped after the first week of the regular semester and through the end of the withdrawal period specified in the course schedule will carry a grade of “W.”
2. Classes dropped after the withdrawal period will carry the actual grades obtained.

Repetition of Courses

In every case, all "D" and "F" grades must be repeated (graduate and undergraduate courses) if the courses are to be listed on the official student’s program of study submitted to the School of Graduate Studies. Graduate students normally are not permitted to repeat courses for which they have received credit, but, under unusual circumstances, a department may authorize an exception to this policy. When a graduate student repeats a course in which the subject matter has not changed, only the last grade received is counted in computing the quality point average.

However, graduate students are only allowed to repeat a course once if it is listed on the official student's program of study. Any student who repeats and fails a course the second time may be dismissed from the graduate degree program.

Grade Changes

A grade given by an instructor for completed work will not be changed unless an error has been made in reporting or recording the grade. Re-examination or extra work may not be used as a basis for a change of grade.

Independent Study

Students who are using University facilities to an extent greater than represented by their formal course load (and those required by a fellowship or other appointment to be full-time students) are required to register for an appropriate number of additional credits of Independent Study to reflect their correct status. All graduate study not under the direct supervision of a specific faculty member is, by definition, Independent Study. This includes study for comprehensive and overview examinations, the preparation of research proposals, etc. Before a student is permitted to take an independent study course, the student must have completed a minimum of 12 credit hours of graduate work.

Field Research

Registration for Directed Study is limited to students in good academic standing who wish to study or carry out a project in an area not normally available in a formal course. The work must be under the direct supervision of a faculty member who has approved the proposed work in advance of registration. A detailed description of the work should be recorded by the directing faculty member in the student's file in both the department and the School of Graduate Studies, Office of the Dean.

Catalog Rights and Exclusions

Students' academic requirements are based on the Catalog that is in force during their first semester of enrollment at Alabama A&M University. Students are not allowed to switch from one catalog to another without the written approval of their Program Advisor, Department Chairperson, and Academic Dean using the UG Bulletin/GR Catalog Acknowledgment Form (available on-line). Students who transfer from one program to another are admitted to the new program under the catalog-in-force at the time of admission. Dismissed students are reinstated under the catalog- in-force at the time of reinstatement.

Responsibility Statement

While Alabama A&M University will endeavor to provide timely and accurate advisement, each student is held responsible for reading, understanding, and meeting the requirements for graduation as set forth in the University Graduate Bulletin.

Request for Transcript

In compliance with the Family Educational Rights and Privacy Act, Alabama A&M University does not release transcripts of a student's work at the University except upon the student's written request. A student or former student who desires a transcript of his/her record from the University must make this request in writing to the Registrar. Students or former students requesting transcripts should state all possible names under which their records may be located. **Telephone requests cannot be honored.**

A student may secure an unofficial transcript for his/her use, but official transcripts must be sent by the Registrar's Office to other colleges, organizations, companies and other interested sources. "Official" transcripts are not normally hand-carried without prior permission of the receiving institution. However, if this permission is granted, the transcript must be in a sealed envelope and marked "issued to student."

Each student is entitled to one (1) transcript without charge. A fee of $5.00 is charged for each additional transcript, whether it is an official or unofficial copy. Each student should consult the University's fee schedule or contact the Office of the Registrar to verify the current fee for a copy of the transcript.

Transcripts are not issued to or for students who have outstanding obligations to the University.

Academic Loads

Nine (9) graduate credit hours are considered a full academic load during the two regular academic semesters. Six (6) graduate credit hours are considered a full academic load during the Summer Session. To maintain a graduate assistantship (Teaching or Research), a student must be enrolled in a minimum of six (6) graduate hours during the regular academic semester and three (3) during the summer session. During summer sessions students must enroll in 3 credit hours offered by Alabama A&M University to qualify for a graduate assistantship. As an assistant, a student may enroll in up to nine (9) graduate hours during the regular academic semester and six (6) during the summer session with the Graduate Dean's approval. Enrollment in more than 10 hours is not permitted.

International Student Advising

Please note important reminders below when advising international students for course registration. The following must be adhered in order for an international student to remain in status as an F-1 student while studying at Alabama A&M University.

Full Course of Study

In order for an international student to maintain their status as an F-1 student in the United States, the student must enroll in a full course of study at the Student and Exchange Visitor Program (SEVP)-certified school where the designated school official (DSO) issued the Form I-20 to enter into the United States.

- F-1 undergraduate students must enroll in at least 12 credit hours per fall and spring semester. Enrollment during the summer semester is optional.

- F-1 students in graduate programs must take at least 9 credit hours per fall and spring semester. Enrollment during the summer semester is optional.

Online Courses and Distance Learning

An online, or distance learning, course for the purpose of international student regulations means a course that is primarily offered through technology and does not require the student's physical attendance for classes, examinations, or other purposes integral to completion of the class.

- Only one online or distance learning class can count towards a full course of study for an F- 1 student during each semester.

Reduced Course Load

Under certain circumstances, F-1 students may speak with their DSO about enrolling in a reduced course load and still maintain their student status.

- If an F-1 student is having specified initial academic difficulties, a temporary illness or medical condition, or needs fewer courses than a full course load in their last semester to complete the program of study.
- If student needs a reduced course, please encourage student to speak with their DSO as soon as possible. Students cannot drop below a full course of study unless the DSO approves it and updates the student record in SEVIS.

DSO Contacts

Dr. Pamela Little, PDSO, pamela.little@aamu.edu, 256-372-5418, students last name A-L.
Ms. Atari Steele, DSO, atari.steele@aamu.edu, 256-372-5418, students last name M-Z.
Ms. Nicole Jackson, DSO, nicole.jackson@aamu.edu, 256-372-8747, graduate students

Graduate Co-op

To register for Graduate Co-op, the following must be met:

1. 3.0 GPA or higher.
2. Must have completed all CORE courses in program.
3. Co-op must be on the students Planned Degree Program at the time of registration.
4. Letter from the Department Chairperson stating that the Co-op is approved.
5. The Registration Form requesting registration in Graduate Co-op must have the signatures of the Department Chairperson and Dean of the School of Graduate Studies.

Graduate Co-op sites and Co-op supervisors must be visited and recommended for approval by the Graduate Co-op Coordinator. Exception to this policy must have the approval of the Department Chairperson and the Dean of the School of Graduate Studies. A site visit and an interview with the potential supervisor of the Graduate Co-op must be made. Once a site is "officially" approved, only the Co-op supervisor need be contacted.

Students may not register for a Graduate Co-op at a site if employed by that site. International students on "Practical Training" may not register for Graduate Co-op credit or for any classes at A&M while in Practical Training.

See the Career Development Services Office for additional requirements.

Transient Students

Students registered at AAMU who desire credits taken at other collegiate institutions to be applied toward their degrees at AAMU must receive approval before enrolling at the other institution. The completed Transient Student Form must be signed by the student's advisor and submitted to the School of Graduate Studies. Students who receive such approval must submit official transcripts documenting the work as soon as it is completed, whether they still desire credit for the work or not. The total number of hours taken at another institution, or the sum of credits taken at AAMU and another institution during the same term cannot exceed the maximum allowed during the same enrollment term at AAMU: 10 credit hours for fall and spring semesters; 9 credit hours for the summer session. All transfer grades must be "B" or above to be accepted.

Advisors will evaluate whether or not the courses for which the student intends to enroll will transfer back to AAMU based on a comparison of course descriptions in the AAMU Bulletin and the bulletin of the institution the student wants to attend. Approval of transient credit is contingent upon whether the intended course is equivalent to a course at AAMU and whether or not it will be accepted by the major department for fulfilling of degree program course requirements.

Students and advisors are reminded that they should carefully review the number of credit hours that will be awarded for courses taken at another institution. Since AAMU awards credit for coursework based on credit hours, credit hours awarded for coursework completed at institutions which use a quarter system must be converted to credit hours upon transfer. In some instances, such a conversion may result in the student receiving an insufficient number of credit hours to fulfill the required number of credit hours for a course.

Class Attendance

All students are expected to attend classes on a regular basis. No absences of any nature will be construed as relieving the student from responsibility for the completion of all work assigned by the instructor. A student registering late for a class will be responsible for all work assigned and material covered during the class sessions that were missed. The first class meeting of an evening class, which meets one night per week for 15 weeks, represents about seven percent of the total class time; this first meeting is a regular class. If students wait until the second class meeting to enroll, the class could be cancelled due to inadequate enrollment at the first class meeting. During the first week of each course, the instructor shall inform students of the attendance policies for the course. Class attendance policies are determined by the instructor and should allow for a reasonable number of absences which are required due to documented

official university-sponsored activities, health problems and other emergencies. It is the student's responsibility to make arrangements, which are acceptable to the instructor, to complete work missed during the student's absence from class.

Statute of Limitations

There is a statute of limitations on all graduate courses of six years, with the exception of Urban and Regional Planning, Communicative Sciences & Disorders, and Social Work, which have seven years. The statute of limitation for all Ph.D. programs is eight years. In extraordinary cases, students may apply for an extension of the statute of limitations. The request must be approved by the department and submitted to the Dean of Graduate Studies for final action. Requests for an extension of the statute of limitations must be accompanied by a written departmental assessment of the work and its relevance to the current curriculum mandates of the degree program. Courses over 12 years will not be accepted for credit toward any degree program.

Withdrawal from Class(es)

Students who withdraw from classes officially or unofficially should understand how withdrawals affect their eligibility for financial aid as determined by this Satisfactory Academic Progress procedure. Withdrawals affect students Cumulative Grade Point Averages. Financial aid will not be awarded, if the Grade Point Average (GPA) falls below the required level. Moreover, hours enrolled in which a student failed to complete will affect the student's completion rate. If the student falls below the required number of hours that must be completed, the student will be ineligible for further aid until all deficiencies have been resolved. In determining whether the student meets the qualitative and quantitative components, the following will not be considered as credits successfully completed: Grades of "F", "I" (Incomplete), "W" (Withdrawals), "WP" (Withdrawals while Passing); or "FA" (Failure to Appear). These grades, however, are counted as hours attempted. Transfer hours accepted toward completion of a student's program must be counted as hours attempted and hours earned. Repeated courses will also be included in the total hours attempted and earned.

Withdrawal from the University

When a student finds it necessary to discontinue his or her enrollment at any time other than at the end of a semester or summer session, he or she must complete a Withdrawal Clearance Form obtained from the Registrar's Office. The student must clear all AAMU accounts as listed on the form. When a student withdraws before the last two weeks of any semester or summer session, the student will receive a grade of "W" in all courses. When enrolled for a regular semester, however, a student may not withdraw during the last two calendar weeks prior to the first day of final examinations. In a summer session, a student may not withdraw during the last calendar week prior to the first day of final examinations.

When a student leaves AAMU at any time during the semester or a summer session without filing a Withdrawal Clearance Form and without clearing all University accounts, the student may receive a grade of "F" in all courses. Further, he or she will forfeit all rights to a statement of honorable dismissal, thereby jeopardizing re-entry into AAMU or transfer to another accredited institution.

Leave of Absence

A leave of absence permits a student to continue under the curriculum requirements which applied prior to the absence and may be granted for a maximum of one year. Students in good standing who have completed at least six (6) credit hours of coursework towards a degree may qualify for a leave of absence. A "Request for Leave of Absence" letter is the responsibility of the student and must provide the academic unit graduate advisor and the Dean of Graduate Studies appropriate information in order to make a decision. Any one of the following circumstances may be grounds for requesting a leave of absence

1. Illness or disability (permanent or temporary) or similar personal exigencies including pregnancy which make it impossible or inadvisable for a student to register for class.
2. Activities which enhance a student's professional career objectives.
3. Active duty in the armed forces of the United States.
4. Other reasons at the discretion of the Dean of Graduate Studies. After review by the Graduate Studies Office, the academic unit, and the Registrar's Office, a response is mailed to the student. A first-time leave of absence of one semester only will normally be granted upon request for students who qualify and will not require an application for readmission to the university. Registration materials for the semester following the leave will be sent to the student. Students requesting a subsequent leave or a leave longer than one semester are required to provide appropriate documentation (e.g., doctor's recommendation, verification of employment). Such requests must also be endorsed by the academic program advisor. A leave granted for more than one semester does not reserve a place for the student at this university, nor does it guarantee financial assistance. An application for admission must be filed in order to be readmitted and permitted to enroll when the leave terminates. The leave of absence, however, will not count as part of the time limitations required for a degree.

A leave of absence does not negate adherence to the policy on statute of limitations.

Academic Integrity

The integrity of the academic enterprise of any institution of higher education requires honesty in all aspects of its endeavor. Maintaining academic integrity is therefore the responsibility of all faculty, staff, and students at Alabama Agricultural & Mechanical University. Academic dishonesty is prohibited in all programs of Alabama A&M University. Sanctions may be

imposed on any student who has committed an act of academic dishonesty.

Academic dishonesty includes but is not limited to:

1. Cheating – use, or attempted use, of trickery, artifice, deception, breach of confidence, fraud, or misrepresentation of one's academic work. Submission of the same work in its entirety for credit in two courses without obtaining the permission of the instructors constitutes cheating. Collaborating with others when not explicitly allowed by the instructor constitutes cheating.
2. Fabrication – falsification or invention of any information or citation in any academic exercise (including the graduate school application process).
3. Plagiarism – representing, whether intentionally or unintentionally, the words or ideas of another as one's own work in any academic exercise.
4. Facilitating dishonesty – helping or attempting to help another commit an act of academic dishonesty, including substituting for another in an examination, misrepresenting oneself, or allowing others to represent as their own one's papers, reports, or academic works.

Academic Integrity Training

Starting in Spring 2019, all students newly admitted to graduate programs must complete training designed to inculcate an awareness and understanding of the fundamental issues of academic integrity and the responsible conduct of research (RCR) in a manner that is consistent with federal regulations. This required training includes: (1) the online Collaborative Institutional Training Initiative (CITI) "Responsible Conduct of Research" training module in the appropriate disciplinary area; and (2) four face-to-face ethics/RCR workshops coordinated by the School of Graduate Studies and the Office of Research Compliance, or an approved alternative training offered as a program requirement for all students in the program. Students in a program that has approved alternative ethics/RCR training must still complete the online CITI Responsible Conduct of Research training in the appropriate disciplinary area.

Deadlines

1. The CITI module should be completed by the end of a student's first major (Fall/Spring) term of enrollment.
2. All academic integrity/RCR training requirements must be completed prior to a student's advancement to candidacy.
3. All academic integrity and RCR training requirements must be completed in a manner that is consistent with federal regulations.

A graduate student who has not completed the required training in academic integrity and the responsible conduct of research will not be advanced to candidacy or cleared for graduation.

Workshops

The School of Graduate Studies and the Office of Research Compliance offer a series of workshops to enable students to fulfill the four-workshop requirement (**Note**: CITI module covering the relevant topics can be substituted for a workshop). Students must take at least two workshops from a set of core workshops which focus on: personal integrity in the classroom; plagiarism; data management (including fabrication, falsification, and confidentiality); authorship and peer review; mentor and trainee responsibilities; collaborative research; and conflicts of interest. Students must complete two additional workshops from among the set of core workshops or a series of additional workshops, which will provide more specialized training such as human subjects, animal welfare; and other areas of ethical concern unique to a discipline or research area.

Programs may develop alternatives for the training workshops that focus on issues of particular relevance to their specific disciplines and fields, or that better accommodate the schedules of their students. Alternative training must be offered as a program requirement for all students in the program. The training content must be specified in the syllabus/syllabi of required formal courses and include the core topics listed above as well as other topics appropriate to the specific discipline. Alternative training content must be submitted for review and approval by the School of Graduate Studies and the Office of Research Compliance prior to student attendance.

Further information concerning workshop sessions and registration and how to complete the CITI training module may be found at AAMU RCR Training.

Academic Probation

Students enrolled in graduate degree programs offered by Alabama Agricultural & Mechanical University are expected to maintain a 3.0 cumulative grade-point average. Students whose cumulative grade-point average fall below 3.0 and are above 2.5, or who fail to make satisfactory progress, will be placed on academic probation. Students placed on academic probation are required to restore their cumulative grade point average to 3.0 within nine additional credit hours of graduate work, including repeated and dropped courses. Failure to do so may result in dismissal from graduate study. Graduate students whose cumulative GPA falls below 2.5 in any given semester are subject to dismissal, at the discretion of the Dean of Graduate Studies. However, if permission is granted for an additional semester of study, the student will remain on probation and will be limited to six credit hours of enrollment. Students must attain a semester GPA of 3.0 at the end of the probationary semester. Failure to attain the requisite GPA will result in the student being dismissed. Students who attain the requisite semester GPA will remain on probation. Individual departments may have other requirements.

Dismissal

Students wishing to be readmitted following a suspension must wait at least one year before applying. (One year is defined as two semesters or one semester and one summer session.) During this period, they are ineligible for admission to any program at Alabama Agricultural & Mechanical University. However, a grade below B after readmission in any course will result in dismissal from further graduate study.

Student Appeal Process

Any graduate student may appeal for variations in university-wide graduate policies and regulations by submitting a completed Graduate Student Grievance Form to the Dean of Graduate Studies.

Graduate Student Grievance Procedure

NOTE: In extreme cases, the Dean of Graduate Studies has the right to convene a Grievance Committee.

Graduate students who believe they have been subjected to unfair treatment in the administration of academic policies may seek resolution of their complaints under this Graduate School Grievance Process. The School of Graduate Studies administers the Graduate School Grievance Process (GSGP) for pursuing resolution of complaints and grievances for most academic aspects of a graduate student's program. This includes issues related to the program of study, research, comprehensive exams, scholarship, or artistic production, which comprise the core of graduate degree programs. However, as indicated above not all issues are covered under the GSGP, these include: (a) students who believe they have been discriminated against on the basis of race, religion, color, creed, national origin, sex, sexual orientation, age, marital status, disability, or status as a disabled veteran (students who believe that they have been discriminated against on the basis of race should refer to the Student Handbook, "Student Complaints: Handling and Resolution," pg. 19-20); (b) students seeking to overturn a disciplinary proceeding for misconduct, including plagiarism and cheating (disciplinary hearing for misconduct fall under the provisions of the Student Conduct Code contained in the Student Handbook. See page 19-20); (c) students seeking adjustment in financial aid award amounts must appeal directly to the Office of Financial Aid (students seeking to adjust their status from conditionally admitted to fully admitted, after the specified clearance dates posted in the Graduate Catalog, will not be processed); and (d) students seeking to dispute or overturn a decision about residency (students seeking to overturn a decision about residency must submit a letter of appeal to the University's Residency Committee for deliberation).

Sincere attempts should be made to resolve student grievance regarding grades or other academic matters promptly, yet in an informal manner. The University believes that such matters should be resolved at the lowest level possible. Only after the student has made serious efforts at solving the problem by consultation with the instructor should he/she pursue a formal appeal to higher administrative levels. Grievance hearings are held during the fall and spring semester. Students who believe that they have been subjected to unfair treatment in the administration of academic policies during summer sessions can file the appropriate grievance paperwork during the summer session. However, the University will not hold any grievance hearing during the summer. Grievance hearing for such cases will be held within the first three weeks of the start of fall semester.

Listed below are the procedures for dissolving student grievances:

Level I

The objective of the (GSGP) is to achieve a fair and equitable resolution of complaints or grievances at the earliest possible time at the lowest possible level. A graduate student who elects to pursue a complaint or grievance through the GSGP must first attempt to resolve the issue with the faculty member, supervisory committee, or administrator involved. If the conflict remains unresolved, the graduate student should make a written appeal to the department head or immediate supervisor, and, if pertinent, with any relevant departmental faculty member or Departmental Grievance Committee. If the complaint involves the department head or chair, the student should discuss the conflict with their respective College Dean who will appoint another faculty member within the student's department or from a related area to discuss the problem. The outcome of this conflict resolution process shall be a written document. The document should be signed by all participating parties to confirm their receipt. Copies of the signed document will be provided to the complainant (via certified mail), relevant faculty members, and College Dean in the conflict resolution session. The official copy shall be sent to the Graduate School to be retained in the student's file. Departmental Grievance Committees usually consist of at least 3 graduate faculty members from the department or a related department and the Director of Institutional Research who will serve in an ex-officio capacity. Departmental Grievance Committees may also but are not required to contain at least one student. Grievances filed by students on the Departmental level must contain a letter outlining the problem as well as the student's suggested resolution. Within fifteen days of receipt of the written appeal, the department head or immediate supervisor will schedule a meeting of a Departmental Grievance Committee. The department head will also notify the student and all concerned faculty members of the date and time of the meeting of the Departmental Grievance Committee. During the meeting of the Departmental Grievance Committee the students and relevant faculty members, individually, may present pertinent information related to the dispute. Each side has twenty minutes to present relevant facts about the case. Within seven days of the hearing, the Departmental Committee will produce a written document that denotes the findings of the committee as well as recommended resolution(s). The document should be signed by all participating parties to confirm their receipt. Copies of the signed document will be provided to the complainant (via certified mail), relevant faculty members, and the College Dean in the conflict resolution session. The official copy shall be sent to the Graduate School to be retained in the student's file.

Level II

If the student is not satisfied with the outcome within the Department and wishes to appeal the decision, he or she must petition, within ten days of receipt of the conflict resolution letter by providing notification to the respective College Dean. Notification must be made in the form of a letter that details the issue(s) in question as well as the student's suggested resolution. Upon receipt of the letter, the College Dean will notify the student in writing, within fifteen days, informing him or her of

the date and time of a college-level hearing. College-Level Grievance Committees will consist of at least three faculty from the College (to exclude faculty from the department or class from which the issue arose), the College Dean or their designee (who will serve as chair), and the Director of Institutional Research. The Committee may also include one or two graduate students from the College (excluding students from the department or class from which the issue arose).

College-Level Grievance Committees (CLGC) may decide to conduct a further review of the case, with the option of calling in parties to the dispute. The College Dean will, in that case, solicit documents pertinent to the case (at a minimum, the original grievance to the department, documentation used by the department in deciding the grievance, the department's written notification of its decision to the student and all reports relevant to the case). The Dean of Graduate Studies, or his or her designee, will be present at all College-Level Grievance Committee meeting. The College-level Grievance Committee releases the results of its findings within ten days of holding its meeting. The College Dean will notify the student (via certified mail), and the department chair of the Committee's verdict. The official copy of the decision shall be sent to the Graduate School to be retained in the student's file.

Level III

If a student is not satisfied with the outcome rendered by the College-Level Grievance Committee, he or she must (within ten days of receipt of the letter from the CLGC) submit a formal appeal application to the Dean of the Graduate School. Appeal applications must also be accompanied by copies of the findings from the Department and College-Level Grievance Committees. Within fifteen days of receipt of the completed application, the Dean of Graduate Studies will convene a University Grievance Committee that consists of at least three graduate faculty (to exclude faculty from department or class from which the issue arose and faculty who served on the College-Level Grievance Committee). The Dean of Graduate Studies will also identify a member of the graduate faculty to serve as chair of the committee. The Committee may also include a graduate student (to exclude students from the department or class from which the issue arose) and the Director of Institutional Research who will serve in an ex-officio capacity. At least seven days before the hearing, the Office of Graduate Studies will submit to members of the Committee any documents or physical evidence to be presented at the hearing. The Committee chair shall establish a time and place for a hearing to be held no later than ten days from the date of final determination of the Committee membership, unless for good reason stated in writing to the complainant and other concerned parties the Committee chair schedules the hearing for a later specified date. Hearings are conducted, with the Committee chair presiding, in closed session. Only evidence submitted in a timely manner, to the Graduate School, is considered in determining the validity of the complaint. Hearings are conducted with reasonable dispatch and terminated as soon as fairness to all parties involved permits. Students submitting a complaint are not allowed to bring an associate or companion. Moreover, the presence of an attorney is neither necessary nor recommended. However, if the student elects to have counsel present, the University's attorney must also be afforded an opportunity to attend. Accordingly, the student must notify The Graduate School, in writing, at least seven days prior to the Hearing if he/she intends to have an attorney present. The attorney's presence at the Hearing does not change the proceeding. Examination of witnesses, questioning of parties or direct participation in the proceeding by the attorney is not permitted. An attorney may speak in an unobtrusive manner with his/her client in an advisory capacity.

Within 15 days after the Hearing adjourns, the Committee shall present to the Dean of The Graduate School its report, including findings, conclusions, and recommendations for action. A written summary of the proceedings and an audio recording of testimony are retained for at least one year.

The Dean of The Graduate School, within 5 days after receipt of the Committee report, shall approve and transmit the report to the Vice President for Academic Affairs for review and ratification. At this juncture, the report is sent back to the Dean of Graduate Studies for dispensation. The dispensation process shall include an evaluation of the validity of the grievance and a statement of the action to be taken. Copies of the decision shall be transmitted to the student, the faculty and staff member(s) involved, the Dean of the College, within fifteen days of receipt of the signed document, by the Dean of Graduate Studies.

The decision of the Dean of Graduate Studies shall become final at the close of the seventh day after issuance of the final document with the Vice President for Academic Affairs' review and ratification unless the student or any other party directly involved files a written request for consideration of the findings to the Vice President for Academic Affairs, whose review will be limited to the hearing record. The Vice President for Academic Affairs upon review of the hearing record has the option of sustaining the decision of the University Grievance Committee or requesting a second hearing by another University Grievance Committee, composed of new members. If a second University Grievance Committee is requested the body will meet within fifteen days of the Vice President for Academic Affairs' decision. Within five days of the hearing, the University Grievance Committee will submit a written report of their findings to the Vice President for Academic Affairs for review and ratification. At this juncture, the report is sent back to the Dean of Graduate Studies for dispensation. The dispensation process shall include an evaluation of the validity of the grievance and a statement of the action to be taken. Copies of the decision shall be transmitted to the student, the faculty and staff member(s) involved, the Dean of the College, within fifteen days of receipt of the signed document, by the Dean of Graduate Studies. The decision of the second University Grievance Committee is final unless a written request for consideration is received within five days of the issuance of the final document by the Dean of Graduate Studies. At this point student may request a final appeal to the University President whose review will be limited to the hearing records.

Quality of Work

Students enrolled in graduate programs must produce work of high quality and must earn a cumulative average of "B" (3.00

GPA) or better in courses for which credit is given towards the graduate degree. Other than one grade of "C" being allowed in each program, no grades below "B" will be acceptable for graduate credit.

Program of Study

Each graduate student is required to prepare a program of study in consultation with his or her major advisor(s). A completed Program of Study Form must be received from each student by the start of the second semester of enrollment. Students who do not file a program of study within the specified deadline will not be allowed to register for the next term. Programs of study must include a detailed listing of the available options within each student's area of emphasis. Only under extreme circumstances and with adequate justification should changes be made to programs of study. All changes to programs of studies must have the approval of the student advisor, Department Chairperson and the Dean of the respective School.

All changes in the planned degree program must be made at least one semester prior to the student's application for graduation. Under no circumstances should a change in the program of study be requested for failing a required course.

Change of Program

Students who wish to change their major will complete an advising session with either the current program advisor or a program advisor for the intended major. The student will complete a Change of Program Form available on-line, which must be approved by the Program Advisor, Department Chairperson, and Dean of the School in which the student wishes to enroll. The signed application is sent to the Office of Graduate Studies for processing. All coursework regardless of major remain on the student's transcript and is used to calculate the grade point average.

Credit Hour Requirements

Candidates for a Master of Science degree must earn a minimum of 30 or more credit hours (CH), depending upon the specific degree requirements. Degree requirements are found in the graduate catalog currently in force at the time the student's degree plan was approved by the graduate dean. For most Master of Science degrees, 18 credit hours of the total 30 consist of core requirements and thesis.

Most M.Ed. degree programs are 30-36 semester hour programs. Students seeking licensure must meet all requirements as specified by the state, which may entail more than the minimum 30 credit hours. The specialist degree program is designed primarily to provide professional preparation for students involved in school-site administration and those individuals who have district-wide administrative responsibilities.

The Specialist degree program requires completion of a minimum of 36 graduate credit hours with the number of actual credit hours a function of the previous educational background of each student and his or her goals.

The Doctor of Philosophy degree is the highest academic degree conferred by the university. The student who receives the Doctor of Philosophy must demonstrate proficiency in content matter of the chosen discipline. Students also must demonstrate the ability to critically evaluate work in the chosen field of study. The student must have shown ability to work independently in the field and must have made an original contribution to the advancement of knowledge. However, Ph.D. requirements vary among programs and change from time to time (For more details see specific requirements listed in this catalog under each degree program).

English Writing Proficiency

Each graduate student must demonstrate a minimum level of competency in written communication. Students may meet this requirement by:

1. Scoring a minimum 146 on the verbal section of the Graduate Record Examination.
2. Scoring 24 or more on the verbal section of the Graduate Management Admission Test for students entering the MBA Program.

Students who fail to obtain requisite scores on the GRE or GMAT are required to enroll in ENG 500 and pass the course with a grade of B or A.

Enrollment in ENG 500 is not a substitute for the GRE Verbal Exam. Nor is enrollment in the course a substitute for low GRE performance. Students who fail to obtain the requisite GRE scores are urged to take the GRE a second time. Failure to obtain requisite scores by the end of the first year of enrollment may lead to dismissal from Graduate Study.

However, in every case, the English Writing Proficiency requirement must be fulfilled during the student's first semester of enrollment. Students who fail to complete this requirement within the specified deadline will not be allowed to register for the next term unless permission is granted by the Dean of Graduate Studies.

Basic Mathematic Skills

Each graduate student must demonstrate a minimum level of competency in mathematics. Students may meet this requirement by:

1. Scoring a minimum combined (verbal and quantitative) score of 286 or a minimum 140 in the quantitative section of the Graduate Record Examination.
2. Scoring a combined score of 350 in the Graduate Management Admission Test for students entering the MBA Program.

Students who fail to obtain requisite scores on the GRE of GMAT are required to enroll in MTH 500 and pass the course with a grade of B or A.

Enrollment in MTH 500 is not a substitute for the GRE Mathematics Exam. Nor is enrollment in the course a substitute for low GRE performance. Students who fail to obtain the requisite GRE scores are urged to take the GRE a second time. Failure to obtain requisite scores by the end of the first year of enrollment may lead to dismissal from Graduate Study.

However, in every case, the Mathematics Skills Proficiency requirement must be fulfilled during the student's first semester of enrollment in an Alabama Agricultural & Mechanical graduate degree program.

Students who fail to complete this requirement within the specified deadline will not be allowed to register for the next term unless permission is granted by the Dean of Graduate Studies.

Thesis/Dissertation

Students who choose the option of writing a thesis or dissertation must adhere to the following:

1. Each student is responsible for identifying a major professor, choosing a research topic, and writing and editing the thesis or dissertation. The major professor serves as the chairperson of the student's advisory committee. The student and the major professor select the members to serve on the research advisory committee. The committee usually consists of four to five members; at least one comes from outside of the student's major area of emphasis. Once the advisory committee has been selected and approved, they will serve as advisors for the candidate in the development of the research proposal.
   A. Thesis Students
   Before the end of the second semester of enrollment, the thesis student must complete:
      a. A Planned Degree Program.
      b. The thesis/dissertation preparation workshop.
      c. An acceptable thesis or dissertation proposal. All thesis papers must conform to the APA, Chicago, or MLA writing styles (depending on the preference of the specific department).
   B. Dissertation Students
   After completing at least 24 credit hours of required courses including nine (9) credit hours of research, the dissertation student must complete:
      a. A Planned Degree Program.
      b. The thesis/dissertation preparation workshop.
      c. An acceptable thesis or dissertation proposal. All dissertation papers must conform to the APA, Chicago, or MLA writing styles (depending on the preference of the specific department).
2. The subject of the thesis/dissertation should be chosen from the candidate's field of major interest and must be approved by the departmental advisory committee. The thesis/dissertation should reveal a capacity to carry on independent study or research.
3. The student is advised to consult the School of Graduate Studies and the publication "Thesis and Dissertation Guidelines for Graduate Students" for general information regarding the preparation of a thesis/dissertation.
4. Each student is required to enroll in at least one hour of thesis/dissertation writing during the semester they expect to defend the thesis/dissertation. The student must also submit a committee-approved draft to the Office of Graduate Studies using the ETD process (for more information see: Action Research/Final Research paper submission criteria on the Graduate School website) at least two weeks prior to the scheduling of the oral defense. All thesis and dissertation papers must be submitted electronically by the following dates:

For more details about the electronic submission of thesis and dissertation papers see the Thesis and Dissertation Guide). Immediately following the candidate's oral defense examination, the student should consult either the advisor or the Graduate Office or the Thesis and Dissertation Guide for specific directions concerning binding, labeling and other routine procedures.

Non-Thesis Research Project/Paper

All students completing the non-thesis option of master's degree programs (except MBA, CSD) must submit a copy of the final paper/final research project and the Master's Report Submission Form (electronically) to the Office of Graduate Studies (for more information see: final paper/final research project submission criteria on the Graduate School website). All papers submitted to the Graduate School must be received in a timely manner before the end of the semester in which the student seeks to complete the degree program.

Action Research

All students seeking Ed.S. degrees must complete an Action Research project. Action Research projects are designed to solve practical problems through the application of the scientific method. Most projects are concerned with a local problem and are conducted in a local setting. Action research problems may employ either a quantitative or qualitative methodology. In the completion of the Action Research Project students must adhere to the following:

1. Enroll in the courses FED 696 and FED 697 (courses must be taken in sequence).
2. Prepare an Action Research paper proposal in conjunction with the instructor of FED 696. Each proposal must:
   a. Briefly state the rationale for the study.
   b. Describe the population from which the study will target. How many subjects will be used and how will they be selected (If consent will have to be given by proxy, be sure to include a statement of why this particular project is merited with this population).

   c. Describe in non-technical terms the experimental research procedures to which subjects will be exposed. Include sufficient detail so that the instructor of FED 696 can independently evaluate the risks to subjects. If questionnaires will be used, include copies of these items with your proposal.
   d. Describe the procedures you will use to ensure that information gleamed from participants will remain confidential or give reasons why this cannot be done. In cases involving sensitive or potentially harmful information, where subject identities are to be retained, please describe your security procedures.
3. Once project has been approved by the instructor of FED 696 student continue to development of the Action Research proposal in FED 697.
4. After the final paper has been approved by the instructor of FED 697 the student must submit a copy of the paper and the Action Research Submission Form electronically to the Office of Graduate Studies using the ETD process (for more information see: Action Research/Final Research paper submission criteria on the Graduate School website). All papers submitted to the Graduate School must be submitted at least three weeks before the end of the semester in which the student seeks to complete the degree program.

Changing from Thesis to Non-Thesis

Students are allowed one change from thesis to non-thesis for all degree programs. Thesis courses will not be counted toward the requirements of the non-thesis option. Students seeking to change from the thesis to non-thesis must:

1. Officially withdraw from all thesis courses.
2. Complete a new program of study which shows the additional courses the student will need to complete to finish the non-thesis option.
3. Reapply for graduation and admission to candidacy.
4. Complete all of the identified requirements (including curriculum) of the new-degree program curriculum.
5. All students who change from thesis to non-thesis are prohibited from graduating in the semester in which the change from thesis to non-thesis was initiated.

Comprehensive Examination

Students eligible to take the Comprehensive Examination must formally apply for the test on the Application for Comprehensive Examination Form in the office of Graduate Studies. Students who fail to apply in a timely manner will be prohibited from sitting for the Comprehensive Examination.

The scores of students who sit for a Comprehensive Exam without receiving certification to sit for the exam from the graduate program and prior approval from the Graduate School will be voided.

If a student fails the Comprehensive Examination, at least one semester must intervene before the second examination is given. If the student fails this examination a second time, the student will be dismissed from further graduate study.

Comprehensive exams are designed to evaluate the candidate's proficiency in the theory and practice in both the major and minor fields of the designated area of study.

Before sitting for the Comprehensive Exam, the Graduate Program must certify the student(s) meets the following requirements:

1. Obtain Regular/Full admission status.
2. Maintain a GPA of 3.00 or above.
3. Complete all required deficiency courses for the degree.
4. Complete a certain percentage of the credits required for the degree, i.e., at least 66% for Master's and Educational Specialist programs and 80% for Doctoral programs.
5. Remove all I's, except thesis grades.
6. Remove all grades of "D" and "F" in the student's current program of study.
7. Approval of graduate advisor and coordinator.

A student who applies to take the Comprehensive Exam must be enrolled for the entire semester in which they intend to sit for the Comprehensive Exam.

M.S./M.Ed.

All non-thesis master's students, with the exception of students enrolled in the degree programs in Business Administration and Systems & Materiel Engineering, are required to pass a written comprehensive examination.

Ed.S.

All Ed.S. students are required to pass a written comprehensive examination and write an Action Research paper.

Ph.D.

All Ph.D. students are required to write a dissertation and defend it successfully. They are also required to pass qualifying and/or candidacy examination(s) as required by the department. Eligibility requirements for these tests are defined in the departmental section of this bulletin.

Graduation

Application for Graduation

Students must apply for graduation before the deadline dates given below. All students seeking to graduate must be enrolled in courses at Alabama A&M University in the semester in which they seek to graduate. The Application for Graduation Form can be obtained in the Graduate Studies Office.

Dec. Graduation	September 20th
May Graduation	January 24th
July Degree Completion	May 29th

If the student fails to meet degree requirements for the semester applied, they must reapply for graduation.

Clearance for Degree

Each candidate for a degree will receive a letter from the Graduate Office verifying clearance after final grades are submitted.

Conferring of Degree

Advanced degrees are conferred at the close of the fall, and spring semesters. A student completing requirements during a fall semester receives a diploma at the Spring Commencement. Attendance at the commencement exercise is strongly encouraged.

Participation in University Commencement

The Alabama A&M University School of Graduate Studies recognizes the importance of Commencement Ceremony in our students' lives. On occasion, a student is unable to complete graduation requirements in accordance with School of Graduate Studies criteria and deadlines. Students who are projected to graduate but do not meet the graduation requirements may, with the support of their advisor, program chair, and dean of academic college, request to participate in the University Commencement Ceremony. A Request to Participate in University Commencement Ceremony Form must be submitted to the School of Graduate Studies by April 15 for the Spring term or November 15 for the Fall term.

Second Master's Degree

With the approval of the appropriate department and the Graduate Dean, a graduate student who has completed a master's degree from Alabama A&M University may transfer up to ten appropriate credits from the first program to the second. All requirements for the master's degree in the second program must be met. Students holding a master's or other advanced degree from Alabama A&M University seeking a second master's or other advanced degree from Alabama A&M University are not required to submit a new GRE/GMAT score if the original GRE score is five years old or less.

Intellectual Property

Alabama A & M University recognizes and encourages the publication of works and the development/creation of inventions as an integral part of learning, research and service. The University acknowledges that research graduate students usually prepare for publication through individual effort and initiative. Publications and inventions, however, may also result from work supported either partially or completely by Alabama A&M University. With the advent of innovative techniques and procedures, the variety and number of materials which might be created in a university community have increased significantly, causing the ownership of such patentable and copyrightable materials to become increasingly complex.

Alabama A&M University is aware that the value of patent materials and copyrights comes from the ability of its owner to control its use and that such value is directly related in the degree of protection it enjoys under the law. Alabama A&M University encourages the protection of such expressions of knowledge through the use of patent & copyright laws. This policy governs the ownership and disposition of intellectual property and creative works developed by students of Alabama A &M University.

Student Rights to Intellectual Property

The rights, ownership and disposition of all intellectual properties shall be determined as follows:

Copyrights

Except as provided below, copyrightable works authored by a graduate student shall be presumed to be owned by the student. Such works may be registered, sold and licensed by the student without permission or payment to the University. Works that were assigned by and submitted to a professor must first be released to the student by the professor.

The University may assert ownership of copyrightable works created under the following conditions: Works created pursuant to agreements with the Deans of the Colleges of the University, the Dean of Graduate Studies, and the Graduate Council. Governmental or private entities shall be governed according to such agreements. Additionally, the work must be within the scope of the student's assigned research.

The creation of the work involving substantial University resources as determined by the Intellectual Property committee. The use of University libraries, classrooms, office space, word processors or other minor uses of University computers shall not by themselves, be considered the use of substantial University resources.

Where the Intellectual Property committee determines that the University has an ownership interest in a work, the student shall, upon request, promptly execute all contracts assignments, waivers or other documents necessary to vest in the University.

Notwithstanding the student's ownership rights of the work, the University shall have the right to use, at no cost and for educational purposes only, all intellectual properties created while the student is enrolled at the University and utilized during the course of their teaching or employment activities.

Inventions

Inventions arising from research sponsored by the Federal Government shall be controlled by the terms of the contract, grant, or cooperative agreement, and any applicable federal regulations. Where patent rights are not claimed or are waived by the Federal Government, such inventions or discoveries shall be controlled by this policy.

Ownership of patentable and copyrightable material developed by research graduate students of Alabama A & M University, where AAMU provides support of their efforts or use of institutional resources in more than a purely incidental way (unless such resources are available without charge to the public) shall be shared by the student inventor and by AAMU. Alabama A&M University may at its sole discretion determine to release its ownership rights in the intellectual property or creative works to developer/inventor upon conditions the

University deems beneficial and fair to all parties. Any such release will be provided in writing to all parties.

Intellectual Property Administration

The Intellectual Property Committee shall be generally responsible for administering the Intellectual Property Policy.

1. Receive all disclosures of properties submitted under this Policy.
2. Determine the ownership of properties in accordance with guidelines developed by the Committee and approved by the President.
3. Determine whether a property, which the University owns, is subject to protection through patent, copyright or trademark registration.
4. In consultation with the student, the Office of the General Counsel and outside consultants, evaluate potential commercial use and investigate possible courses of action for protecting and/or marketing properties in which the University has an ownership interest.
5. Authorize the negotiation of licensing and technology transfer agreements.
6. Maintain complete records on all disclosures and other intellectual property matters of interest to the University administration.
7. Prepare periodic reports of the Intellectual Property Committee to the President and the Board of Trustees as requested.
8. General Counsel shall serve as an ex-officio member of the committee and serve as an advisor to the committee.

Invention Management

With respect to all inventions to which the University asserts ownership, the patent rights shall be assigned by the student to the University.

For all patent rights assigned to the University under this Policy, the University will at no expense to the student make reasonable efforts to evaluate the interest of others in commercializing the property, seek licenses and options for licenses, have applications for property protection filed and prosecuted, and otherwise manage the properties or arrange for their management by recognized management organizations

If the University determines that neither commercial possibilities nor the potential contribution to the public good warrants proceeding further, the patent rights of the invention will be returned to the student and shall belong to him or her unless such action is precluded by prior agreement with sponsors. The University shall make such determination within three months from the date of disclosure, unless additional time is agreed to by the parties.

In recognition that the evaluation of inventions and the development and processing of patents and licensable inventions involves substantial time, expense and special expertise, the University may contract with outside organizations covering specific inventions believed to be patentable and patents developed therefrom or covering all such inventions and patents in which the University claims an ownership interest.

Appeals

The graduate student researcher shall have the right to appeal the decisions of the Intellectual Property Committee by filing a grievance (Level III) through the Graduate Student Appeals process. For more information on the Graduate Student Appeals process visit: https://www.aamu.edu/admissions-aid/graduate-admissions/forms.html.

Academic Misconduct

All students in attendance at Alabama A&M University are expected to be honorable and to observe standards of conduct appropriate to a community of scholars. The University expects from its students a higher standard of conduct than the minimum required to avoid discipline. All acts of dishonesty in any academic work constitute academic misconduct. This includes, but is not necessarily limited to the following:

1. Cheating – using or attempting to use unauthorized materials, information, or study aids in any academic exercise.
2. Plagiarism – representing the words, ideas, or data of another as one's own in any academic exercise.
3. Fabrication – unauthorized falsification or invention of any information or citation in an academic exercise.
4. Aiding and abetting academic dishonesty – intentionally or knowingly helping or attempting to help another student commit an act of academic dishonesty.

Other Support Services

Academic Computing

AAMU has six computer laboratories which offer the latest in technology and access to the Internet. The computer labs are open to all registered students and are free of charge. Typical applications include desktop publishing, database management, spreadsheet analysis, graphics, word processing, statistical analysis, and mathematical computation. Some labs support additional software such as AutoCAD and other design applications. All main campus buildings and residence halls are connected to the campus network and Internet through fiber optic cable. Students are provided with consolidated computing services, including web-based email.

AAMU Writing Center

Jacob Buechler, Interim Director
103 McCalep-McIntosh Hall
Voice: (256) 372-8965; jacob.buechler@aamu.edu

The AAMU Writing Center's objective is to assist students in their writing process. Student learning outcomes focus on helping students:

- Understand basic writing concepts and the writing process
- Demonstrate confidence in their writing abilities
- Apply writing concepts effectively in multiple contexts

This service is open to any AAMU student or staff member. No matter what stage of the writing process you are on, the AAMU Writing Center Director and staff are here to assist you in creating and growing your abilities in the craft of composition.

For further information, please visit their web page. You may access the link here.

Bulldog Transit System

Marshall Chimwedzi, Director
315 Patton Hall
Voice: (256) 372-7433, marshall.chimwedzi@aamu.edu, bts@aamu.edu

The Bulldog Transit System (BTS) is owned by Alabama A&M University Transportation. BTS shuttle buses will run continuously Monday-Friday, throughout the day, during the fall and spring semesters. There will be limited service during the summer months. No tickets, money, or reservations are needed. Students, faculty, and staff should park their cars in the color-coded parking lots and they can walk or ride the BTS to any point on campus.

For further information, please visit their web page. You may access the link here.

Campus Bookstore

LaPortia Crawford, Manager
Ralph H. Lee Student Center
Voice: (256) 372-5626, 1202mgr@follett.com
aamu@bkstr.com

Alabama A&M University's Campus Bookstore is a full service student bookstore operated by Follett. It is located on the first floor of the Ralph Lee Student Center and is open M-F, 8-5pm.

For further information, please visit their web page. You may access the link here.

Career Development Services

Ms. Yvette Clayton, Director
101 Patton Hall
Voice: (256) 372-5692, yvette.clayton@aamu.edu

Career Development Services is a centralized office with a mission to assist students and alumni to realize career objectives, prepare for employment opportunities and provide career planning services that will enable students to move confidently from the academic environment to the world of work. In support of this mission, the office strives to meet the following six objectives:

- To assist and prepare students to implement effective job search strategies.
- To provide employment counseling to students and alumni.
- To provide opportunities for experiential learning, that allows students to practice classroom theory in a working environment.
- To assist students in choosing and preparing for careers.
- To provide opportunities for participation in on-campus recruitment and interviews with local, state and national employers.
- To provide current data relative to employment trends that support academic preparation.

For further information, please visit their web page. You may access the link here.

Department of Public Safety

Montrez Payton, Executive Director and Chief of Public Safety and Emergency Preparedness
University Services Building
Voice: (256) 372-5555, montrez.payton@aamu.edu, public.safety@aamu.edu

The Department of Public Safety is responsible for protecting life, property and enforcing the laws of the State of Alabama and Alabama A&M University. The Department mandates the preservation of peace and public order, crime prevention and the apprehension and prosecution of violators of the law. The Department of Public Safety is committed to the philosophy of

community-oriented law enforcement and pledges the highest professional standards while providing an environment conducive to academic excellence. In addition, the Department works cooperatively with other local law enforcement agencies to investigate violations of campus regulations and policies and state laws. The Department of Public Safety is committed to providing quality service 24 hours a day.

For further information, please visit their web page. You may access the link here.

Dining Services

Ms. Sharon Murray, General Manager
Voice: (256) 372-8771, murray-sharon@aramark.com

The University requires all persons living in residence halls to purchase a meal card. The cost of the meal card is part of the overall package of room and board and is non-refundable. Meal Cards are non-transferrable and must be used during the period for which they are issued. The unlimited meal plan provides access to all meals at the Felicia Wilson Dining Hall in the Knight Complex Student Cafeteria and the Foster Complex Student Cafeteria. Special consideration will be given to students who have medically-related dietary restrictions. Special diets will be prepared upon presentation of a statement from the University physician or nurse practitioner. Students should see the Food Services Director during the first week of classes to arrange for special diets. Non-boarding students may purchase a Meal Card at the same rate as boarding students. A $30.00 replacement fee will be charged for a lost or damaged Meal Card.

For further information, please visit their web page. You may access the link here.

Disability Services

Ms. Tanisha Smith, Director
Voice: (256) 372-4499, tanisha.smith@aamu.edu

Health and Counseling Center

Dr. Jeffery Haynes, Director
4011 Meridian Street
Voice: (256) 372-5601, jeffery.haynes@aamu.edu

The mission of the Alabama A&M University Student Health Center (SHC) is to provide quality student centered medical, counseling, and mental health services. By enabling our students to experience and further develop a healthy, productive, and complete lifestyle. This is achieved through practices of physical, social, and psychological wellness. The SHC proudly utilizes the community health model to support preventative illness and health care maintenance.

All professional services are rendered with attention to confidentiality. The healthcare center is an outpatient campus-based facility located in the AAMU Student Health and Wellness Center. Services provided at the center are covered by the required AAMU student supplemental health insurance plan.

The AAMU Student Health Center employs a licensed and professional staff which provides compassionate care to those we serve. We are a fully operational staff within the AAMU Division of Student Affairs. The students who receive health care services at our center are provided clinical and medical services for acute and chronic illnesses.

For further information, please visit their web page. You may access the link here.

J. F. Drake Memorial Learning Resources Center

Ms. Veronica Henderson, Interim Director
Voice: (256) 372-5104, veronica.henderson@aamu.edu

Through the generosity of the Carnegie Foundation, the first library building was constructed in 1906. This facility contained approximately 4,092 square feet of floor space and also housed the offices of the College President, the U.S. Post Office at Normal, the Business Manager and Treasurer, Home and Farm Demonstration Agents, and, on the second floor, living quarters for male faculty. In 1947, the original building was enlarged. The College outgrew the 9,000 total square feet so rapidly with the increasing student population and appropriations for library materials that the Reference Annex was added in 1962. In January 1968, a new building was constructed and occupied. The building was named in honor of Dr. Joseph Fanning Drake, the fourth President of the University. The three-story structure contained more than 60,000 square feet of floor space designed to accommodate 300,000 volumes and seats 1,000 patrons.

A comprehensive renovation of the Learning Resource Center (LRC) facility was completed August 2002 which enhanced square feet capacity to 73,480. The renovated Drake LRC includes a new front entrance, houses the Centers of Excellence for Teaching and Learning, a student and a staff lounge, a fully interactive Multi-Purpose/Distance Learning Auditorium which can seat 175, two conference rooms (first floor Conference Room seats 20 people, second floor Conference Room seats 43 people), a Makerspace, a Digital Studio, a second floor computer commons, and a second floor leisurely reading/study area. Drake LRC continues to answer responsively its mission charge to support all academic degree programs with resources, services and staff that are adequate and sufficient for teaching and learning in pursuit of academic excellence.

For further information, please visit their web page. You may access the link here.

Office of Multicultural Affairs

Dr. Pamela Little, Executive Director
113 Ralph Lee Student Center
Voice: (256) 372-5418, pamela.little@aamu.edu

The mission of the Office of Multicultural Affairs (OMA) is to promote access and equity across the University, to welcome and celebrate the experiences of all students, regardless of background, through intentional programming, and to improve campus climate that builds a more welcoming and inclusive

community. In support of this mission, the office strives to meet the following objectives:

- To provide programs, initiatives, and organizations that encourage a successful transition into the AAMU collegiate experience.
- To develop and promote programs that support the retention, persistence, and graduation of underrepresented students.
- To deliver trainings that educate students on Diversity, Equity, and Inclusion, while providing particular educational opportunities for students to learn about marginalized identities and how to be an ally.
- To develop collaborative partnerships internally and externally that will impact the advancement of the office.
- To improve campus climate and prepare University citizens to be culturally aware, engaged locally and connected globally.
- To infuse diversity into the AAMU campus culture and establish a reputation of inclusive excellence, regionally, nationally, and globally.

For further information, please visit their web page. You may access the link here.

Office of Distance Education, Extended Studies, and Instructional Technology

Dr. Rhonda Moore-Jackson, Director
300 Walter S. Buchanan (formerly Bibb Graves) Hall
Voice: (256) 372-5753, rhonda.jackson@aamu.edu

In Fall 2011, the Centers for Excellence in Teaching and Learning (CETL) acquired the Center for Extended Studies (CES)/Adult and Continuing Education as well as launched the Center for Distance Education/e-Learning (CDEeL). The CDEeL's two-fold objective is to increase both number and quality of both online courses and the resources needed for faculty course developers to meet that goal. The Center for Extended Studies (CES)/Adult and Continuing Education provides opportunities for professional/personal development and certification training.

The Office of Distance Education, Extended Studies, and Instructional Technology (ODEESIT) evaluates military transfer credits for AAMU.

The Office of Distance Education, Extended Studies, and Instructional Technology evaluates non-collegiate sponsored instruction for college credit at AAMU.

For further information, please visit their web page. You may access the link here.

Course Delivery Modes

Course delivery modes are published in the University's registration system. The course delivery modes for Alabama A&M University are listed below:

a. Traditional (TRD) – A course where the instructor interacts with students in the same physical space for 100% of the instructional time. A traditional course may include the utilization of an online learning management system, such as Blackboard, for viewing files/web-links, participating in discussion, and submitting assignments.

b. Hybrid (HYB) – A course where the instructor interacts with the students in the same physical space less than 100%, but greater than 51% of the instructional time; with the remaining instructional time facilitated through the University's online management system.

c. Online (ONL) – A course where the instructor interacts with students 100% through one or more forms of distance learning delivery. An online course will not require instructor-student interaction within the same physical space.

When at least one (1) student has registered for a course, the faculty member must commit to the course delivery mode (i.e., Traditional, Hybrid, or Online) that has been published in the registration system for that course.

Course Delivery and Facilitation of Distance Education

Learning Management System

AAMU uses Blackboard as the learning management system (LMS). All faculty teaching distance education (DE) courses will use the Blackboard platform and AAMU will provide technical support for DE course faculty and developers in Blackboard. Faculty using 3rd party tools must ensure integration with the Blackboard environment.

Attendance Verification

In a distance education, asynchronous online course, logging into and accessing the online class is not sufficient, in and of itself, to demonstrate academic attendance by the student. The student must be engaged in an academically related activity, such as by contributing to an online discussion, submitting an assignment or completing an academically related task in the online course.

Initial Student Identity Verification of Distance Education

Upon admission, an Identity Verification hold will be placed on the student's account. Prior to being eligible to enroll in any academic courses, the student must complete the AAMU L.I.V.E. (Learner Identity Verification) course, facilitated by the Office of Distance Education & Extended Studies. The AAMU LIVE course schedules and conducts individual video identity verification sessions with each newly admitted student. Prior to the session, the student will submit a scanned front and back copy of a current, government issued picture ID to the University's secure server. In order to access the scheduled session, the student will be required to utilize their established secure login and passcode. During the video identification session, the student will visually present the government issued picture ID which was submitted prior to the session and verbally acknowledge their enrollment at Alabama A&M University. Their identity will be visually verified via video, by a staff member of the Office of Distance Education & Extended Studies, during this session. The secure login credential utilized

to access the AAMU LIVE course and all other AAMU Online courses Is directly associated with a student's unique ID, further insuring that the student participating in the course is the student receiving course credit.

Ongoing Student Identity Verification of Distance Education
A distance education student may be subject to the requirement of additional student identity verification sessions either be random selection or due to identity fraud concerns. Further, all distance education students will be required to verify their identity at specific points throughout their matriculation, to include the junior year academic audit and graduation clearance.

Parameters for Verification of Attendance of Distance Education
Synchronous Online, Staggered Synchronous Online and AMflex – Students must attend class at least twice (via the determined web conferencing tool, i.e., Zoom or Collaborate) for their attendance to be confirmed.

Traditional Hybrid and Synchronous Hybrid – Students must attend class at least once and complete an academic related activity in Blackboard such as an assignment, syllabus quiz, or discussion board post.

Asynchronous Online – Students must complete/submit an academically-related activity such as: student submission of an academic assignment; student submission of an exam, i.e., syllabus quiz, or; posting by the student in a discussion forum, i.e., self-introduction.

Transient Distance Learning Courses

Distance Learning Courses are defined as those courses taken through correspondence, audio/video, teleconference, or other electronic means.

Distance Learning courses taken at another institution for credit toward a degree at this University must be authorized in the same manner as any other transfer work as stated in the policy on transfer credits. In addition, the following policies apply:

1. The student will be considered in a distance learning course from the time he or she received permission until the Registrar receives a grade or evidence of discontinuation.
2. Distance Learning course hours will be included in the computation of the student's load for the duration of the enrollment in such course, and hence become subject to total load restrictions.
3. Distance Learning courses taken at another university cannot be used in the calculation of the quality point average or GPA if the institution is not a part of the Visiting Student Program.

Office of Veteran Affairs

LtC. Bryan Haynes, Director
106 Carver Complex South, Bonner Wing
Voice: (256) 372-4770, bryan.haynes@aamu.edu
veteranaffairs@aamu.edu

Alabama A&M University is committed to providing equal access to all educational programs and ensuring compliance with applicable laws, including Section 504 of the Rehabilitation Act of 1973, and the applicable titles of the Americans with Disabilities Act (ADA) of 1990 for qualified students with disabilities.

Guidelines from the Association on Higher Education and Disability (AHEAD), Section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act of 1990 state that qualified students with disabilities who meet the admission and academic standards of Alabama A&M University are entitled to reasonable accommodations. Under these laws, a disability is defined as any physical or mental impairment that substantially limits a major life activity. Having a history of impairment or being perceived as having impairment may also qualify one as an individual with a disability. It is the student's responsibility to disclose his/her needs and provide appropriate documentation to the Director of Disability Services.

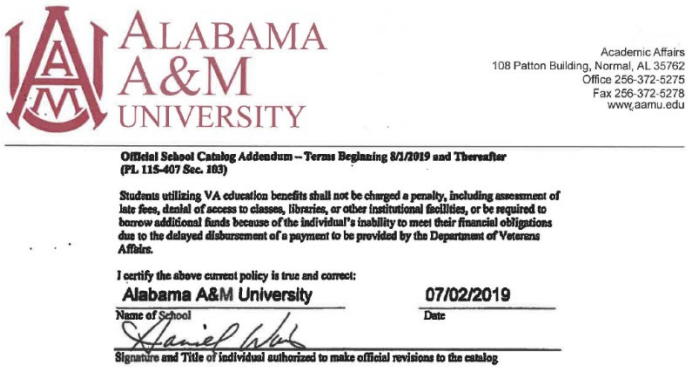
For additional information, please visit the AHEAD web page. You may access the link here.

Another component of service provided through the Office of Veterans Affairs & Disability Service is to provide a comprehensive counseling service to our military students' transitioning from military life to civilian life on the Hill. To ease the transitioning process, the office of veterans' affairs created a spacious Veterans Center that provides a quiet, relaxing and peaceful environment to assist students with applications for VA education benefits; a computer lab with 12 private workstations to complete academic assignments; as well as a multi-purpose room to participate in teleconferences, meetings, and social gatherings.

We also provide a variety of resources needed to make the most of your "Bulldog" experience.

For students receiving VA education benefits, any complaint against the school should be routed through the VA GI Bill® Feedback System by going to the following link: http://www.benefits.va.gov/GIBILL/Feedback.asp. The VA will then follow up through the appropriate channels to investigate the complaint and resolve it satisfactorily.

For further information, please visit their web page. You may access the link here.



ALABAMA A&M UNIVERSITY

Academic Affairs
108 Patton Building, Normal, AL 35762
Office 256-372-5275
Fax 256-372-5278
www.aamu.edu

Official School Catalog Addendum – Terms Beginning 8/1/2019 and Thereafter (PL 115-407 Sec. 103)

Students utilizing VA education benefits shall not be charged a penalty, including assessment of late fees, denial of access to classes, libraries, or other institutional facilities, or be required to borrow additional funds because of the individual's inability to meet their financial obligations due to the delayed disbursement of a payment to be provided by the Department of Veterans Affairs.

I certify the above current policy is true and correct:

Alabama A&M University — Name of School
07/02/2019 — Date

Signature and Title of individual authorized to make official revisions to the catalog

GI Bill® is a registered trademark of the U.S. Department of Veterans Affairs (VA). More information about education benefits offered by VA is available at the official U.S. government Web site at https://www.benefits.va.gov/gibill.

Parking on Campus

All vehicles parked on University property must display a valid University Permit or Dept of Public Safety (DPS) issued Parking Pass.

For further information, please visit their web page. You may access the link here.

Student Government Association

201 Ralph Lee Student Center
Voice: (256) 372-5619

The Student Government Association (SGA), to which all undergraduate students belong, is the major undergraduate governmental body. It is funded, in part, by the student activity fee. The SGA hears appeals for financial assistance for participants of organizations to attend workshops/conferences, acts as a liaison between the administration of AAMU and the students, and promotes educational and social programs for students.

For further information, please visit their web page. You may access the link here.

Student Health & Wellness Center

Mr. Willie Hayes, Director
4011 Meridian Street
Voice: (256) 372-7003, willie.hayes@aamu.edu

The Student Health and Wellness Center, located in the heart of the Alabama A&M University Campus, offers over 78,000 square feet of fitness space to students, employees, alumni and the community.

The center's features include:

Seven (7) lane swimming pool	Six (6) lane bowling alley
One (1) outdoor volleyball court	Two (2) basketball/volleyball court gymnasium
Four (4) lane suspended running/walking track	Three (3) racquetball courts
One (1) weight room and cardio training area	Three (3) multipurpose activity rooms
Two (2) locker rooms complete with showers	Three (3) aerobics rooms
One (1) lounge area with complimentary Wi-Fi	

For further information, please visit their web page. You may access the link here.

Student ID/Meal Card

The identification/meal card is the student's official passport. It should be carried at all times. Loss of identification/meal cards should be reported immediately to the Financial Services Office (Cashier's Office) located on the first floor of Patton Hall. The ID card is used for checking out books and other resources from the Learning Resources Center. It is also used for admission to many University events. Lending this card to anyone, or failure to present it when requested by authorized personnel, is a violation of University policy.

For further information, please visit their web page. You may access the link here.

WJAB FM Radio Station

Elvin Jenkins, Director
132 Morrison Building
Voice: (256) 372-4057, elvin.jenkins@aamu.edu

WJAB - FM is a professional, non-commercial radio station serving the interests of the citizens of Huntsville and surrounding areas. A mixture of various forms of jazz and blues dominate WJAB-FM's twenty- four hour, seven days a week format. Major support for the operation of the station comes from the licensee, AAMU. Additional funds are provided by AAMU listeners, the business community as well as the Corporation for Public Broadcasting.

For further information, please visit their web page. You may access the radio station link here.

Biology

Master of Science

Dr. Jeanette Jones, Program Coordinator
322 V. Murray Chambers Bldg
Voice: (256) 372-4924, jeanette.jones@aamu.edu

MISSION STATEMENT

The Master of Science program in Biology offers students opportunity for advanced learning in their chosen area of Biology. Our purpose is to train students broadly in modern biological principles so that they acquire the strong foundation needed to become highly skilled and intellectually independent scientists. The program is committed to excellence in education, research and service.

ADMISSION REQUIREMENTS

Please see the general graduate admission requirements here. Specific requirements to this program are as follows:

1. Clear evidence of scholastic competence to meet the requirements for an advanced degree.
2. One year of chemistry, including one term of organic chemistry and or biochemistry.
3. Applicants who do not meet regular admission requirements may apply for conditional or provisional admission.

POLICY STATEMENT

1. The degree is a cooperative degree awarded by AAMU or UA Huntsville.
2. Initial registration may be at either institution.
3. As a requirement for a degree, each graduate teaching assistant must conduct one or more laboratory or lecture sections, as decided by his/her graduate advisory committee, in an area related to his/her field of specialization.
4. An advisory committee for an individual enrolled at one of the two schools shall have at least one representative from the other school.
5. Students will be admitted in accordance with admission criteria of the respective institutions.
   a) Except for the purpose of taking courses, conducting research and other strictly academic matters, students will not be encouraged to transfer back and forth between schools (see “b” below).
   b) Students will need to declare the school of intent (from which they wish to receive a degree) by the end of nine credit hours taken or by the end of their first academic term.
   c) Thereafter, a student may not transfer between schools and must remain in the same area of emphasis.
   d) Equipment and facilities at the two respective departments shall be available to all graduate students in the program without regard to the institution at which the students are enrolled.

DEGREE REQUIREMENTS

Students may choose a thesis option (Plan I), or non-thesis option (Plan II). The Biology Master of Science (M.S.) degree is a 30/36 semester hour program, organized into four major components:

1. Core courses (6 hours). The biology graduate program aims to provide students with the concepts and skills needed to enter Ph.D. programs or professional programs and function effectively as biologists. All students enrolled in the Biology Program must complete the biology core. The core requirements consist of six credit hours in biology concept courses. These courses focus on the basic concepts of biological research, instrumentation and ethics.
2. Concentration hours for Thesis and Non-thesis options are 21 credit hours.
3. Master's Thesis (6 hours) or Master’s Report (non-thesis) and a minimum of nine (9) elective course credit hours.
4. Elective courses may be chosen from any biology concentration area or biological science-related areas as approved by the student’s major advisor and/or graduate committee.
5. Oral defense (thesis) or Comprehensive examination (non-thesis)

Thesis Option, Plan I

All candidates must satisfactorily complete a minimum of 27 credit hours of coursework (6ch core and 21ch concentration), 6 thesis hours, and submit and defend an acceptable thesis, which shows creative thinking and independent judgment in developing a problem from primary sources.

Non-thesis Option, Plan II

All candidates must satisfactorily complete a minimum of 36 credit hours of coursework (6ch core, 21ch concentration, 9ch electives), take the Comprehensive Examination and write an acceptable Master’s Report to be submitted to the student’s major advisor and departmental chair. The nature of the report can be a library search, survey, or experimentation as determined by the student's major advisor.

- Students must maintain the grade point averages and course grades noted on each curricula page for the program.

(BIO) Biology – Thesis

33 Credit Hours

MinGPA cumulative 3.0. MinGrade C*. Degree M.S.

CORE COURSES	
BIO 512 Instr in Biological Sciences	3
BIO 513 Research Ethics	1
BIO 690 Seminar	1
BIO 692 Research	1
CONCENTRATION	21
THESIS	
Grade is Pass / Fail. MinHrs 6.	
BIO 699 Master's Thesis	1-3
Oral Defense	
TEACHING ASSISTANT	
Course subj/no., title, credit hours, semester taught	

*One grade of C allowed at graduation.

(BIO) Biology – Non-thesis

36 Credit Hours

MinGPA cumulative 3.0. MinGrade C*. Degree M.S.

CORE COURSES	
BIO 512 Instr in Biological Sciences	3
BIO 513 Research Ethics	1
BIO 690 Seminar [RPP]	1
BIO 692 Research	1
CONCENTRATION	21
ELECTIVES	9
TEACHING ASSISTANT	
Course subj/no., title, credit hours, semester taught	
MASTER'S REPORT	
Grade is Pass / Fail.	
COMPREHENSIVE EXAM	
Grade is Pass / Fail.	
Exam composed jointly by Advisory Committee.	
To be taken after ≥ 66% completion of required coursework.	

*One grade of C allowed at graduation.
[RPP] = Research project paper or portfolio required.

Concentrations, Specializations & Electives

(BIO) ECOLOGY & SYSTEMATICS CONCENTRATION (ECS)	
BIO 500 Current Concepts in Biology	3
Choose remaining 18 hours from the following:	
BIO 526 Microbial Ecology	3
BIO 560 Environmental Biology	3
BIO 561 Physiological Ecology (UAH)	4
BIO 562 Community Ecology (UAH)	4
BIO 564 Limnology (UAH)	4
BIO 565 Phycology	4
BIO 570 Plant Pathology	4
BIO 571 Plant Anatomy & Physiology	3
BIO 580 Adv Invertebrate Zoology (UAH)	4
BIO 660 Ecosystem Dynamics (UAH)	4
NRE 578 GIS, Spatial Analysis & Modeling	4
NRE 580 Natural Resource Policy	3
NRE 581 Hydrology & Watershed Management	3
NRE 686 Restoration of Forest Ecosystems	3
NRE 588Wildlife Technology	3
NRE 689 Forest Ecological Management	3

(BIO) ENTOMOLOGY CONCENTRATION (ENT)	
BIO 500 Current Concepts in Biology	3
Choose remaining 18 hours from the following:	
BIO 551 Insect Physiology	4
BIO 552 Insect-Pest Management	4
BIO 553 Insect Taxonomy & Morphology	4
BIO 651 Medical Entomology	4
BIO 652 Advanced Applied Entomology	4
BIO 653 Taxonomy of Immature Insect	4

(BIO) GENETICS & MOLECULAR BIOLOGY CONCENTRATION (GMB)	
BIO 500 Current Concepts in Biology	3
Choose remaining 18 hours from the following:	
BIO 540 Molecular Biology	4
BIO 542 Analytical Biochemistry Lab	4
BIO 546 Cytogenetics	4
BIO 641 Advanced Cell Biology	4
BIO 642 Advanced Cell Physiology	4
BIO 643 Microscopy (UAH)	4
BIO 645 Human Cytogenetics & Applications	3
BIO 646 Molecular Genetics	3
BIO 647 Enzymology (UAH)	3
BIO 648 Enzymology Lab (UAH)	2
BIO 649 Advanced Genetics I	4

(BIO) MICROBIOLOGY CONCENTRATION (MBC)	
BIO 500 Current Concepts in Biology	3
Choose remaining 18 hours from the following:	
BIO 522 Microbial Physiology	3
BIO 523 Principles of Virology	3
BIO 524 Mycology	3
BIO 525 Parasitology	5
BIO 526 Microbial Ecology	3
BIO 621 Pathogenic Bacteriology (UAH)	5
BIO 622 Applied/Industrial Microbiology	3
BIO 623 Advanced Virology (UAH)	4
BIO 624 Immunology	4
BIO 625 Medical Mycology Lecture	3
BIO 631 Pharmacology	3

(BIO) PHYSIOLOGY CONCENTRATION (PY)	
BIO 500 Current Concepts in Biology	3
Choose remaining 18 hours from the following:	
BIO 522 Microbial Physiology	3
BIO 531 Plant Physiology	4
BIO 533 Advanced Physiology I	3
BIO 534 Advanced Physiology II	3
BIO 535 Endocrinology	4
BIO 541 Cell Physiology	4
BIO 544 Cellular & Development Biology (UAH)	4
BIO 571 Plant Anatomy & Physiology	3
BIO 631 Pharmacology	3
BIO 632 Cardiovascular Physiology	3
BIO 633 Endocrinology	3
BIO 642 Advanced Cell Physiology	4
BYS 532 Animal Physiology & Lab (UAH)	4

(BIO) BIOLOGY ELECTIVES*	
BIO 510 Radiation Biology	4
BIO 511 Biological Control	4
BIO 590 Problems in Biological Sciences	3
BIO 691 Special Topics	1-4
FAS 671 Intro to Biotechnology	3
NRE 506 Soil Microbiology	4
NRE 535 Intro to Bioinformatics **OR**	4
NRE 545 Bioinformatics Applications	3
NRE 629 Biostatistics	4

*Graduate courses from any of the biology M.S. specialization/concentration areas as approved by student's major advisor, may be used as elective courses.

Business Administration

Master of Business Administration

Dr. Felicia Farrar, Program Director
204-B College of Business & Public Affairs Building
Voice: (256) 372-8758, felicia.farrar@aamu.edu

MISSION STATEMENT

The MBA Program is an integral part of the College of Business and Public Affairs, whose mission is to provide a high-quality management education that promotes the development of students' potential as managers, entrepreneurs, and leaders, as well as productive employees and socially responsible individuals.

PROGRAM DESCRIPTION

The MBA is 30 credit hours of mandatory courses that focus on the internal and external business environments, the functional areas of organizations, and quantitative techniques used by professionals. Students also choose to take extra credit hours of concentrations or certificates.

The MBA Program is fully (100%) online! Our instructions utilize both synchronous and asynchronous delivery modes that give our online students the flexibility to complete up to 2 courses every 8 weeks and potentially finish it in as quickly as one calendar year.

For MBA students who are interested in becoming a Certified Public Accountant (CPA), AAMU offers a concentration in Accounting Analytics. This concentration will provide students with the opportunity to complete the graduate-level coursework required for CPA certification while earning an MBA. A CPA coupled with an MBA opens doors to high-level positions, including controller and manager.

Today's business climate demands more of a well-rounded business education than ever since CPAs work closely with multiple business departments. In addition, advances in information systems and analytics technologies enable the automation of repetitive accounting tasks, freeing up time for advanced accountants to take on more strategic roles that require a broader understanding of cross-functional business management.

ADMISSION REQUIREMENTS

Applicants for admission to the MBA program must show high promise of success for graduate study. Key barometers used by faculty in the MBA program in evaluating student promise of success include undergraduate grades, scores on the Graduate Management Admissions Test (GMAT) or Graduate Records Examination (GRE) and other relevant criteria.

Please see the general graduate admission requirements here. Specific requirements to this program are as follows:

1. Submit a resume.
2. Submit a 200–250-word essay (statement of purpose).
3. Submit all undergraduate program transcripts.
4. Two letters of recommendation from faculty, or one letter from a faculty and one letter from a supervisor.
5. GMAT score of at least 350
   or
   GRE score of 146 verbal and 140 quantitative minima.
   A waiver of the GMAT/GRE requirement will be considered if the candidate can verify a minimum of ten years of mid- to upper-level management experience or if the candidate has a minimum undergraduate GPA of 3.0.

DEGREE REQUIREMENTS

A minimum of 30 graduate-level credit hours is required to complete the MBA Program. Depending upon their previous academic records, students may be exempted from part or all of the pre-requisite courses by the Director of the MBA Program.

To receive the MBA degree, students must have a minimum grade point average of 3.0 in all MBA professional courses taken at Alabama A&M University while only one C grade is permitted. All prerequisite/basic core courses need to earn a B or better grades. Transfer credit is not calculated into the grade point average for the MBA degree offered from Alabama A&M University. In addition, only students with full admission and appropriate Prerequisite will be admitted into the MBA professional core courses in the professional core. All MBA students are required to take the Major Field Test (MFT).

(BUS) Business Administration (BUS) – Non-thesis#
30-45 Credit Hours
MinGPA cumulative 3.0. MinGrade C*. Degree M.B.A.

BASIC CORE	
ACC 500 Accounting Concepts	3
ECO 500 Survey of Economic Analysis	3
MBA 503 Quantitative Methods for Business	3
MBA 506 Found. of Accounting & Finance	3
MBA 507 Basics of Mgt & Marketing	3
PROFESSIONAL CORE	
ACC 512 Accounting Analysis for Mgt	3
ECO 514 Managerial Economics	3
FIN 511 Financial Mgt and Policy	3
MBA 517 Global Issues in Business	3
MBA 520 Quantitative Analysis in Business Mgt	3
MBA 521 Org Development and Change Leadership	3
MBA 522 Supply Chain Mgt & Business Analytics	3
MGT 510 Operations Management	3
MGT 516 Strategic Management	3
MKT 514 Mgt of Marketing Activities	3
CAREER READINESS TRAINING (CRT) CERTIFICATE	0

#Offered online.
*One grade of C allowed at graduation.
**Depending upon previous academic records, students may be exempted from part or all of the basic core courses to complete the degree by Coordinator of the MBA Program.

Concentrations, Specializations & Electives

(BUS) ACCOUNTING ANALYTICS CONCENTRATION (ACCA) MinGPA 3.0. MinGrade C.	
ACC 512 Accounting Analysis for Management	3
ACC 531 Forensic Accounting & Analysis	3
ACC 533 Cyber Security Risks, Controls and Assurance	3
ACC 563 Accounting & Enterprise Risk Management Systems	3
ACC 565 Business Valuation and Financial Statement Analysis Using Big Data	3
ACC 571 Tax & Business Decision-Making	3
FIN 511 Financial Mgt and Policy	3

(BUS) HUMAN RESOURCES MANAGEMENT CONCENTRATION (HRM) MinGPA 3.0. MinGrade C.	
MGT 554 Training and Development	3
MGT 564 Human Resource Management	3
MGT 570 Special Topics in Negotiation	3
And Any **TWELVE HOURS** of the following:	
ACC 512 Accounting Analysis for Management	3
ECO 514, Managerial Economics	3
FIN 511, Financial Management and Policy	3
MBA 517 Global Issues in Business	3
MKT 514 Mgt of Marketing Activities	3
MGT 510 Operations Management	3
MGT 515 Organizational Theory & Behavior	3
MGT 516 Strategic Management	3
MGT 595 Leadership in Organizations	3
MGT 596 Contracting Competencies in Federal Acquisition	3
MGT 597 The Federal Contracting Process	3

(BUS) LOGISTICS CONCENTRATION (LOG) MinGPA 3.0. MinGrade C..	
Choose **NINE HOURS**	
LSM 536 Logistics & Supply Chain Mgt	3
LSM 571 Adaptive Supply Chain Mgt	3
LSM 572 Log & Supply Chain Risk Mgt	3
LSM 599 Strategic Supply Chain Planning	3
And Any **TWELVE HOURS** of the following:	
ACC 512 Accounting Analysis for Management	3
ECO 514, Managerial Economics	3
FIN 511, Financial Management and Policy	3
MBA 517 Global Issues in Business	3
MKT 514 Mgt of Marketing Activities	3
MGT 510 Operations Management	3
MGT 515 Organizational Theory & Behavior	3
MGT 516 Strategic Management	3
MGT 595 Leadership in Organizations	3

(BUS) BUSINESS MANAGEMENT & ADMINISTRATION ELECTIVES Choose 9 hours	
ACC 577 Special Topics in Accounting	3
ECO 503 Macroeconomic Theory	3
FIN 541 Security Analysis & Portfolio Mgt	3
LSM 536 Logistics & Supply Chain Mgt	3
LSM 571 Adaptive Supply Chain Mgt	3
LSM 572 Logistics & Supply Chain Risk Mgt	3
MBA 590 Experiential Learning Opportunity	3
MGT 564 Human Resource Management	3
MGT 565 Entrepreneurship/Small Bus Mgt	3
MGT 570 Special Topics in Negotiation	3
MGT 580 Emerging Information Technologies	3
MGT 595 Leadership in Organizations	3
MKT 532 Consumer Behavior	3
MKT 538 International Marketing & Logistics	3

Communications Specialist

Master of Science

Dr. William Nevin, Program Coordinator
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MISSION STATEMENT

The Master's program in Communications Specialist prepares students to become skilled media professionals capable of producing, managing, and distributing content across traditional and digital platforms. The program emphasizes the creation of strategic media content that informs, engages, and influences audiences while supporting organizational goals.

Students develop expertise in storytelling, multimedia production, audience engagement, and collaborative media environments while working with diverse communities and stakeholders.

The commitment of the Communication Master's program to the University's mission is reflected in course offerings that develop the following competencies:

1. Media and content creation skills, including professional writing, digital storytelling, multimedia production, public speaking, visual communication, cross-cultural messaging, and effective communication across platforms such as email, video, and social media.
2. Audience engagement and messaging strategy, focusing on understanding audience needs and crafting messages that inform, support, and inspire action through ethical and effective communication practices.
3. Media information management, including gathering, verifying, organizing, and distributing information across multiple media channels and formats to reach targeted audiences.
4. Media management and marketing fundamentals, including branding, content strategy, and the promotion of media initiatives across digital and traditional platforms.
5. Communication leadership and collaborative media production, preparing students to manage creative teams, coordinate projects, and lead communication initiatives.
6. Organizational communication and media strategy, exploring how media content supports organizational messaging, internal communication, and external public engagement.
7. Understanding media within organizational environments, including how communication functions across different institutional structures and industries.
8. Audience behavior and media consumption patterns, examining how individuals and groups interact with media content and communication technologies.
9. Brand and image development through media, focusing on the creation of content that strengthens reputation, builds public trust, and communicates organizational identity.

Overall, the program provides advanced knowledge and practical skills in media and content creation, enabling graduates to produce impactful communication that enhances organizational visibility, strengthens brand identity, and supports strategic communication goals.

PROGRAM DESCRIPTION

The Communications Specialist Master's degree accommodates students who desire to design a degree program which coincides with their own career plans and interests. The degree is comprised of two components:

1) An 18-semester hour core curriculum that provides the fundamental framework for the communication specialist degree.
2) 15 hours of elective credit across different fields and areas of interest.

The total number of credit hours is 33.

An individual with a Communications Specialist Master's degree will qualify to serve in many varied employment titles/positions: Journalist, Public Relations Specialist, Social Media Specialist, and other technical positions in the media field.

Applicants to this program are expected to expand existing skill sets that will be immediately useful in locating / maintaining employment and procuring advancement in existing jobs. The focus of the Communications Specialist Master's degree is to prepare students for professional communications positions in business and industry.

This degree program is a four-semester program.

OBJECTIVES

Alabama A&M University's Master's degree program in Communications Specialist is designed to prepare professionals for leadership roles in modern media environments. The program has four primary objectives:

1) To develop graduates with advanced professional media communication skills, including mastery of written, oral, and digital storytelling techniques used to create, manage, and distribute information across internal and external media platforms for diverse stakeholders.
2) To prepare graduates to operate effectively within organizational and media management environments, with an understanding of marketing strategy, organizational structures, and the dynamics that influence communication within public, private, and nonprofit institutions.
3) To cultivate graduates who apply principles of audience psychology and public perception, enabling them to understand the attitudes, concerns, and behaviors of audiences and communities, and to build cooperative, trust-based relationships through strategic communication.

4) To equip graduates with the ability to produce and manage professional media content and initiatives, including the coordination and creation of traditional and emerging multimedia reports, publications, digital content, and media-driven events.

ADMISSION REQUIREMENTS

Selected applicants are admitted to the Program in the fall and spring semesters of the academic year for which they apply.

Application Deadlines: Fall – April 15. Spring – October 15.

Applications are reviewed carefully to assign priority to the most qualified students. It should be noted that not every student whose credentials meet stated quantitative standards will be admitted.

Please see the general graduate admission requirements here. Specific requirements to this program are as follows:

1. Three letters of recommendation (on departmental or institutional letterhead, preferably from the student's undergraduate professors).
2. A letter, written by the applicant, expressing a statement of professional goals and objectives focusing on experience and interest in communications.
3. Applicants whose first language is not English require a minimum score on the Test of English as a Foreign Language (TOEFL) of 600 (paper- based), 250 (computer-based), or 100 (Internet-based) within two years prior to application. The TOEFL scores must be on file in the Graduate School prior to receipt of the application for graduate study.

NOTE: Communications Specialist application deadlines are different from the Office of Graduate Studies. Only completed packages will be reviewed.

DEGREE REQUIREMENTS

Advising

Each student's program is planned with the guidance of, and in consultation with, a departmental advisor in the area of Communications. The program does not take responsibility for courses taken without program advisement and approval.

Decision on academic performance and possible termination of students from the program will be based on factors such as course grades and class assignments.

Communications Specialist (CSP) – Non-thesis

33 Credit Hours

MinGPA cumulative 3.0. MinGrade C*. Degree M.A.

CORE COURSES	
COMM 501 Social Media	3
COMM 504 Mass Media Law	3
COMM 505 Theory & Research in Communication [RPP]	3
COMM 520 Communications Media Internship	3
COMM 521 Master's Project	3
CSP 500 Survey of Communication Studies	3

SPECIALIZATIONS	15

*One grade of C allowed at graduation.
[RPP] = Research project paper or portfolio required.

Concentrations, Specializations & Electives

(CSP-BUSC) BUSINESS SPECIALIZATION	
Electives	6
Choose 3 classes	
MBA 507 Basics of Mgt & Marketing	3
MGT 515 Organizational Theory & Behavior	3
MGT 554 Training and Development	3
MGT 564 Human Resource Management	3

(CSP-ABM) ATHLETIC BRAND MANAGEMENT SPECIALIZATION	
Electives	3
Choose 4 classes	
HDF 517 Consumer Behavior	3
MBA 507 Basics of Management & Marketing	3
PED 500 History & Philosophy of Physical Activity & Sport	3
PED 501 Sociology of Sport & PED	3
PED 507 Management in PED & Athletic Programs	3

(CSP) COMMUNICATIONS SPECIALIST ELECTIVES	
Choose from courses not listed in your planned degree.	
COMM 502 Political Communication and Social Change	3
COMM 503 Media Ethics	3
COMM 506 Advanced Television Production	3
COMM 507 Advanced Screenwriting	3
COMM 508 Advanced Film Production	3
COMM 509 Advanced Mass Media Writing	3
COMM 511 Strategic Communication	3
COMM 512 Gender and Communication	3
CSD 502 Voice and Diction	3
CSD 503 Communication in Corporate America	3
CSP 501 Rhetorical Theory	3
CSP 503 Professional Ethics & Communication	3
CSP 504 Managing Workplace Diversity & Inclusion	3
CSP 505 Leadership & Communication	3
HDF 517 Consumer Behavior	3
MBA 507 Basics of Mgt & Marketing	3
MGT 515 Organizational Theory & Behavior	3
MGT 554 Training and Development	3
MGT 564 Human Resource Management	3
PED 500 History and Philosophy of Physical Activity and Sport	3
PED 501 Sociology of Sport and Physical Education	3
PED 507 Management in Physical Education and Athletic Programs	3

Communicative Sciences & Disorders

Master of Science

Dr. DianaJeanne Blakeney-Billings, Program Coordinator
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MISSION STATEMENT

The Communicative Sciences and Disorders (CSD) program offers an education and scholarly environment in which undergraduate and graduate students receive quality academic training and professional experience in the field of Speech-Language Pathology. The program functions within a student-centered environment devoted to learning, research, scholarship, creativity, professional expertise and personal development designed to ensure that students are ethical, knowledgeable, skillful and capable of working independently and in collaboration with clients, families and other professionals.

The commitment of the CSD program to the University's mission is reflected in the undergraduate and graduate academic coursework in normal and abnormal development and behavior across the human life span; in coursework that engenders awareness of issues in culturally diverse populations, in human communication disorders, in diagnostic and treatment methodologies; in clinical practica requirements and in technology-integrated coursework teaching independent research skills that support lifelong learning.

PROGRAM DESCRIPTION

The program offers the Master of Science degree in Communicative Sciences and Disorders and is nationally accredited by the Council on Academic Accreditation (CAA) for the American Speech-Language-Hearing Association (ASHA). AAMU is one of only eight Historically Black Institutions which offer a nationally accredited program in speech-language pathology.

The field of Speech-Language Pathology involves the identification, assessment and treatment of a wide variety of communication disorders (congenital, developmental, and acquired) in both children and adults. Such disorders may include phonological (articulation), language, voice, fluency (stuttering) and hearing problems. Speech-language pathologists also participate in the assessment and management of clients with swallowing difficulties. They work in a variety of locations including hospitals, schools, rehabilitation centers, community health centers, universities, skilled care facilities, and in private practice.

The wide varieties of disorders and treatment approaches pertinent to the field require a working knowledge of neuroanatomy, behavioral science, speech/language development, effective teaching strategies, methods for motivating people, and excellent communication skills. Therapists with a bachelor's degree can perform important duties in some settings, but a master's degree is essential for achieving professional independence, and some duties demand a doctoral degree. This degree program contains both academic and clinical components. It is a two-year program if students have an undergraduate degree in CSD, and a three year program if the undergraduate degree is in another area.

Our graduate students and senior level undergraduate students gain experiences providing speech and hearing services in the campus based AAMU Speech and Hearing Clinic and in externship sites across the state. The AAMU Clinic is a teaching clinic and has been serving the public since the late 1960s. Students complete a minimum of 400 clinical clock hours supervised by ASHA certified, Alabama licensed faculty members and external supervisors. The clinic serves clients of all ages from within the community as well as the University campus

OBJECTIVES

Alabama A&M University's master's degree program in Communicative Sciences and Disorders has as its primary objective the education of highly competent speech-language pathologists who are capable of interacting in a variety of employment settings such as hospitals, clinics, public schools, rehabilitation centers, private practice, nursing facilities, or special centers/schools. The second objective is to provide training which allows persons with varying backgrounds to become fully qualified to apply for national certification through the American Speech-Language-Hearing Association (ASHA), for state licensure through the Alabama Board of Examiners in Speech-Language Pathology and Audiology (ABESPA) and for the alternative teaching certificate through the Alabama State Department of Education (ASDE). Individuals applying for teaching certification must take and pass the Alabama Prospective Teacher Test (APTT) Basic Skills Assessment. The third objective of the program is to increase the representation of ASHA certified minority speech-language pathologists.

ADMISSION REQUIREMENTS

Selected applicants are admitted to the Program in the fall and spring semesters of the academic year for which they apply.
Application Deadlines: Fall – Apr 15th Spring – Oct 15th

NOTE: CSD application deadlines are different from the Office of Graduate Studies. Only completed packages will be reviewed.

Because enrollment into the CSD Program is competitive applications are reviewed carefully to assign priority to the most qualified students. It should be noted that not every student whose credentials meet stated quantitative standards will be admitted.

Please see the general graduate admission requirements here.
Specific requirements to this program are as follows:

1. An undergraduate grade point average (GPA) of 3.0 or better (on a 4.0 grading scale).

2. Three letters of recommendation (on departmental or institutional letterhead, preferably from the student's undergraduate professors).
3. A letter, written by the applicant, expressing a statement of professional goals and objectives (No specific format required at this time).
4. Applicants whose first language is not English require a minimum score on the Test of English as a Foreign Language (TOEFL) of 600 (paper- based), 250 (computer-based), or 100 (Internet-based) within two years prior to application. The TOEFL scores must be on file in the Graduate School prior to receipt of the application for graduate study.

DEGREE REQUIREMENTS

The Communicative Sciences and Disorders degree is a 57-63 semester hour program for students holding a bachelor level degree in speech-language pathology, and an 87-93 semester hour program for students holding a bachelor level degree in an area other than speech-language pathology. Students who do not hold a bachelor's degree in speech pathology will be required to take additional courses. Depending upon their previous academic records, students may be required to take prerequisite courses to complete the Degree program. In order to meet the current ASHA certification requirements students are required to enroll in CSD 516, Advanced Clinical Practicum, every semester of enrollment until all required clinical clock hours are completed. Students will not be permitted to graduate until all clinical clock hours are completed.

Advising

Each student's program is planned with the guidance of, and in consultation with, a departmental advisor in the area of Communicative Sciences and Disorders. The program does not take responsibility for courses taken without program advisement and approval. A copy of the program of study can be obtained from the program office or on the CSD website. Decision on clinical/academic performance and possible termination of students from the program will be based on factors such as course grades, demonstrated clinical competence, and personality/disposition factors.

Praxis

All candidates must pass the ETS PRAXIS (National Examination in Speech-Language Pathology) with a score of 162 or above in lieu of the comprehensive examination. The University must receive evidence of a passing test score by the official date of the comprehensive exam of final semester of registered enrollment.

Speech, Language and Hearing Screening

1. CSD students must take and pass a speech-language-hearing screening examination during their first semester. The purpose of this screening is to identify any speech, language or hearing problem that may interfere with a students' academic or clinical progression in the program.
2. Students must demonstrate the ability to speak Standard American English intelligibly, including modeling of all English phonemes.
3. Students will be enrolled in the AAMU Speech and Hearing Clinic free of charge if test results deem intervention necessary.

Fingerprinting/Background Check

Graduate students enrolled in the CSD Program will, in their first semester, undergo a criminal background check which includes fingerprinting and a check of national and state criminal databases. Fingerprint/background check is a requirement for all individuals in the College of Education, including CSD students.

(CSD) Communicative Sciences & Disorders – Non-thesis

57-63 Credit Hours

MinGPA cumulative 3.0. MinGrade C*. Degree M.S.

PROGRAM COURSES	
CSD 504 Adv Eval & Assess of Comm Dis	3
CSD 510 Stutter & Other Disorder of Speech	3
CSD 513 Language Disorders in Adults	3
CSD 515 Language Dev - Comm Disorders	3
CSD 520 Language Disorders in Children	3
CSD 522 Voice Disorders	3
CSD 525 Case Management in SLP	3
CSD 534 Artic & Dev Phonological Disorder	3
CSD 538 Neuroanatomy	3
CSD 539 Craniofacial Anomalies	3
CSD 544 Motor Speech Disorders	3
CSD 545 Swallowing & Swallowing Disorders	3
CSD 550 Seminar in CSD	3
CSD 598 Research Method in Comm Dis	3
PRACTICUM	
[1]CSD 516 Advanced Clinical Practicum	3
PRAXIS EXAM	
Passing score is ≥ 600.	
SLP EXAM	
FINGERPRINTING / BACKGROUND CHECK	

*One grade of C allowed at graduation.

[1]CSD 516 to be repeated as needed to complete clinical clock hours

Computer Science

Master of Science

Dr. Alak Bandyopadhyay, Program Coordinator
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PROGRAM DESCRIPTION

The graduate program is designed to equip students with advanced knowledge in both computer science theory and application. This includes opportunities through funded research, seminars, real world project, and lab-work to acquire hands-on experience on a wide variety of state-of-the-art computer hardware and software systems.

The department offers a rigorous Master of Science degree in Computer Science, providing basic competence in the principal areas of computer science. On this foundation, the student has the opportunity to build expertise in one of a number of practical and theoretical subjects, working toward a deeper understanding under the guidance of a faculty member.

ADMISSION REQUIREMENTS

Please see the general graduate admission requirements here.
Specific requirements to this program are as follows:

1. Prospective students must have substantial background in computing, mathematics and science. The required computing background typically includes: competence in programming using C++/Java, discrete structures, data structures and algorithms, computer organization and architecture, programming language theory and operating systems. The required mathematics and science background include two courses in college calculus, a linear algebra course, and exposure to mathematical logic. A student must have a GPA of 3.00 in these, as well as an overall undergraduate GPA of 3.00 otherwise the student must take required undergraduate background courses as specified by the graduate advisory committee at the time of admission.
2. To be admitted to the master's program, the applicant must have the equivalent of an undergraduate degree in computer science from a regionally accredited college or university.

Specific requirements to the CMP-AMP Option are as follows:

1. Applicants must finish his/her junior year.
2. Applicants should hold at least a 3.5 cumulative GPA at the end of their junior year to be accepted into the CMP-AMP Graduate Program. GRE will be waived under (1) 3.7+ GPA or (2) 133+ Major Field Test score.
3. Students need to take three graduate courses in the senior year once (s)he is admitted to the AMP option.
4. For the security area, students need to take two graduate security courses and one graduate course once admitted.
5. Students can apply for B.S. once finished 120 credit hours at the undergraduate level.
6. After entering graduate school, the students will complete the rest of the eight graduate courses, i.e., three Fall courses, three Spring courses, two Summer courses.

DEGREE REQUIREMENTS

The program provides for thesis and non-thesis options.

Thesis Option

Students who choose to take the thesis option must complete 33 credit hours of coursework. The coursework consists of 18 hours of core courses and 9 hours of computer science (CS) electives. The master's research and thesis (6 hours) must be an original work that (l) offers a theoretical contribution to the field or (2) provides a new methodology or techniques for solving practical problems in the area of computer science.

For students in the CMP-AMP Option, typically, it takes four years for an undergraduate degree and two years for a graduate degree in computer science. In the AMP Option, during their fourth year, students will take nine credit hours of graduate core courses. The remaining courses (27 hours including six credits of thesis) will be taken in three semesters (Summer, Fall and Spring) in their last year. These students are committed to research projects under their advisors. The AMP Option is for thesis option only.

Non-thesis Option

Student who chooses the non-thesis option must complete 36 hours of coursework. The coursework consists of 18 hours of core courses and 18 hours of computer science (CS) electives. With this option, the student must pass the comprehensive exam within three attempts. The comprehensive examination will consist of questions from the knowledge units from each of the six core courses. A score of 75 or better is required to pass the comprehensive examination. Students also must complete all core courses prior to taking the comprehensive examination.

Core Courses

Every student must take all of the core courses to fulfill the breadth-first requirement. A minimum GPA of 3.00 must be earned in the core courses.

Elective Courses

A number of elective courses are provided for the student to master in interested field(s) of specialization.

(CMP) Computer Science – Thesis incl. AMP Option#

33 Credit Hours

MinGPA cumulative 3.0. MinGrade C*. Degree M.S.

CORE COURSES	
CS 511 Design & Anal of Algorithms	3
CS 521 Obj Oriented Prgming & Design	3
CS 531 Computer Architecture	3
CS 541 Operating System Principles	3
CS 551 Database Mgt Systems	3
CS 561 Software Engg Methodology	3
ELECTIVES	
CS 5xx	3
CS 5xx	3
CS 5xx	3

THESIS	
Grade is Pass / Fail. MinHrs 6.	
CS 599 Thesis	1-3
Oral Defense	

#Offered online.
*One grade of C allowed at graduation.

(CMP) Computer Science – Non-thesis^,#

36 Credit Hours

MinGPA cumulative 3.0. MinGrade C*. Degree M.S.

CORE COURSES	
CS 511 Design & Anal of Algorithms	3
CS 521 Obj Oriented Prgming & Design	3
CS 531 Computer Architecture	3
CS 541 Operating System Principles	3
CS 551 Database Mgt Systems	3
CS 561 Software Engg Methodology	3
ELECTIVES	18

COMPREHENSIVE EXAM

Passing score is ≥ 75. MaxAttempt is 3.

Exam composed jointly by Advisory Committee.

To be taken after ≥ 66% completion of required coursework.

#Offered online.
*One grade of C allowed at graduation.
^[RP/P] = Research project or paper required.

Concentrations, Specializations & Electives

(CMP) COMPUTER SCIENCE ELECTIVES	
CS 513 Management Information Systems	3
CS 515 Numerical Analysis	3
CS 517 Applications of Statistical Methods	3
CS 523 Compiler Design	3
CS 525 Advanced Data Structures	3
CS 533 Cyber Security Fundamentals	3
CS 535 Introduction to Bioinformatics	3
CS 543 Computer Communications	3
CS 550 Artificial Intelligence	3
CS 554 Neural Networks	3
CS 555 Advanced Database Systems	3
CS 562 Multimedia Systems and Applications	3
CS 563 Image Processing	3
CS 570 Computer Graphics and Animation	3
CS 577 Fuzzy and Expert Systems	3
CS 582 Wireless and Mobile Computing	3
CS 591 Cooperative Educational Work Experience	3
CS 593 Advanced Topics in Computer Science	3
CS 597 Independent Study	3

Counseling

Master of Science

Dr. Shatoi Scott, Program Coordinator
126-F Carver Complex North
Voice 256-372-5188, shatoi.scott@aamu.edu

PROGRAM DESCRIPTION

The M.S. in Counseling Degree program prepares its graduates to become professional practitioners in a variety of clinical & community settings and institutions, hospitals, schools, rehabilitation agencies, career planning centers, employee assistance programs, clinics, residential treatment facilities, and other mental health agencies.

ADMISSION REQUIREMENTS

Please see the general graduate admission requirements here. Specific requirements to this program are as follows:

1. A Statement of purpose that discusses professional career goals related to the field of Counseling.
2. Three (3) Recommendation of Admission Forms (2 must be completed by current/former instructors).
3. A minimum GPA requirement of a 2.75.
4. A Resume listing educational background, record of employment and volunteer activities.

DEGREE REQUIREMENTS

The M.S. in Counseling Degree Program requires 60 credit hours of coursework with thesis and non-thesis options available. The program offers a specialization in Clinical Rehabilitation Counseling with options for part-time and full-time students and a specialization in School Counseling.

(COUN) Counseling – Thesis

66 Credit Hours

MinGPA cumulative 3.0. MinGrade C*. Degree M.S.

CORE COURSES

COUN 514 Human Growth and Development in Counseling	3
COUN 520 Professional Orientation in Counseling	3
COUN 535 Counseling Theories	3
COUN 550 Group Counseling	3
COUN 540 Counseling and Helping Relationships	3
COUN 560 Career Counseling	3
COUN 570 Multiculturism in Counseling	3
COUN 580 Assessment and Testing	3
COUN 590 Research and Program Evaluation in Counseling	3
COUN 596 Pre-Practicum Understanding Personality	3
COUN 597 Practicum II [FE of 100 clock hrs]	3
COUN 594 Diagnosis and Treatment Planning	3
COUN 600 Counseling Internship I [FE of 300 clock hrs]	3
COUN 601 Counseling Internship II [FE of 300 clock hrs]	3

ELECTIVES and/or SPECIALIZATION 18

THESIS

Grade is Pass / Fail. MinHrs 6.

COUN 599 Thesis Oral Defense	3

*One grade of C allowed at graduation
[RPP] = Research project paper or portfolio required.
[FE] = Field Experience required. Student must complete all required core courses and receive advisor approval prior to taking FE courses.

(COUN) Counseling – Non-Thesis

60 Credit Hours

MinGPA cumulative 3.0. MinGrade C*. Degree M.S.

CORE COURSES

COUN 514 Human Growth and Development in Counseling	3
COUN 520 Professional Orientation in Counseling	3
COUN 535 Counseling Theories	3
COUN 540 Counseling and Helping Relationships	3
COUN 550 Group Counseling	3
COUN 560 Career Counseling	3
COUN 570 Multiculturism in Counseling	3
COUN 580 Assessment and Testing	3
COUN 590 Research and Program Evaluation in Counseling [RPP]	3
COUN 594 Diagnosis and Treatment Planning	3
COUN 596 Pre-Practicum Understanding Personality	3
COUN 597 Practicum II [FE]	3
COUN 600 Counseling Internship I [FE]	3
COUN 601 Counseling Internship II [FE]	3

ELECTIVES and/or SPECIALIZATION 18

COMPREHENSIVE EXAM

Grade is Pass / Fail.

Exam composed jointly by Advisory Committee.
To be taken after 66% completion of required coursework.
To be taken after completion of required core courses.

*One grade of C allowed at graduation
[RPP] = Research project paper or portfolio required.
[FE] = Field Experience requireed. Student must complete all required core courses and receive advisor approval prior to taking FE courses.

Concentrations, Specializations & Electives

(COUN) CLINICAL REHABILITATION COUNSELING SPECIALIZATION (CRC)

MinGPA 3.00. MinGrade C.

COUN 507 Intro to Rehabilitation Counseling	3
COUN 511 Job Development and Placement	3
COUN 513 Medical and Psychosocial Aspects of Rehabilitation	3
COUN 517 Case Management for Rehabilitation	3

(COUN) SCHOOL COUNSELING SPECIALIZATION (SCC)

MinGPA 3.00. MinGrade C.

COUN 503 Foundations of School Counseling	3
COUN 557 Organization & Administration of Guidance	3
COUN 660 Counseling	3
COUN 682 Problems in Counseling with Adolescents	3

(COUN) CLINICAL MENTAL HEALTH COUNSELING SPECIALIZATION (CMHC) MinGPA 3.00. MinGrade C.	
COUN 525 Foundations of Alcohol and Drug Addiction	3
COUN 526 Crisis and Intervention in Counseling	3
COUN 528 Intro to Community & Mental Health Counseling [MinGrd B]	3
COUN 624 Understanding Psychotropic Medications	3

(COUN) COUNSELING ELECTIVES Choose 6 hours	
*COUN 507 Intro to Rehabilitation Counseling	3
COUN 510 Rehabilitation High and Low Technology	3
*COUN 511 Job Development and Placement	3
COUN 512 Vocational Assessment	3
*COUN 513 Medical and Psychosocial Aspects of Rehabilitation	3
*COUN 517 Case Management for Rehabilitation	3
COUN 525 Foundations of Alcohol and Drug Addiction	3
COUN 526 Crisis and Intervention in Counseling	3
COUN 527 Human Sexuality	3
COUN 528 Intro Community & Mental Health Counseling [MinGrade of B]	3
COUN 530 Family Counseling	3
COUN 624 Understanding Psychotropic Medications	3

*All students who wish to take the Certification in Rehabilitation Counseling (CRC) Exam must take these asterisked courses in addition to completing all required Core courses and the 18ch of Electives and/or Specialization.

Curriculum and Instruction

Doctor of Philosophy

Dr. Lena Walton, Program Coordinator
222 Carver Complex North, Room G – Hollings Wing
Voice: (256) 372-4109 lena.walton@aamu.edu

PROGRAM DESCRIPTION

The PhD in Curriculum and Instruction will be offered as a hybrid program with students attending campus-based classes one weekend per month. Four specializations will be offered: Reading and Literacy Studies; Science Education; Early Childhood & Elementary Education; and Education Administration. To complete the PhD program in Curriculum and Instruction students will be required to successfully design, complete, and defend a full dissertation relevant to the selected specialization.

ADMISSION REQUIREMENTS

Please see the general graduate admission requirements here. Specific requirements to this program are –

1. Successful interview with the screening committee.
2. Submit a 2000-word professional writing sample describing your philosophy of learning and your professional/career goal.

Evidence of last three years of successful teaching or successful employment in positions related to the specific specialization of interest.

Once applicants gain full admission to the program, they are assigned to program advisors in their specialization. The program advisor will meet with the student to review the professional goal and philosophy of learning and will prepare a program of study. The program of study in individually crafted between the student and the advisor. This program of study will be developed from the standard program of study for the PhD program to meet the specific specialization and other needs and interest of the student. The individual program of study may be revised after the student completes the first semester of the program.

DEGREE REQUIREMENTS

At least 33 credits must be taken at the 600 and 700 levels of study and at least 45 hours must be completed at Alabama Agricultural and Mechanical University. Students must be able to dedicate at least 3 years of full-time study to earning the PhD degree but otherwise must complete the degree within eight years. All students must be prepared to take and pass a candidacy exam before entering the dissertation phase of the program. The candidacy examination will be a proposal for the dissertation and will be evaluated by a committee of faculty from the Department of Teacher Education and Leadership.

All seven courses in the Core of the program are taken by all students in the program. This core includes one 1-credit orientation course (Doctoral Seminar) which is the first course to be taken in the program. This course helps the student to transition into the doctoral program by unpacking the role of advanced education in shaping leaders. The remaining 20 credits are divided across courses in which students deep dive into foundations of education including seminal and contemporary readings, and issues and trends in equity, equality and social justice.

(CUI) Curriculum and Instruction – Doctor of Philosophy

66 Credit Hours

MinGPA cumulative 3.0. MinGrade C*. Degree Ph.D.

CORE COURSES MinGrade B.	
CUI 600 Foundations of Education and Schooling	2
FED 601 Philosophical and Socio-Political Underpinning of Education	3
CUI 700 Doctoral Seminar: Intro to Advanced Studies	1
CUI 701 Social-Political Aspects of Education	3
CUI 721 Curriculum Theory	3
CUI 723 Impact of Social Justice and Equity Studies in Curriculum	3
CUI 725 Instructional Strategies for Diverse Adult Learners	3
CUI 727 Race, Gender and Social Class and Instructional Practice	3
CUI 730 Educational Program Design and Assessment	3
RESEARCH Choose 15 hours.	
RCH 700 Survey of Educational Research Methods	3
RCH 703 Intro to Qualitative Research in Education	3
RCH 706 Introduction to Quantitative Research [MinGrade of B]	3
PSY 502 Descriptive and Inferential Behavioral Statistics	3
Choose one of the following:	
FED 696 Action Research I	3
FED 703 Evaluation of Research in Education [MinGrade of B]	3
MUS 705 Research Methods in Music Education [MinGrade of B]	3
RCH 710 Advanced Qualitative Research Design and Analysis	3
RCH 711 Design and Analysis of Quantitative Research in Education	3
RCH 735 Doctoral Research Seminar	3
SPECIALIZATION OR CONCENTRATION	18
CANDIDACY EXAM Grade is Pass / Fail. Exam will be a proposal for the dissertation and evaluated by a committee of faculty from the Dept of TEaL. To be taken after ≥ 80% completion of required course work.	
DISSERTATION Grade is Pass / Fail. MinHrs 9.	
CUI 900 Dissertation	1-9

*One grade of C allowed at graduation.

Concentrations, Specializations & Electives

(CUI) EARLY CHILDHOOD & ELEMENTARY ED SPECIALIZATION (ECE)	
MinGPA 3.00. MinGrade B.	
Choose 18 hours.	
ECE 620 Advanced Research in ECH/Elementary Reading/Language Arts Curriculum [MinGrade of B]	3
ECE 625 Trends in Teaching Social Studies in ELE Schools [MinGrade of B]	3
ECE 630 Advanced Research in Teaching ECH/ELE Mathematics Education [MinGrade of B]	3
ECE 720 Advanced Learning Theories and Curriculum in ECH/ELE [MinGrade of B]	3
7xx course from SCED Specialization	3
Choose 3 hours of the following:	
7xx course from RLS Specialization	3
ECE 635 Teaching Ed Programs in Technology [MinGrade of B]	3
ECE 715 Urban Studies in ECH/ELE [MinGrade of B]	3

Note: If the student feels s/he would like to deep dive further into another topic related to the Specialization that is not offered as a course in the program, with the permission of the advisor they can take ECE 795 Special Topics in Early Childhood and Elementary Education (3ch) and substitute it for one of the ECE courses shown above. For example, the student might be interested in creative Arts, which is not offered, so the student could ask for a Special topics course. To take ECE 795, permission must be granted.

(CUI) EDUCATION ADMINISTRATION SPECIALIZATION (EDA)	
MinGPA 3.00. MinGrade B.	
Choose 18 hours.	
EDL 636 Advanced Ed Law & Policy	3
EDA 701 Foundations of Administration in Education [MinGrade of B]	3
EDA 702 Data-Driven Planning and Management of Education Organizations [MinGrade of B]	3
EDA 706 Higher Education Law & Policy	3
EDA 790 Internship in Education Administration [MinGrade of B]	3
Choose one Group of the following:	
HEA 626 Finance in Higher Education, 3ch AND EDA 705 Personnel Development, Coaching and Team Building, 3ch [MinGrade of B]	6
OR	
EDA 703 Curriculum Planning and Implementation, 3ch [MinGrade of B] AND EDA 704 Evaluation of Curriculum, 3ch [MinGrade of B]	6

(CUI) MATHEMATICS EDUCATION SPECIALIZATION (MAE)	
MinGPA 3.00. MinGrade B.	
CME 601 Teaching Mathematics Using Computers	3
CME 610 Data Science in Education	3
CME 630 Remediation of Mathematics Difficulties	3
CME 710 Numbers and Operations	3
CME 720 Algebraic Thinking	3
CME 730 Geometric Thinking	3

(CUI) READING AND LITERACY STUDIES SPECIALIZATION (RLS)	
MinGPA 3.00. MinGrade B.	
Choose 18 hours.	
RDG 700 Trends & Issues in Reading/Literacy	3
RDG 701 Assessment in Reading/Literacy	3
RDG 704 Curriculum in Reading/Literacy	3
RDG 708 Leadership in School Program Dev	3
RDG 709 Adv Study in Content Area Reading	3
Choose one of the following:	
RDG 713 Family Literacy	3
RDG 720 New Literacies, Dig Tech & Learning	3
RDG 795 Special Topics in Reading and Literacy [MinGrade of B]	3

(CUI) SCIENCE EDUCATION SPECIALIZATION (SCED)	
MinGPA 3.0. MinGrade B.	
Choose 18 hours.	
SCED 700 Current Trends in Science Education [MinGrade of B]	3
SCED 701 Discourse in Science Education [MinGrade of B]	3
SCED 703 Gender and Science Education [MinGrade of B]	3
SCED 704 Nature and Practice of Science [MinGrade of B]	3
SCED 709 Critical Voices in Science Education [MinGrade of B]	3
Choose one of the following:	
SCED 705 Science, Technology, Society and Environment [MinGrade of B]	3
SCED 709 Critical Voices in Science Education [MinGrade of B]	3
SCED 795 Special Topics [MinGrade of B]	3

(CUI) MUSIC EDUCATION SPECIALIZATION (MUED)	
MinGPA 3.00. MinGrade B.	
MUS 710 Assessment in Music Education	3
MUS 720 Psychology of Music	3
MUS 730 Philosophy of Music Education	3
MUS 740 Teaching Music in Higher Education	3
MUS 750 Pedagogical Conducting	3
MUS 760 Pedagogy of Music Theory	3

(CUI) ELECTIVES	
CME 795 Special Topics in Mathematics Education [MinGrade of B]	3
ECE 795 Special Topics in Early Childhood & Elementary Ed [MinGrade of B]	3
EDA 795 Special Topics in Education Administration [MinGrade of B]	3
MUS 795 Directed Study in Music	3
RDG 795 Special Topics in Reading and Literacy [MinGrade of B]	3
SCED 795 Special Topics [MinGrade of B]	3

Education, Early Childhood

Master of Education

Dr. Ricardo Hill, Program Coordinator
221 Carver Complex North – Hollings Wing
Voice: (256) 372-5521, ricardo.hill@aamu.edu

PROGRAM DESCRIPTION

The Early Childhood Education Program offers coursework and field experiences leading to the Master of Education with Teacher Certifications (Class A and Alternative Class A 5th Year) in Early Childhood Education (P-3).

Certification

All teacher education majors that have met the requirements must apply for Alabama Certification. A candidate who files an application must complete the curriculum approved by the State of Alabama. The completion of the curriculum approved for certification and all other requirements for graduation will qualify the student to apply for a professional educator's certificate. The levels of Alabama Professional Educator Certificates for students in the graduate program are Class A: Master's degree and Class AA: Ed.S. degree.

ADMISSION REQUIREMENTS

Please see the general graduate admission requirements here. Specific requirements to this program are as follows:

Early Childhood Education (P-3), Class A

In addition to specific course requirements, applicants seeking admission must:

1. Be admitted to Teacher Education. Admission to Teacher Education requires the applicant to:
   a. Present evidence of having completed a baccalaureate degree in a teaching field in which the degree is sought from a regionally accredited institution.
   b. Present a copy of a Class B Professional Educator's Certificate (regular master's program) .
   c. Present transcript(s) showing a baccalaureate degree grade point average of 2.50 or better (4.00 system).

Early Childhood Education (P-3), Alternative Class A 5th Year

The alternative 5th year program is for applicants who do not hold a baccalaureate degree in a teaching field but wishes to obtain teacher certification. The program enables qualified candidates to acquire the knowledge and skills of an entry-level teacher while at the same time earn a Master's degree.

In addition to specific course requirements, applicants seeking admission must:

1. Be admitted to Teacher Education. Admission to Teacher Education requires the applicant to:
   a. Present evidence of having completed a baccalaureate degree from a regionally accredited institution.
   b. Present transcript(s) showing a baccalaureate degree grade point average of 2.50 or better (4.00 system).
   c. Complete all undergraduate deficiencies.
   d. Undergo the required fingerprint/background check.

Internship Prerequisite

Graduate students who expect to participate in internship shall meet all the Teacher Education program admission criteria described in the Alabama Administrative Code. Only students who have a minimum of 3.25 grade point average (GPA) overall will be eligible for internship. Graduate students must obtain and maintain a minimum overall of 3.25 grade point average (GPA) throughout their program. An application for internship must be completed and filed in the Office of Field Experiences at least one semester prior to the internship semester. The deadline dates are communicated on the website. Before a graduate student can participate in internship, the following Prerequisite must be met:

1. The student must have on file an application to an Educator Preparation Program.
2. The student must meet all requirements for admission to an Educator Preparation Program.
3. The student must meet general studies requirements.
4. The student must have obtained and maintained a minimum of 3.00 grade point average in professional studies, the teaching field and 3.25 GPA overall.
5. All undergraduate deficiencies must be completed.
6. The student must have completed all coursework (excluding internship) from the approved ALSDE program checklist.
7. The student must have removed all grades of "Incomplete."
8. The student must not have any grades lower than "C" in any course.
9. Program of study must be on file with the Educator Preparation Program and the Graduate Office.
10. Official transcripts from other universities and colleges attended must be on file with the Educator Preparation Program.
11. The student must obtain requisite score on the Praxis II Tests in appropriate area of concentration.
12. The student must clear the fingerprint/background check with the State Department of Education.

All students enrolled in the Alternative Master's (5th year program) must complete 219 hours of diverse field experience prior to enrolling in the fall or spring semester of internship.

DEGREE REQUIREMENTS

Early Childhood Education (P-3), Class A

Candidates must successfully:

1. Complete all coursework on the State-approved Checklist.
2. Obtain an overall GPA of ≥ 2.50 based on a 4.00 system.
3. Pass a written comprehensive examination that covers the content of the program.
4. Make application for certification through the Teacher Education and Certification Office.

Early Childhood Education (P-3), Alternative Class A 5th Year

Candidates must successfully:

1. Complete all coursework on the State-approved Checklist.

2. Obtain an overall GPA of ≥ 3.25 based on a 4.00 system.
3. Pass a written comprehensive examination that covers the content of the program (Traditional) OR pass the Praxis II Content Examination (Alt. A only).
4. Complete an internship.
5. Pass the Praxis II Tests in the appropriate area.
6. Make application for certification through the Educator Preparation Program Office.
7. Pass edTPA Exam in the appropriate area.

Candidates seeking the additional endorsement in Elementary Education (K- 6) must complete the following graduate courses:
ELE 509 Evaluation in Elementary Schools
ELE 519 Elementary School Curriculum.

(ECH) Early Childhood Education (P-3) – Class A – Non-thesis (online only)

30 Credit Hours

MinGPA cumulative 3.25, MinGrade C*. Degree M.Ed.

REQUIRED COURSES

ECE 521 Res in Elementary & Early Childhd Ed [FE]	3
FED 503 Intro to Educational Research [RPP]	3
FED 529 Computer-based Instructional Tech	3
[1]SPE 501 Intro to Study Exceptional Children [FE] OR	3
FED 533 The Context of Urban Education [FE] OR	
FED 521 Foundations of Multicultural Education [FE]	

TEACHING FIELD

ECE 520 Foundations of Teaching Reading	3
ECH 506 Curriculum Design	3
ECH 517 Theory, Methods & Materials	3
Choose 9 hours	
Advisor-approved 5xx courses in ELE, ECE, RDG	9

COMPREHENSIVE EXAM

Grade is Pass / Fail.

Exam composed jointly by Advisory Committee.

To be taken after ≥ 66% completion of required coursework.

CERTIFICATION APPLICATION

*One grade of C allowed at graduation.

[1]Required if not previously completed. If completed for prior level certification, another approved diversity course is required.
[FE] = Field Experience required.
[RPP] = Research project paper or portfolio required.
Note: Successful completion of an internship shall be required in English for speakers of other languages and Reading Specialists.

(ECH) Early Childhood Education (P-3) – Alternative Class A 5th Year – Non-thesis

45 Credit Hours

MinGPA admit 2.50; Cum 3.25. No GPA in req crs, TF. MinGrade C*. Degree M.Ed.

REQUIRED COURSES

ECE 520 Foundations of Teaching Reading [FE]	3
ECH 517 Theory, M/M in Early Childhd Ed [FE]	3
FED 501 Foundations of Education [FE]	3
FED 504 Evaluation of Teaching & Learning [FE]	3
FED 521 Foundations of Multicultural Education [FE]	3
FED 529 Computer-based Instructional Tech	3
[1]SPE 501 Intro to Study Exceptional Children [FE]	3
SPE 530 Mgt of Classroom Behavior	3

TEACHING FIELD

ECE 505 Concepts of ELE/ECH Mathematics	3
ECH 519 Home, School, Community Collaboration	3
ECH 506 Curriculum Design	3
RDG 515 Teaching Reading I [FE]	3
RDG 516 Teaching Reading II [FE]	3

INTERNSHIP

ECH 595 Internship in Early Childhood	5
ECE 596 Graduate Seminar [RPP]	1

PRAXIS II EXAM

Passing exam score also satisfies Comprehensive Exam requirement.

edTPA EXAM

CERTIFICATION APPLICATION

(optional) Dual Certification in
ELEMENTARY ED (K-6) ENDORSEMENT

ELE 509 Evaluation in Elementary Schools	3
ELE 519 Elementary School Curriculum	3

*One grade of C allowed at graduation.

[1]Required if not previously completed. If completed prior to unconditional admit to Alt-A program, another approved diversity course is required.
[FE] = Field Experience required.
[RPP] = Research project paper or portfolio required.

Education, Elementary

Master of Education

Dr. Takisha Durm, Program Coordinator
204 Carver Complex North – Hollings Wing
Voice: (256) 372-5536, takisha.durm@aamu.edu

PROGRAM DESCRIPTION

The Elementary Education Program offers coursework and field experiences leading to the Master of Education with Teacher Certifications (Class A and Alternative Class A 5th Year) in Elementary Education (K-6).

The Educator Preparation Program (EPP) has seven proficiencies/Institutional standards that indicate what candidates should know and be able to do as a result of completing education programs offered through the Alabama A&M University Educator Preparation Program.

The standards are –
Communication including Academic Language
Professional Knowledge and Abilities including use of technology
Creating and Maintaining a Supportive Learning Environment
Facilitating Student Learning for all students
Assessing Student Learning including the use of technology
Professional Development
Professional Dispositions

The proficiencies are –

Candidate Proficiency #1:
Educators as Service Professionals are proficient and effective communicators.

Candidate Proficiency #2:
Educators as Service Professionals have current content knowledge, and professional knowledge and abilities.

Candidate Proficiency # 3:
Educators as Service Professionals can create and maintain a supportive learning environment.

Candidate Proficiency #4:
Educators as Service Professionals can facilitate learning by all students.

Candidate Proficiency #5:
Educators as Service Professionals can effectively assess student learning

Candidate Proficiency #6:
Educators as Service Professionals engage in continual professional development

Candidate Proficiency #7:
Educators as Service Professionals exhibit professional dispositions at all times

The EPP which is part of the College of Education Humanities and Behavioral Sciences stands on four tenets –
(1) Planning
(2) Preparing
(3) Performing
(4) Assessing Proficiencies and the theme, the Educator as a Service Professional.

The four tenets and the theme are embedded across every facet of the EPP. The Quality Assurance System (QAS) which is designed to monitor the implementation and assessment of candidates' achievement on all required standards and EPP proficiencies is also monitored to ensure its relevance to the Operations of the EPP.

Certification

All teacher education majors that have met the requirements must apply for Alabama Certification. A candidate who files an application must complete the curriculum approved by the State of Alabama. The completion of the curriculum approved for certification and all other requirements for graduation will qualify the student to apply for a professional educator's certificate. The levels of Alabama Professional Educator Certificates for students in the graduate program are: Class A: Master's degree and Class AA: Ed.S. degree.

ADMISSION REQUIREMENTS

Please see the general graduate admission requirements here.
Specific requirements to these programs are –

Elementary Education (K-6), Class A

In addition to specific course requirements, applicants seeking admission must:

1. Be admitted to Teacher Education. Admission to Teacher Education requires the applicant to:
   a. Present evidence of having completed a baccalaureate degree in a teaching field in which the degree is sought from a regionally accredited institution.
   b. Present a copy of a Class B Professional Educator's Certificate (regular master's program).
   c. Present transcript(s) showing a baccalaureate degree grade point average of 2.50 or better (4.00 system).

Elementary Education (K-6), Alternative Class A 5th Year

The alternative 5th year program is for applicants who do not hold a baccalaureate degree in a teaching field but wishes to obtain teacher certification. The program enables qualified candidates to acquire the knowledge and skills of an entry-level teacher while at the same time earn a Master's degree.
In addition to specific course requirements, applicants seeking admission must:

1. Be admitted to Teacher Education. Admission to Teacher Education requires the applicant to:
   a. Present evidence of having completed a baccalaureate degree from a regionally accredited institution.
   b. Present transcript(s) showing a baccalaureate degree grade point average of 2.50 or better (4.00 system).
   c. Complete all undergraduate deficiencies.
   d. Undergo the required fingerprint/background check.

Internship Prerequisite

Graduate students who expect to participate in internship shall meet all the Teacher Education program admission criteria described in the Alabama Administrative Code. Only students who have a minimum of 3.25 grade point average (GPA) overall will be eligible for internship. Graduate students must obtain and maintain a minimum overall of 3.25 grade point average (GPA) throughout their program. An application for internship must be completed and filed in the Office of Field Experiences at least one semester prior to the internship semester. The deadline for the spring is September 30 of the previous semester, and for the fall semester, March 30 of the previous semester. Before a graduate student can participate in internship, the following Prerequisite must be met:

1. The student must have on file an application to an Educator Preparation Program.
2. The student must meet all requirements for admission to a Teacher Education Program.
3. The student must meet general studies requirements.
4. The student must have obtained and maintained a minimum of 3.25 grade point average in professional studies, the teaching field and overall.
5. All undergraduate deficiencies must be completed.
6. The student must have completed all coursework (excluding internship) from the State approved checklist.
7. The student must have removed all grades of "Incomplete."
8. The student must not have any grades lower than "C" in any course from an approved ALSDE program checklist.
9. Program of study must be on file with the Center for Education Preparation and Certification Services and the Graduate Office.
10. Official transcripts from other universities and colleges attended must be on file with the Educator Preparation Program.
11. The student must obtain requisite score on the Praxis II Tests in appropriate area of concentration.
12. The student must clear the fingerprint/background check with the Alabama State Department of Education.

All students enrolled in the Alternative Master's (5th year program) must complete 219 hours of diverse field experience prior to enrolling in the fall or spring semester of internship.

DEGREE REQUIREMENTS

Elementary Education (K-6), Class A

Candidates must successfully:

1. Complete all coursework on the State-approved Checklist.
2. Obtain an overall GPA of ≥ 2.50 based on a 4.00 system.
3. Pass a written comprehensive examination that covers the content of the program.
4. Make application for certification through the Educator Preparation Program.

Elementary Education (K-6), Alternative Class A 5th Year

Candidates must successfully:

1. Complete all coursework on the State-approved Checklist.
2. Obtain an overall GPA of ≥ 3.25 based on a 4.00 system.
3. Pass a written comprehensive examination that covers the content of the program (Traditional) OR pass the Praxis II Content Examination (Alt. A only).
4. Complete an internship.
5. Pass the Praxis II Tests in the appropriate area.
6. Make application for certification through the Educator Preparation Program Office.
7. Pass edTPA in the appropriate area.

(ELE) Elementary Education (K-6) – Class A – Non-thesis#

30 Credit Hours

MinGPA cumulative 3.25. MinGrade C*. Degree M.Ed.

REQUIRED COURSES

ECE 521 Res in Elementary & Early Childhd Ed [FE]	3
FED 503 Intro to Educational Research [RPP]	3
FED 529 Computer-based Instructional Tech	3
[1]SPE 501 Intro to Study Exceptional Children [FE] OR	3
FED 533 The Context of Urban Education [FE] OR	
FED 521 Foundations of Multicultural Education [FE]	

TEACHING FIELD

ECE 520 Foundations of Teaching Reading	3
ELE 509 Evaluation in Elementary Schools	3
ELE 519 Elementary School Curriculum	3

Choose 9 hours

Advisor-approved 5xx courses in ELE, ECE, RDG	9

COMPREHENSIVE EXAM

Grade is Pass / Fail.

Exam composed jointly by Advisory Committee.

To be taken after ≥ 66% completion of required coursework.

CERTIFICATION APPLICATION

#Offered online.

*One grade of C allowed at graduation.

[1]Required if not previously completed. If completed for prior level certification, another approved diversity course is required.

[FE] = Field Experience required.

[RPP] = Research project paper or portfolio required.

Note: Successful completion of an internship shall be required in English for speakers of other languages and Reading Specialists.

(ELE) Elementary Education (K-6) – Alternative Class A 5th Year – Non-thesis

45 Credit Hours

MinGPA admit 2.50, cum 3.25. No GPA in req crs, TF. MinGrade C*. Degree M.Ed.

REQUIRED COURSES

ECE 520 Foundations of Teaching Reading [FE]	3
FED 501 Foundations of Education [FE]	3
FED 504 Evaluation of Teaching & Learning [FE]	3
FED 521 Foundations of Multicultural Education [FE]	3
FED 529 Computer-based Instructional Tech	3
[1]SPE 501 Intro to Study Exceptional Children [FE]	3
SPE 530 Mgt of Classroom Behavior	3

TEACHING FIELD

ECE 505 Concepts of ELE/ECH Mathematics	3
ECH 519 Home, School, Community Collaboration	3
ELE 509 Evaluation in Elementary Schools	3
ELE 519 Elementary School Curriculum	3

RDG 515 Teaching Reading I [FE]	3
RDG 516 Teaching Reading II [FE]	3

INTERNSHIP

ELE 595 Internship	5
ELE 596 Graduate Seminar [RPP]	1

edTPA EXAM

PRAXIS II EXAM

Passing exam score also satisfies Comprehensive Exam requirement.

CERTIFICATION APPLICATION

(optional) Dual Certification in
EARLY CHILDHOOD ED (P-3) ENDORSEMENT

ECH 506 Curriculum Design
ECH 516 Multi-Sensory Approaches

*One grade of C allowed at graduation.

[1]Required if not previously completed. If completed prior to unconditional admit to Alt-A program, another approved diversity course is required.

[FE] = Field Experience required.

[RPP] = research project paper or portfolio required.

Education, General

Education Specialist

The program coordinator is dependent upon which department is offering the Ed.S. degree program being sought.

PROGRAM DESCRIPTION

The program offers coursework and research opportunities for:

the Education Specialist (Ed.S.) degree with Class AA Teacher Certification in:

Collaborative Teaching (K-6)
Collaborative Teaching (6-12)
Elementary Education (K-6)
Family/Consumer Sci (6-12)
Early Childhood Education (P-3)

the Education Specialist (Ed.S.) degree with Class AA Instructional Support Personnel Certification in:

Instructional Leadership

Certification

All teacher education majors that have met the requirements must apply for Alabama Certification. A candidate who files an application must complete the curriculum approved by the State of Alabama. The completion of the curriculum approved for certification and all other requirements for graduation will qualify the student to apply for a professional educator's certificate. The levels of Alabama Professional Educator Certificates for students in the graduate program are Class A: Master's degree and Class AA: Ed.S. degree.

ADMISSION REQUIREMENTS

Please see the general graduate admission requirements here. Specific requirements to these programs are –

Class AA

Collaborative Teaching K-6
Collaborative Teaching 6-12
Elementary K-6
Family & Consumer Science 6-12
Early Childhood P-3

In addition to specific course requirements, applicants seeking admission must:

1. Be admitted to Educator Preparation Program. Admission to Educator Preparation Program requires the applicant to:
   a. Present evidence of having completed a Master's degree from an accredited school with Class A Certification in the same teaching field(s) in which the Ed.S. degree is sought.
   b. Present transcript(s) showing a Master's degree grade point average of 3.25 or better (4.00 system).

Special Education candidates holding a Class "A" teaching certificate in a field other than Special Education may enter the traditional Ed.S. program but are required to take SPE 500 or SPE 522.

Instructional Leadership, Class AA

This degree is designed for individuals who seek greater preparation for leadership in P-12 schools and/or those who aspire towards pursuing doctoral level studies in educational administration.

1. Be admitted to Teacher Education. Admission to Teacher Education requires the applicant to:
   a. Present evidence of having completed a master's degree with Class A certification, in the same teaching field in which the Ed.S. degree is sought (except in Special Education), from a regionally accredited institution.
   b. Present transcript(s) showing a master's degree grade point average of 3.25 or better (4.00 system).

In addition to an earned baccalaureate-level professional Educator Certificate in a teaching field and earned masters'-level Professional Educator Certificate in a teaching field or instructional support area, the applicant shall:

1. Have a minimum of three (3) years of successful teaching experience.
2. Submit an admission portfolio before an interview. The portfolio will contain the following:
   a. Three (3) letters of recommendation (These must include letters from the applicants' principal or supervisor). Each local superintendent will establish requirements for recommendations from the principal and/or supervisor.
   b. Completed copy (all forms) of the most recent performance appraisal to include the professional development component, if available.
   c. Evidence of ability to improve student achievement (give 2 examples).
   d. Evidence of leadership and management potential, including proof of most recent accomplishments in the area of educational leadership (give 2 examples).
3. Summary of candidates' reasons for pursuing instructional leadership certification.
4. Summary of what the candidate expects from the preparation program.
5. Qualify for program admission by successfully completing an interview conducted by a program admission committee that includes both P-12 instructional leaders and higher education faculty.
6. The candidate will also be required to take and pass a writing assessment.

In order to be admitted to the AA program in Instructional Leadership candidates must meet one of the following four (4) criteria:

1. Hold a Class A Instructional Leadership certificate earned after completing a redesigned program at an Alabama university.
2. Be currently serving as a superintendent, assistant or associate superintendent, assistant to the superintendent,

principal, assistant principal, supervisor (any subject and/or grade level), administrator of career and technical education, coordinator, or evaluator.
3. Document three years of employment in an instructional leadership position for which one of the certificates in Rule 290-3-3-.53.01(2)(b) is proper certification according to the current edition of the Subject and Personnel Codes of the Alabama State Department of Education. To include: [Instructional Leader, Principal, Superintendent, Superintendent-Principal, Educational Administrator, Supervisor (any subject and/or grade level), Administrator of Career and Technical Education].
4. Demonstrate each of the abilities in the Class A Instructional Leadership standards prior to admission to the Class AA Instructional Leadership program or prior to completion of the Class AA Instructional Leadership program. In order to be admitted under Criteria 4-Candidates must adhere to the following:

Candidates must submit a portfolio demonstrating their knowledge of, and ability to satisfy mastery and implement the state standards in Instructional Leadership. The portfolio must contain the following:

1. Evidence of knowledge and ability to Plan for Continuous Improvement for the school and community.
2. Evidence of knowledge and ability to analyze, implement and facilitate the Instructional program as the instructional leader with the purpose of maximizing effective Teaching and Learning.
3. Evidence of knowledge and ability to plan and implement human resources development.
4. Evidence of knowledge and ability to lead school cultures that appreciate and promote diversity within the school and community.
5. Evidence of knowledge and ability to develop, implement, and promote, and implement effective community and stakeholder relationships.
6. Evidence of knowledge and ability to plan, promote, implement, and evaluate, the effective use of technology.
7. Evidence of knowledge and ability to manage the learning organization.
8. Evidence of knowledge and ability to understand and adhere to ethical standards for professional educators.

An applicant will not be considered for admission unless all application requirements are met by the specified deadline. The decision from the Graduate Admissions Committee is communicated in writing to the applicant

DEGREE REQUIREMENTS

Class AA

Collaborative Teaching K-6
Collaborative Teaching 6-12
Elementary K-6
Family & Consumer Science 6-12
Instructional Leadership
Early Childhood P-3

Candidates must successfully:

1. Complete all coursework on the State-approved Checklist.
2. Obtain an overall GPA of ≥ 3.50 based on a 4.00 system.
3. Pass a written comprehensive examination that covers the content of the program.
4. Make application for certification through the Teacher Education and Certification Office.

(GED-ECH) Education, General – Early Childhood Education (P-3) – Class AA – Non-thesis

36 Credit Hours

MinGPA admit 3.25, cumulative 3.50. MinGrade C*. Degree Ed.S.

REQUIRED COURSES	
FED 601 Philosophical and Socio-Political Underpinnings of Education	3
RCH 700 Survey of Educational Research Methods	3
FED 606 Culture and Language Diversity	3
[1]SPE 501 Intro to Study Exceptional Children	3
TEACHING FIELD	
ECE 602 Theoretical Foundations of ECH Ed	3
ECE 671 Reading & Research in ELE & ECH	3
ECH 502 Workshop in Early Childhood Ed	3
ELE 614 T'ching Strategies for the Affective Dimension of Reading	3
Choose 6 hours from the following.	
ELE 511 Workshop in Elementary Schools	3
FED 531 Current and Emerging Instructional Technology	3
FED 532 Curriculum Integration of Instructional Technology	3
COMPREHENSIVE EXAM	
Grade is Pass / Fail.	
Exam composed jointly by Advisory Committee.	
To be taken after ≥ 66% completion of required coursework.	
ACTION RESEARCH PAPER	
FED 696 Action Research I	3
FED 697 Action Research II [RPP]	3
CERTIFICATION APPLICATION	

*One grade of C allowed at graduation.
[1]Required if not previously completed. If completed for prior level certification, another approved diversity course is required.
[RPP] = Research project paper or portfolio required.

(GED-ELE) Education, General – Elementary Education (K-6) – Class AA – Non-thesis

36 Credit Hours

MinGPA admit 3.25, cumulative 3.50. MinGrade C*. Degree Ed.S.

REQUIRED COURSES	
FED 601 Philosophical and Socio-Political Underpinnings of Education	3
RCH 700 Survey of Educational Research Methods	3
FED 606 Culture and Language Diversity	3
[1]SPE 501 Intro to Study Exceptional Children	3
TEACHING FIELD	
ECE 602 Theoretical Foundations of ECH Ed	3
ECE 671 Reading & Research in ELE & ECH	3
ELE 511 Workshop in Elementary Schools	3

ELE 614 T'ching Strategies for the Affective Dimension of Reading	3

Choose 6 hours from the following.

ECH 502 Workshop in Early Childhood Ed	3
FED 531 Current and Emerging Instructional Technology	3
FED 532 Curriculum Integration of Instructional Technology	3

COMPREHENSIVE EXAM

Grade is Pass / Fail.

Exam composed jointly by Advisory Committee.

To be taken after ≥ 66% completion of required coursework.

ACTION RESEARCH PAPER

FED 696 Action Research I	3
FED 697 Action Research II [RPP]	3

CERTIFICATION APPLICATION

*One grade of C allowed at graduation.

[1]Required if not previously completed. If completed for prior level certification, another approved diversity course is required.

[RPP] = Research project paper or portfolio required.

(GED-FCS) Education, General – Family & Consumer Sciences (6-12) – Class AA – Non-thesis

33 Credit Hours

MinGPA admit 3.25, cumulative 3.50. MinGrade C*. Degree Ed.S.

REQUIRED COURSES

FED 601 Philosophical and Socio-Political Underpinnings of Education	3
RCH 700 Survey of Educational Research Methods	3
FED 606 Culture and Language Diversity	3
[1]SPE 501 Intro to Study Exceptional Children	3

TEACHING FIELD

Advisor-approved 6xx courses in Family & Consumer Sci	15

COMPREHENSIVE EXAM

Grade is Pass / Fail.

Exam composed jointly by Advisory Committee.

To be taken after ≥ 66% completion of required coursework.

ACTION RESEARCH PAPER

FED 696 Action Research I	3
FED 697 Action Research II [RPP]	3

CERTIFICATION APPLICATION

*One grade of C allowed at graduation.

[1]Required if not previously completed. If completed for prior level certification, another approved diversity course is required.

[RPP] = Research project paper or portfolio required.

(GED-INL) Education, General – Instructional Leadership – Class AA – Non-Thesis

33 Credit Hours

MinGPA admit 3.25, cumulative 3.50. MinGrade C*. Degree Ed.S.

REQUIRED COURSES

EDL 638 Mentor Training & Ethics of School Leaders	3
RCH 700 Survey of Educational Research Methods	3
FED 606 Culture and Language Diversity	3
[1]SPE 501 Intro to Study Exceptional Children	3

INSTRUCTIONAL SUPPORT AREA

EDL 636 Advanced Education Law & Policy	3
EDL 637 Strategic Organizational Leadership	3
EDL 639 Educational Facilities Develop & Mgt	3
EDL 641 Adult Learning Theory	3
EDL 643 Seminar in Instructional Leadership	3

COMPREHENSIVE EXAM

Grade is Pass / Fail.

Exam composed jointly by Advisory Committee.

To be taken after ≥ 66% completion of required coursework.

ACTION RESEARCH PAPER

FED 696 Action Research I	3
FED 697 Action Research II [RPP]	3

CERTIFICATION APPLICATION

*One grade of C allowed at graduation.

[1]Required if not previously completed. If completed for prior level certification, another approved diversity course is required.

[RPP] = Research project paper or portfolio required.

(GED-SPE-CTE) Education, General – Collaborative Teacher (K-6) – Class AA – Non-thesis

42 Credit Hours

MinGPA admit 3.25, cumulative 3.50. MinGrade C*. Degree Ed.S.

REQUIRED COURSES

FED 601 Philosophical and Socio-Political Underpinnings of Education	3
RCH 700 Survey of Educational Research Methods	3
FED 606 Culture and Language Diversity	3
[1]SPE 501 Intro to Study Exceptional Children	3
SPE 685 Capstone Research for Special Education Intervention	3
SPE 637 Single Subject Research Design in Education	3

PRACTICUM

SPE 522 Learning Strategies for Elementary Schools	3

TEACHING FIELD

Advisor-approved 6xx courses in Collaborative Tchr K-6 areas	15

COMPREHENSIVE EXAM

Grade is Pass / Fail.

Exam composed jointly by Advisory Committee.

To be taken after ≥ 66% completion of required coursework.

ACTION RESEARCH PAPER

FED 696 Action Research I	3
FED 697 Action Research II [RPP]	3

CERTIFICATION APPLICATION

DEPT DEFICIENCIES TO ENTER

SPE 403 Special Ed Assessment and Planning

SPE 500 or SPE 522

*One grade of C allowed at graduation.

[1]Required if not previously completed. If completed for prior level certification, another approved diversity course is required.
[RPP] = Research project paper or portfolio required.

(GED-SPE-CTS) Education, General – Collaborative Teacher (6-12) – Class AA – Non-Thesis

39 Credit Hours

MinGPA admit 3.25, cumulative 3.50. MinGrade C*. Degree Ed.S.

REQUIRED COURSES	
FED 601 Philosophical and Socio-Political Underpinnings of Education	3
RCH 700 Survey of Educational Research Methods	3
FED 606 Culture and Language Diversity	3
[1]SPE 501 Intro to Study Exceptional Children	3
SPE 685 Capstone Research for Special Education Intervention	3
SPE 637 Single Subject Research Design in Education	3
PRACTICUM	
SPE 500 Teaching Secondary Students w/ Disabilities	3
TEACHING FIELD	
Advisor-approved 6xx courses in Collaborative Tchr 6-12 areas	15
COMPREHENSIVE EXAM	
Grade is Pass / Fail.	
Exam composed jointly by Advisory Committee.	
To be taken after ≥ 66% completion of required coursework.	
ACTION RESEARCH PAPER	
FED 696 Action Research I	3
FED 697 Action Research II [RPP]	3
CERTIFICATION APPLICATION	
DEPT DEFICIENCIES TO ENTER	
SPE 403 Special Ed Assessment and Planning	
SPE 500 or SPE 522	

*One grade of C allowed at graduation.

[1]Required if not previously completed. If completed for prior level certification, another approved diversity course is required.
[RPP] = Research project paper or portfolio required.

Education, Instructional Leadership

Master of Education

Dr. John Prestridge, Program Coordinator
220-B Carver Complex North, Hollins Wing
Voice: (256) 372-7532, john.prestridge@aamu.edu

PROGRAM DESCRIPTION

The Master of Education in Instructional Leadership is a unique degree program that prepares teachers for leadership roles in schools and school system environments. The curriculum fuses theory with practice, drawing on an array of knowledge from Alabama A&M University's College of Education faculty as well as notable local experts. The program's flexible schedule usually allows students to complete the degree program in approximately two years.

The Master of Education (M.Ed.) degree in Instructional Leadership is designed for individuals who hold current teaching certification. With the completion of this degree, candidates are eligible for Class A Certification in Instructional Leadership.

ADMISSION REQUIREMENTS

Please see the general graduate admission requirements here.
Specific requirements to this program are as follows:
In addition to an earned baccalaureate-level professional Educator Certificate in a teaching field or earned masters'-level Professional Educator Certificate in a teaching field or instructional support area, the applicant shall:

1. Have a minimum of three (3) years of successful teaching experience.
2. Submit an admission portfolio before an interview. The portfolio will contain the following:
   a. Three (3) letters of recommendation (These must include letters from the applicants' principal or supervisor). Each local superintendent will establish requirements for recommendations from the principal and/or supervisor.
   b. Completed copy (all forms) of the most recent performance appraisal to include the professional development component, if available.
   c. Evidence of ability to improve student achievement (give two examples).
   d. Evidence of leadership and management potential, including proof of most recent accomplishments in the area of educational leadership (give 2 examples).
3. Summary of candidates' reasons for pursuing instructional leadership certification.
4. Summary of what the candidate expects from the preparation program.
5. Qualify for program admission by successfully completing an interview conducted by a program admission committee that includes both P-12 instructional leaders and higher education faculty.
6. The candidate will also be required to take and pass a writing assessment.

An applicant will not be considered for admission unless all application requirements are met by the specified deadline. The decision from the Graduate Admissions Committee is communicated in writing to the applicant.

DEGREE REQUIREMENTS

The following criteria must be met in order to graduate:
1. Complete coursework listed below.
2. Have an overall GPA 2.50 or higher.
3. Make application for certification through the Center for Education Preparation and Certification Services.
4. Obtain a satisfactory score on the Comprehensive Exam.
5. Pass the Praxis II in the appropriate area.

(INL) Instructional Leadership – Class A – Non-Thesis (online only)

30 Credit Hours

MinGPA cumulative 3.25. MinGrade C*. Degree M.Ed.

REQUIRED COURSES

[1]SPE 501 Intro to Study Exceptional Children [FE]	3
OR FED 533 The Context of Urban Education [FE]	

INSTRUCTIONAL SUPPORT AREA

EDL 530 Data Driven Decision Making [FE]	3
EDL 543 Legal/Ethical Aspects of School Ops [FE]	3
EDL 547 Education Finance [FE]	3
EDL 563 Curriculum Develop, Improve, Assess [FE]	3
EDL 564 School Community Relations [FE]	3
EDL 566 Management of School Operations [FE]	3
EDL 567 Instructional Leadership [FE]	3
EDL 569 Collab, Mentoring, HR Develop [FE]	3

INTERNSHIP

EDL 596 Residency/Internship in Instruct Ldrshp [RPP]	3

PRAXIS II EXAM

COMPREHENSIVE EXAM

Grade is Pass / Fail.

Exam composed jointly by Advisory Committee.

To be taken after ≥ 66% completion of required coursework.

CERTIFICATION APPLICATION

*One grade of C allowed at graduation.

[1]Required if not previously completed. If completed for prior level certification, another approved diversity course is required, If the diversity requirement has been met on the Master's level, candidate is exempt from this requirement.
[FE] = Field Experience required.
[RPP] = Research project paper or portfolio required.
NOTE: An applicant for certification in Instructional Leadership who holds a Class A certification in another teaching field or area of instructional support must take all courses indicated above that were not required for certification in another program at the Class A level.

(INL) Instructional Leadership – Certificate, Academic, non-degree (online only)

27 Hours

MinGPA cumulative 3.25. MinGrade C*.

*REQUIRED COURSES	
EDL 530 Data Driven Decision Making [FE]	3
EDL 548 Education Finance, Law, & Resource Mgt [FE]	3
EDL 563 Curriculum Develop, Improve, Assess [FE]	3
EDL 564 School Community Relations [FE]	3
EDL 566 Management of School Operations [FE]	3
EDL 567 Instructional Leadership [FE]	3
EDL 596 Residency/Internship in Instruct Ldrshp	3
[2]FED 533 The Context of Urban Education	3
[1]SPE 501 Intro to Study Exceptional Children [FE]	3
Academic, non-degree certificate. Place in Catalog. Program into DGW.	

*Prerequisite: Admission to EPP.

[1]Required if the candidate has not taken a special education survey course as part of their UG program or another GR program.

[2]Required if diversity requirement not previously fulfilled.

Education, Secondary

Master of Education

Dr. Samantha Strachan, Program Coordinator
222-F Carver Complex North – Hollings Wing
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PROGRAM DESCRIPTION

Music, Choral or Instrumental (K-12), Class A

The Class A Certificate is for one who holds a bachelor's degree in Music. The program enables one to acquire a deeper knowledge of music theory, pedagogy, curriculum, history, and repertoire.

Music, Choral or Instrumental (K-12), Alternative Class A 5th Year

The Alternative 5th Year program is for one who does not hold a baccalaureate degree in music, but does hold one in the music field i.e. Performance, Business, etc. The program enables one to acquire knowledge of music pedagogy, curriculum, history and philosophy of music and classroom management.

Certification

All teacher education majors that have met the requirements must apply for Alabama Certification. A candidate who files an application must complete the curriculum approved by the State of Alabama. The completion of the curriculum approved for certification and all other requirements for graduation will qualify the student to apply for a professional educator's certificate. The levels of Alabama Professional Educator Certificates for students in the graduate program are: Class A: Master's degree and Class AA: Ed.S. degree.

ADMISSION REQUIREMENTS

Please see the general graduate admission requirements here. Specific requirements to these program are –

Class A

English Language Arts 6-12
Family & Consumer Science 6-12
General Science 6-12
General Social Studies 6-12
Mathematics 6-12
Music, Choral P-12
Music, Instrumental P-12

In addition to specific course requirements, applicants seeking admission must:

1. Be admitted to Teacher Education. Admission to Teacher Education requires the applicant to:
   a. Present evidence of having completed a baccalaureate degree in a teaching field from a regionally accredited institution.
   b. Present a copy of a Class B Professional Educator's Certificate (regular master's program).
   c. Present transcript(s) showing a baccalaureate degree grade point average of 2.50 or better (4.00 system).

Alternative Class A 5th Year

Biology 6-12
English Language Arts 6-12
Family & Consumer Science 6-12
General Science 6-12
General Social Studies 6-12
Mathematics 6-12
Music, Choral P-12
Music, Instrumental P-12

The alternative 5th year program is for applicants who do not hold a baccalaureate degree in a teaching field but wishes to obtain teacher certification. The program enables qualified candidates to acquire the knowledge and skills of an entry-level teacher while at the same time earn a Master's degree.

In addition to specific course requirements, applicants seeking admission to the alternative 5th year programs must:

1. Be admitted to Teacher Education. Admission to Teacher Education requires the applicant to:
   a. Complete all undergraduate deficiencies.
   b. Pass the Praxis II tests in the appropriate area.
2. Complete all undergraduate deficiencies.
3. Present transcript(s) showing a baccalaureate degree grade point average of 2.50 or better (4.00 system).
4. Undergo the required fingerprint/background check.

DEGREE REQUIREMENTS

Candidates must successfully:

1. Complete the prescribed courses listed in the approved program of study.
2. Obtain an overall GPA of 2.50 based on a 4.00 system for Class A Programs.
3. Obtain an overall GPA of 3.25 based on a 4.00 system for Alternative Class A 5th Year Programs.
4. Make application for certification through the Teacher Education and Certification Office.
5. Pass a written comprehensive examination that covers the content of the program (Traditional) OR pass the Praxis II Content Examination (Alt. A only).
6. Pass edTPA in appropriate area.

Internship Prerequisite

Graduate students who expect to participate in internship shall meet all the Teacher Education program admission criteria described in the Alabama Administrative Code and be admitted to a Teacher Education program. Only students who have a minimum of 3.25 grade point average (GPA) overall will be eligible for internship. Graduate students must obtain and maintain a minimum overall of 3.25 grade point average (GPA) throughout their program. An application for internship must be completed and filed in the Office of Field Experiences at least one semester prior to the internship semester. The deadline for the spring is September 30 of the previous semester, and for the fall semester, March 30 of the previous semester. Before a graduate student can participate in internship, the following Prerequisite must be met:

1. The student must have on file an application to a Teacher Education Program.
2. The student must meet all requirements for admission to a Teacher Education Program.
3. The student must meet general studies requirements.
4. The student must have obtained and maintained a minimum of 3.00 grade point average in professional studies, the teaching field and 3.25 GPA overall.
5. All undergraduate deficiencies must be completed.
6. The student must have completed all coursework (excluding internship) from the State approved checklist.
7. The student must have removed all grades of "Incomplete."
8. The student must not have any grades of "C" or lower in any course.
9. Program of Study must be on file with the Center for Educator Preparation and Certification Services and the Graduate Office.
10. Official transcripts from other universities and colleges attended must be on file with the Center for Educator Preparation and Certification Services.
11. The student must obtain requisite score on the Praxis II Tests in appropriate area of concentration.
12. The student must clear the fingerprint/background check with the State Department of Education.

All students enrolled in the Alternative Master's (5th year program) must complete 219 hours of diverse field experience prior to enrolling in the fall or spring semester of internship.

(SED-BIO) Secondary Education – Biology (6-12) – Alternative Class A 5th Year – Non-thesis

45 Credit Hours

MinGPA admit 2.50, cum 3.25. No GPA in req crs, TF. MinGrade C*. Degree M.Ed.

REQUIRED COURSES

FED 501 Foundations of Education [FE]	3
FED 504 Evaluation of Teaching & Learning [FE]	3
FED 521 Foundations of Multicultural Education [FE]	3
FED 529 Computer-based Instructional Tech	3
SED 515 Reading in the Content Area [FE]	3
SED 524 Science in the Secondary School Prgm [FE]	3
[1]SPE 501 Intro to Study Exceptional Children [FE]	3
SPE 530 Mgt of Classroom Behavior	3

TEACHING FIELD

Advisor-approved 5xx-6xx courses in Biology	15

INTERNSHIP

SED 595 Internship	5
SED 596 Graduate Seminar [RPP]	1

PRAXIS II EXAM

Passing exam score also satisfies Comprehensive Exam requirement.

edTPA EXAM

CERTIFICATION APPLICATION

*One grade of C allowed at graduation.

[1]Required if not previously completed. If completed prior to unconditional admit to Alt-A program, another approved diversity course is required.
[FE] = Field Experience required.
[RPP] = research project paper or portfolio required.

(SED-ELA) Secondary Education – English Language Arts (6-12) – Class A – Non-thesis

30 Credit Hours

MinGPA cumulative 3.25. MinGrade C*. Degree M.Ed.

REQUIRED COURSES

FED 503 Intro to Educational Research [RPP]	3
FED 529 Computer-based Instructional Tech	3
SED 527 Guiding Learning in Secondary Schls	3
[1]SPE 501 Intro to Study Exceptional Children [FE]	3
OR FED 533, The Context of Urban Education [FE]	
OR FED 521 Foundations of Multicultural Education [FE]	

TEACHING FIELD

Advisor-approved graduate courses in ELA with at least 1 course in 2 of the following areas: literature, grammar, reading skills, writing, speech, theatre, (print journalism or broadcast journalism).	18

COMPREHENSIVE EXAM

Grade is Pass / Fail.

Exam composed jointly by Advisory Committee.

To be taken after ≥ 66% completion of required coursework.

CERTIFICATION APPLICATION

*One grade of C allowed at graduation.

[1]Required if not previously completed. If completed for prior level certification, another approved diversity course is required.
[FE] = Field Experience required.
[RPP] = Research project paper or portfolio required.
Note: Successful completion of an internship shall be required in English for speakers of other languages and Reading Specialists.

(SED-ELA) Secondary Education – English Language Arts (6-12) – Alternative Class A 5th Year – Non-thesis

45 Credit Hours

MinGPA admit 2.50, cum 3.25. No GPA in req crs, TF. MinGrade C*. Degree M.Ed.

REQUIRED COURSES

FED 501 Foundations of Education [FE]	3
FED 504 Evaluation of Teaching & Learning [FE]	3
FED 521 Foundations of Multicultural Education [FE]	3
FED 529 Computer-based Instructional Tech	3
SED 515 Reading in the Content Area [FE]	3
SED 521 ELA in the Secondary School [FE]	3
[1]SPE 501 Intro to Study Exceptional Children [FE]	3
SPE 530 Mgt of Classroom Behavior	3

TEACHING FIELD

Advisor-approved 5xx-6xx courses in ELA with at least 1 course in 2 of the following areas: literature, grammar, reading skills, writing, speech, theatre, print journalism or broadcast journalism.	15

INTERNSHIP

SED 595 Internship	5
SED 596 Graduate Seminar [RPP]	1

PRAXIS II EXAM

Passing exam score also satisfies Comprehensive Exam requirement.

edTPA EXAM

CERTIFICATION APPLICATION

*One grade of C allowed at graduation.

[1]Required if not previously completed. If completed prior to unconditional admit to Alt-A program, another approved diversity course is required.
[FE] = Field Experience required.
[RPP] = Research project paper or portfolio required.

(SED-FCS) Secondary Education – Family & Consumer Sciences (6-12) – Class A – Non-thesis

30 Credit Hours

MinGPA cumulative 3.25. MinGrade C*. Degree M.Ed.

REQUIRED COURSES

FED 503 Intro to Educational Research [RPP]	3
FED 529 Computer-based Instructional Tech	3
SED 527 Guiding Learning in Secondary Schls	3
[1]SPE 501 Intro to Study Exceptional Children [FE] OR	3
FED 533, The Context of Urban Education [FE] OR	
FED 521 Foundations of Multicultural Education [FE]	

TEACHING FIELD

Advisor-approved 5xx courses in Family/Cons Sci	18

COMPREHENSIVE EXAM

Grade is Pass / Fail.

Exam composed jointly by Advisory Committee.

To be taken after ≥ 66% completion of required coursework.

CERTIFICATION APPLICATION

*One grade of C allowed at graduation.

[1]Required if not previously completed. If completed for prior level certification, another approved diversity course is required.
[FE] = Field Experience required.
[RPP] = Research project paper or portfolio required.
Note: Successful completion of an internship shall be required in English for speakers of other languages and Reading Specialists.

(SED-FCS) Secondary Education – Family & Consumer Sciences (6-12) – Alternative Class A 5th Year – Non-thesis

45 Credit Hours

MinGPA admit 2.50, cum 3.25. No GPA in req crs, TF. MinGrade C*. Degree M.Ed.

REQUIRED COURSES

FCS 505 Curriculum, Plan, Dev in FCS [FE]	3
FED 501 Foundations of Education [FE]	3
FED 504 Evaluation of Teaching & Learning [FE]	3
FED 521 Foundations of Multicultural Education [FE]	3
FED 529 Computer-based Instructional Tech	3
SED 515 Reading in the Content Area [FE]	3
[1]SPE 501 Intro to Study Exceptional Children [FE]	3
SPE 530 Mgt of Classroom Behavior	3

TEACHING FIELD

Advisor-approved 5xx-6xx courses in AMD, FCS, HDF, NHM	15

INTERNSHIP

FCS 595 Internship	5
FCS 596 Graduate Seminar [RPP]	1

PRAXIS II EXAM

Passing exam score also satisfies Comprehensive Exam requirement.

edTPA EXAM

CERTIFICATION APPLICATION

*One grade of C allowed at graduation.

[1]Required if not previously completed. If completed prior to unconditional admit to Alt-A program, another approved diversity course is required.
[FE] = Field Experience required.
[RPP] = Research project paper or portfolio required.

(SED-GSC) Secondary Education – General Science (6-12) – Class A – Non-thesis

30 Credit Hours

MinGPA cumulative 3.25. MinGrade C*. Degree M.Ed.

REQUIRED COURSES

FED 503 Intro to Educational Research [RPP]	3
FED 529 Computer-based Instructional Tech	3
SED 527 Guiding Learning in Secondary Schls	3
[1]SPE 501 Intro to Study Exceptional Children [FE] OR	3
FED 533, The Context of Urban Education [FE] OR	
FED 521 Foundations of Multicultural Education [FE]	

TEACHING FIELD

Advisor-approved graduate courses with at least 1 course in 2 of the following areas: BIO, CHE, PHY	18

COMPREHENSIVE EXAM

Grade is Pass / Fail.

Exam composed jointly by Advisory Committee.

To be taken after ≥ 66% completion of required coursework.

CERTIFICATION APPLICATION

*One grade of C allowed at graduation.

[1]Required if not previously completed. If completed for prior level certification, another approved diversity course is required.
[FE] = Field Experience required.
[RPP] = Research project paper or portfolio required.
Note: Successful completion of an internship shall be required in English for speakers of other languages and Reading Specialists.

(SED-GSC) Secondary Education – General Science (6-12) – Alternative Class A 5th Year – Non-thesis

45 Credit Hours

MinGPA admit 2.50, cum 3.25. No GPA in req crs, TF. MinGrade C*. Degree M.Ed.

REQUIRED COURSES

FED 501 Foundations of Education [FE]	3
FED 504 Evaluation of Teaching & Learning [FE]	3
FED 521 Foundations of Multicultural Education [FE]	3
FED 529 Computer-based Instructional Tech	3
SED 515 Reading in the Content Area [FE]	3
SED 524 Science in the Secondary School Prgm [FE]	3
[1]SPE 501 Intro to Study Exceptional Children [FE]	3
SPE 530 Mgt of Classroom Behavior	3

TEACHING FIELD

Advisor-approved 5xx-6xx courses in BIO, CHE, PHY. Must have at least one course from two areas.	15

INTERNSHIP

SED 595 Internship	5
SED 596 Graduate Seminar [RPP]	1

PRAXIS II EXAM

Passing exam score also satisfies Comprehensive Exam requirement.

edTPA EXAM

CERTIFICATION APPLICATION

*One grade of C allowed at graduation.
[1]Required if not previously completed. If completed prior to unconditional admit to Alt-A program, another approved diversity course is required.
[FE] = Field Experience required.
[RPP] = Research project paper or portfolio required.

(SED-GSSt) Secondary Education – General Social Studies (6-12) – Class A – Non-thesis

30 Credit Hours

MinGPA cumulative 3.25. MinGrade C*. Degree M.Ed.

REQUIRED COURSES

FED 503 Intro to Educational Research [RPP]	3
FED 529 Computer-based Instructional Tech	3
SED 527 Guiding Learning in Secondary Schls	3
[1]SPE 501 Intro to Study Exceptional Children [FE] OR FED 533, The Context of Urban Education [FE] OR FED 521 Foundations of Multicultural Education [FE]	3

TEACHING FIELD

Advisor-approved graduate courses with at least 1 course in 2 of the following areas: HIS, GEO, PSC, ECO	18

COMPREHENSIVE EXAM

Grade is Pass / Fail.

Exam composed jointly by Advisory Committee.

To be taken after ≥ 66% completion of required coursework.

CERTIFICATION APPLICATION

*One grade of C allowed at graduation.
[1]Required if not previously completed. If completed for prior level certification, another approved diversity course is required.
[FE] = Field Experience required.
[RPP] = Research project paper or portfolio required.
Note: Successful completion of an internship shall be required in English for speakers of other languages and Reading Specialists.

(SED-GSSt) Secondary Education – General Social Studies (6-12) – Alternative Class A 5th Year – Non-thesis

45 Credit Hours

MinGPA admit 2.50, cum 3.25. No GPA in req crs, TF. MinGrade C*. Degree M.Ed.

REQUIRED COURSES

FED 501 Foundations of Education [FE]	3
FED 504 Evaluation of Teaching & Learning [FE]	3
FED 521 Foundations of Multicultural Education [FE]	3
FED 529 Computer-based Instructional Tech	3
SED 515 Reading in the Content Area [FE]	3
SED 523 Social Sci in Secondary Schl Curriculum [FE]	3
[1]SPE 501 Intro to Study Exceptional Children [FE]	3
SPE 530 Mgt of Classroom Behavior	3

TEACHING FIELD

Advisor-approved 5xx-6xx courses with at least one course in two of the following areas: HIS, GEO, PSC, ECO	15

INTERNSHIP

SED 595 Internship	5
SED 596 Graduate Seminar [RPP]	1

PRAXIS II EXAM

Passing exam score also satisfies Comprehensive Exam requirement.

edTPA EXAM

CERTIFICATION APPLICATION

*One grade of C allowed at graduation.
[1]Required if not previously completed. If completed prior to unconditional admit to Alt-A program, another approved diversity course is required.
[FE] = Field Experience required.
[RPP] = Research project paper or portfolio required.

(SED-MTH) Secondary Education – Mathematics (6-12) – Class A – Non-thesis

30 Credit Hours

MinGPA cumulative 3.25. MinGrade C*. Degree M.Ed.

REQUIRED COURSES

FED 503 Intro to Educational Research [RPP]	3
FED 529 Computer-based Instructional Tech	3
SED 527 Guiding Learning in Secondary Schls	3
[1]SPE 501 Intro to Study Exceptional Children [FE] OR FED 533, The Context of Urban Education[FE] OR FED 521 Foundations of Multicultural Education [FE]	3

TEACHING FIELD

Advisor-approved graduate courses in Mathematics	18

COMPREHENSIVE EXAM

Grade is Pass / Fail.

Exam composed jointly by Advisory Committee.

To be taken after ≥ 66% completion of required coursework.

CERTIFICATION APPLICATION

*One grade of C allowed at graduation.
[1]Required if not previously completed. If completed for prior level certification, another approved diversity course is required.
[FE] = Field Experience required.
[RPP] = Research project paper or portfolio required.
Note: Successful completion of an internship shall be required in English for speakers of other languages and Reading Specialists.

(SED-MTH) Secondary Education – Mathematics (6-12) – Alternative Class A 5th Year – Non-thesis

45 Credit Hours

MinGPA admit 2.50, cum 3.25. No GPA in req crs, TF. MinGrade C*. Degree M.Ed.

REQUIRED COURSES

FED 501 Foundations of Education [FE]	3
FED 504 Evaluation of Teaching & Learning [FE]	3
FED 521 Foundations of Multicultural Education [FE]	3
FED 529 Computer-based Instructional Tech	3

SED 515 Reading in the Content Area [FE]	3
SED 522 Math in the Secondary School [FE]	3
[1]SPE 501 Intro to Study Exceptional Children [FE]	3
SPE 530 Mgt of Classroom Behavior	3
TEACHING FIELD	
Advisor-approved 5xx-6xx courses in Mathematics	15
INTERNSHIP	
SED 595 Internship	5
SED 596 Graduate Seminar [RPP]	1
PRAXIS II EXAM	
Passing exam score also satisfies Comprehensive Exam requirement.	
edTPA EXAM	
CERTIFICATION APPLICATION	

*One grade of C allowed at graduation.
[1]Required if not previously completed. If completed prior to unconditional admit to Alt-A program, another approved diversity course is required.
[FE] = Field Experience required.
[RPP] = Research project paper or portfolio required.

(SED-MUS-MUC) Secondary Education-Music, Choral (P-12) – Class A – Non-thesis

30 Credit Hours

MinGPA cumulative 3.25. MinGrade C*. Degree M.Ed.

REQUIRED COURSES	
FED 503 Intro to Educational Research [RPP]	3
FED 529 Computer-based Instructional Tech	3
[1]SPE 501 Intro to Study Exceptional Children [FE] OR	3
FED 533 The Context of Urban Education [FE] OR	
FED 521 Foundations of Multicultural Education [FE]	
TEACHING FIELD	
MUS 517 Graduate Conducting	2
MUS 520 History & Philosophy of Music Ed	3
MUS 530 K-12 Music Curriculum	3
MUS 610 Survey of Music Theory	3
MUS 612 Analytical Techniques	3
MUS 620 Survey of Music History	3
Choose 4 hours	
MUS 503 Advanced Keyboard Tech	2
MUS 553 Advanced Vocal Pedagogy	2
MUS Applied Music – Piano or Voice (choose 2 @ 1 hr each – MUS 541, 542, 551, 552)	2
COMPREHENSIVE EXAM	
Grade is Pass / Fail.	
Exam composed jointly by Advisory Committee.	
To be taken after ≥ 66% completion of required coursework.	
CERTIFICATION APPLICATION	

*One grade of C allowed at graduation.
[1]Required if not previously completed. If completed for prior level certification, another approved diversity course is required.
[RPP] = Research project paper or portfolio required.
Note: Successful completion of an internship shall be required in English for speakers of another native language and Reading Specialists.

(SED-MUS-MUC) Secondary Education-Music, Choral (P-12) – Alternative Class A 5th Year – Non-thesis

48 Credit Hours

MinGPA admit 2.50, cum 3.25. No GPA in req crs, TF. MinGrade C*. Degree M.Ed.

REQUIRED COURSES	
FED 501 Foundations of Education [FE]	3
FED 504 Evaluation of Teaching & Learning [FE]	3
FED 521 Foundations of Multicultural Education [FE]	3
FED 529 Computer-based Instructional Tech	3
MUS 530 K-12 Music Curriculum [FE]	3
SED 515 Reading in the Content Area [FE]	3
[1]SPE 501 Intro to Study Exceptional Children [FE]	3
SPE 530 Mgt of Classroom Behavior	3
TEACHING FIELD	
MUS 517 Graduate Conducting	2
MUS 520 History & Philosophy of Music Ed	3
MUS 610 Survey of Music Theory	3
MUS 612 Analytical Techniques	3
MUS 620 Survey of Music History	3
Choose 4 hours from the following	
MUS 503 Advanced Keyboard Techniques	2
MUS 553 Advanced Vocal Pedagogy	2
MUS Applied Music – Piano or Voice (choose 2 @ 1 hr each – MUS 541/542 piano or 551/552 vocal)	2
INTERNSHIP	
MUS 595 Internship in Music	5
MUS 596 Graduate Seminar [RPP]	1
PRAXIS II EXAM	
Passing exam score also satisfies Comprehensive Exam requirement.	
edTPA EXAM	
CERTIFICATION APPLICATION	

*One grade of C allowed at graduation.
[1]Required if not previously completed. If completed prior to unconditional admit to Alt-A program, another approved diversity course is required.
[FE] = Field Experience required.
[RPP] = Research project paper or portfolio required.

(SED-MUS-MUI) Secondary Education-Music, Instrumental (P-12) – Class A – Non-thesis

30 Credit Hours

MinGPA cumulative 3.25. MinGrade C*. Degree M.Ed.

REQUIRED COURSES	
FED 503 Intro to Educational Research [RPP]	3
FED 529 Computer-based Instructional Tech	3
[1]SPE 501 Intro to Study Exceptional Children [FE]	3
OR FED 533 The Context of Urban Education [FE]	
OR FED 521 Foundations of Multicultural Education [FE]	
TEACHING FIELD	
MUS 517 Graduate Conducting	2
MUS 520 History & Philosophy of Music Ed	3
MUS 530 K-12 Music Curriculum	3
MUS 610 Survey of Music Theory	3
MUS 612 Analytical Techniques	3

MUS 620 Survey of Music History	3
Choose 4 hours	
MUS 512 Advanced Percussion Tech	2
MUS 563 Advanced Brass Techniques	2
MUS 573 Advanced Woodwind Tech	2
MUS Applied Music (choose 2 @ 1 hr each any Instr)	2

COMPREHENSIVE EXAM

Grade is Pass / Fail.

Exam composed jointly by Advisory Committee.

To be taken after ≥ 66% completion of required coursework.

CERTIFICATION APPLICATION

*One grade of C allowed at graduation.

[1]Required if not previously completed. If completed for prior level certification, another approved diversity course is required.

[RPP] = Research project paper or portfolio required.

Note: Successful completion of an internship shall be required in English for speakers of another native language and Reading Specialists.

(SED-MUS-MUI) Secondary Education-Music, Instrumental (P-12) – Alternative Class A 5th Year – Non-thesis

48 Credit Hours

MinGPA admit 2.50, cum 3.25. No GPA in req crs, TF. MinGrade C*. Degree M.Ed.

REQUIRED COURSES

FED 501 Foundations of Education [FE]	3
FED 504 Evaluation of Teaching & Learning [FE]	3
FED 521 Foundations of Multicultural Education [FE]	3
FED 529 Computer-based Instructional Tech	3
MUS 530 K-12 Music Curriculum [FE]	3
SED 515 Reading in the Content Area [FE]	3
[1]SPE 501 Intro to Study Exceptional Children [FE]	3
SPE 530 Mgt of Classroom Behavior	3

TEACHING FIELD

MUS 517 Graduate Conducting	2
MUS 520 History & Philosophy of Music Ed	3
MUS 610 Survey of Music Theory	3
MUS 612 Analytical Techniques	3
MUS 620 Survey of Music History	3
Choose 4 hours from the following	
MUS 512 Advanced Percussion Techniques	2
MUS 563 Advanced Brass Techniques	2
MUS 573 Advanced Woodwind Techniques	2
MUS Applied Music (choose 2 @ 1 hr each any Instr)	2

INTERNSHIP

MUS 595 Internship in Music	5
MUS 596 Graduate Seminar [RPP]	1

PRAXIS II EXAM

Passing exam score also satisfies Comprehensive Exam requirement.

edTPA EXAM

CERTIFICATION APPLICATION

*One grade of C allowed at graduation.

[1]Required if not previously completed. If completed prior to unconditional admit to Alt-A program, another approved diversity course is required.

[FE] = Field Experience required.

[RPP] = research project paper or portfolio required.

(SED-ELA) Secondary Education-English Language Arts – Alternative Class A 5th Year – Temporary Provisional Teaching Certificate (TPTC) (academic, non-degree)

12 Hours

MinGPA cumulative 3.0. MinGrade C*.

***REQUIRED COURSES**

FED 504 Evaluation of Teaching & Learning [FE]	3
SED 521 ELA in the Secondary School [FE]	3
[1]SPE 501 Intro to Study Exceptional Children [FE]	3
SPE 530 Mgt of Classroom Behavior	3

*Prerequisite: Admission to EPP.

[1]Required if the candidate has not taken a special education survey course as part of their UG program or another GR program.

(SED-FCS) Secondary Education-Family and Consumer Sciences – Alternative Class A 5th Year – Temporary Provisional Teaching Certificate (TPTC) (academic, non-degree)

12 Hours

MinGPA cumulative 3.0. MinGrade C*.

***REQUIRED COURSES**

FED 504 Evaluation of Teaching & Learning [FE]	3
FCS 505 Curriculum, Plan, Dev in FCS [FE]	3
[1]SPE 501 Intro to Study Exceptional Children [FE]	3
SPE 530 Mgt of Classroom Behavior	3

*Prerequisite: Admission to EPP.

[1]Required if the candidate has not taken a special education survey course as part of their UG program or another GR program.

(SED-GSC) Secondary Education-General Science – Alternative Class A 5th Year – Temporary Provisional Teaching Certificate (TPTC) (academic, non-degree)

12 Hours

MinGPA cumulative 3.0. MinGrade C*.

***REQUIRED COURSES**

FED 504 Evaluation of Teaching & Learning [FE]	3
SED 524 Science in the Secondary School Prgm [FE]	3
[1]SPE 501 Intro to Study Exceptional Children [FE]	3
SPE 530 Mgt of Classroom Behavior	3

*Prerequisite: Admission to EPP.

[1]Required if the candidate has not taken a special education survey course as part of their UG program or another GR program.

(SED-GSSt) Secondary Education – General Social Studies – Alternative Class A 5th Year – Temporary Provisional Teaching Certificate (TPTC) (academic, non-degree)

12 Hours

MinGPA cumulative 3.0. MinGrade C*.

***REQUIRED COURSES**

FED 504 Evaluation of Teaching and Learning [FE]	3
SED 523 Social Science in the Secondary School Curriculum [FE]	3
1SPE 501 Introduction to the Study of Exceptional Children [FE]	3
SPE 530 Management of Classroom Behavior	3

*Prerequisite: Admission to EPP.

[1]Required if the candidate has not taken a special education survey course as part of their UG program or another GR program.

(SED-MTH) Secondary Education-Mathematics – Alternative Class A 5th Year – Temporary Provisional Teaching Certificate (TPTC) (academic, non-degree)

12 Hours

MinGPA cumulative 3.0. MinGrade C*.

*REQUIRED COURSES	
FED 504 Evaluation of Teaching and Learning [FE]	3
SED 522 Mathematics in Secondary Schools [FE]	3
[1]SPE 501 Introduction to the Study of Exceptional Children [FE]	3
SPE 530 Management of Classroom Behavior	3

*Prerequisite: Admission to EPP.

[1]Required if the candidate has not taken a special education survey course as part of their UG program or another GR program.

(SED-MUS-MUC) Secondary Education-Music, Choral (P-12) – Alternative Class A 5th Year – Temporary Provisional Teaching Certificate (TPTC) (academic, non-degree)

12 Hours

MinGPA cumulative 3.0. MinGrade C*.

*REQUIRED COURSES	
FED 504 Evaluation of Teaching & Learning [FE]	3
MUS 530 K-12 Music Curriculum [FE]	3
[1]SPE 501 Intro to Study Exceptional Children [FE]	3
SPE 530 Mgt of Classroom Behavior	3

*Prerequisite: Admission to EPP.

[1]Required if the candidate has not taken a special education survey course as part of their UG program or another GR program.

(SED-MUS-MUI) Secondary Education-Music, Instrumental (P-12) – Alternative Class A 5th Year – Temporary Provisional Teaching Certificate (TPTC) (academic, non-degree)

12 Hours

MinGPA cumulative 3.0. MinGrade C*.

*REQUIRED COURSES	
FED 504 Evaluation of Teaching & Learning [FE]	3
MUS 530 K-12 Music Curriculum [FE]	3
[1]SPE 501 Intro to Study Exceptional Children [FE]	3
SPE 530 Mgt of Classroom Behavior	3

*Prerequisite: Admission to EPP.

[1]Required if the candidate has not taken a special education survey course as part of their UG program or another GR program.

Education, Special

Master of Education

Dr. Tamar Riley, Program Coordinator
220-B Carver Complex North – Hollings Wing
Voice: (256) 372-5459, tamar.riley@aamu.edu

PROGRAM DESCRIPTION

The Special Education Program prepares teachers to educate students with intellectual and learning disabilities, and students with emotional/behavioral disorders. Persons graduating from the program satisfy the proficiencies needed for advanced licensure and are eligible for employment in a range of settings to include public schools and other educational settings.

The program offers concentrations in:

- Collaborative Teaching (K-6) – Class A
- Collaborative Teaching (K-6) – Alternative Class A 5th Year. The Alternative 5th Year program is for applicants who do not hold a baccalaureate degree in a teaching field but wish to obtain teacher certification. The program enables qualified candidates to acquire the knowledge and skills of an entry-level teacher while at the same time earn a Master's degree.
- Collaborative Teaching (6-12) – Class A
- Collaborative Teaching (6-12) – Alternative Class A 5th Year
- Early Childhood Special Education (P-3) – Class A

Certification

All teacher education majors that have met the requirements must apply for Alabama Certification. A candidate who files an application must complete the curriculum approved by the State of Alabama. The completion of the curriculum approved for certification and all other requirements for graduation will qualify the student to apply for a professional educator's certificate. The levels of Alabama Professional Educator Certificates for students in the graduate program are: Class A: Master's degree and Class AA: Ed.S. degree.

ADMISSION REQUIREMENTS

Please see the general graduate admission requirements here. Specific requirements to this program are as follows:

Candidates holding a Class "B" teaching certificate in a field other than Special Education may enter the traditional M.Ed. program but are required to take SPE 500 or SPE 522.

Present transcript(s) showing a baccalaureate degree grade point average of 2.50 or better (4.00 system) for Alternative Class A 5th Year Programs.

Internship Prerequisite

Graduate students who expect to participate in internship shall meet all the Teacher Education program admission criteria described in the Alabama Administrative Code and be admitted to a Teacher Education program. Only students who have a minimum of 3.25 grade point average (GPA) overall will be eligible for internship. Graduate students must obtain and maintain a minimum overall of 3.25 grade point average (GPA) throughout their program. An application for internship must be completed and filed in the Office of Field Experiences at least one semester prior to the internship semester. The deadline for the spring is September 30 of the previous semester, and for the fall semester, March 30 of the previous semester. Before a graduate student can participate in internship, the following Prerequisite must be met:

1. The student must have on file an application to an Educator Preparation Program.
2. The student must meet all requirements for admission to an Educator Preparation Program.
3. The student must meet general studies requirements.
4. The student must have obtained and maintained a minimum of 3.25 grade point average in professional studies, the teaching field and overall.
5. All undergraduate deficiencies must be completed.
6. The student must have completed all coursework (excluding internship) from the State approved checklist.
7. The student must have removed all grades of "Incomplete."
8. The student must not have any grades lower than "C" in any course on an approved ALSDE program checklist.
9. Program of study must be on file with the Educator Preparation Program and the Graduate Office.
10. Official transcripts from other universities and colleges attended must be on file with the Educator Preparation Program.
11. The student must obtain requisite score on the Praxis II Tests in appropriate area of concentration.
12. The student must clear the fingerprint/background check with the State Department of Education.

DEGREE REQUIREMENTS

Candidates must successfully:

1. Complete all coursework on the State-approved Checklist.
2. Obtain an overall GPA of ≥ 2.50 based on a 4.00 system for Class A Programs.
3. Obtain an overall GPA of ≥ 3.25 based on a 4.00 system for Alternative Class A 5th Year Programs.
4. Pass a written comprehensive examination that covers the content of the program (Traditional) OR pass the Praxis II Content Examination (Alt. A only).
5. Make application for certification through the Teacher Education and Certification Office.

Alternative 5th year candidates must also:

1. Complete an internship.
2. Pass the Praxis II Tests in the appropriate area.
3. Pass the edTPA Exam in the appropriate area.

(SPE-CTE) Special Education – Collaborative Teaching (K-6) – Class A – Non-thesis#

33 Credit Hours

MinGPA cumulative 3.25, uncond admit 2.50. MinGrade C*. Degree M.Ed.

REQUIRED COURSES

ECE 521 Research in ELE/ECH	3
FED 503 Intro to Educational Research [RPP]	3
FED 529 Computer-based Instructional Tech	3
[1]SPE 501 Intro to Study Exceptional Children [FE] OR FED 533 The Context of Urban Ed [FE] OR FED 521 Foundations of Multicultural Education [FE]	3

TEACHING FIELD

Advisor-approved graduate courses in Collab Tchr K-6 areas	18

PRACTICUM / edTPA

SPE 522 Learning Strategies for Elementary Schls	3

COMPREHENSIVE EXAM

Grade is Pass / Fail.

Exam composed jointly by Advisory Committee.

To be taken after ≥ 66% completion of required coursework.

CERTIFICATION APPLICATION

DEPT DEFICIENCIES TO ENTER

SPE 500 or SPE 522

[#]Offered online.

*One grade of C allowed at graduation.

[1]Required if not previously completed. . If completed for prior level certification, another approved diversity course is required.

[FE] = Field Experience required.

[RPP] = Research project paper or portfolio required.

Note: Successful completion of an internship shall be required in English for speakers of another native language and Reading Specialists.

(SPE-CTE) Special Education – Collaborative Teaching (K-6) – Alternative Class A 5th Year – Non-thesis

51 Credit Hours

MinGPA admit 2.50, cum 3.25. No GPA in req crs, TF. MinGrade C*. Degree M.Ed.

REQUIRED COURSES

FED 501 Foundations of Education [FE]	3
FED 504 Evaluation of Teaching & Learning [FE]	3
FED 521 Foundations of Multicultural Education [FE]	3
FED 529 Computer-based Instructional Tech	3
[1]SPE 501 Intro to Study Exceptional Children [FE]	3
SPE 516 Collaborative Consultation	3

TEACHING FIELD

ECE 505 Concepts of ELE/ECH Mathematics	3
ECE 512 Investigation of Language Arts	3
ECE 520 Foundations of Teaching Reading [FE]	3
SPE 515 Language Development	3
SPE 522 Learning Strategies for Elem Schls [FE]	3
SPE 530 Mgt of Classroom Behavior	3
SPE 540 Adv Assessment and Planning [FE]	3
RDG 515 Teaching Reading I	3
RDG 516 Teaching Reading II	3

INTERNSHIP

SPE 595 Internship in Special Education	5
SPE 596 Graduate Seminar [RPP]	1

PRAXIS II EXAM

Passing score is ≥ ____.

edTPA EXAM

CERTIFICATION APPLICATION

*One grade of C allowed at graduation.

[1]Required if not previously completed. If completed prior to unconditional admit to Alt-A program, another approved diversity course is required.

[FE] = Field Experience required.

[RPP] = Research project paper or portfolio required.

(SPE-CTS) Special Education – Collaborative Teaching (6-12) – Class A – Non-thesis[#]

33 Credit Hours

MinGPA cumulative 3.25, uncond admit 2.50. MinGrade C*. Degree M.Ed.

REQUIRED COURSES

FED 503 Intro to Educational Research [RPP]	3
FED 529 Computer-based Instructional Tech	3
SED 527 Guiding Learning in Secondary Schls	3
[1]SPE 501 Intro to Study Exceptional Children [FE] OR FED 533 The Context of Urban Ed [FE] OR FED 521 Foundations of Multicultural Education [FE]	3

TEACHING FIELD

Advisor-approved graduate courses in Collab Tchr 6-12 areas	18

PRACTICUM / edTPA

SPE 500 Tching Secondary Students w/ Disab	3

COMPREHENSIVE EXAM

Grade is Pass / Fail.

Exam composed jointly by Advisory Committee.

To be taken after ≥ 66% completion of required coursework.

CERTIFICATION APPLICATION

DEPT DEFICIENCIES TO ENTER

SPE 500 or SPE 522

[#]Offered online.

*One grade of C allowed at graduation.

[1]Required if not previously completed. If completed for prior level certification, another approved diversity course is required.

[FE] = Field Experience required.

[RPP] = Research project paper or portfolio required.

Note: Successful completion of an internship shall be required in English for speakers of another native language and Reading Specialists.

(SPE-CTS) Special Education – Collaborative Teaching (6-12) – Alternative Class A 5th Year – Non-thesis

51 Credit Hours

MinGPA admit 2.50, cum 3.25. No GPA in req crs, TF. MinGrade C*. Degree M.Ed.

REQUIRED COURSES

ECE 520 Foundations of Teaching Reading [FE]	3
FED 501 Foundations of Education [FE]	3
FED 504 Evaluation of Teaching & Learning [FE]	3
FED 521 Foundations of Multicultural Education [FE]	3
FED 529 Computer-based Instructional Tech	3
SPE 500 Tching Secondary Students w/ Disabilities in General Classrooms [FE]	3
[1]SPE 501 Intro to Study Exceptional Children [FE]	3

SPE 516 Collaborative Consultation	3
TEACHING FIELD	
RDG 516 Teaching Reading II	3
SED 515 Reading in the Content Area	3
SED 522 Math in the Secondary School [FE]	3
SPE 520 Learning Strategies for Adolescents	3
SPE 525 Adv Assess/Plan for Secondary SPE	3
SPE 530 Mgt of Classroom Behavior	3
Choose 3 hours from the following:	
SED 521 ELA in the Secondary School [FE]	3
SED 523 Social Sci in Secondary Schl Curriculum [FE]	3
SED 524 Science in the Secondary School Prgm [FE]	3
INTERNSHIP	
SPE 595 Internship in Special Education	5
SPE 596 Graduate Seminar [RPP]	1
PRAXIS II EXAM	
Passing exam score also satisfies Comprehensive Exam requirement.	
edTPA EXAM	
CERTIFICATION APPLICATION	

*One grade of C allowed at graduation.
[1]Required if not previously completed. If completed prior to unconditional admit to Alt-A program, another approved diversity course is required.
[FE] = Field Experience required.
[RPP] = Research project paper or portfolio required.

(SPE-CTE) Special Education – Collaborative Teaching (K-6) – Alternative Class A 5th Year – Temporary Provisional Teaching Certificate (TPTC) (academic, non-degree)

15 Hours

MinGPA cumulative 3.0. MinGrade C*.

*REQUIRED COURSES	
SPE 201 Intro to Study of Excep Child	3
SPE 326 Mgt of Classroom Behavior	3
SPE 328 M/M of Learning Strategies for Students with Exceptionalities - Mathematics and Science	3
SPE 403 Special Ed Assessment & Planning	3
SPE 426 Collaborative Consultation	3

*Prerequisite: Admission to EPP.

Electrical Engineering

Master of Science Electrical Engineering

Dr. Satilmis Budak, Program Coordinator
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PROGRAM DESCRIPTION

The mission of the Master of Science in Electrical Engineering (MSEE) degree program is to prepare graduates for advanced careers in electrical, electronics, and computer engineering industries and provide them with the foundation to pursue the Ph.D. degree in electrical engineering, computer engineering, or related fields if they choose to do so. The MSEE program supports the university's mission in fostering access and opportunity and application of knowledge responsive to the needs of a diverse student population and the social and economic needs of the state and region.

The program emphasizes the theory and application of advanced electrical and computer engineering principles utilizing analytical, computational, and experimental methods and tools. The goal of the program is to produce forward-looking engineering professionals who are capable of making significant contributions to society.

Graduates with MSEE degree are needed for design, research and development as well as supervisory positions in industry and government. They are typically recruited by companies within various engineering sectors including aerospace, automotive, communication, control, computer, defense, electronics, energy, information, power generation and distribution including utilities, manufacturing including materials and metals, oil and gas. Graduates of the MSEE program with Thesis Option will also be well prepared to pursue the terminal degree of Ph.D. in electrical engineering, computer engineering, or related fields.

STUDENT PROGRAM OUTCOMES

Graduates of the MSEE program are expected to meet the following learning outcomes:

1. Demonstrate knowledge, understanding, and proficiency related to fundamentals of electrical engineering and computer engineering.
2. Demonstrate thorough knowledge in one or more of the following areas: (a) microelectronic fabrication and characterization; (b) embedded computer systems; (c) intelligent and autonomous systems; (d) communication systems; (e) power systems.
3. Show proficiency in at least one of the following areas: (a) design and perform experiments, collect and interpret experimental data related to significant problems in electrical engineering, and utilize experimental results to improve device and system functionality; (b) design, implement, and evaluate embedded computation and control systems; (c) design systems and utilize computer simulation results to iterate the design process and improve system performance.
4. Show knowledge and understanding of current technological trends related to electrical engineering and computer engineering; show ability to search, evaluate, and utilize information in an independent way to solve relevant industrial and/or governmental engineering problems.

ADMISSION REQUIREMENTS

Please see the general graduate admission requirements here.
Specific requirements to this program are as follows:
For regular admission, applicants to the MSEE program should have earned an overall undergraduate GPA of at least 3.0 on a 4.0 scale, during the last 60 credit hours of relevant undergraduate coursework in an ABET accredited Electrical Engineering and/or Computer Engineering. However, if the GPA is less than 3.0, and/or the applicant has otherwise demonstrated aptitude for success, probationary admission will be considered.

Applicants must submit the following documentation for admission consideration:

1. Completed AAMU graduate admission form to the AAMU admissions office.
2. For those applicants without a BSEE degree from AAMU
   a. Official transcripts of all post-secondary coursework.
   b. Official results of the Graduate Record Examination (GRE) general test. Applicant must score greater than 50th percentile in the Quantitative portion, and greater than or equal to the 30th percentile in the Verbal portion.
   c. In lieu of the GRE exam, prospective students may submit evidence of a passing score on the standardized FE (Fundamentals of Engineering) examination.
3. International students whose native language is other than English must score greater than or equal to 6.0 on each IELTS sub-score, or greater than or equal to 14 on each TOEFL sub-score.
4. Two letters of recommendation for applicants with overall GPA less than 3.0 in the last relevant 60 hours of their undergraduate degree program. Recommendations should be from undergraduate advisors/instructors or similar.

It is recommended that completed applications be submitted by:

- Fall semester
  - U.S. students: June 15th
  - International students: May 15th
- Spring semester
  - U.S. students: November 15th
  - International students: October 15th

Applicants may apply online at
https://www.aamu.edu/admissions-aid/graduate-admissions/forms.html

Each application will be reviewed by the EE Master's Committee when all documentation has been received. After review, the committee will recommend one of the following:

Normal Acceptance
The student is accepted without any conditions.

Normal Acceptance with Prerequisite
This applies to an otherwise qualified candidate who has a BS degree, but not in Electrical or Computer Engineering. The student will be notified of any course prerequisite make-up requirements specified by the committee.

Probationary Acceptance
Students with marginal qualifications may be accepted conditionally. They will need to earn a 'B' or better in each course in the first semester of graduate coursework. The student will be notified of any course prerequisite make-up requirements specified by the committee.

Non-Acceptance
The student is denied admission.

The EE Master's Committee is tasked with adjudicating any procedural issues related to admission in the M.S. program in electrical engineering.

ADVISING PROCEDURE

Upon acceptance into the MSEE program, students should immediately contact the primary EE graduate advisor to schedule an initial meeting. At this time, a review of the student's status and requirements will be discussed. A tentative program of study for the first semester will be established.

Within the first semester of the program, the student will be assigned an academic advisor. For non-thesis students, the assigned advisor will be the permanent advisor through graduation. For students following the thesis option, the thesis advisor will replace the primary advisor.

It is the responsibility of the student, in consultation with his/her advisor, to compile a complete program of study to satisfy the degree requirements. This should be submitted to the advisor, typically within the first two semesters of study.

DEGREE REQUIREMENTS

Students in the MSEE degree program may opt for either the thesis or the non-thesis options. In either case, the program requires a minimum of 30 credit hours of graduate-level courses with a cumulative grade point average (GPA) of 3.0, not including any make-up requirements specified by the EE Master's Committee.

Students with a BSEE degree from AAMU must choose approved substitute course(s) if any of the cross-listed courses were taken as part of their BSEE degree

Thesis Option (30 credits)
Students in the thesis option take six required EE classes including EE521, EE526, EE531, EE541, EE551, EE6xx (Digital Systems Synthesis), six credit hours of thesis EE699, and two elective EE classes chosen from the approved list of EE courses. The master's research and thesis (6 credit hours) must be an original work that (1) offers a theoretical contribution to the field, or (2) provides a new methodology or technique for solving practical problems in the area of electrical engineering.

The Comprehensive Final Examination is required for all candidates under the thesis option, and is arranged by the graduate advisor, subject to the deadline date(s) established by the Graduate School. The candidate must submit the properly formatted thesis to his/her advisor and the thesis supervisory committee, at least six weeks prior to the anticipated date of graduation. Students must comply with all rules/regulations governing theses as required by the University.

Non-thesis Option (30 credits)
Students in the non-thesis option take six required EE classes including EE521, EE 526, EE531, EE541, EE551, EE625, and four elective classes chosen from the approved list of EE and non-EE classes. In addition, each student in the non-thesis option must complete a capstone project and submit appropriate documentation to the graduate advisor.

The student's Program of Study, and any alterations to it, must be approved by the graduate advisor, and the Thesis Committee if applicable.

Core Courses
Each student must take all of the core courses to fulfill the breadth requirement. A minimum GPA of 3.00 must be earned in the core courses.

Elective Courses
A number of elective courses are provided for the student in various fields of specialization.

(EE) Electrical Engineering – Thesis incl. AMP Option

30 Credit Hours

MinGPA cumulative 3.0. MinGrade C*. Degree M.S.E.E.

REQUIRED COURSES	
EE 521 Advanced Power Systems	3
EE 526 Next Generation Mobile Networks	3
EE 531 Advanced Semiconductor Engineering	3
EE 541 Digital Signal Processing	3
EE 551 Integrated Circuit Fabrication	3
EE 625 Digital Systems Synthesis	3
EE ELECTIVES	6
THESIS	
Grade is Pass / Fail.	
EE 699 Electrical Engineering Thesis	6
Oral Defense	

*One grade of C allowed at graduation.
Note: AMP option students – GRE waived with ≥ 3.5 GPA.
Note: AMP option students must follow breakout below:
5th year first semester – EE 5xx-6xx required course, EE 5xx-6xx required course, EE graduate elc.
5th year second semester – EE 5xx-6xx required course, EE graduate elc, EE 699.

5th year summer semester – EE 699.

(EE) Electrical Engineering – Non-Thesis incl. AMP Option

30 Credit Hours

MinGPA cumulative 3.0. MinGrade C*. Degree M.S.E.E.

REQUIRED COURSES	
EE 521 Advanced Power Systems	3
EE 526 Next Generation Mobile Networks	3
EE 531 Advanced Semiconductor Engineering	3
EE 541 Digital Signal Processing	3
EE 551 Integrated Circuit Fabrication	3
EE 625 Digital Systems Synthesis	3
EE 690 Independent Study [RPP]	3
EE ELECTIVES	9
COMPREHENSIVE EXAM	
Grade is Pass / Fail.	
Written exam composed jointly by Advisory Committee.	
To be taken after completion of required coursework.	

*One grade of C allowed at graduation.
[RPP] = Research project paper or portfolio required.
Note: AMP option students – GRE waived with ≥ 3.5 GPA.
Note – AMP option students must follow breakout below:
5th year first semester – EE 5xx-6xx required course, EE 5xx-6xx required course, EE graduate elc.
5th year second semester – EE 5xx-6xx required course, EE graduate elc, EE graduate elc.
5th year summer semester – EE 690.

Concentrations, Specializations & Electives

(EE) ELECTRICAL ENGINEERING ELECTIVES	
CS 541 Operating System Principles	3
CS 551 Database Management Systems	3
CS 561 Software Engineering Methodology	3
EE 522 Smart Grid Cyber Security	3
EE 525 High Performance Computing	3
EE 590 Special Topics	3
EE 605 Reconfigurable Computing Systems	3
EE 610 Embedded Computing Systems	3
EE 615 Probabilistic Signals and Systems	3
EE 620 Reverse Engineering	3
EE 630 Antenna Theory and Design	3
EE 635 Global Positioning System	3
EE 640 Radio Wave Propagation	3
EE 650 Non-Linear Controls	3
EE 660 Test Engineering	3
EE 670 Artificial Intelligence	3
EE 675 Machine Learning	3
EE 690 Independent Study	3
GEN 601 Life-Cycle Design Engineering	3
NRE 636 Regression Analysis	3
NRE 730 Applied Multivariate Analysis	3
NRE 775 Advanced Princ of Geographic Info Systems	4
PHY 715 Fiber Optics	3
PHY 725 Optical Fiber Communications	4

Note: Students with a BSEE degree from AAMU must choose approved substitute course(s) if any of the cross-listed courses were taken as part of their BSEE degree

Family and Consumer Sciences

Master of Science

Dr. Ethel Jones, Program Coordinator
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PROGRAM DESCRIPTION

The Master of Science program in Family and Consumer Sciences is dedicated to preparing researchers and academicians to engage in a diverse range of intellectual initiatives and issues critical to the well-being of individuals and families. The flexibility of the Master's degree program in Family and Consumer Sciences allows students the opportunity to achieve professional and personal goals.

ADMISSION REQUIREMENTS

Please see the general graduate admission requirements here. Specific requirements to this program are as follows:

1. Applicants must hold a bachelor's degree in a Family and Consumer Sciences program from an accredited AAFCS program.
2. Academic records of applicants with a bachelor's degree in a related or unrelated field will be assessed for the necessary Prerequisite. Any prerequisite not met will require additional undergraduate or graduate courses.

DEGREE REQUIREMENTS

A total of 34 credit hours of coursework, 13 of which are common core courses, is required for completion of the program. The remaining hours (15 thesis/21 non-thesis) may be taken through one of the area concentrations/specializations:

1. Apparel, Merchandising and Design.
2. Human Development and Family Studies.
3. Nutrition and Hospitality Management.

(FCS) Family and Consumer Sciences – Thesis

34-35 Credit Hours

MinGPA cumulative 3.0. MinGrade C*. Degree M.S.

CORE COURSES	
FED 503, FCS 590, adv-aprvd rsrch course	3
FCS 508 Trends & Issues in the Profession	3
FCS 511 Admin, Ldrship, & Suprvisn in FCS	3
FCS 514 Seminar	1
NRE 629, PSY 502, adv-aprvd stat course	3-4
SPECIALIZATION	15
THESIS	
Grade is Pass / Fail. MinHrs 6.	
FCS 599 Thesis	1-6
Oral Defense	

*One grade of C allowed at graduation.

(FCS) Family and Consumer Sciences (FCS) – Non-Thesis

34-35 Credit Hours

MinGPA cumulative 3.0. MinGrade C*. Degree M.S.

CORE COURSES	
FED 503, adv-aprvd rsrch course	3
FCS 508 Trends & Issues in the Profession	3
FCS 511 Admin, Ldrship, & Suprvisn in FCS	3
FCS 514 Seminar [RPP]	1
NRE 629, PSY 502, adv-aprvd stat course	3-4
CONCENTRATION	21
MASTER'S REPORT	
Grade is Pass / Fail.	
COMPREHENSIVE EXAM	
Grade is Pass / Fail.	
Exam composed jointly by Advisory Committee.	
To be taken after ≥ 66% completion of required coursework.	

*One grade of C allowed at graduation.
[RPP] = Research project paper or portfolio required.

Concentrations, Specializations & Electives

THESIS OPTION (FCS-AMD) APPAREL, MERCHANDISING & DESIGN SPECIALIZATION Choose 15 hours	
AMD 527 Consumer Textiles	3
AMD 528 Social, Psych, Econ Aspect of Clothing	3
AMD 530 Special Problems	3
AMD 533 Historical Costume	3
AMD 534 Advanced Costume Design	3
AMD 535 Advanced Tailoring	3
AMD 537 Fashion Merchandising Study Tour	1-3
AMD 540 Clothing for the Elderly	3
AMD 618 Textile Economics	3
AMD 650 New Directions in Textiles & Clothing	3
FCS 512 Tech Advances & Appl in the Profession	3
FCS 530 Special Problems	3
FCS 600 Program Planning and Evaluation	3

NON-THESIS OPTION (FCS-AMD) APPAREL, MERCHANDISING & DESIGN CONCENTRATION (AMD) Choose 21 hours	
AMD 527 Consumer Textiles	3
AMD 528 Social, Psych, Econ Aspect of Clothing	3
AMD 530 Special Problems	3
AMD 533 Historical Costume	3
AMD 534 Advanced Costume Design	3
AMD 535 Advanced Tailoring	3
AMD 537 Fashion Merchandising Study Tour	1-3
AMD 540 Clothing for the Elderly	3
AMD 618 Textile Economics	3
AMD 650 New Directions in Textiles & Clothing	3
FCS 512 Tech Advances & Appl in the Profession	3
FCS 530 Special Problems	3
FCS 600 Program Planning and Evaluation	3

THESIS OPTION (FCS-HDF) HUMAN DEV & FAMILY STUDIES SPECIALIZATION

Choose 15 hours

FCS 512 Tech Advances & Appl in the Profession	3
FCS 530 Special Problems	3
FCS 600 Program Planning and Evaluation	3
HDF 500 Family Development & Culture	3
HDF 515 Social & Emotional Dev of Children	3
HDF 517 Consumer Behavior	3
HDF 518 Parenting Perspectives	3
HDF 519 Child Development Programs	3
HDF 520 Family Resource Management	3
HDF 521 Youth Programs	3
HDF 524 Adults and their Relationships	3
HDF 526 Multi-Sensory Approaches to Learning	3
HDF 530 Special Problems in Child Development	3
HDF 544 Support Systems for the Elderly	3
HDF 604 Readings in the Profession	3
HDF 610 Strategies of Parent Involvement	3

NON-THESIS OPTION
(FCS-HDF) HUMAN DEV & FAMILY STUDIES CONCENTRATION
Choose 21 hours

FCS 512 Tech Advances & Appl in the Profession	3
FCS 530 Special Problems	3
FCS 600 Program Planning and Evaluation	3
HDF 500 Family Development & Culture	3
HDF 515 Social & Emotional Dev of Children	3
HDF 517 Consumer Behavior	3
HDF 518 Parenting Perspectives	3
HDF 519 Child Development Programs	3
HDF 520 Family Resource Management	3
HDF 521 Youth Programs	3
HDF 524 Adults and their Relationships	3
HDF 526 Multi-Sensory Approaches to Learning	3
HDF 530 Special Problems in Child Development	3
HDF 544 Support Systems for the Elderly	3
HDF 604 Readings in the Profession	3
HDF 610 Strategies of Parent Involvement	3

THESIS OPTION
(FCS-NHM) NUTRITION & HOSPITALITY MGT SPECIALIZATION
Choose 15 hours

FCS 512 Tech Advances & Appl in the Profession	3
FCS 530 Special Problems	3
FCS 600 Program Planning and Evaluation	3
FIN 511 Financial Mgt & Policy	3
MGT 515 Organizational Theory and Behavior	3
MGT 564 Human Resource Management	3
NHM 501 Advanced Maternal & Child Nutrition	3
NHM 502 Advanced Quantity Foods	3
NHM 503 Experimental Foods	3
NHM 504 Breastfeeding and Human Lactation	3
NHM 505 Contemp Probs in Hospitality Industry	3
NHM 511 Nutrition Ed Program Plan/Implement	3
NHM 530 Special Problems	1-3
NHM 548 Food & Nutrition Workshop	3
NHM 612 Adolescent and Geriatric Nutrition	3

NON-THESIS OPTION
(FCS-NHM) NUTRITION & HOSPITALITY MGT CONCENTRATION
Choose 21 hours

FCS 512 Tech Advances & Appl in the Profession	3
FCS 530 Special Problems	3
FCS 600 Program Planning and Evaluation	3
FIN 511 Financial Mgt & Policy	3
MGT 515 Organizational Theory and Behavior	3
MGT 564 Human Resource Management	3
NHM 501 Advanced Maternal & Child Nutrition	3
NHM 502 Advanced Quantity Foods	3
NHM 503 Experimental Foods	3
NHM 504 Breastfeeding and Human Lactation	3
NHM 505 Contemp Probs in Hospitality Industry	3
NHM 511 Nutrition Ed Program Plan/Implement	3
NHM 530 Special Problems	1-3
NHM 548 Food & Nutrition Workshop	3
NHM 612 Adolescent and Geriatric Nutrition	3

Food Science

Master of Science

Dr. Mamadou Lamin Kassama, Program Coordinator
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ADMISSION REQUIREMENTS

Please see the general graduate admission requirements here. Specific requirements to this program are as follows:

1. Applicants must have a Bachelor of Science degree in an area of agriculture or other sciences, nutrition, animal science, engineering or mathematics.
2. Students holding degrees in other fields may be required to take additional courses to satisfy any deficiencies of core courses considered vital for food science undergraduate majors. Deficiency coursework does not count toward the degree requirements. Any deficiencies will be determined by the graduate student advisory committee. Students seeking to enter the M.S. degree program will be admitted under the following conditions:

   Regular Admit
   a. A minimum overall GPA of 2.75 (4.00 system)
      OR
   b. A minimum major GPA of 3.00

   Conditional Admit
   a. A minimum overall GPA of 2.50 – 2.74 (4.0 system).

DEGREE REQUIREMENTS

Thesis Option

A minimum of 30 credit hours to include 24 hours of coursework with an additional one hour of graduate seminar and 6 credit hours of thesis research are required for graduation. Of these, at least 12 hours of coursework should be at the 600 level, with a minimum of 9 hours at 600 level in the major area of emphasis. Students without an undergraduate degree in the major will be guided by their graduate student advisory committee to take additional courses that will generally extend the hours in the program beyond 30 credit hours. The students are expected to complete the degree within a period of two calendar years. During the course of graduate study, the student will be required to maintain a minimum GPA of 3.0. A successful defense of the thesis and a completed thesis document prepared according to the Guidelines of the School of Graduate Studies will complete the degree requirements.

Non-thesis Option

A minimum of 36 credit hours to include 32 hours of coursework and 4 hours of master's report as determined by the graduate advisor and program coordinator. An additional one hour of graduate seminar is required. Eighteen (18) hours must be in the student's major area and, of these, 9 hours must be at the 600 level or higher. An additional 3 credits required at the 600 level or higher may be in supporting areas. The master's report is prepared using the guidelines of the School of Graduate Studies. Passing a comprehensive examination administered by the departmental graduate faculty and program coordinator is required to complete the degree requirements.

(FDC) Food Science – Thesis
31 Credit Hours
MinGPA cumulative 3.0. MinGrade C*. Degree M.S.

CORE COURSES	
FAS 697 Seminar	1
NRE 629, NRE 630, FAS 540	4
MAJOR	
Minimum 9 hours at 6xx level	20
THESIS	
Grade is Pass / Fail. MinHrs 6.	
FAS 699 Research for M.S.	1-6
Oral Defense	

*One grade of C allowed at graduation.

(FDC) Food Science – Non-Thesis
37 Credit Hours
MinGPA cumulative 3.0. MinGrade C*. Degree M.S.

CORE COURSES	
FAS 697 Seminar	1
NRE 629, NRE 630, FAS 540	4
MAJOR	
Minimum 9 hours at 6xx level	28
REPORT	
Grade is Pass / Fail.	
FAS 698 Master's Report [RPP]	4
FINAL PRESENTATION	
COMPREHENSIVE EXAM	
Grade is Pass / Fail.	
Written exam composed jointly by graduate faculty.	
To be taken after ≥ 66% completion of required coursework.	

*One grade of C allowed at graduation.
[RPP] = Research project paper or portfolio required.

Concentrations, Specializations & Electives

THESIS & NON-THESIS OPTION (FDC-AH) ANIMAL HEALTH CONCENTRATION MinGPA 3.0. MinGrade C.	
FAS 504 Animal Hygiene & Parasitology	3
FAS 528 Physiology of Reproduction	4
FAS 623 Quantitative Genetics	3
FAS 632 Monogastric Nutrition & Metabolism	3
And Any **NINE HOURS** of the following:	
FAS 503 Food Microbiology	4
FAS 505 Meat & Poultry Science & Technology	3
FAS 507 Food Chemistry	4
FAS 508 Food Analysis	4
FAS 586 Advanced Topics in Animal Science	3
FAS 601 Scientific Writing	3
FAS 605 Special Problems	3
FAS 615 Food Enzymes	3
FAS 624 Animal Models and Responsible Conduct in Biomedical Research	3
FAS 630 Advanced Reproductive Physiology	3
FAS 640 Product Development & Research	3
FAS 642 Minerals & Vitamins in Foods & Nutrition	3
FAS 644 Proteins in Foods & Nutrition	3
FAS 646 Carbohydrates & Lipids in Food	3
FAS 659 Food Systems Biosecurity and Bio terrorism	3
FAS 671 Introduction to Biotechnology	3
FAS 686 Advanced Topics in Animal Science	3
FAS 741 Advances in Nutrition	3
FAS 771 Advanced Food Biotechnology	3
FAS 796 Advanced Topics in Food Science	3

THESIS & NON-THESIS OPTION (FDC-MFB) MOLECULAR FOOD BIOTECHNOLOGY CONCENTRATION MinGPA 3.0. MinGrade C.	
FAS 553 Agricultural Biochemistry	4
FAS 615 Food Enzymes	3
FAS 671 Introduction to Biotechnology	3
NRE 533 Introduction to Molecular Genetics	3
And Any **NINE HOURS** of the following:	
FAS 503 Food Microbiology	4
FAS 507 Food Chemistry	4
FAS 508 Food Analysis	4
FAS 572 Food Processing	4
FAS 582 Food Packaging and Quality Control	3
FAS 601 Scientific Writing	3
FAS 605 Special Problems	3
FAS 610 Sensory Science	3
FAS 611 Food Toxicology	3
FAS 624 Animal Models and Responsible Conduct in Biomedical Research	3
FAS 640 Product Development & Research	3
FAS 642 Minerals & Vitamins in Foods & Nutrition	3
FAS 644 Proteins in Foods & Nutrition	3
FAS 646 Carbohydrates & Lipids in Food	3
FAS 652 Food Quality Assurance	3
FAS 678 Applied Nutrigenomics	3
FAS 707 Advanced Food Chemistry	3
FAS 711 Advanced Food Toxicology	3
FAS 741 Advances in Nutrition	3
FAS 771 Advanced Food Biotechnology	3
FAS 780 Functional Foods & Neutraceuticals in Health Disease	3
FAS 796 Advanced Topics in Food Science	3
NRE 535 Introduction to Bioinformatics	4
NRE 763 Advanced Molecular Genetics	3

THESIS & NON-THESIS OPTION (FDC-FSP) FOOD SAFETY AND PROCESSING CONCENTRATION MinGPA 3.0. MinGrade C.	
FAS 552 Food Quality Assurance	3
FAS 654 Food Microbiological Techniques	3
FAS 701 Advanced Food Microbiology	3
FAS 772 Advanced Food Processing	3
And Any **NINE HOURS** of the following:	
FAS 503 Food Microbiology	4
FAS 507 Food Chemistry	4
FAS 508 Food Analysis	4
FAS 538 Fruits, Vegs & Cereal Products Tech	3
FAS 550 Regulation of Food Safety and Quality	3
FAS 561 Food Engineering	4
FAS 572 Food Processing	4
FAS 582 Food Packaging and Quality Control	3
FAS 601 Scientific Writing	3
FAS 602 Produce Safety	3
FAS 605 Special Problems	3
FAS 610 Sensory Science	3
FAS 611 Food Toxicology	3
FAS 615 Food Enzymes	3
FAS 626 Food Ingredient Technology	3
FAS 640 Product Development & Research	3
FAS 642 Minerals & Vitamins in Foods & Nutrition	3
FAS 652 Food Quality Assurance	3
FAS 659 Food Systems Biosecurity and Bioterrorism	3
FAS 662 Food Rheology	3
FAS 671 Introduction to Biotechnology	3
FAS 711 Advanced Food Toxicology	3
FAS 736 Advanced Sensory Evaluation	3
FAS 761 Advanced Food Engineering	3
FAS 782 Advanced Food Packaging	3
FAS 796 Advanced Topics in Food Science	3

THESIS & NON-THESIS OPTION
(FDC-FPD) FOOD PRODUCT DEVELOPMENT CONCENTRATION
MinGPA 3.0. MinGrade C.

FAS 552 Food Quality Assurance	3
FAS 610 Sensory Science	3
FAS 636 Science of Culinology	3
FAS 640 Product Development and Research	3
And Any **NINE HOURS** of the following:	
FAS 503 Food Microbiology	4
FAS 507 Food Chemistry	4
FAS 508 Food Analysis	4
FAS 550 Regulation of Food Safety and Quality	3
FAS 561 Food Engineering	4
FAS 572 Food Processing	4
FAS 582 Food Packaging and Quality Control	3
FAS 601 Scientific Writing	3
FAS 605 Special Problems	3
FAS 617 Food Flavors & Pigments	3
FAS 626 Food Ingredient Technology	3
FAS 642 Minerals & Vitamins in Foods & Nutrition	3
FAS 652 Food Quality Assurance	3
FAS 662 Food Rheology	3
FAS 676 Food Processing & Nutrients	3
FAS 736 Advanced Sensory Evaluation	3
FAS 780 Functional Foods & Neutraceuticals in Health Disease	3
FAS 782 Advanced Food Packaging	3
FAS 796 Advanced Topics in Food Science	3

THESIS & NON-THESIS OPTION
(FDC-FCB) FOOD CHEMISTRY/BIOCHEMISTRY CONCENTRATION
MinGPA 3.0. MinGrade C.

FAS 615 Food Enzymes	3
FAS 617 Food Flavors/Pigments	3
FAS 626 Food Ingredient Technology	3
FAS 642 Minerals & Vitamins in Foods & Nutrition	3
And Any **NINE HOURS** of the following:	
FAS 505 Meat & Poultry Science & Technology	3
FAS 507 Food Chemistry	4
FAS 508 Food Analysis	4
FAS 538 Fruits, Vegs & Cereal Products Tech	3
FAS 553 Agricultural Biochemistry	4
FAS 572 Food Processing	4
FAS 582 Food Packaging and Quality Control	3
FAS 601 Scientific Writing	3
FAS 605 Special Problems	3
FAS 610 Sensory Science	3
FAS 640 Product Development & Research	3
FAS 644 Proteins in Foods and Nutrition	3
FAS 646 Carbs/Lipids in Foods/Nutrition	3
FAS 652 Food Quality Assurance	3
FAS 659 Food Systems Biosecurity and Bioterrorism	3
FAS 676 Food Processing and Nutrients	3
FAS 707 Advanced Food Chemistry	3
FAS 780 Functional Foods & Neutraceuticals in Health Disease	3
FAS 796 Advanced Topics in Food Science	3

THESIS & NON-THESIS OPTION
(FDC-MNBT) MOLECULAR/NUTRITIONAL BIOCHEMISTRY/TOXICOLOGY CONCENTRATION
MinGPA 3.0. MinGrade C.

FAS 611 Food Toxicology	3
FAS 642 Minerals/Vitamins in Foods/Nutrition	3
FAS 678 Applied Nutrigenomics	3
FAS 741 Advances in Nutrition	3
And Any **NINE HOURS** of the following:	
FAS 507 Food Chemistry	4
FAS 508 Food Analysis	4
FAS 552 Food Quality Assurance	3
FAS 572 Food Processing	4
FAS 582 Food Packaging and Quality Control	3
FAS 601 Scientific Writing	3
FAS 605 Special Problems	3
FAS 610 Sensory Science	3
FAS 615 Food Enzymes	3
FAS 617 Food Flavors & Pigments	3
FAS 624 Animal Models and Responsible Conduct in Biomedical Research	3
FAS 626 Food Ingredient Technology	3
FAS 636 Science of Culinology	3
FAS 640 Product Development & Research	3
FAS 644 Proteins in Foods and Nutrition	3
FAS 646 Carbs/Lipids in Foods/Nutrition	3
FAS 652 Food Quality Assurance	3
FAS 671 Introduction to Biotechnology	3
FAS 676 Food Processing and Nutrients	3
FAS 707 Advanced Food Chemistry	3
FAS 711 Advanced Food Toxicology	3
FAS 752 World Food Problems & Policy	3
FAS 780 Functional Foods & Neutraceuticals in Health Disease	3
FAS 796 Advanced Topics in Food Science	3

THESIS OPTION (FDC) FOOD SCIENCE ELECTIVES	
FAS 503 Food Microbiology	4
FAS 504 Animal Hygiene and Parasitology	3
FAS 505 Meat & Poultry Science & Technology	3
FAS 507 Food Chemistry	4
FAS 508 Food Analysis	4
FAS 521 Poultry Products Technology	3
FAS 528 Physiology of Reproduction	4
FAS 538 Fruits, Vegs & Cereal Products Tech	3
FAS 550 Regulation of Food Safety & Quality	3
FAS 552 Food Quality Assurance	3
FAS 553 Agricultural Biochemistry	4
FAS 561 Food Engineering	4
FAS 572 Food Processing	4
FAS 586 Advanced Topics in Animal Science	3
FAS 605 Special Problems	1-3
FAS 610 Sensory Science	3
FAS 611 Food Toxicology	3
FAS 615 Food Enzymes	3
FAS 617 Food Flavors and Pigments	3
FAS 623 Quantitative Genetics	3
FAS 626 Food Ingredient Technology	3
FAS 630 Advanced Reproductive Physiology	3
FAS 632 Monogastric Nutrition & Metabolism	3
FAS 640 Product Development & Research	3
FAS 642 Minerals/Vitamins in Foods & Nutrition	3
FAS 644 Proteins in Foods and Nutrition	3
FAS 646 Carbohydrates/Lipids in Foods & Nutrition	3
FAS 654 Food Microbiological Techniques	3
FAS 657 Analytical Techniques & Instrumentation	3
FAS 658 Food Microstructure	3
FAS 659 Food Systems Biosecurity & Bioterrorism	3
FAS 662 Food Rheology	3
FAS 671 Introduction to Biotechnology	3
FAS 672 Food Rheology	3
FAS 676 Food Processing and Nutrients	3
FAS 678 Applied Nutrigenomics	3
FAS 701 Advanced Food Microbiology	3
FAS 707 Advanced Food Chemistry	3
FAS 711 Advanced Food Toxicology	3
FAS 736 Advanced Sensory Evaluation	3
FAS 741 Advances in Nutrition	3
FAS 761 Advanced Food Engineering	3
FAS 771 Advanced Food Biotechnology	3
FAS 772 Advanced Food Processing	3
FAS 780 Functional Foods & Neutraceuticals in Health Disease	3
FAS 782 Advanced Food Packaging	3
FAS 796 Advanced Topics in Food Science	3
FAS 798 Teaching Experience for Ph.D.	3

NON-THESIS OPTION (FDC) FOOD SCIENCE ELECTIVES	
FAS 503 Food Microbiology	4
FAS 504 Animal Hygiene and Parasitology	3
FAS 505 Meat & Poultry Science & Technology	3
FAS 507 Food Chemistry	4
FAS 508 Food Analysis	4
FAS 521 Poultry Products Technology	3
FAS 528 Physiology of Reproduction	4
FAS 538 Fruits, Vegs & Cereal Products Tech	3
FAS 550 Regulation of Food Safety & Quality	3
FAS 552 Food Quality Assurance	3
FAS 553 Agricultural Biochemistry	4
FAS 561 Food Engineering	4
FAS 572 Food Processing	4
FAS 586 Advanced Topics in Animal Science	3
FAS 605 Special Problems	1-3
FAS 611 Food Toxicology	3
FAS 615 Food Enzymes	3
FAS 617 Food Flavors and Pigments	3
FAS 623 Quantitative Genetics	3
FAS 630 Advanced Reproductive Physiology	3
FAS 632 Monogastric Nutrition & Metabolism	3
FAS 640 Product Development & Research	3
FAS 642 Minerals/Vitamins in Foods & Nutrition	3
FAS 644 Proteins in Foods and Nutrition	3
FAS 646 Carbohydrates/Lipids in Foods & Nutrition	3
FAS 654 Food Microbiological Techniques	3
FAS 657 Analytical Techniques & Instrumentation	3
FAS 658 Food Microstructure	3
FAS 662 Food Rheology	3
FAS 671 Introduction to Biotechnology	3
FAS 672 Food Rheology	3
FAS 676 Food Processing and Nutrients	3
FAS 678 Applied Nutrigenomics	3
FAS 701 Advanced Food Microbiology	3
FAS 707 Advanced Food Chemistry	3
FAS 711 Advanced Food Toxicology	3
FAS 736 Advanced Sensory Evaluation	3
FAS 741 Advances in Nutrition	3
FAS 761 Advanced Food Engineering	3
FAS 771 Advanced Food Biotechnology	3
FAS 772 Advanced Food Processing	3
FAS 782 Advanced Food Packaging	3
FAS 796 Advanced Topics in Food Science	3
FAS 798 Teaching Experience for Ph.D.	3

Doctor of Philosophy

Dr. Martha Verghese, Program Coordinator
100-A Carver Complex Annex – Thomas Wing
Voice: (256) 372-4176, martha.verghese@aamu.edu

ADMISSION REQUIREMENTS

Please see the general graduate admission requirements here. Specific requirements to this program are as follows:

1. An M.S. degree in Food Science, Nutrition, Animal Science, Agronomy, Horticulture, Plant Science, Biology, Chemistry or a closely related area from a regionally accredited institution.
2. Provide evidence of a cumulative GPA of 3.00 in all baccalaureate coursework and a 3.25 cumulative GPA in all graduate coursework.
3. A minimum combined score of 308 on the verbal and quantitative sections of the GRE or its equivalent.
4. Three letters of reference that provide information about the applicant's academic background and ability to pursue the Ph.D. program.
5. A personal statement on a career objective and research interest.

DEGREE REQUIREMENTS

Candidates who have some deficiencies in their background but who meet the general requirements of the Department and the Graduate School for admission will be granted provisional admission and must complete additional coursework recommended by the Departmental Graduate Studies Advisory Committee with a minimum GPA of 3.00, at which time they shall be allowed to take the qualifying exam. Deficiency coursework does not count toward the degree requirements. Upon the successful completion of all deficiency coursework and the qualifying exam, regular admission will be granted. A comprehensive examination must be completed within five years of the student's initial enrollment and after completing at least 80 percent of the coursework and completion of teaching requirements. A dissertation proposal will be completed with the guidance of the advisory committee. Admission to candidacy is an indication of completion of all coursework, successful passing of written and oral comprehensive examinations, and having filed an approved dissertation proposal with the Dean of the School of Graduate Studies. Candidacy marks the achievement in which the student's major attention is to focus on the dissertation efforts. Each Ph.D. student must complete the following program requirements:

1. A minimum of 31 credit hours (minimum GPA of 3.00) beyond the Master's level at the 600 level or above, including 9 credit hours or more at the 700 level, are required. An additional one credit hour of FAS 797 Seminar is required of all doctoral students.
2. A meaningful teaching experience and an additional three hours of FAS 798, Teaching Experience for Ph.D., course in which the Ph.D. student works under the supervision of a faculty member in the regular conduct of the organization, delivery and evaluation of a course is required.
3. Successful completion of written and oral comprehensive examinations after completing at least 80 percent of the prescribed coursework.
4. Completion of a doctoral dissertation involving a minimum of 12 credit hours of dissertation research on a topic determined through the collaborative efforts of the major advisor and the graduate student advisory committee. The effort must be scholarly and make a significant contribution to the field of study.
5. A final oral examination is required and must be taken per the Office of Graduate Studies Calendar. The examination will be concerned primarily with the candidate's dissertation but may include other aspects of the student's graduate work.
6. NRE 602 and (NRE 630 or FAS 540) are required but not credited towards the degree.

(FDC) Food Science – Doctor of Philosophy

53 Credit Hours

MinGPA cumulative 3.0. MinGrade C*. Degree Ph.D.

CORE COURSES	
FAS 657 Analytical Techniques & Instrumentation	3
FAS 797 Seminar (2ch required)	1
FAS 601 Scientific Writing	3
NRE 630, FAS 540	4
MAJOR	
Minimum 9 hours at 7xx level	26
DISSERTATION	
Grade is Pass / Fail. MinHrs 12.	
FAS 799 Research for Ph.D.	1-3
Oral Defense	
CANDIDACY EXAM	
Exam composed jointly by Advisory Committee	
To be taken after ≥ 80% completion of required coursework	
TEACHING EXPERIENCE	
FAS 798 Teaching Experience for Ph.D.	3

*One grade of C allowed at graduation.

Concentrations, Specializations & Electives

DISSERTATION (FDC-AH) ANIMAL HEALTH CONCENTRATION MinGPA 3.0. MinGrade C.	
FAS 504 Animal Hygiene & Parasitology	3
FAS 528 Physiology of Reproduction	4
FAS 623 Quantitative Genetics	3
FAS 632 Monogastric Nutrition & Metabolism	3
And Any **THIRTEEN HOURS** of the following:	
FAS 503 Food Microbiology	4
FAS 505 Meat & Poultry Science & Technology	3
FAS 507 Food Chemistry	4
FAS 508 Food Analysis	4
FAS 586 Advanced Topics in Animal Science	3
FAS 605 Special Problems	3
FAS 615 Food Enzymes	3
FAS 624 Animal Models and Responsible Conduct in Biomedical Research	3
FAS 630 Advanced Reproductive Physiology	3
FAS 640 Product Development & Research	3
FAS 642 Minerals & Vitamins in Foods & Nutrition	3
FAS 644 Proteins in Foods & Nutrition	3
FAS 646 Carbohydrates & Lipids in Food	3
FAS 659 Food Systems Biosecurity and Bio terrorism	3
FAS 671 Introduction to Biotechnology	3
FAS 686 Advanced Topics in Animal Science	3
FAS 741 Advances in Nutrition	3
FAS 771 Advanced Food Biotechnology	3
FAS 796 Advanced Topics in Food Science	3

DISSERTATION (FDC-MFB) MOLECULAR FOOD BIOTECHNOLOGY CONCENTRATION MinGPA 3.0. MinGrade C.	
FAS 553 Agricultural Biochemistry	4
FAS 615 Food Enzymes	3
BIO 646 Molecular Genetics	3
FAS 671 Introduction to Biotechnology	3
NRE 533 Introduction to Molecular Genetics	3
And Any **THIRTEEN HOURS** of the following:	
FAS 503 Food Microbiology	4
FAS 507 Food Chemistry	4
FAS 508 Food Analysis	4
FAS 572 Food Processing	4
FAS 582 Food Packaging and Quality Control	3
FAS 605 Special Problems	3
FAS 610 Sensory Science	3
FAS 611 Food Toxicology	3
FAS 624 Animal Models and Responsible Conduct in Biomedical Research	3
FAS 640 Product Development & Research	3
FAS 642 Minerals & Vitamins in Foods & Nutrition	3
FAS 644 Proteins in Foods & Nutrition	3
FAS 646 Carbohydrates & Lipids in Food	3
FAS 652 Food Quality Assurance	3
FAS 678 Applied Nutrigenomics	3
FAS 707 Advanced Food Chemistry	3
FAS 711 Advanced Food Toxicology	3
FAS 741 Advances in Nutrition	3
FAS 771 Advanced Food Biotechnology	3
FAS 780 Functional Foods & Neutraceuticals in Health Disease	3
FAS 796 Advanced Topics in Food Science	3
NRE 535 Introduction to Bioinformatics	4
NRE 763 Advanced Molecular Genetics	3

DISSERTATION (FDC-FSP) FOOD SAFETY AND PROCESSING CONCENTRATION MinGPA 3.0. MinGrade C.	
FAS 552 Food Quality Assurance	3
FAS 654 Food Microbiological Techniques	3
FAS 701 Advanced Food Microbiology	3
FAS 772 Advanced Food Processing	3
And Any **THIRTEEN HOURS** of the following:	
FAS 503 Food Microbiology	4
FAS 507 Food Chemistry	4
FAS 508 Food Analysis	4
FAS 538 Fruits, Vegs & Cereal Products Tech	3
FAS 550 Regulation of Food Safety and Quality	3
FAS 561 Food Engineering	4
FAS 572 Food Processing	4
FAS 582 Food Packaging and Quality Control	3
FAS 602 Produce Safety	3
FAS 605 Special Problems	3
FAS 610 Sensory Science	3
FAS 611 Food Toxicology	3
FAS 615 Food Enzymes	3
FAS 626 Food Ingredient Technology	3
FAS 640 Product Development & Research	3
FAS 642 Minerals & Vitamins in Foods & Nutrition	3
FAS 652 Food Quality Assurance	3
FAS 659 Food Systems Biosecurity and Bioterrorism	3
FAS 662 Food Rheology	3
FAS 671 Introduction to Biotechnology	3
FAS 711 Advanced Food Toxicology	3
FAS 736 Advanced Sensory Evaluation	3
FAS 761 Advanced Food Engineering	3
FAS 782 Advanced Food Packaging	3
FAS 796 Advanced Topics in Food Science	3

DISSERTATION
(FDC-FPD) FOOD PRODUCT DEVELOPMENT CONCENTRATION
MinGPA 3.0. MinGrade C.

FAS 552 Food Quality Assurance	3
FAS 610 Sensory Science	3
FAS 636 Science of Culinology	3
FAS 640 Product Development and Research	3
And Any **THIRTEEN HOURS** of the following:	
FAS 503 Food Microbiology	4
FAS 507 Food Chemistry	4
FAS 508 Food Analysis	4
FAS 550 Regulation of Food Safety and Quality	3
FAS 561 Food Engineering	4
FAS 572 Food Processing	4
FAS 582 Food Packaging and Quality Control	3
FAS 605 Special Problems	3
FAS 617 Food Flavors & Pigments	3
FAS 626 Food Ingredient Technology	3
FAS 642 Minerals & Vitamins in Foods & Nutrition	3
FAS 652 Food Quality Assurance	3
FAS 662 Food Rheology	3
FAS 676 Food Processing & Nutrients	3
FAS 736 Advanced Sensory Evaluation	3
FAS 780 Functional Foods & Neutraceuticals in Health Disease	3
FAS 782 Advanced Food Packaging	3
FAS 796 Advanced Topics in Food Science	3

DISSERTATION
(FDC-FCB) FOOD CHEMISTRY/BIOCHEMISTRY CONCENTRATION
MinGPA 3.0. MinGrade C.

FAS 615 Food Enzymes	3
FAS 617 Food Flavors/Pigments	3
FAS 626 Food Ingredient Technology	3
FAS 642 Minerals & Vitamins in Foods & Nutrition	3
And Any **THIRTEEN HOURS** of the following:	
FAS 505 Meat & Poultry Science & Technology	3
FAS 507 Food Chemistry	4
FAS 508 Food Analysis	4
FAS 538 Fruits, Vegs & Cereal Products Tech	3
FAS 553 Agricultural Biochemistry	4
FAS 572 Food Processing	4
FAS 582 Food Packaging and Quality Control	3
FAS 605 Special Problems	3
FAS 610 Sensory Science	3
FAS 640 Product Development & Research	3
FAS 644 Proteins in Foods and Nutrition	3
FAS 646 Carbs/Lipids in Foods/Nutrition	3
FAS 652 Food Quality Assurance	3
FAS 659 Food Systems Biosecurity and Bioterrorism	3
FAS 676 Food Processing and Nutrients	3
FAS 707 Advanced Food Chemistry	3
FAS 780 Functional Foods & Neutraceuticals in Health Disease	3
FAS 796 Advanced Topics in Food Science	3

DISSERTATION
(FDC-MNBT) MOLECULAR/NUTRITIONAL BIOCHEMISTRY/TOXICOLOGY CONCENTRATION
MinGPA 3.0. MinGrade C.

FAS 611 Food Toxicology	3
FAS 642 Minerals/Vitamins in Foods/Nutrition	3
FAS 678 Applied Nutrigenomics	3
FAS 741 Advances in Nutrition	3
And Any **THIRTEEN HOURS** of the following:	
FAS 507 Food Chemistry	4
FAS 508 Food Analysis	4
FAS 552 Food Quality Assurance	3
FAS 572 Food Processing	4
FAS 582 Food Packaging and Quality Control	3
FAS 605 Special Problems	3
FAS 610 Sensory Science	3
FAS 615 Food Enzymes	3
FAS 617 Food Flavors & Pigments	3
FAS 624 Animal Models and Responsible Conduct in Biomedical Research	3
FAS 626 Food Ingredient Technology	3
FAS 636 Science of Culinology	3
FAS 640 Product Development & Research	3
FAS 644 Proteins in Foods and Nutrition	3
FAS 646 Carbs/Lipids in Foods/Nutrition	3
FAS 652 Food Quality Assurance	3
FAS 671 Introduction to Biotechnology	3
FAS 676 Food Processing and Nutrients	3
FAS 707 Advanced Food Chemistry	3
FAS 711 Advanced Food Toxicology	3
FAS 752 World Food Problems & Policy	3
FAS 780 Functional Foods & Neutraceuticals in Health Disease	3
FAS 796 Advanced Topics in Food Science	3

DISSERTATION	
(FDC) FOOD SCIENCE ELECTIVES	
FAS 503 Food Microbiology	4
FAS 504 Animal Hygiene and Parasitology	3
FAS 505 Meat & Poultry Science & Technology	3
FAS 507 Food Chemistry	4
FAS 521 Poultry Products Technology	3
FAS 528 Physiology of Reproduction	4
FAS 538 Fruits, Vegs & Cereal Products Tech	3
FAS 550 Regulation of Food Safety & Quality	3
FAS 552 Food Quality Assurance	3
FAS 553 Agricultural Biochemistry	4
FAS 561 Food Engineering	4
FAS 572 Food Processing	4
FAS 586 Advanced Topics in Animal Science	3
FAS 605 Special Problems	1-3
FAS 610 Sensory Science	3
FAS 611 Food Toxicology	3
FAS 615 Food Enzymes	3
FAS 617 Food Flavors and Pigments	3
FAS 623 Quantitative Genetics	3
FAS 626 Food Ingredient Technology	3
FAS 630 Advanced Reproductive Physiology	3
FAS 632 Monogastric Nutrition & Metabolism	3
FAS 640 Product Development & Research	3
FAS 642 Minerals/Vitamins in Foods & Nutrition	3
FAS 644 Proteins in Foods and Nutrition	3
FAS 646 Carbohydrates/Lipids in Foods & Nutrition	3
FAS 654 Food Microbiological Techniques	3
FAS 658 Food Microstructure	3
FAS 659 Food Systems Biosecurity & Bioterrorism	3
FAS 662 Food Rheology	3
FAS 671 Introduction to Biotechnology	3
FAS 672 Food Rheology	3
FAS 676 Food Processing and Nutrients	3
FAS 678 Applied Nutrigenomics	3
FAS 701 Advanced Food Microbiology	3
FAS 707 Advanced Food Chemistry	3
FAS 711 Advanced Food Toxicology	3
FAS 736 Advanced Sensory Evaluation	3
FAS 741 Advances in Nutrition	3
FAS 761 Advanced Food Engineering	3
FAS 771 Advanced Food Biotechnology	3
FAS 772 Advanced Food Processing	3
FAS 780 Functional Foods & Neutraceuticals in Health Disease	3
FAS 782 Advanced Food Packaging	3
FAS 796 Advanced Topics in Food Science	3
FAS 798 Teaching Experience for Ph.D.	3

Food Science Business

Master of Science

Dr. Judith Boateng, Program Coordinator
115 Agricultural Research Center
Voice: (256) 372-8794 judith.boateng@aamu.edu

PROGRAM DESCRIPTION

The Master of Science in food science business is a non-thesis degree designed for rising leaders in various food-related enterprises looking to expand their industry knowledge and grow as critical-thinking leaders as they study the shifts and trends of the food and beverage industry. The degree will offer the opportunity to gain insight into the latest techniques, tools and strategies in food & beverage consumer goods, retail and food production. This degree combines food science and business courses to prepare students for careers in the food industry, government, or private business and is a broad discipline that offers several opportunities. The degree offers courses related to food from a scientific perspective, and also the business side of the industry, including the marketing, economics, and technology used in the food industry.

The students will have opportunities to brainstorm new food products. The program explores the business of food and beverage development, from the development process in the marketplace, to package design, to marketing and management.

ADMISSION REQUIREMENTS

Please see the general graduate admission requirements here.

DEGREE REQUIREMENTS

The M.S. program will be completed with a minimum of 34 credit hours or 12 courses, to include 10 credit hours of Core Courses, 18 credit hours of Major Courses, and 6 credit hours of Elective Courses.
8 courses (22 credit hours) Food Science
4 courses (12 credit hours) Business

(FSB) Food Science Business – Non-Thesis (online only)

34 Credit Hours
MinGPA cumulative 3.0. MinGrade C*. Degree M.S.

REQUIRED COURSES	
FAS 540 or MBA 503	3
FAS 697 Seminar	1
FAS 796 Advanced Topics in Food Science [RPP]	3
MAJOR	
FAS 550 Regulation of Food Safety & Quality	3
FAS 552 Food Quality Assurance	3
FAS 610 Sensory Science	3
FAS 626 Food Ingredient Technology	3
**FAS 640 Product Development and Research	3
MBA 507 Basics of Mgt & Marketing	3
MKT 514 Management of Marketing Activities	3
ELECTIVES	
Choose 6 hours	
LSM 536 Logistics and Supply Chain Management	3
MBA 517 Global Issues in Business	3
MKT 532 Consumer Behavior	3

*One grade of C allowed at graduation.
[RPP] = Research project paper or portfolio required.
**Comp exam exemption covered by Certified Food Scientist (CFS) National Exam prep in FAS 640 that includes mock examinations. Students will be expected to take and pass the CFS exam which is the standard for Food Industry Professionals (5-year renewal).

Concentrations, Specializations & Electives

(FSB) BUSINESS ELECTIVES	
LSM 536 Logistics & Supply Chain Mgt	3
MBA 517 Global Issues in Business	3
MKT 514 Mgt of Marketing Activities	3

Interdisciplinary Studies

Master of Arts

Himanshu Grover, Program Coordinator
308-C James I. Dawson Bldg
Voice: (256) 372-2990, himanshu.grover@aamu.edu

PROGRAM DESCRIPTION

The Master of Arts in Interdisciplinary Studies is a flexible, student-driven graduate program designed for those seeking to integrate two or more academic disciplines into a coherent plan of study tailored to their intellectual interests and career objectives.

Drawing on the strengths of Alabama's leading interdisciplinary programs, the curriculum encourages advanced critical thinking, creative problem-solving, research, and communication skills suited for a dynamic workforce.

Students in the program develop a personalized course of study in collaboration with faculty advisors, selecting coursework from graduate offerings across the university. The program supports both arts/humanities-focused and STEM/social sciences-focused pathways and is structured to accommodate both working professionals and full-time students with course options available in-person, online, and hybrid formats. The program offers flexible delivery (on-campus, online, hybrid) of some coursework to support a diverse student body.

ADMISSION REQUIREMENTS

Please see the general graduate admission requirements here.
Specific requirements to this program are –

6. Applicants must hold a bachelor's degree from an accredited institution and submit a statement of interdisciplinary goals as part of the application.

DEGREE REQUIREMENTS

Students in the IDS program develop a personalized course of study in collaboration with faculty advisors, selecting coursework from graduate offerings across the university. The program supports both arts/humanities-focused and STEM/social sciences-focused pathways and is structured to accommodate both working professionals and full-time students with course options available in-person, online, and hybrid formats.

Degree Options

• Thesis Track: Complete a substantial interdisciplinary research project that addresses a complex question or problem across chosen fields.
• Non-Thesis (Capstone) Track: Complete a supervised capstone project or graded internship demonstrating leadership, practice-based inquiry, or applied skills relevant to career goals.

Specializations

Students select areas of emphasis reflective of major interdisciplinary themes in consultation with the program advisors or program coordinator.

PROGRAM REQUIREMENTS

Minimum of 30 graduate credit hours

- 3 credits - Interdisciplinary core seminar (IDS 500 Research Methods for the Master of Arts in Interdisciplinary Studies / IDS 505 Capstone Seminar Interdisciplinary Studies)
- 12 credits in selected specialization track
- 9 credits - Electives approved by advisors
- 6 credits - A thesis or Capstone project

(IDS) Interdisciplinary Studies – Thesis
30 Credit Hours
MinGPA cumulative 3.0. MinGrade C*. Degree M.A.

REQUIRED COURSES	
IDST 500 Research Methods	3
5xx-7xx graduate courses[2] [no overlap]	9
SPECIALIZATION[1]	12
THESIS	
Grade is Pass / Fail. MinHrs 6.	
IDST 599 Masters Thesis	1-6
Oral Defense	

*One grade of C allowed at graduation.
[1]Students can pick any graduate courses related to a specific discipline with advisor approval.
[2]Students can pick any graduate courses related to any discipline with advisor approval.
Note: 1/3 of credit hours must be obtained at AAMU.

(IDS) Interdisciplinary Studies – Non-Thesis
30 Credit Hours
MinGPA cumulative 3.0. MinGrade C*. Degree M.A.

REQUIRED COURSES	
IDST 505 Capstone Seminar	3
5xx-7xx graduate courses [no overlap]	9
SPECIALIZATION[1]	15
REPORT	
Grade is Pass / Fail.	
IDST 598 Research Report [RPP]	3
COMPREHENSIVE EXAM	
Grade is Pass / Fail.	
Written exam composed jointly by Advisory Committee.	
To be taken after completion of required course work.	

*One grade of C allowed at graduation.
[RPP] = Research project paper or portfolio required.
[1]Students can pick any graduate courses related to a specific discipline with advisor approval.
Note: 1/3 of credit hours must be obtained at AAMU.

Kinesiology

Master of Science

Dr. Rita Whitaker, Program Coordinator
1-A Elmore Building
Voice: (256) 372-5375, rita.whitaker@aamu.edu

PROGRAM DESCRIPTION

The Kinesiology Program offers coursework and field experiences leading to the Master of Science in Kinesiology. Students may select one of three options leading to the degree:

1. Applied Sport Science (non-teaching).
2. Teacher Certification (Class A) in Physical Education.
3. Teacher Certification (Alternative Class A 5th Year) in Physical Education.

Faculty will furnish candidates with research, theory, and techniques that provide students or prospective professionals with quality educational experiences that will lead to opportunities for teaching positions in physical education, or a broad array of careers beyond teaching physical education (e.g., fitness/wellness/personal conditioning/training, sport coaching, recreation, etc.). Additionally, faculty will emphasize technology integration across the applied sport sciences and teaching physical education.

PROGRAM OBJECTIVES

1. To articulate the diverse nature of many underlying kinesiology-related sub-disciplines, and integrating those into the areas of Sport Science and Physical Education.
2. To provide an opportunity for graduate students to learn through a prescribed set of courses that lead to command of professional content that reflects breadth and depth of knowledge and skills.
3. To plan and evaluate the program curriculum so students' educational needs and interests are addressed and student learning is promoted, while also meeting appropriate accreditation guidelines.
4. To address the basic goals of physical education and sport science, with a blend of key pedagogical principles and philosophies relative to the respective coursework.
5. To utilize authentic (i.e., applied, practical, real-world) assessment tools that are in alignment with state and national standards, as well as state and local program goals – to provide informational feedback for students and for continual program improvement.
6. To design and implement a sound instructional program (in theory and practice) that communicates the role in teaching physical education, coaching, recreation, and the fitness/wellness industry.

ADMISSION REQUIREMENTS

Please see the general graduate admission requirements here. Specific requirements to this program are as follows: Alternative 5th year teacher certification students must possess an undergraduate GPA of 3.0 or higher. They must take and pass all three components of the Basic Skills Test of the Alabama Educator Certification Testing Program (AECTP). Candidates must pass the Praxis II for content knowledge and the PLT pedagogy exam. Students in this option will also complete practicum hours and a student internship.

In order to pursue the Class A single teaching field option, students must possess a valid Class B teaching certification in Physical Education.

DEGREE REQUIREMENTS

All students must pass a comprehensive exam at the end of their program. Alternative Class A 5th year students are required to have a 3.25 cumulative and completion GPA.

(KIN-APSC) Kinesiology – Applied Sport Science – Non-thesis

33 Credit Hours

MinGPA cumulative 3.0. MinGrade C*. Degree M.S.

REQUIRED COURSES

MinGPA 3.0. MinGrade C*.

KINS 507 Management of PE & Sport	3
KINS 512 Biomechanics of Exercise & Sports	3
KINS 515 Legal Issues in PE and Sports	3
KINS 598 Research in PE [RPP]	3

ELECTIVES

PED courses	21

COMPREHENSIVE EXAM

Grade is Pass / Fail.

Exam composed jointly by Advisory Committee.

To be taken after ≥ 66% completion of required coursework.

*One grade of C allowed at graduation.
[RPP] = Research project/paper required.

(KIN-PED) Kinesiology – Physical Education (P-12) – Class A – Non-thesis

30 Credit Hours

MinGPA cumulative 3.25. MinGrade C*. Degree M.Ed.

REQUIRED COURSES

FED 529 Computer-based Instructional Tech	3
PED 504 Curriculum and Instruction in PE	3
[1]SPE 501 Intro to Study Exceptional Children [FE] OR FED 533 The Context of Urban Education [FE] OR FED 521 Foundations of Multicultural Education [FE]	3

TEACHING FIELD

PED 507 Mgt in PE & Athletic Programs	3
PED 512 Biomechanics of Exercise & Sports	3
PED 515 Legal Issues in Physical Activity & Sport	3
PED 598 Research in Physical Activity & Sport [RPP]	3
PED Elective	3
PED Elective	3
PED Elective	3

COMPREHENSIVE EXAM

Grade is Pass / Fail.

Exam composed jointly by Advisory Committee.

To be taken after ≥ 66% completion of required coursework.

CERTIFICATION APPLICATION

*One grade of C allowed at graduation.

[1]Required if not previously completed. If completed for prior level certification, another approved diversity course is required.

[FE] = Field Experience required.

[RPP] = Research project paper or portfolio required.

Note: Successful completion of an internship shall be required in English for speakers of other languages and Reading Specialists.

Note: At least 1/3 of program shall be teaching field courses.

(KIN-PED) Kinesiology-Physical Education (P-12) – Alternative Class A 5th Year – Non-thesis

48 Credit Hours

MinGPA admit 2.50; Cum 3.25. No GPA in req crs, TF. MinGrade C*. Degree M.Ed.

REQUIRED COURSES

FED 501 Foundations of Education [FE]	3
FED 504 Evaluation of Teaching & Learning [FE]	3
FED 521 Foundations of Multicultural Education [FE]	3
FED 529 Computer-based Instructional Tech	3
PED 504 Curriculum and Instruction in PE [FE]	3
SED 515 Reading in the Content Area [FE]	3
[1]SPE 501 Intro to Study Exceptional Children [FE]	3
SPE 530 Mgt of Classroom Behavior	3

TEACHING FIELD

PED 507 Mgt in PE & Athletic Programs	3
PED 512 Biomechanics of Exercise & Sports	3
PED 515 Legal Issues in Physical Activity & Sport	3
PED 556 Instruction Strategies for PE	3
PED 598 Research in Physical Activity & Sport	3
PED Elective	3

INTERNSHIP

PED 595 Internship	5
PED 596 Graduate Seminar [RPP]	1

PRAXIS II EXAM

Passing exam score also satisfies Comprehensive Exam requirement.

CERTIFICATION APPLICATION

DEPT DEFICIENCIES TO ENTER

PED 305 M/M in PE in Elementary Schools
PED 306 M/M in Secondary PE

*One grade of C allowed at graduation.

[1]Required if not previously completed. If completed prior to unconditional admit to Alt-A program, another approved diversity course is required.

[FE] = Field Experience required.

[RPP] = Research project paper or portfolio required.

Note: At least 1/3 of program shall be in teaching field.

(KIN-PED) Kinesiology-Physical Education – Alternative Class A 5th Year – Temporary Provisional Teaching Certificate (TPTC) (academic, non-degree)

12 Hours

MinGPA cumulative 3.0. MinGrade C*.

***REQUIRED COURSES**

PED 504 Curriculum and Instruction in PE [FE]	3
HPE 512 Evaluation and Assessment	3
[1]SPE 501 Intro to Study Exceptional Children [FE]	3
SPE 530 Mgt of Classroom Behavior	3

*Prerequisite: Admission to EPP.

[1]Required if the candidate has not taken a special education survey course as part of their UG program or another GR program.

Mechanical Engineering

Master of Science Mechanical Engineering

Dr. Mebougna Drabo, Program Coordinator
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PROGRAM DESCRIPTION

The Master of Science in Mechanical Engineering (MSME) is a professional career-enhancing degree program that provides students with opportunities for professional development and career advancement, and provides employers with better skilled, more adaptable, and more productive career employees. The MSME program supports the university's mission in fostering access and opportunity and application of knowledge responsive to the needs of a diverse student population and the social and economic needs of the state and region.

The program emphasizes the theory and application of advanced mechanical engineering principles utilizing analytical, computational, and experimental methods and tools. The goal of the program is to produce forward-looking engineering professionals who are capable of making significant contributions to society.

Graduates with MSME degrees are recruited by companies within various engineering sectors including aerospace, automotive, communication, control, computer, defense, electronics, energy, power generation and distribution including utilities, manufacturing including materials and metals, oil and gas. North Alabama and Huntsville are home to Redstone Arsenal, NASA Marshal, and Cummings Research Park which has a high concentration of engineering companies and is the second largest research park in the country and the fourth largest in the world. Graduates of the program will be in high demand by government and private sector employees including prime defense contractors which are active in Huntsville area and throughout the Nation. Graduates of the MSME program with Thesis Option will also be well prepared to pursue the terminal degrees of Ph.D. in Mechanical engineering and related fields.

STUDENT PROGRAM OUTCOMES

Graduates of the MSME program are expected to meet the following learning outcomes:

1. Are successfully employed in ME related fields or have transitioned into nontraditional career paths.
2. Advance professionally as a result of his/her ability to solve complex technical problems and demonstrate professional engineering competence via promotions and/or positions of increasing responsibility.
3. Continue life-long learning via progress toward, or successful completion of an advanced degree, professional development and/or industrial training course(s), and/or engineering certification.
4. Demonstrate service and sovereignty through involvement with community and/or professional organizations and/or make contributions towards society's greater good and prosperity.

ADMISSION REQUIREMENTS

Please see the general graduate admission requirements here.
Specific requirements to this program are as follows:
For regular admission, applicants to the MSME program should have earned an overall undergraduate GPA of at least 3.0 on a 4.0 scale, during the last 60 credit hours of relevant undergraduate coursework in an ABET accredited Mechanical Engineering. However, if the GPA is less than 3.0, and/or the applicant has otherwise demonstrated aptitude for success, probationary admission will be considered.

Applicants must submit the following documentation for admission consideration:

1. Completed AAMU graduate admission form to the AAMU admissions office.
2. For those applicants without a BSME degree from AAMU
   a. Official transcripts of all post-secondary coursework.
   b. Official results of the Graduate Record Examination (GRE) general test. Applicant must score greater than 50th percentile in the Quantitative portion, and greater than or equal to the 30th percentile in the Verbal portion.
   c. In lieu of the GRE exam, prospective students may submit evidence of a passing score on the standardized FE (Fundamentals of Engineering) examination.
3. International students whose native language is other than English must score greater than or equal to 6.0 on each IELTS sub-score, or greater than or equal to 14 on each TOEFL sub-score.
4. Two letters of recommendation for applicants with overall GPA less than 3.0 in the last relevant 60 hours of their undergraduate degree program. Recommendations should be from undergraduate advisor/instructors or similar.

It is recommended that completed applications be submitted by:

- Fall semester
  - U.S. students: June 15th
  - International students: May 15th
- Spring semester
  - U.S. students: November 15th
  - International students: October 15th

Applicants may apply online at http://www.aamu.edu/admissions-aid/graduate-admissions/index.html.
Each application will be reviewed by the ME Master's Committee when all documentation has been received. After review, the committee will recommend one of the following:

Normal Acceptance
The student is accepted without any conditions.

Normal Acceptance with Prerequisite
This applies to an otherwise qualified candidate who has a BS degree, but not in Mechanical Engineering. The student will be

notified of any course prerequisite make-up requirements specified by the committee.

Probationary Acceptance
Students with marginal qualifications may be accepted conditionally. They will need to earn a 'B' or better in each course in the first semester of graduate coursework. The student will be notified of any course prerequisite make-up requirements specified by the committee.

Non-Acceptance
The student is denied admission.

The ME Master's Committee is tasked with adjudicating any procedural issues related to admission in the M.S. program in mechanical engineering.

ADVISING PROCEDURE

Upon acceptance into the MSME program, students should immediately contact the primary ME graduate advisor to schedule an initial meeting. At this time, a review of the student's status and requirements will be discussed. A tentative program of study for the first semester will be established.

Within the first semester of the program, the student will be assigned an academic advisor. For non-thesis students, the assigned advisor will be the permanent advisor through graduation. For students following the thesis option, the thesis advisor will replace the primary advisor.

It is the responsibility of the student, in consultation with his/her advisor, to compile a complete program of study to satisfy the degree requirements. This should be submitted to the advisor, typically within the first two semesters of study.

DEGREE REQUIREMENTS

Students in the MSME degree program may opt for either the thesis or the non-thesis options. For the thesis option, the program requires a minimum of 30 credit hours of graduate-level courses, while for non-thesis option. The program requires a minimum of 33 credit hours of graduate-level courses. In either case, a cumulative grade point average (GPA) of 3.0 is required, not including any make-up requirements specified by the ME Master's Committee.

Thesis Option (30 credits)
Students in the thesis option take six ME classes from the ME Elective courses and two required classes: ME 523 Methods of Mathematical Engineering and ME 597 Engineering Seminar. The ME699 master's research and thesis (6 credit hours) must be an original work that (1) offers a theoretical contribution to the field, or (2) provides a new methodology or technique for solving practical problems in the area of mechanical engineering.

The Comprehensive Final Examination is required for all candidates under the thesis option, and is arranged by the graduate advisor, subject to the deadline date(s) established by the Graduate School. The candidate must submit the properly formatted thesis to his/her advisor and the thesis supervisory committee, at least six weeks prior to the anticipated date of graduation. Students must comply with all rules/regulations governing theses as required by the University.

Non-thesis Option (33 credits)
Students in the non-thesis option take nine ME classes from the ME Elective courses and two required classes: ME 523 Methods of Mathematical Engineering and ME 597 Engineering Seminar. In addition, each student in the non-thesis option must complete a project and submit appropriate documentation to the graduate advisor.
The student's Program of Study, and any alterations to it, must be approved by the graduate advisor, and the Thesis Committee if applicable.

Core Courses
Each student must take all of the core courses to fulfill the breadth requirement. A minimum GPA of 3.00 must be earned in the core courses.

Elective Courses
A number of elective courses are provided for the student in various fields of specialization.

(ME) Mechanical Engineering – Thesis incl. AMP Option

30 Credit Hours
MinGPA cumulative 3.0. MinGrade C*. Degree M.S.M.E.

REQUIRED COURSES	
ME 523 Methods of Mathematical Engineering	3
ME 597 Engineering Seminar	3
RESTRICTED ELECTIVES	18
THESIS	
MinGrade B. MinGPA 3.0.	
ME 699 Mechanical Engineering Thesis Oral Defense	6

*One grade of C allowed at graduation.
Note: Non-AAMU UG AMP option students – GRE waived with ≥ 3.5 GPA.
Note: AMP option students must follow breakout below:
5th year first semester – ME 523, ME 597, 9ch of ME 5xx-6xx Elcs.
5th year second semester – 9ch of ME 5xx-6xx Elcs, ME 699.
5th year summer semester – ME 699.

(ME) Mechanical Engineering – Non-Thesis incl. AMP Option

33 Credit Hours
MinGPA cumulative 3.0. MinGrade C*. Degree M.S.M.E.

REQUIRED COURSES	
ME 523 Methods of Mathematical Engineering	3
ME 597 Engineering Seminar [RPP]	3
RESTRICTED ELECTIVES	27
COMPREHENSIVE EXAM	
Grade is Pass / Fail.	
Exam composed jointly by Advisory Committee.	
To be taken after ≥ 66% completion of required coursework.	

*One grade of C allowed at graduation.
[RPP] = Research project paper or portfolio required.

Note: Non-AAMU UG AMP option students – GRE waived with ≥ 3.5 GPA.
Note: AMP option students must follow breakout below:
5th year first semester – ME 523, ME 597, 9ch of ME 5xx-6xx Elcs.
5th year second semester – 9ch of ME 5xx-6xx Elcs.
5th year summer semester – 9ch of ME 5xx-6xx Elcs.

Concentrations, Specializations & Electives

(ME) MECHANICAL ENGINEERING ELECTIVES	
ME 512 Analysis and Synthesis of Gas Turbines and Components	3
ME 518 Internal Combustion Engines	3
ME 520 Mechanical Vibrations	3
ME 521 Mechatronics Engg Design	3
ME 541 Renewable Energy	3
ME 562 Advanced Fluid Mechanics	3
ME 610 Advanced Heat Transfer	3
ME 613 Advanced Propulsion	3
ME 620 Current Advances in Solid Mechanics	3
ME 621 Advanced Computer Aided Engg	3
ME 625 Fatigue Damage and Failure Analysis	3
ME 631 Manufacturing System Design	3
ME 651 Current Advances in Robotics	3
ME 660 Computational Fluid Dynamics	3

Physics

Master of Science

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PROGRAM DESCRIPTION

Alabama Agricultural & Mechanical University's Physics Department provides students with a rich educational environment in which to study physics and discover high technology research in optics, materials science, and space science programs. The program is ranked among the top ten nationally in the awarding of graduate degrees to African-Americans.

ADMISSION REQUIREMENTS

Please see the general graduate admission requirements here. Specific requirements to this program are as follows:

1. Have a bachelor's degree from a regionally accredited university with a major in physics, chemistry, physical science, astronomy or engineering;

Students with bachelor's degrees in optical, materials, or space sciences will be eligible for admission into the graduate program with optics/lasers and materials science and space science concentrations.

Students with a degree in an area other than physics may be required to take prerequisite undergraduate physics courses.

DEGREE REQUIREMENTS

Physics – Space Science – Thesis

Student must complete at least 24 credit hours of coursework with a minimum of 12 hours in the area of Space Science concentration plus 6 credit hours of Master's Thesis hours. The student must write a thesis on an approved topic under the supervision of a thesis advisor, and satisfactorily defend the thesis before an advisory committee appointed by the department and approved by the Dean of the School of Graduate Studies.

Physics – Space Science – Non-Thesis

Student must complete at least 30 credit hours of coursework with a minimum of 18 hours in the area of Space Science concentration. The student must pass a comprehensive examination given by the department.

Physics – Optics – Thesis

Student must complete at least 24 credit hours of coursework with a minimum of 11 hours in the area of Optics concentration plus 6 credit hours of Master's Thesis hours. The student must write a thesis on an approved topic under the supervision of a thesis advisor, and satisfactorily defend the thesis before an advisory committee appointed by the department and approved by the Dean of the School of Graduate Studies.

Physics – Optics – Non-Thesis

Student must complete at least 30 credit hours of coursework with a minimum of 18 hours in the area of Optics concentration. The student must pass a comprehensive examination given by the department.

Physics – Materials Science – Thesis

Student must complete at least 24 credit hours of coursework with a minimum of 12 hours in the area of Materials Science concentration plus 6 credit hours of Master's Thesis hours. The student must write a thesis on an approved topic under the supervision of a thesis advisor, and satisfactorily defend the thesis before an advisory committee appointed by the department and approved by the Dean of the School of Graduate Studies.

Physics – Materials Science – Non-Thesis

Student must complete at least 30 credit hours of coursework with a minimum of 18 hours in the area of Materials Science concentration. The student must pass a comprehensive examination given by the department.

(PHY) Physics – Thesis
30 Credit Hours
MinGPA cumulative 3.0. MinGrade C*. Degree M.S.

CORE COURSES	
PHY 500 Analytical Mechanics	3
PHY 505 Electromagnetic Theory I	3
PHY 521 Quantum Mechanics I	3
SPECIALIZATION	15
THESIS	
Grade is Pass / Fail. MinHrs 6.	
PHY 699 Master's Thesis	1-3
Oral Defense	

*One grade of C allowed at graduation.

(PHY) Physics – Non-Thesis
30 Credit Hours
MinGPA cumulative 3.0. MinGrade C*. Degree M.S.

CORE COURSES	
PHY 500 Analytical Mechanics	3
PHY 505 Electromagnetic Theory I	3
PHY 521 Quantum Mechanics I [RPP]	3
CONCENTRATION	21
COMPREHENSIVE EXAM	
Grade is Pass / Fail.	
Exam composed jointly by Advisory Committee.	
To be taken after ≥ 66% completion of required coursework.	

*One grade of C allowed at graduation.
[RPP] = Research project paper or portfolio required.

Concentrations, Specializations & Electives

Thesis Options

(PHY-SPSC) SPACE SCIENCE SPECIALIZATION	
PHY 610 Intro to Solar-Terrestrial Physics	3
Space Science Electives	9
Gen'l Physics, Optics, Material Sci Elective	3

(PHY-OPT) OPTICS SPECIALIZATION	
PHY 649 Geometrical Optics	3
PHY 657 Physical Optics & Interferometry	4
PHY 671 Laser Physics I	4
Gen'l Physics, Optics, Mat. Sci, Space Sci, approved Comp. Sci Elective	4

(PHY-MAT) MATERIALS SCIENCE SPECIALIZATION	
PHY 632 Elements of Materials Science	3
PHY 634 Crystal Physics & Growth	3
PHY 635 Magnetic & Optical Properties of Materials	3
Materials Science Elective	3
Space Sci, Gen'l Physics, Optics Elective	3

(PHY-AES) AMBIENT ENERGY SYSTEMS SPECIALIZATION	
PHY 632 Elements of Materials Science	3
PHY 636 Semiconductor Physics	3
PHY 642 Materials for Energy Production Devices	3
PHY 667 Ambient Energy Harvesting	3
PHY 761 Nanostructures in Glasses	1
PHY 763 Fabrication & Characterization of Composite Thin Films	1
PHY 518, 525, 761, 762, 763, 764	1

Non-Thesis Options

(PHY-SPSC) SPACE SCIENCE CONCENTRATION	
PHY 610 Intro to Solar-Terrestrial Physics	3
PHY 612 Physics of the Sun & Solar Wind	3
PHY 614 Physics of the Magnetosphere	3
PHY 617 Physics of Ionosphere & Thermosphere	3
PHY 620 Radio Wave Propagation in Ionosphere	3
PHY 625 Planetary Atmospheres & Ionospheres	3
Gen'l Physics, Optics, Mat. Sci, approved Comp Science Elective	3

(PHY-OPT) OPTICS CONCENTRATION	
PHY 649 Geometrical Optics	3
PHY 657 Physical Optics & Interferometry	4
PHY 671 Laser Physics I	4
Optics Elective	7
Gen'l Physics, Optics, Mat. Sci, Space Sci, approved Comp. Sci Elective	3

(PHY-MAS) MATERIALS SCIENCE CONCENTRATION	
PHY 632 Elements of Materials Science	3
PHY 634 Crystal Physics & Growth	3
PHY 635 Magnetic & Optical Properties of Materials	3
Materials Science Elective	9
Space Sci, Gen'l Physics, Optics, Materials Sci, approved Computer Sci Elective	3

(PHY-AES) AMBIENT ENERGY SYSTEMS CONCENTRATION	
PHY 632 Elements of Materials Science	3
PHY 636 Semiconductor Physics	3
PHY 642 Materials for Energy Production Devices	3
PHY 667 Ambient Energy Harvesting	3
PHY 761 Nanostructures in Glasses	1
PHY 763 Fabrication & Characterization of Composite Thin Films	1
Electives	7

(PHY) GENERAL PHYSICS ELECTIVES	
PHY 503 Methods of Mathematical Physics	3
PHY 504 Physics in Modern Technology	3
PHY 506 Electromagnetic Theory II	3
PHY 518 Thermodynamics & Stat Mechanics	3
PHY 519 Advanced Statistical Mechanics	3
PHY 522 Quantum Mechanics II	3
PHY 525 Solid State Physics I	3
PHY 531 Math Methods in Appl Physics I	3
PHY 532 Math Methods in Appl Physics II	3
PHY 537 Advanced Laboratory	3
PHY 600 Solid State Physics II	3
PHY 601 Seminar/Colloquium	0
PHY 667 Ambient Energy Harvesting	3
PHY 701 Applied Solid-State Electronics I	3
PHY 761 Fabrication and Characterization of Nanostructures in Glasses	1
PHY 762 Fabrication and Characterization of Heterostructures	1
PHY 763 Fabrication and Characterization of Composite Thin Films	1
PHY 764 Amorphous Organic Thin Films	1
PHY 791 Applied Solid State Electronics II	3
PHY 792 Selected Topics	3
PHY 794 Selected Topics	1-3

(PHY-MAS) MATERIALS SCIENCE ELECTIVES	
PHY 632 Elements of Materials Science	3
PHY 634 Crystal Physics & Growth	3
PHY 635 Magnetic/Optical Props of Materials	3
PHY 636 Semi-conductor Physics	3
PHY 637 Special Topics in Materials Science	3
PHY 638 Imperfections in Solids	3
PHY 639 Electron Spectroscopy & Diffraction	3
PHY 640 Mechanical Behavior of Solids	3
PHY 642 Materials for Energy Product Devices	3
PHY 644 Modern Composite Materials	3
PHY 648 Advanced Lab in Materials Science	3
PHY 667 Ambient Energy Harvesting	3
PHY 705 Solid State Diffusion	3
PHY 710 Thermodynamics of Materials	3
PHY 720 Radiation Effects in Crystalline Solids	3
PHY 730 Solidification Process	3

PHY 735 Materials for Radiation Detector	3
PHY 761 Fabrication and Characterization of Nanostructures in Glasses	1
PHY 762 Fabrication and Characterization of Heterostructures	1
PHY 763 Fabrication and Characterization of Composite Thin Films	1
PHY 764 Amorphous Organic Thin Films	1
PHY 796 Selected Topics in Materials Sci	3
PHY 797 Advanced Topics in Materials Sci	3

(PHY-OPT) OPTICS ELECTIVES	
PHY 649 Geometrical Optics	3
PHY 650 Instrumental Optics	3
PHY 651 Spectroscopy	4
PHY 655 Optics Laboratory	4
PHY 657 Physical Optics & Interferometry	4
PHY 660 Quantum Optics	3
PHY 663 Electro-Optical Systems	4
PHY 665 Lens Design	4
PHY 667 Ambient Energy Harvesting	3
PHY 670 Non-Linear Optics	3
PHY 671 Laser Physics I	4
PHY 672 Laser Physics II	4
PHY 675 Thin Film & Integrated Optics I	4
PHY 680 Holography	3
PHY 690 Intro to Biophotonics	4
PHY 692 Nanophotonics	3
PHY 703 Laser Systems	4
PHY 712 Optical Phase Conjugation I	3
PHY 714 Optical Phase Conjugation II	3
PHY 715 Fiber Optics	3
PHY 725 Optical Fiber Communications	4
PHY 750 Laser Spectroscopy	3
PHY 755 Optics Laboratory II	3
PHY 761 Fabrication and Characterization of Nanostructures in Glasses	1
PHY 762 Fabrication and Characterization of Heterostructures	1
PHY 763 Fabrication and Characterization of Composite Thin Films	1
PHY 764 Amorphous Organic Thin Films	1
PHY 771 Signal Processing	3
PHY 775 Thin Films & Integrated Optics II	3

(PHY-SPSC) SPACE SCIENCE ELECTIVES	
PHY 610 Intro to Solar-Terrestrial Physics	3
PHY 612 Physics of the Sun & Solar Wind	3
PHY 614 Physics of the Magnetosphere	3
PHY 617 Physics of Ionosphere & Thermosphere	3
PHY 620 Radio Wave Propagation in Ionosphere	3
PHY 625 Planetary Atmospheres & Ionospheres	3
PHYS 666 Ambient Energy Harvesting	3
PHY 761 Fabrication and Characterization of Nanostructures in Glasses	1
PHY 762 Fabrication and Characterization of Heterostructures	1
PHY 763 Fabrication and Characterization of Composite Thin Films	1
PHY 764 Amorphous Organic Thin Films	1

(PHY-AES) AMBIENT ENERGY SYSTEMS ELECTIVES	
PHY 525 Intro to Solid State Physics I	3
PHY 634 Crystal Physics & Growth	3
PHY 635 Magnetic and Optical Properties of Materials	3
PHY 648 Advanced Laboratory in Material Science	3
PHY 735 Materials for Radiation Detectors	3
PHY 762 Fabrication and Characterization of Heterostructures	1
PHY 764 Amorphous Organic Thin Films	1

Doctor of Philosophy

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ADMISSION REQUIREMENTS

Admission to the doctoral program requires a Master's degree in physics, chemistry, physical science, astronomy, or engineering. Applicants must have a GPA of 3.05 on a scale of 4.0. A Graduate Record Examination (GRE) score of at least 600 in the quantitative section of the general area is also required (The GRE Advanced in Physics is strongly urged). Students from non-English speaking countries are required to have a minimum score of 61 (internet-based test) on the Test for English as a Foreign Language (TOEFL).

DEGREE REQUIREMENTS

Persons seeking the Ph.D. in Physics must complete a total of at least 48 credit hours of credit including 15 credit hours in the area of general physics. In addition to this requirement, students must pass the departmental qualifying examination (A person who has been admitted on the basis of a master's degree may take the qualifying examination after the first semester in the program). Students also must pass the candidacy examination. The departmental qualifying exam must be taken after the completion of 18 credit hours. Candidacy examinations must be passed at least nine months before the expected graduation date (Students are not considered Ph.D. candidates until they pass the departmental candidacy examination). Student also must prepare an acceptable dissertation with a minimum of 12 credit hours. No student is allowed to register for more than six hours of dissertation credits in any given semester. There is no foreign language requirement for the degree. Ph.D. candidates must make an oral presentation on the dissertation and must defend the findings before a committee of examiners as stated earlier. The presentation of the dissertation must be completed at least six weeks before the intended graduation date.

(APHY) Applied Physics – Doctor of Philosophy

57-60 Credit Hours

MinGPA cumulative 3.0. MinGrade C*. Degree Ph.D.

CORE COURSES	
PHY 500 Analytical Mechanics	3
PHY 503 Methods of Mathematical Physics	3
PHY 505 Electromagnetic Theory I	3
PHY 518 Thermodynamics & Stat Mechanics	3
PHY 521 Quantum Mechanics I	3
CONCENTRATION	30-33
CANDIDACY EXAM	
To be taken after ≥ 80% completion of required course work.	
DISSERTATION	
Grade is Pass / Fail. MinHrs 12.	
PHY 799 Dissertation	1-12
Oral Defense	

*Two grades of C allowed at graduation.

Concentrations, Specializations & Electives

(APHY) AMBIENT ENERGY SYSTEMS CONCENTRATION (AES)	
MinGPA 3.0. MinGrade C.	
PHY 632 Elements of Materials Science	3
PHY 636 Semiconductor Physics	3
PHY 642 Materials for Energy Production Devices	3
PHY 667 Ambient Energy Harvesting	3
PHY 761 Nanostructures in Glasses	1
PHY 763 Fabrication & Characterization of Composite Thin Films	1
Electives	19

(APHY) MATERIALS SCIENCE CONCENTRATION (MAS)	
MinGPA 3.0. MinGrade C.	
PHY 632 Elements of Materials Science	3
PHY 634 Crystal Physics and Growth	3
PHY 635 Magnetic/Optical Props of Materials	3
PHY 636 Semi-conductor Physics	3
Gen'l Physics, Optics, Materials Science, Space Science, or approved Computer Science Elective	21

(APHY) OPTICS CONCENTRATION (OPT)	
MinGPA 3.0. MinGrade C.	
PHY 649 Geometrical Optics	3
PHY 651 Spectroscopy	4
PHY 657 Physical Optics and Interferometry	4
PHY 671 Laser Physics I	4
Gen'l Physics, Optics, Materials Science, or approved Computer Science Elective	18

(APHY) SPACE SCIENCE CONCENTRATION (SPSC)	
MinGPA 3.0. MinGrade C.	
PHY 610 Intro to Solar-Terrestrial Physics	3
Space Science Elective	12
Gen'l Physics, Optics, Materials Science, or approved Computer Science Elective	18

(APHY) AMBIENT ENERGY SYSTEMS ELECTIVES	
PHY 525 Intro to Solid State Physics I	3
PHY 634 Crystal Physics & Growth	3
PHY 635 Magnetic and Optical Properties of Materials	3
PHY 648 Advanced Laboratory in Material Science	3
PHY 644 Modern Composite Materials	3
PHY 720 Radiation Effects in Crystalline Solids	3
PHY 735 Materials for Radiation Detectors	3
PHY 762 Fabrication and Characterization of Heterostructures	1
PHY 764 Amorphous Organic Thin Films	1
PHY 797 Advanced Topics in Material Science	3

(APHY) SPACE SCIENCE ELECTIVES	
PHY 610 Intro to Solar-Terrestrial Physics	3
PHY 612 Physics of the Sun & Solar Wind	3
PHY 614 Physics of the Magnetosphere	3
PHY 617 Physics of Ionosphere & Thermosphere	3
PHY 620 Radio Wave Propagation in Ionosphere	3

PHY 625 Planetary Atmospheres & Ionospheres	3
PHY 667 Ambient Energy Harvesting	3
PHY 761 Fabrication and Characterization of Nanostructures in Glasses	1
PHY 762 Fabrication and Characterization of Heterostructures	1
PHY 763 Fabrication and Characterization of Composite Thin Films	1
PHY 764 Amorphous Organic Thin Films	1

(APHY) MATERIALS SCIENCE ELECTIVES	
PHY 632 Elements of Materials Science	3
PHY 634 Crystal Physics & Growth	3
PHY 635 Magnetic/Optical Props of Materials	3
PHY 636 Semi-conductor Physics	3
PHY 637 Special Topics in Materials Science	3
PHY 638 Imperfections in Solids	3
PHY 639 Electron Spectroscopy & Diffraction	3
PHY 640 Mechanical Behavior of Solids	3
PHY 642 Materials for Energy Product Devices	3
PHY 644 Modern Composite Materials	3
PHY 648 Advanced Lab in Materials Science	3
PHY 667 Ambient Energy Harvesting	3
PHY 705 Solid State Diffusion	3
PHY 710 Thermodynamics of Materials	3
PHY 720 Radiation Effects in Crystalline Solids	3
PHY 730 Solidification Process	3
PHY 735 Materials for Radiation Detector	3
PHY 761 Fabrication and Characterization of Nanostructures in Glasses	1
PHY 762 Fabrication and Characterization of Heterostructures	1
PHY 763 Fabrication and Characterization of Composite Thin Films	1
PHY 764 Amorphous Organic Thin Films	1
PHY 796 Selected Topics in Materials Sci	3
PHY 797 Advanced Topics in Materials Sci	3

(APHY) OPTICS ELECTIVES	
PHY 649 Geometrical Optics	3
PHY 650 Instrumental Optics	3
PHY 651 Spectroscopy	4
PHY 655 Optics Laboratory	4
PHY 657 Physical Optics & Interferometry	4
PHY 660 Quantum Optics	3
PHY 663 Electro-Optical Systems	4
PHY 665 Lens Design	4
PHY 667 Ambient Energy Harvesting	3
PHY 670 Non-Linear Optics	3
PHY 671 Laser Physics I	4
PHY 672 Laser Physics II	4
PHY 675 Thin Film & Integrated Optics I	4
PHY 680 Holography	3
PHY 690 Intro to Biophotonics	4
PHY 692 Nanophotonics	3
PHY 703 Laser Systems	4
PHY 712 Optical Phase Conjugation I	3
PHY 714 Optical Phase Conjugation II	3
PHY 715 Fiber Optics	3
PHY 725 Optical Fiber Communications	4
PHY 750 Laser Spectroscopy	3
PHY 755 Optics Laboratory II	3
PHY 761 Fabrication and Characterization of Nanostructures in Glasses	1
PHY 762 Fabrication and Characterization of Heterostructures	1
PHY 763 Fabrication and Characterization of Composite Thin Films	1
PHY 764 Amorphous Organic Thin Films	1
PHY 771 Signal Processing	3
PHY 775 Thin Films & Integrated Optics II	3

(APHY) GENERAL PHYSICS ELECTIVES	
PHY 503 Methods of Mathematical Physics	3
PHY 504 Physics in Modern Technology	3
PHY 506 Electromagnetic Theory II	3
PHY 518 Thermodynamics & Stat Mechanics	3
PHY 519 Advanced Statistical Mechanics	3
PHY 522 Quantum Mechanics II	3
PHY 525 Solid State Physics I	3
PHY 531 Math Methods in Appl Physics I	3
PHY 532 Math Methods in Appl Physics II	3
PHY 537 Advanced Laboratory	3
PHY 600 Solid State Physics II	3
PHY 601 Seminar/Colloquium	0
PHY 685 Intro to Magnetic Materials	3
PHY 686 Magnetic Devices	3
PHY 701 Applied Solid State Electronics I	3
PHY 791 Applied Solid State Electronics II	3
PHY 792 Selected Topics	3
PHY 794 Selected Topics	1-3
PHY 667 Ambient Energy Harvesting	3
PHY 761 Fabrication and Characterization of Nanostructures in Glasses	1
PHY 762 Fabrication and Characterization of Heterostructures	1
PHY 763 Fabrication and Characterization of Composite Thin Films	1
PHY 764 Amorphous Organic Thin Films	1
PHY 765 Nanotechnology of Materials & Applications	3

Plant and Soil Science

Master of Science

Dr. Srinivasa Mentreddy, Program Coordinator
203-A Carver Complex Annex – Thomas Wing
Voice: (256) 372-4250, srinivasa.mentreddy@aamu.edu

ADMISSION REQUIREMENTS

Please see the general graduate admission requirements here.
Specific requirements to this program are as follows:
The candidate must have a B.S. degree in biology, agronomy, horticulture, plant science, soil science, environmental science, forestry, wildlife biology, ecology, natural resource, forestry, or closely related areas with a minimum GPA of 2.75 (based on a 4.00-point system), or a 3.00 in the student's major area of concentration. The departmental graduate committee may assign undergraduate courses for candidates to take to make up the deficiency in the emphasis area of the graduate study. Students may be admitted conditionally if they have an overall GPA of 2.50 to 2.75, or 2.75 to 3.00 in the major area of concentration. Before being formally admitted into the program, a candidate must identify and contact a faculty advisor who is in the area of research interest of the student for availability of graduate study and assistantship opportunities. The application must include a letter with a statement from a faculty member in the applicant's area of study that the faculty agrees to serve as the major professor of the applicant.

DEGREE REQUIREMENTS

Students must establish a graduate advisory committee with the assistance of their advisor during the first semester, and successfully present an oral and written proposal of their thesis research by the end of their first year in the program. A minimum of 30 credit hours at graduate level is required for the Master of Science degree with thesis and 32 credit hours for the non-thesis option. Only 6 Master's Thesis (NRE 699) credits can be applied toward the minimum 30 credit. Students also must pass a final oral thesis defense after completion of their thesis and submit the thesis approved by their committee to the School of Graduate Studies.

(SPS) Plant and Soil Science – Thesis

31 Credit Hours
MinGPA cumulative 3.0. MinGrade C*. Degree M.S.

CORE COURSES	
NRE 602 Scientific Writing in Biological Sciences	3
NRE 629 Biostatistics	4
NRE 690 Advanced Topics in SPS (minHrs 2)	1-3
NRE 591 Graduate Seminar	1
ELECTIVES OR SPECIALIZATION	15
THESIS	
Grade is Pass / Fail. MinHrs 6.	
NRE 699 Thesis	1-6
Oral Defense	

*One grade of C allowed at graduation.

(SPS) Plant and Soil Science – Non-Thesis

33 Credit Hours
MinGPA cumulative 3.0. MinGrade C*. Degree M.S.

CORE COURSES	
NRE 602 Scientific Writing in Biological Sci	3
NRE 629 Biostatistics	4
NRE 690 Advanced Topics in SPS (minHrs 5)	1-3
NRE 591 Graduate Seminar	1
ELECTIVES OR SPECIALIZATION	16
MASTER'S REPORT	
Grade is Pass / Fail.	
NRE 698 Master's Report [RPP]	4
COMPREHENSIVE EXAM	
Grade is Pass / Fail.	
Exam composed jointly by Advisory Committee.	
To be taken after ≥ 66% completion of required coursework.	

*One grade of C allowed at graduation.
[RPP] = Research project paper or portfolio required.

Concentrations, Specializations & Electives

THESIS OPTION
(SPS) ENVIRONMENTAL SOIL AND WATER SCIENCE SPECIALIZATION (ESWT)
MinGPA 3.0. MinGrade B.

REQUIRED	
NRE 506 Soil Microbiology	4
NRE 560 Soil Chemistry	3
NRE 572 Soil, Water and Air Pollution	3
And Any **FIVE CREDITS** of the following:	
NRE 550 Earth Science	3
NRE 552 Soil Fertility and Fertilizers	3
NRE 561 Soil Physics	4
NRE 570 Soil, Plant and Water Analysis	4
NRE 575 Principles of Wetlands	3
NRE 576 Remote Sensing of the Environment I	4
NRE 578 GIS, Spatial Analysis, and Modeling	4
NRE 581 Hydrology/Watershed Management	3

NON-THESIS OPTION
(SPS) ENVIRONMENTAL SOIL AND WATER SCIENCE SPECIALIZATION (ESWN)
MinGPA 3.0. MinGrade B.

REQUIRED	
NRE 506 Soil Microbiology	4
NRE 560 Soil Chemistry	3
NRE 572 Soil, Water and Air Pollution	3
And Any **SEVEN CREDITS** of the following:	
NRE 550 Earth Science	3
NRE 552 Soil Fertility and Fertilizers	3
NRE 561 Soil Physics	4
NRE 570 Soil, Plant and Water Analysis	4
NRE 575 Principles of Wetlands	3
NRE 576 Remote Sensing of the Environment I	4
NRE 578 GIS, Spatial Analysis, and Modeling	4
NRE 581 Hydrology/Watershed Management	3

THESIS OPTION
(SPS) HORTICULTURE SPECIALIZATION (HOR)
MinGPA 3.0. MinGrade B.

REQUIRED

NRE 620 Vegetable Crop Production	3
NRE 523 Ornamentals I – Trees & Shrubs	3
NRE 527 Ornamentals II – Flowers & Foliage Plants	3
And Any **SIX CREDITS** of the following:	
NRE 501 Floral & Garden Center Mgt	3
NRE 506 Soil Microbiology	4
NRE 521 Plant Propagation	3
NRE 522 Landscape Design & Construction	4
NRE 528 Fruit & Vegetable Production	3
NRE 630 Principles of Experimentation	4
NRE 531 Principles of Plant Breeding	3
NRE 532 Plant Disease Diagnosis	4
NRE 533 Introduction to Molecular Genetics	3
NRE 636 Regression Analysis	3
NRE 537 Plant Tissue Culture Methods/Appls	3
NRE 540 Seed Production Practices	4
NRE 541 Phytophysiology	4
NRE 552 Soil Fertility and Fertilizers	3
NRE 562 Plant Pathology Techniques	4
NRE 564 Plant Growth and Development	3
NRE 567 Plant Virology	3
NRE 639 Applied Data Analysis with Computer Programs	3

NON-THESIS OPTION
(SPS) HORTICULTURE SPECIALIZATION (HOR)
MinGPA 3.0. MinGrade B.

REQUIRED

NRE 620 Vegetable Crop Production	3
NRE 523 Ornamentals I – Trees & Shrubs	3
NRE 527 Ornamentals II – Flowers & Foliage Plants	3
And Any **SEVEN CREDITS** of the following:	
NRE 501 Floral & Garden Center Mgt	3
NRE 506 Soil Microbiology	4
NRE 521 Plant Propagation	3
NRE 522 Landscape Design & Construction	4
NRE 528 Fruit & Vegetable Production	3
NRE 630 Principles of Experimentation	4
NRE 531 Principles of Plant Breeding	3
NRE 532 Plant Disease Diagnosis	4
NRE 533 Introduction to Molecular Genetics	3
NRE 636 Regression Analysis	3
NRE 537 Plant Tissue Culture Methods/Appls	3
NRE 540 Seed Production Practices	4
NRE 541 Phytophysiology	4
NRE 552 Soil Fertility and Fertilizers	3
NRE 562 Plant Pathology Techniques	4
NRE 564 Plant Growth and Development	3
NRE 567 Plant Virology	3
NRE 639 Applied Data Analysis with Computer Programs	3

THESIS OPTION
(SPS) NATURAL RESOURCE MANAGEMENT SPECIALIZATION (NRMT)
MinGPA 3.0. MinGrade B.

REQUIRED

NRE 580 Natural Resource Policy	3
NRE 583 Forest Resources Economics	3
NRE 588 Wildlife Techniques	3
And Any **SIX CREDITS** of the following:	
NRE 630 Principles of Experimentation	4
NRE 636 Regression Analysis	3
NRE 550 Earth Science	3
NRE 570 Soil, Plant and Water Analysis	4
NRE 571 Aerial Photo Interpretation	3
NRE 572 Soil, Water and Air Pollution	3
NRE 573 Air Pollution: Theory and Techniques	3
NRE 574 Quant Approach in Remote Sensing	3
NRE 575 Principles of Wetlands	3
NRE 576 Remote Sensing of the Environment I	4
NRE 577 Insect Biology and Pest Management	3
NRE 578 GIS, Spatial Analysis, and Modeling	4
NRE 581 Hydrology/Watershed Management	3
NRE 584 Ecological Processes	3
NRE 686 Ecological Restoration of Hardwood Forest Ecosystems	3
NRE 639 Applied Data Analysis with Computer Programs	3

NON-THESIS OPTION
(SPS) NATURAL RESOURCE MANAGEMENT SPECIALIZATION (NRMN)
MinGPA 3.0. MinGrade B.

REQUIRED

NRE 580 Natural Resource Policy	3
NRE 583 Forest Resources Economics	3
NRE 584 Ecological Processes	3
NRE 588 Wildlife Techniques	3
And Any **FOUR CREDITS** of the following:	
NRE 630 Principles of Experimentation	4
NRE 636 Regression Analysis	3
NRE 550 Earth Science	3
NRE 570 Soil, Plant and Water Analysis	4
NRE 571 Aerial Photo Interpretation	3
NRE 572 Soil, Water and Air Pollution	3
NRE 573 Air Pollution: Theory and Techniques	3
NRE 574 Quant Approach in Remote Sensing	3
NRE 575 Principles of Wetlands	3
NRE 576 Remote Sensing of the Environment I	4
NRE 578 GIS, Spatial Analysis, and Modeling	4
NRE 581 Hydrology/Watershed Management	3
NRE 686 Ecological Restoration of Hardwood Forest Ecosystems	3
NRE 639 Applied Data Analysis with Computer Programs	3

THESIS OPTION
(SPS) SPATIAL SCIENCE SPECIALIZATION (SPTT)
MinGPA 3.0. MinGrade B.
REQUIRED

NRE 550 Earth Science	3
NRE 576 Remote Sensing of the Environment I	4
NRE 578 GIS, Spatial Analysis, and Modeling	4
And Any **FOUR CREDITS** of the following:	
NRE 565 Applications of Geostatistics	3
NRE 571 Aerial Photo Interpretation	3
NRE 572 Soil, Water and Air Pollution	3
NRE 574 Quant Approach in Remote Sensing	3
NRE 581 Hydrology/Watershed Management	3
CS 515 Numerical Methods	3
CS 520 Introduction to Data Science	3

NON-THESIS OPTION
(SPS) SPATIAL SCIENCE SPECIALIZATION (SPTN)
MinGPA 3.0. MinGrade B.
REQUIRED

NRE 550 Earth Science	3
NRE 576 Remote Sensing of the Environment I	4
NRE 578 GIS, Spatial Analysis, and Modeling	4
And Any **FIVE CREDITS** of the following:	
NRE 565 Applications of Geostatistics	3
NRE 571 Aerial Photo Interpretation	3
NRE 572 Soil, Water and Air Pollution	3
NRE 574 Quant Approach in Remote Sensing	3
NRE 581 Hydrology/Watershed Management	3
CS 515 Numerical Methods	3
CS 520 Introduction to Data Science	3

THESIS AND NON-THESIS
(SPS) PLANT AND SOIL SCIENCE ELECTIVES

NRE 600 Tech for Teaching Horticulture in K-12	3
NRE 501 Floral & Garden Center Mgt	3
NRE 602 Scientific Writing in Biological Sciences	3
NRE 503 Techniques for Land Judging	3
NRE 605 Instrumental Techniques for SPS	3
NRE 506 Soil Microbiology	4
NRE 510 Forage Management	3
NRE 511 Weed Science & Herbicide Technology	3
NRE 612 Field Research Techniques in Agronomy	2
NRE 515 Seed Biology	4
NRE 517 Sustainable Crop Production	3
NRE 620 Vegetable Crop Production	3
NRE 521 Plant Propagation	3
NRE 522 Landscape Design & Construction	4
NRE 523 Ornamentals I – Trees & Shrubs	3
NRE 524 Horticulture Marketing & Management	3
NRE 525 Lawn & Turf Management	3
NRE 527 Ornamentals II – Flowers & Foliage Plants	3
NRE 528 Fruit & Vegetable Production	3
NRE 629 Biostatistics	4
NRE 630 Principles of Experimentation	4
NRE 531 Principles of Plant Breeding	3
NRE 532 Plant Disease Diagnosis	4
NRE 533 Introduction to Molecular Genetics	3
NRE 533 Introduction to Molecular Genetics Lab	1
NRE 534 Cytogenetics	4
NRE 535 Intro to Bioinformatics	4
NRE 636 Regression Analysis	3
NRE 537 Plant Tissue Culture Methods and Appls	3
NRE 538 Plant Genetics	2
NRE 540 Seed Production Practices	4
NRE 541 Phytophysiology	4
NRE 545 Bioinformatics Applications	3
NRE 550 Earth Science	3
NRE 551 Environmental Toxicology	3
NRE 552 Soil Fertility and Fertilizers	3
NRE 553 Hazardous Waste Management	3
NRE 554 Tropical Soils	3
NRE 555 Micronutrients in Plant Soil Systems	3
NRE 556 Soil Clay Mineralogy	3
NRE 560 Soil Chemistry	3
NRE 561 Soil Physics	4
NRE 562 Plant Pathology Techniques	4
NRE 563 Plant Nutrition & Water Relations	3
NRE 564 Plant Growth and Development	3
NRE 565 Applications of Geostatistics	3
NRE 567 Plant Virology	3
NRE 568 Allelopathy	3
NRE 570 Soil, Plant and Water Analysis	4
NRE 571 Aerial Photo Interpretation	3
NRE 572 Soil, Water and Air Pollution	3
NRE 573 Air Pollution: Theory and Techniques	3
NRE 574 Quant Approaches in Remote Sensing	3
NRE 575 Principles of Wetlands	3
NRE 576 Remote Sensing of the Environment I	4
NRE 577 Insect Biology and Pest Management	3
NRE 578 GIS, Spatial Analysis, and Modeling	4
NRE 580 Natural Resource Policy	3
NRE 581 Hydrology and Watershed Management	3
NRE 583 Forest Resources Economics	3
NRE 584 Ecological Processes	3
NRE 686 Eco Restoration Hardwood Forest Ecosys	3
NRE 588 Wildlife Techniques	3
NRE 593 Global Perspectives in Ag, Bio Sci and Env: Int'l Exchange & Study Abroad	1-12
NRE 639 Applied Data Analysis with Computer Programs	3
NRE 687 Landscape Ecology	3
NRE 689 Forest Ecological Management	3
NRE 690 Advanced Topics in SPS	1-3

Doctor of Philosophy

Dr. Yong Wang, Program Coordinator
145 Agricultural Research Center (ARC)
Voice: (256) 372-4229, yong.wang@aamu.edu

ADMISSION REQUIREMENTS

Please see the general graduate admission requirements here. Specific requirements to this program are as follows:

1. A Master of Science degree in biology, agronomy, horticulture, plant science, soil science, forestry, wildlife biology, ecology, natural resource, environmental sciences, forestry, or closely related areas.
2. A minimum cumulative GPA of 2.75 in baccalaureate coursework and a 3.00 cumulative GPA in master's courses (based on a 4.00-point system). A minimum 153 for verbal reasoning and 144 for quantitative reasoning on the GRE (500/500 on old scale). Candidates with GRE scores below 153 and 144 but above 146 and 140, for verbal and quantitative, respectively, and a GPA above 3.0 may be admitted conditionally).
3. Three letters of reference indicating the student's academic background and ability to pursue the Ph.D. program.
4. A letter of application which includes a personal statement on career objectives and research interest.
5. Applicants must identify and contact an advisor for availability of graduate study opportunities and information about the research and assistantship opportunities before being formally admitted into the program. The application must include a letter with a statement from a faculty member in the applicant's area of study that the faculty agrees to serve as the major professor of the applicant.

Candidates who have some deficiencies in their background but meet most of the requirements for admission may be granted provisional admission into the program. Upon completing preliminary work recommended by the departmental graduate committee with a minimum GPA of 3.00, regular admission will be granted.

DEGREE REQUIREMENTS

To fulfill the Doctor of Philosophy requirements, at least 50 percent of the credit hours required for graduation must be earned, within a period of two consecutive calendar years, at Alabama A&M University. The Department's Graduate Committee and the School of Graduate Studies must approve deviations from this. Additionally, each candidate must complete the following program requirements:

10. Pass a qualifying exam taken during the first semester, administrated by student's committee.
11. Complete all core courses recommended by the Department's Graduate Committee.
12. Complete a minimum of 48 credit hours of graduate coursework beyond the master's level of which a minimum of 30 credit hours must be at the 500 level or above. Nine credit hours, excluding doctoral dissertation (NRE 799), must be completed at the 700 level. All courses must be from the approved course listing.
13. Students must successfully defend their dissertation research and submit the written proposal upon approval of their graduate committee to the School of Graduate Studies by the end of their first year in the program.
14. Complete an acceptable written dissertation which constitutes a significant contribution to current knowledge in the major areas.
15. Candidates must demonstrate proficiency in a foreign language. Normally, this requirement is fulfilled through the satisfactory completion of advanced reading courses administered by the foreign language department (with a grade of B or above) or through the completion of six credit hours of computer languages (including SAS program languages) with a grade of B or above. Language requirements must be fulfilled before a student takes the Ph.D. project examinations described below.
16. Participate in a meaningful teaching experience after the completion of 75% of the required coursework for at least one semester as determined by the graduate committee.
17. Must successfully complete both a written and oral comprehensive examination after the completion of at least 80 percent of the prescribed coursework. The comprehensive examination covers a broad aspect of the coursework taken by the student as well as the subject matter within the student's area of concentration. The comprehensive is used as a means of judging whether the individual has a mature and substantive grasp of the discipline as a whole.
18. Present a seminar of dissertation defense with the approval of the candidate's graduate committee and the School of Graduate Studies.

(SPS) Plant and Soil Science – Doctor of Philosophy

48-49 Credit Hours

MinGPA cumulative 3.0. MinGrade C*. Degree Ph.D.

CORE COURSES	
NRE 602 Scientific Writing in Biological Sciences	3
NRE 629, NRE 630, NRE 730	3-4
NRE 690 Advanced Topics in SPS (minHrs 3)	1-3
NRE 591 Graduate Seminar	1
NRE 798 Teaching Experience for Doctoral Students	2
ELECTIVES OR CONCENTRATION	
Minimum 9 hours at 7xx level	**24
CANDIDACY EXAM	
Exam composed jointly by Advisory Committee	
To be taken after ≥ 80% completion of required coursework	
DISSERTATION	
Grade is Pass / Fail. MinHrs 12.	
NRE 799 Doctoral Dissertation	1-6
Oral Defense	

*One grade of C allowed at graduation.
**Courses to be determined by student's Graduate Committee.

(SPS) ENVIRONMENTAL SOIL AND WATER SCIENCE CONCENTRATION (ESWS)
MinGPA 3.0. MinGrade B.

CORE

NRE 506 Soil Microbiology	4
NRE 560 Soil Chemistry	3
NRE 561 Soil Physics	4
NRE 572 Soil, Water and Air Pollution	3
NRE 751 Advanced Soil Physics	4
And Any **SIX CREDITS** of the following:	
NRE 550 Earth Science	3
NRE 552 Soil Fertility and Fertilizers	3
NRE 570 Soil, Plant and Water Analysis	4
NRE 575 Principles of Wetlands	3
NRE 576 Remote Sensing of the Environment I	4
NRE 578 GIS, Spatial Analysis, and Modeling	4
NRE 581 Hydrology/Watershed Management	3
NRE 735 Advanced Soil Classification	3
NRE 781 Advanced Hydrology	4

(SPS) HORTICULTURE CONCENTRATION (HOR)
MinGPA 3.0. MinGrade B.

CORE

NRE 523 Ornamentals I – Trees & Shrubs	3
NRE 527 Ornamentals II – Flowers & Foliage Plants	3
NRE 564 Plant Growth and Development	3
NRE 724 Horticulture Marketing & Management	3
NRE 725 Stress Physiology of Crops	3
And Any **NINE CREDITS** of the following:	
NRE 501 Floral & Garden Center Mgt	3
NRE 506 Soil Microbiology	4
NRE 521 Plant Propagation	3
NRE 522 Landscape Design & Construction	4
NRE 528 Fruit & Vegetable Production	3
NRE 630 Principles of Experimentation	4
NRE 531 Principles of Plant Breeding	3
NRE 532 Plant Disease Diagnosis	4
NRE 533 Introduction to Molecular Genetics	3
NRE 636 Regression Analysis	3
NRE 537 Plant Tissue Culture Methods/Appls	3
NRE 540 Seed Production Practices	4
NRE 541 Phytophysiology	4
NRE 552 Soil Fertility and Fertilizers	3
NRE 562 Plant Pathology Techniques	4
NRE 564 Plant Growth and Development	3
NRE 567 Plant Virology	3
NRE 577 Insect Biology and Pest Management	3
NRE 639 Applied Data Analysis with Computer Programs	3
NRE 710 Plant Ecology	3
NRE 738 Plant Genetics	2
NRE 763 Advanced Molecular Genetics	3

(SPS) SPATIAL SCIENCE CONCENTRATION (SPTS)
MinGPA 3.0. MinGrade B.

CORE

NRE 550 Earth Science	3
NRE 576 Remote Sensing of the Environment I	4
NRE 578 GIS, Spatial Analysis, and Modeling	4
NRE 774 Quantitative Approaches in Remote Sensing	3
NRE 775 Advanced Principles of GIS	4
And Any **NINE CREDITS** of the following:	
CS 515 Numerical Methods	3
CS 520 Introduction to Data Science	3
NRE 565 Applications of Geostatistics	3
NRE 571 Aerial Photo Interpretation	3
NRE 581 Hydrology/Watershed Management	3
NRE 687 Landscape Ecology	3
NRE 779 Advanced Environmental Geostatistics	3
NRE 778 Remote Sensing of the Environment II	3
NRE 781 Advanced Hydrology	4

(SPS) NATURAL RESOURCE MANAGEMENT CONCENTRATION (NRM)
MinGPA 3.0. MinGrade B.

CORE

NRE 580 Natural Resource Policy	3
NRE 583 Forest Resources Economics	3
NRE 584 Ecological Processes	3
NRE 701 Applied Forestry Ecology	3
NRE 716 Modeling Natural Resource Management	3
And Any **NINE CREDITS** of the following:	
NRE 630 Principles of Experimentation	4
NRE 636 Regression Analysis	3
NRE 550 Earth Science	3
NRE 570 Soil, Plant and Water Analysis	4
NRE 571 Aerial Photo Interpretation	3
NRE 572 Soil, Water and Air Pollution	3
NRE 573 Air Pollution: Theory and Techniques	3
NRE 574 Quant Approach in Remote Sensing	3
NRE 575 Principles of Wetlands	3
NRE 576 Remote Sensing of the Environment I	4
NRE 577 Insect Biology and Pest Management	3
NRE 578 GIS, Spatial Analysis, and Modeling	4
NRE 581 Hydrology/Watershed Management	3
NRE 686 Eco Restoration Hardwood Forest Ecosys	3
NRE 588 Wildlife Techniques	3
NRE 639 Applied Data Analysis with Computer Programs	3
NRE 687 Landscape Ecology	3
NRE 689 Forest Ecological Management	3

Public Administration

Master of Public Administration

Dr. Sheri Jenkins Keenan, Program Coordinator
301-E College of Business and Public Affairs Building
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PROGRAM DESCRIPTION

The Master of Public Administration (MPA) program will prepare students for a leadership career within private, nonprofit, public service organizations, communities, and leadership careers in public administration. The 36 credit hour program, consists of four specializations: Criminal Justice Administration, Emergency Management Homeland Security Administration, and Organizational Development and Governance. The MPA program is offered in a non-thesis hybrid format. Seventy-five percent of the program will be offered using the online delivery mode while 25% will be offered in the traditional on-campus mode. The core courses are required to be part of the 25% on-campus mode.

The program is designed to be responsive to the needs of a diverse population and the social and economic needs of the state and region. The program will focus on the regulatory, political, economic, social, and cultural environments and the theories and concepts that influence management and evaluation of diverse public service organizations, programs and processes. With this focus, the curriculum presents social entrepreneurial and business approaches to publicservice issues and opportunities at the state, county and local levels of government. The program will emphasize adherence to the values and ethical principles of the public administration profession in all aspects of public service.

ADMISSION REQUIREMENTS

Please see the general graduate admission requirements here. Specific requirements to this program are as follows:

3. Official test scores of the Graduate Record Examination (GRE) or the Graduate Management Admission Test (GMAT) is required for many programs. A score of 350 on the GMAT or 146 in the verbal and 140 in the quantitative section of the GRE is required. The test score requirement may be waived for an applicant who can verify that he/she has ten or more years of leadership experience or a 3.0 GPA on a 4.0-point scale

DEGREE REQUIREMENTS

The MPA degree program is a 36-credit hour program, organized into four major components:

1. Core courses (12 credit hours). To be completed in the traditional on-campus mode.
2. Specialization (18 credit hours). The MPA program director, in consultation with the students' academic advisor, will determine the appropriate specialization for the student. In making that decision, consideration will be given to the student's prior or current career experience and/or area of future career interest based upon the student's chosen specialization. A number of elective courses are provided for the student in various fields of specialization to complete 75% of the program offering.
3. Master's Report (6 credit hours). Capstone course or independent study course is expected to allow the student the opportunity to make a theoretical contribution to the field of public administration and or techniques and strategies for solving practical problems in the broad field of Public Administration.

   Students will be required to complete the 12 credit hours of core courses prior to engaging in the capstone course or independent study.

   In all instances, only students with a GPA of 3.5 or a combination of the following: higher, executive service rank, advanced certifications, advanced academic degree, more than 5 years supervisory experience in a public service or corporate environment may be approved for the Independent Study option.
4. Comprehensive Exam.

(PAD) Public Administration – Non-Thesis
36 Credit Hours
MinGPA cumulative 3.0. MinGrade B*. Degree M.P.A.

REQUIRED/CORE COURSES	
PAD 500 Seminar in Public Administration	3
PAD 501 Research Methods in Public Admin	3
PAD 502 Organizational Theory and Human Behavior	3
PAD 503 Budgeting & Public Finance	3
SPECIALIZATION	15
MASTER'S REPORT[1]	
PAD 599 Capstone Project OR Independent Study [RPP]	6
PAD 598 Research Design	3
COMPREHENSIVE EXAM	
Grade is Pass / Fail.	
Written exam composed jointly by Advisory Committee.	
To be taken after completion of required coursework.	

*One grade of C allowed at graduation.
[RPP] = Research project paper or portfolio required.
[1]Completion of Core courses required before beginning Master's Report.

(PAD-ODG) ORGANIZATIONAL DEVELOPMENT & GOVERNANCE SPECIALIZATION	
PAD 510 Strategic Planning and Management	3
PAD 512 Social Justice & Equity	3
PAD 513 Human Resource Management	3
PAD 514 Ethics and Administrative Responsibility	3
PAD 515 Leadership in Organizations	3

(PAD-CJA) CRIMINAL JUSTICE ADMINISTRATION SPECIALIZATION	
PAD 522 Administration of Criminal Justice	3
PAD 523 Comparative Criminal Justice System	3
PAD 524 Community Development and Restorative Justice	3
PAD 525 Juvenile Justice and Youth Violence	3
PAD 527 Public Policy Research in Criminal Justice	3

(PAD-HSA) HOMELAND SECURITY ADMINISTRATION SPECIALIZATION	
PAD 528 Seminar in Homeland Security	3
PAD 529 Emergency Preparedness and Response	3
PAD 530 Seminar in Law, Society, and Homeland Security	3
PAD 531 Cyber Security, Technology, and Homeland Security	3
PAD 532 Seminar in Terrorism Legislation and Policy	3

Social Work

Master of Social Work

Dr. Rachel Robinson, Program Coordinator (main campus)
310-D Buchanan Hall
Voice: 256-372-8456, rachel.robinson@aamu.edu
Dr. Turenza Smith-Woods, Program Coordinator (Lawson site)
Voice: (256) 372-5474, turenza.smith@aamu.edu

MISSION STATEMENT

The Graduate Social Work program prepares students to become competent, ethical and advanced professional social work practitioners capable of assuming a wide range of roles and functions in working with vulnerable individuals, families, groups, public and private organizations and institutions in rural and urban communities. The Graduate Social Work Program is accredited by the Council on Social Work Education.

ADMISSION REQUIREMENTS

Please see the general graduate admission requirements here. Specific requirements to this program are as follows:

1. Submit two essays. Each essay should not exceed 500 words. Essays must focus on the following:
   a. Why applicants wish to pursue the MSW degree;
   b. A major contemporary social problem that is of concern to the profession of social work; (state why, in your opinion, it is a problem for the profession), and how you would intervene to ameliorate and/or eradicate this problem.
2. Submit three letters of reference that reflect the applicant's academic and professional potential and ethical and values orientation. Preferably letter of recommendations should be written by former professors or others who are, or who have been in a position to evaluate aspects of the candidates' academic, personal and intellectual capabilities.

While there is no requirement for a specific undergraduate major to qualify for graduate study in social work, applicants are expected to have had preparation in the liberal arts, usually through undergraduate coursework in the social and behavioral sciences, humanities and life sciences. At least 24 credits are required in these areas.

NOTE: Admission deadlines to the Graduate program will occur thrice annually – in the summer (Feb 15), in the fall (Mar 01), in the spring (Nov 30).

Advanced Standing

Applicants with a BSW degree from a CSWE accredited program and a cumulative GPA of 3.00 including upper division social work courses may apply for advanced standing.

DEGREE REQUIREMENTS

Students obtaining Advanced Standing must complete the degree program in three (3) consecutive semesters. Qualified applicants for Advanced Standing must complete 39 credit hours, of which 8 credit hours are in field instruction, to finish the degree program.

(SWKA-FCWA) Social Work – Family/Child Welfare – Advanced Standing Program – Thesis

45 Credit Hours

MinGPA cumulative 3.0. MinGrade C*. Degree M.S.W.

CORE COURSES	
SWK 522 Race, Ethnicity, Gender & Diversity	3
SWK 523 Rural Urban Social Work	2
SWK 587 Social Work Empowerment	3
CONCENTRATION	
SWK 600 Social Work Intervention Strategies	3
SWK 601 Social Work Practice w/ Groups	3
SWK 610 Family & Child Welfare Policy	3
SWK 621 Family Theories & Processes	3
SWK 630 Needs Assessment/Prgm Evaluation	3
SWK 660 Assessment of Individuals	3
SWK 680 Field Practicum & Seminar II	4
SWK 681 Field Practicum & Seminar III	4
SWK 689 Integrative Seminar	3
SWK Elective	2
THESIS	
Grade is Pass / Fail. MinHrs 6.	
SWK 631 Research Project/Thesis	1-3
SWK 632 Thesis Option	1-3
Oral Defense	

*One grade of C allowed at graduation.

(SWKA-FCWA) Social Work – Family/Child Welfare – Advanced Standing Program – Non-thesis

39 Credit Hours

MinGPA cumulative 3.0. MinGrade C*. Degree M.S.W.

CORE COURSES		
SWK 522 Race, Ethnicity, Gender & Diversity		3
SWK 523 Rural Urban Social Work		2
SWK 587 Social Work Empowerment		3
CONCENTRATION		
SWK 600 Social Work Intervention Strategies		3
SWK 601 Social Work Practice w/ Groups		3
SWK 610 Family & Child Welfare Policy		3
SWK 621 Family Theories & Processes		3
SWK 630 Needs Assessment/Prgm Evaluation	[RPP]	3
SWK 660 Assessment of Individuals		3
SWK 680 Field Practicum & Seminar II		4
SWK 681 Field Practicum & Seminar III		4
SWK 689 Integrative Seminar		3
SWK Elective		2
COMPREHENSIVE EXAM		
Grade is Pass / Fail.		
Exam composed jointly by Advisory Committee.		
To be taken after ≥ 66% completion of required coursework.		

*One grade of C allowed at graduation.
[RPP] = Research project paper or portfolio required.

(SWKA-CMHA) Social Work – Community Mental Health – Advanced Standing Program – Thesis

45 Credit Hours

MinGPA cumulative 3.0. MinGrade C*. Degree M.S.W.

CORE COURSES	
SWK 522 Race, Ethnicity, Gender & Diversity	3
SWK 523 Rural Urban Social Work	2
SWK 587 Social Work Empowerment	3
CONCENTRATION	
SWK 601 Social Work Practice w/ Groups	3
SWK 602 SWK Practice in Hlth & Mental Hlth	3
SWK 616 Issues & Policies in Comm Mental Hlth	3
SWK 621 Family Theories & Processes	3
SWK 630 Needs Assessment/Prgm Evaluation	3
SWK 660 Assessment of Individuals	3
SWK 680 Field Practicum & Seminar II	4
SWK 681 Field Practicum & Seminar III	4
SWK 689 Integrative Seminar	3
SWK Elective	2
THESIS	
Grade is Pass / Fail. MinHrs 6.	
SWK 631 Research Project/Thesis	1-3
SWK 632 Thesis Option	1-3
Oral Defense	

*One grade of C allowed at graduation.

(SWKA-CMHA) Social Work – Community Mental Health – Advanced Standing Program – Non-thesis

39 Credit Hours

MinGPA cumulative 3.0. MinGrade C*. Degree M.S.W.

CORE COURSES	
SWK 522 Race, Ethnicity, Gender & Diversity	3
SWK 523 Rural Urban Social Work	2
SWK 587 Social Work Empowerment	3
CONCENTRATION	
SWK 601 Social Work Practice w/ Groups	3
SWK 602 SWK Practice in Hlth & Mental Hlth	3
SWK 616 Issues & Policies in Comm Mental Hlth	3
SWK 621 Family Theories & Processes	3
SWK 630 Needs Assessment/Prgm Evaluation [RPP]	3
SWK 660 Assessment of Individuals	3
SWK 680 Field Practicum & Seminar II	4
SWK 681 Field Practicum & Seminar III	4
SWK 689 Integrative Seminar	3
SWK Elective	2
COMPREHENSIVE EXAM	
Grade is Pass / Fail.	
Exam composed jointly by Advisory Committee.	
To be taken after ≥ 66% completion of required coursework.	

*One grade of C allowed at graduation.
[RPP] = Research project paper or portfolio required.

(SWK2-FCW2) Social Work – Family/Child Welfare – Two-Year Program – Thesis

66 Credit Hours

MinGPA cumulative 3.0. MinGrade C*. Degree M.S.W.

CORE COURSES (1st yr)	
SWK 500 Social Work Practice I	3
SWK 501 Social Work Practice II	3
SWK 510 Social Work Policy I	3
SWK 511 Social Work Policy II	2
SWK 520 Human Behavior in Social Env I	3
SWK 521 Human Behavior in Social Env II	3
SWK 522 Race, Ethnicity, Gender & Diversity	3
SWK 523 Rural Urban Social Work	2
SWK 530 Applied Social Work Research	3
SWK 581 Field Practicum & Seminar I	4
CONCENTRATION (2nd yr, fall/spring)	
SWK 600 Social Work Intervention Strategies	3
SWK 601 Social Work Practice w/ Groups	3
SWK 610 Family & Child Welfare Policy	3
SWK 621 Family Theories & Processes	3
SWK 630 Needs Assessment/Prgm Evaluation	3
SWK 660 Assessment of Individuals	3
SWK 680 Field Practicum & Seminar II	4
SWK 681 Field Practicum & Seminar III	4
SWK 689 Integrative Seminar	3
SWK Elective	2
THESIS	
Grade is Pass / Fail. MinHrs 6.	
SWK 631 Research Project/Thesis	1-3
SWK 632 Thesis Option	1-3
Oral Defense	

*One grade of C allowed at graduation.

(SWK2-FCW2) Social Work – Family/Child Welfare – Two-Year Program – Non-thesis

60 Credit Hours

MinGPA cumulative 3.0. MinGrade C*. Degree M.S.W.

CORE COURSES (1st yr)	
SWK 500 Social Work Practice I	3
SWK 501 Social Work Practice II	3
SWK 510 Social Work Policy I	3
SWK 511 Social Work Policy II	2
SWK 520 Human Behavior in Social Env I	3
SWK 521 Human Behavior in Social Env II	3
SWK 522 Race, Ethnicity, Gender & Diversity	3
SWK 523 Rural Urban Social Work	2
SWK 530 Applied Social Work Research	3
SWK 581 Field Practicum & Seminar I	4
CONCENTRATION (2nd yr, fall/spring)	
SWK 600 Social Work Intervention Strategies	3
SWK 601 Social Work Practice w/ Groups	3
SWK 610 Family & Child Welfare Policy	3
SWK 621 Family Theories & Processes	3
SWK 630 Needs Assessment/Prgm Evaluation [RPP]	3
SWK 660 Assessment of Individuals	3
SWK 680 Field Practicum & Seminar II	4
SWK 681 Field Practicum & Seminar III	4
SWK 689 Integrative Seminar	3
SWK Elective	2
COMPREHENSIVE EXAM	
Grade is Pass / Fail.	

Exam composed jointly by Advisory Committee.
To be taken after ≥ 66% completion of required coursework.

*One grade of C allowed at graduation.
[RPP] = Research project paper or portfolio required.

(SWK2-CMH2) Social Work – Community Mental Health – Two-Year Program – Thesis

66 Credit Hours

MinGPA cumulative 3.0. MinGrade C*. Degree M.S.W.

CORE COURSES (1st yr)

SWK 500 Social Work Practice I	3
SWK 501 Social Work Practice II	3
SWK 510 Social Work Policy I	3
SWK 511 Social Work Policy II	2
SWK 520 Human Behavior in Social Env I	3
SWK 521 Human Behavior in Social Env II	3
SWK 522 Race, Ethnicity, Gender & Diversity	3
SWK 523 Rural Urban Social Work	2
SWK 530 Applied Social Work Research	3
SWK 581 Field Practicum & Seminar I	4

CONCENTRATION (2nd yr, fall/spring)

SWK 601 Social Work Practice w/ Groups	3
SWK 602 SWK Practice in Hlth & Mental Hlth	3
SWK 616 Issues & Policies in Comm Mental Hlth	3
SWK 621 Family Theories & Processes	3
SWK 630 Needs Assessment/Prgm Evaluation	3
SWK 660 Assessment of Individuals	3
SWK 680 Field Practicum & Seminar II	4
SWK 681 Field Practicum & Seminar III	4
SWK 689 Integrative Seminar	3
SWK Elective	2

THESIS

Grade is Pass / Fail. MinHrs 6.

SWK 631 Research Project/Thesis	1-3
SWK 632 Thesis Option	1-3
Oral Defense	

*One grade of C allowed at graduation.

(SWK2-CMH2) Social Work – Community Mental Health – Two-Year Program – Non-thesis

60 Credit Hours

MinGPA cumulative 3.0. MinGrade C*. Degree M.S.W.

CORE COURSES (1st yr)

SWK 500 Social Work Practice I	3
SWK 501 Social Work Practice II	3
SWK 510 Social Work Policy I	3
SWK 511 Social Work Policy II	2
SWK 520 Human Behavior in Social Env I	3
SWK 521 Human Behavior in Social Env II	3
SWK 522 Race, Ethnicity, Gender & Diversity	3
SWK 523 Rural Urban Social Work	2
SWK 530 Applied Social Work Research	3
SWK 581 Field Practicum & Seminar I	4

CONCENTRATION (2nd yr, fall/spring)

MinGPA ____. MinGrade ____.

SWK 601 Social Work Practice w/ Groups	3
SWK 602 SWK Practice in Hlth & Mental Hlth	3
SWK 616 Issues & Policies in Comm Mental Hlth	3
SWK 621 Family Theories & Processes	3
SWK 630 Needs Assessment/Prgm Evaluation [RPP]	3
SWK 660 Assessment of Individuals	3
SWK 680 Field Practicum & Seminar II	4
SWK 681 Field Practicum & Seminar III	4
SWK 689 Integrative Seminar	3
SWK Elective	2

COMPREHENSIVE EXAM

Grade is Pass / Fail.

Exam composed jointly by Advisory Committee.
To be taken after ≥ 66% completion of required coursework.

*One grade of C allowed at graduation.
[RPP] = Research project paper or portfolio required.

(SWK3-FCW3) Social Work – Family/Child Welfare – Three-Year Program – Thesis

66 Credit Hours

MinGPA cumulative 3.0. MinGrade C*. Degree M.S.W.

CORE COURSES (1st yr)

SWK 500 Social Work Practice I	3
SWK 501 Social Work Practice II	3
SWK 510 Social Work Policy I	3
SWK 511 Social Work Policy II	2
SWK 520 Human Behavior in Social Env I	3
SWK 521 Human Behavior in Social Env II	3
SWK 522 Race, Ethnicity, Gender & Diversity	3
SWK 523 Rural Urban Social Work	2
SWK 530 Applied Social Work Research	3
SWK 581 Field Practicum & Seminar I	4

CONCENTRATION (2nd yr)

SWK 600 Social Work Intervention Strategies	3
SWK 601 Social Work Practice w/ Groups	3
SWK 610 Family & Child Welfare Policy	3
SWK 630 Needs Assessment/Prgm Evaluation	3
SWK 660 Assessment of Individuals	3
SWK Elective	2

CONCENTRATION (3rd yr)

SWK 621 Family Theories & Processes	3
SWK 680 Field Practicum & Seminar II	4
SWK 681 Field Practicum & Seminar III	4
SWK 689 Integrative Seminar	3

THESIS

Grade is Pass / Fail. MinHrs 6.

SWK 631 Research Project/Thesis	1-3
SWK 632 Thesis Option	1-3
Oral Defense	

*One grade of C allowed at graduation.

(SWK3-FCW3) Social Work – Family/Child Welfare – Three-Year Program – Non-thesis

60 Credit Hours

MinGPA cumulative 3.0. MinGrade C*. Degree M.S.W.

CORE COURSES (1st yr)

SWK 500 Social Work Practice I	3
SWK 501 Social Work Practice II	3
SWK 510 Social Work Policy I	3
SWK 511 Social Work Policy II	2

SWK 520 Human Behavior in Social Env I	3
SWK 521 Human Behavior in Social Env II	3
SWK 522 Race, Ethnicity, Gender & Diversity	3
SWK 523 Rural Urban Social Work	2
SWK 530 Applied Social Work Research	3
SWK 581 Field Practicum & Seminar I	4
CONCENTRATION (2nd yr)	
SWK 600 Social Work Intervention Strategies	3
SWK 601 Social Work Practice w/ Groups	3
SWK 610 Family & Child Welfare Policy	3
SWK 630 Needs Assessment/Prgm Evaluation [RPP]	3
SWK 660 Assessment of Individuals	3
SWK Elective	2
CONCENTRATION (3rd yr)	
SWK 621 Family Theories & Processes	3
SWK 680 Field Practicum & Seminar II	4
SWK 681 Field Practicum & Seminar III	4
SWK 689 Integrative Seminar	3
COMPREHENSIVE EXAM	
Grade is Pass / Fail.	
Exam composed jointly by Advisory Committee.	
To be taken after ≥ 66% completion of required coursework.	

*One grade of C allowed at graduation.
[RPP] = Research project paper or portfolio required.

(SWK3-CMH3) Social Work – Community Mental Health – Three-Year Program – Thesis

66 Credit Hours

MinGPA cumulative 3.0. MinGrade C*. Degree M.S.W.

CORE COURSES (1st yr)	
SWK 500 Social Work Practice I	3
SWK 501 Social Work Practice II	3
SWK 510 Social Work Policy I	3
SWK 511 Social Work Policy II	2
SWK 520 Human Behavior in Social Env I	3
SWK 521 Human Behavior in Social Env II	3
SWK 522 Race, Ethnicity, Gender & Diversity	3
SWK 523 Rural Urban Social Work	2
SWK 530 Applied Social Work Research	3
SWK 581 Field Practicum & Seminar I	4
CONCENTRATION (2nd yr)	
SWK 601 Social Work Practice w/ Groups	3
SWK 602 SWK Practice in Hlth & Mental Hlth	3
SWK 616 Issues & Policies in Comm Mental Hlth	3
SWK 630 Needs Assessment/Prgm Evaluation	3
SWK 660 Assessment of Individuals	3
SWK Elective	2
CONCENTRATION (3rd yr)	
SWK 621 Family Theories & Processes	3
SWK 680 Field Practicum & Seminar II	4
SWK 681 Field Practicum & Seminar III	4
SWK 689 Integrative Seminar	3
THESIS	
Grade is Pass / Fail. MinHrs 6.	
SWK 631 Research Project/Thesis	1-3
SWK 632 Thesis Option	1-3
Oral Defense	

*One grade of C allowed at graduation.

(SWK3-CMH3) Social Work – Community Mental Health – Three-Year Program – Non-thesis

60 Credit Hours

MinGPA cumulative 3.0. MinGrade C*. Degree M.S.W.

CORE COURSES (1st yr)	
SWK 500 Social Work Practice I	3
SWK 501 Social Work Practice II	3
SWK 510 Social Work Policy I	3
SWK 511 Social Work Policy II	2
SWK 520 Human Behavior in Social Env I	3
SWK 521 Human Behavior in Social Env II	3
SWK 522 Race, Ethnicity, Gender & Diversity	3
SWK 523 Rural Urban Social Work	2
SWK 530 Applied Social Work Research	3
SWK 581 Field Practicum & Seminar I	4
CONCENTRATION (2nd yr)	
SWK 601 Social Work Practice w/ Groups	3
SWK 602 SWK Practice in Hlth & Mental Hlth	3
SWK 616 Issues & Policies in Comm Mental Hlth	3
SWK 630 Needs Assessment/Prgm Evaluation [RPP]	3
SWK 660 Assessment of Individuals	3
SWK Elective	2
CONCENTRATION (3rd yr)	
SWK 621 Family Theories & Processes	3
SWK 680 Field Practicum & Seminar II	4
SWK 681 Field Practicum & Seminar III	4
SWK 689 Integrative Seminar	3
COMPREHENSIVE EXAM	
Grade is Pass / Fail.	
Exam composed jointly by Advisory Committee.	
To be taken after ≥ 66% completion of required coursework.	

*One grade of C allowed at graduation.
[RPP] = Research project paper or portfolio required.

(SWK4-FCW4) Social Work – Family/Child Welfare – Four-Year Program – Thesis

68 Credit Hours

MinGPA cumulative 3.0. MinGrade C*. Degree M.S.W.

CORE COURSES (1st yr)	
SWK 500 Social Work Practice I	3
SWK 501 Social Work Practice II	3
SWK 510 Social Work Policy I	3
SWK 511 Social Work Policy II	2
SWK 522 Race, Ethnicity, Gender & Diversity	3
SWK 523 Rural Urban Social Work	2
CORE COURSES (2nd yr)	
SWK 520 Human Behavior in Social Env I	3
SWK 521 Human Behavior in Social Env II	3
SWK 530 Applied Social Work Research	3
SWK 581 Field Practicum & Seminar I	4
CONCENTRATION (3rd yr)	

SWK 600 Social Work Intervention Strategies	3
SWK 601 Social Work Practice w/ Groups	3
SWK 610 Family & Child Welfare Policy	3
SWK 621 Family Theories & Processes	3
SWK 630 Needs Assessment/Prgm Evaluation	3
SWK 680 Field Practicum & Seminar II	4
CONCENTRATION (4th yr)	
SWK 615 Grant Writing	2
SWK 660 Assessment of Individuals	3
SWK 681 Field Practicum & Seminar III	4
SWK 689 Integrative Seminar	3
SWK Elective	2
THESIS	
Grade is Pass / Fail. MinHrs 6.	
SWK 631 Research Project/Thesis	1-3
SWK 632 Thesis Option	1-3
Oral Defense	

*One grade of C allowed at graduation.

(SWK4-FCW4) Social Work – Family/Child Welfare – Four-Year Program – Non-thesis

62 Credit Hours

MinGPA cumulative 3.0. MinGrade C*. Degree M.S.W.

CORE COURSES (1st yr)	
SWK 500 Social Work Practice I	3
SWK 501 Social Work Practice II	3
SWK 510 Social Work Policy I	3
SWK 511 Social Work Policy II	2
SWK 522 Race, Ethnicity, Gender & Diversity	3
SWK 523 Rural Urban Social Work	2
CORE COURSES (2nd yr)	
SWK 520 Human Behavior in Social Env I	3
SWK 521 Human Behavior in Social Env II	3
SWK 530 Applied Social Work Research	3
SWK 581 Field Practicum & Seminar I	4
CONCENTRATION (3rd yr)	
SWK 600 Social Work Intervention Strategies	3
SWK 601 Social Work Practice w/ Groups	3
SWK 610 Family & Child Welfare Policy	3
SWK 621 Family Theories & Processes	3
SWK 630 Needs Assessment/Prgm Evaluation [RPP]	3
SWK 680 Field Practicum & Seminar II	4
CONCENTRATION (4th yr)	
SWK 615 Grant Writing	2
SWK 660 Assessment of Individuals	3
SWK 681 Field Practicum & Seminar III	4
SWK 689 Integrative Seminar	3
SWK Elective	2
COMPREHENSIVE EXAM	
Grade is Pass / Fail.	
Exam composed jointly by Advisory Committee.	
To be taken after ≥ 66% completion of required coursework.	

*One grade of C allowed at graduation.
[RPP] = Research project paper or portfolio required.

(SWK4-CMH4) Social Work – Community Mental Health – Four-Year Program – Thesis

66 Credit Hours

MinGPA cumulative 3.0. MinGrade C*. Degree M.S.W.

CORE COURSES (1st yr)	
SWK 500 Social Work Practice I	3
SWK 501 Social Work Practice II	3
SWK 510 Social Work Policy I	3
SWK 511 Social Work Policy II	2
SWK 522 Race, Ethnicity, Gender & Diversity	3
SWK 523 Rural Urban Social Work	2
CORE COURSES (2nd yr)	
SWK 520 Human Behavior in Social Env I	3
SWK 521 Human Behavior in Social Env II	3
SWK 530 Applied Social Work Research	3
SWK 581 Field Practicum & Seminar I	4
CONCENTRATION (3rd yr)	
SWK 601 Social Work Practice w/ Groups	3
SWK 602 SWK Practice in Hlth & Mental Hlth	3
SWK 616 Issues & Policies in Comm Mental Hlth	3
SWK 621 Family Theories & Processes	3
SWK 630 Needs Assessment/Prgm Evaluation	3
SWK 680 Field Practicum & Seminar II	4
CONCENTRATION (4th yr)	
SWK 660 Assessment of Individuals	3
SWK 681 Field Practicum & Seminar III	4
SWK 689 Integrative Seminar	3
SWK Elective	2
THESIS	
Grade is Pass / Fail. MinHrs 6.	
SWK 631 Research Project/Thesis	1-3
SWK 632 Thesis Option	1-3
Oral Defense	

*One grade of C allowed at graduation.

(SWK4-CMH4) Social Work – Community Mental Health – Four-Year Program – Non-thesis

60 Credit Hours

MinGPA cumulative 3.0. MinGrade C*. Degree M.S.W.

CORE COURSES (1st yr)	
SWK 500 Social Work Practice I	3
SWK 501 Social Work Practice II	3
SWK 510 Social Work Policy I	3
SWK 511 Social Work Policy II	2
SWK 522 Race, Ethnicity, Gender & Diversity	3
SWK 523 Rural Urban Social Work	2
CORE COURSES (2nd yr)	
SWK 520 Human Behavior in Social Env I	3
SWK 521 Human Behavior in Social Env II	3
SWK 530 Applied Social Work Research	3
SWK 581 Field Practicum & Seminar I	4
CONCENTRATION (3rd yr)	
SWK 601 Social Work Practice w/ Groups	3

SWK 602 SWK Practice in Hlth & Mental Hlth	3
SWK 616 Issues & Policies in Comm Mental Hlth	3
SWK 621 Family Theories & Processes	3
SWK 630 Needs Assessment/Prgm Evaluation [RPP]	3
SWK 680 Field Practicum & Seminar II	4

CONCENTRATION (4th yr)

SWK 660 Assessment of Individuals	3
SWK 681 Field Practicum & Seminar III	4
SWK 689 Integrative Seminar	3
SWK Elective	2

COMPREHENSIVE EXAM

Grade is Pass / Fail.

Exam composed jointly by Advisory Committee.

To be taken after ≥ 66% completion of required coursework.

*One grade of C allowed at graduation.
[RPP] = Research project paper or portfolio required.

Doctor of Philosophy

Dr. Cassandra Scott, Interim Program Coordinator
131 Buchanan Hall
Voice: (256) 372-8301, cassandra.scott@aamu.edu

PROGRAM DESCRIPTION

The mission of the Doctor of Philosophy in Social Work Program Ph.D. Program is to prepare social work professionals to become transformative scholars, practitioners, educators, and administrators who are ready to assume leadership roles in addressing social problems and promoting social justice. Armed with a firm grounding in the critical foundation of social work as a profession and a discipline, comprehensive preparation in research methods and the ability to critique, teach, generate, and disseminate new knowledge, graduates of the Ph.D. Program are prepared to assume stewardship of the profession.

ADMISSION REQUIREMENTS

Please see the general graduate admission requirements here. Specific requirements to this program are –

- A master's degree from a program accredited by the Council on Social Work Education (CSWE)
- GPA - A minimum grade point average of 3.0 in graduate courses
- Academic promise, as evidenced by above average achievement in undergraduate and professional education.
- Professional competence as demonstrated through substantial experience in responsible social work, internships or other positions either during or subsequent to the master's program.
- Personal qualities compatible with performance in social work indicating a potential for leadership in the field: Relationship skills, flexibility and openness to new ideas, maturity, identification with the profession of social work and commitment to furthering the development of the profession.
- Satisfactory performance on the Test of English as a Foreign Language (TOEFL) for all international students prior to the date of application.
- Submission of all application materials as outlined in the application requirements to include: (1) Personal Statement; (2) Video Profile; (3) Resume; (4) Transcripts; (5) Letters of recommendation; and (5) Scholarly writing sample.

DEGREE REQUIREMENTS

1. Completion of the 58-credit hour curriculum (minimum GPA of 3.00), which includes the 40-credit hour Core Curriculum, 9-credit hours of electives, and a minimum of 9 dissertation hours;
2. Successful completion of a comprehensive examination after completing prescribed coursework;
3. Upon successful completion of the comprehensive examination, the student must successfully defend a dissertation proposal. The development and successful defense of the dissertation proposal demonstrates the ability of the student to conceptualize, integrate and communicate knowledge acquired through the core and elective courses. Further, the successful proposal defense lays the foundation for the student's forward progression through the dissertation phase of the Ph.D. Program.
4. Completion of a doctoral dissertation involving a minimum of 9 credit hours of dissertation research on a topic chosen by the student and collaboratively refined by the collaborative efforts of the student's major advisor and advisory committee. The dissertation must make a scholarly contribution to the profession of social work; and,
5. Successful oral defense of the dissertation according to the calendar and policies required by the School of Graduate Studies.

PROGRAM FORMAT AND STRUCTURE

The Ph.D. in Social Work is offered as an online program with students taking a mix of synchronous and asynchronous online classes.

CURRICULUM

The curriculum of the program extends from the knowledge base of the profession of social work and its values and principles. It also draws upon broad theoretical and empirical knowledge from related disciplines helpful in the formulation, analysis, and solution of social problems. Specific curriculum content focuses on the assessment and application of social work perspectives and behavioral and social science theories, research methods, social work education, critical analysis and assessment of social problems, social welfare policy, and knowledge development in a substantive research area of interest.

The curriculum consists of a minimum of 58 credit hours, including dissertation hours. It is organized around three major components: (1) core curriculum; (2) electives, and (3) dissertation.

(SWK) Social Work – Doctor of Philosophy (online only)
58 Credit Hours
MinGPA cumulative 3.0. MinGrade C*. Degree Ph.D.

CORE COURSES	
SWK 700 Doctoral Seminar I	1
SWK 701 History of SWK and Social Welfare	3
SWK 703 SWK Pedagogy and Education	3
SWK 704 Social Welfare Policy Analysis and Planning	3
SWK 710 Theories and Frameworks in SWK I	3
SWK 711 Theories and Frameworks in SWK II	3
SWK 740 Doctoral Seminar II	3
SWK 741 Doctoral Seminar III	3
RESEARCH SUPPORT	
^SWK 720 Research Methods in SWK	3
^SWK 721 Quantitative Methods in SWK Research	3
^SWK 722 Qualitative Methods in SWK Research	3
^SWK 723 Assessment and Program Evaluation	3
^~**SWK 730 Statistical Methods I	3
^SWK 731 Statistical Methods II	3
ELECTIVES	
Choose 9ch	
SWK 725 Trauma Informed Research	3
SWK 726 Advanced Integrated Behavioral Health and Primary Care Research	3
SWK Elective	3
CANDIDACY EXAM	

To be taken after ≥ 80% completion of required course work.

DISSERTATION

Grade is Pass / Fail. MinHrs 9.

Pre-req: 100% of course work completed.

SWK 799 Dissertation Research	3-9
Oral Defense	

*One grade of C allowed at graduation.
^Required Core Research Course.
**PSY 502, Descriptive & Inferential Behavioral Statistics, 3ch, may be substituted for SWK 730.

1st Year, Fall Semester – SWK 700, 701, 710, 720 – 10ch
1st Year, Spring Semester – SWK 704, 721, 711 – 9ch
1st Year, Summer Semester – SWK 703, Elc 1 – 6ch
2nd Year, Fall Semester – SWK 722, 722, 730 – 9ch
2nd Year, Spring Semester – SWK 731, 740, Elc II – 9ch
2nd Year, Summer Semester – SWK 780, SWK 740 – 6ch
3rd Year, Fall Semester – SWK 799 – 3-9ch
3rd Year, Spring Semester – SWK 799 – 3-9ch
3rd Year Summer Semester – 3-9ch

Systems & Materiel Engineering

Master of Engineering

Dr. F. Michael Ayokanmbi, Program Coordinator
319 Bond Engineering & Technology Building
Voice: (256) 372-4312, michael.ayokanmbi@aamu.edu

PROGRAM DESCRIPTION

The mission of the Master of Engineering in Systems and Materiel Engineering program is to provide students with enhanced opportunities for professional development and career advancement and provide employers with better skilled, more adaptable, and satisfied career employees.

It is an interdisciplinary professional master's degree program that focuses on creating processes and strategies for developing and managing complex systems over their lifecycles. The program involves the analysis, design, development, integration, test and evaluation, and disposal of complex operational systems.

ADMISSION REQUIREMENTS

The professional degree of Master of Engineering in Systems and Materiel Engineering program is open to qualified applicants holding a regionally accredited baccalaureate degree in engineering, science, mathematics, management, or business. Students without an undergraduate degree in engineering will be required to successfully complete GEN 500: Engineering Systems Analysis.

Please see the general graduate admission requirements here. Specific requirements to this program are as follows:

1. Applicants must have an overall Grade Point Average (GPA) of at least 3.00 on a scale of 4.00, or have passed the Fundamentals of Engineering (FE) Examination.
2. Three letters of recommendation from individuals best suited to assess the applicant's quality of academic or professional performance. The letters must testify to the applicant's ability and motivation to succeed in the program. Letters from friends and family members are not acceptable.
3. One-page statement of intent should outline personal career goals and reasons for interest in the Systems and Materiel Engineering program at AAMU. This statement should include information about how the Master of Engineering degree in Systems and Materiel Engineering program may help in achieving them.
4. Resume/Curriculum Vitae.

DEGREE REQUIREMENTS

The Master of Engineering degree in Systems and Materiel Engineering is a professional degree and does not require a thesis, but requires a capstone project. The program requires a minimum of 30 credit hours of graduate-level courses with a cumulative grade-point-average of 3.0. Students may, upon departmental approval, transfer a maximum of twelve credit hours of approved graduate credits from an accredited institution.

(MAT) Systems & Materiel Engineering – Non-Thesis#

30-33 Credit Hours

MinGPA cumulative 3.0. MinGrade C*. Degree M.Eng.

CORE COURSES	
[1]GEN 500 Engineering System Analysis	3
GEN 601 Life-Cycle Design Engineering	3
GEN 603 Analysis and Simulation Methods	3
GEN 604 Test and Evaluation Engineering	3
GEN 605 Engineering Project Management [RPP]	3
GEN 606 Fund of Systems Engineering	3
GEN 690 Materiel Engineering Project	3
ELECTIVES	12

COMPREHENSIVE EXAM

Grade is Pass / Fail.

Exam composed jointly by Advisory Committee.

To be taken after ≥ 66% completion of required coursework.

#Offered online.
*One grade of C allowed at graduation.
[RPP] = Research project paper or portfolio required.
[1]Required if undergraduate degree is not in engineering. MinGrd of B required.

Concentrations, Specializations & Electives

(MAT) GENERAL ENGINEERING ELECTIVES	
CE 501 Structural Steel Design	3
CE 502 Reinforced Concrete Design	3
CE 504 Hydraulic Engineering & Design	3
CE 508 Foundation Design	3
CE 510 Transportation Engineering & Design	3
CE 512 Pavement Systems	3
CE 555 Wastewater Treatment	3

(MAT) ELECTRICAL ENGINEERING ELECTIVES	
EE 503 Feedback System Analysis & Design	3
EE 504 Communication Theory	3
EE 510 Microwave Engineering	3
EE 513 Rocket Propulsion	3
EE 520 Power Systems I	3
EE 525 High Performance Computing/Networks	3
EE 531 Advanced Semiconductor Engineering	3
EE 541 Digital Signal Processing	3
EE 551 Integrated Circuit Fabrication	3
EE 552 Semiconductor Instrumentation	3

(MAT) MECHANICAL ENGINEERING ELECTIVES	
ME 512 Analysis and Synthesis of Gas Turbines and Components	3
ME 513 Rocket Propulsion	3
ME 516 Gas Dynamics	3
ME 541 Renewable Energy	3
ME 542 Solar Thermal Engineering	3
ME 572 Economic Evaluation of Design	3
ME 581 Quality and Reliability Assurance	3
ME 582 Operations Planning and Scheduling	3

(MAT) SYSTEMS ENGINEERING ELECTIVES	
GEN 602 Product Assurance Engineering	3
GEN 606 Fund of Systems Engineering	3
GEN 610 Model-Based Systems Engineering	3
SYE 523 Statistical Methods for Engineers	3
SYE 532 System Safety	3
SYE 534 Quality Management for Engineers	3

(MAT) LOGISTICS & SUPPLY CHAIN MANAGEMENT ELECTIVES	
LSM 536 Logistics & Supply Chain Management	3
LSM 571 Adaptive Supply Chain Management	3
LSM 572 Logistics & Supply Chain Risk Mgt	3
LSM 599 Strategic Supply Chain Planning	3

Urban and Regional Planning

Master of Urban and Regional Planning

Dr. Ahmed Ouf, Program Coordinator
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Voice: (256) 372-4919, ahmed.ouf@aamu.edu

MISSION STATEMENT

The mission of the Master of Urban and Regional Planning program is to train persons from diverse backgrounds with professional values, knowledge, and skills needed to guide equitable and sustainable planning and development for rapidly changing urban and rural communities in both the national and global context. Students in the MURP program are given opportunities for understanding and contributing to the advancement of underserved constituencies and communities consistent with the history of service fostered by Historically Black Colleges and Universities and 1890s Land Grant Universities.

ADMISSION REQUIREMENTS

Please see the general graduate admission requirements here. Specific requirements to this program are as follows:

1. Must have attained an undergraduate cumulative GPA of 2.8 (based on a 4.00-point system).
2. Applicants with an undergraduate GPA less than the minimum requirement may be considered for provisional admission. Provisionally admitted students must take recommended deficiency courses, and bring their GPAs to 3.0 within the first semester of enrollment in order to qualify for full graduate admission.
3. Students who have been granted provisional admission status who subsequently raise their GPA to 2.8 or above cannot opt for the thesis option. Only students who met the admission requirement for regular admission initially (146 on verbal and 140 quantitative portions of the GRE and a 2.8 GPA) can select the thesis option.

Specific requirements to the MURP-AMP Option are as follows:

1. Applicants should apply during their second semester of Junior year.
2. Applicants should hold an overall GPA at least 3.25 (based on a 4.00-point system) at the time applying to be accepted into the MURP-AMP program.
3. Submit a 200-250-word essay (statement of purpose).

DEGREE REQUIREMENTS

The MURP program consists of a total of 45 credit hours (42) credit hours for a student with an undergraduate degree in Planning from an accredited planning program). The 45 credit hours consists of 24 hours of core courses for non-thesis, 21 hours of core courses for thesis, and 21 hours of professional readiness requirements for non-thesis and 18 hours of professional readiness requirements for thesis and 6 hours of thesis. A student with an undergraduate degree in Planning may be granted a waiver of 3 hours of the required 24 hours of core courses for non-thesis and 21 hours of core courses for thesis, but must complete a total of 42 credit hours to graduate from the program. Students who demonstrate competencies in specific subject areas such as Geographic Information Systems (GIS), Computer Applications in Planning or Quantitative Methods as well as students who have documented experience in planning practice may be granted a waiver of related courses by the program faculty. Upon exemption, the students must substitute approved electives to make up the 45 credit hours required for graduation.

Students in the MURP-AMP Option, during their senior year, will take 12 credit hours of graduate level MURP courses including URP 526, Computer Applications in Planning; URP 507, Planning Legislative & Zoning; URP 529, Professional Practice; URP 531, Economic and Population Analysis for Planners. The remaining courses will be taken upon admission into the graduate program.

Statute of Limitations

A student enrolled in the MURP program must complete all requirements for the MURP Degree within a time period of seven (7) years.

(URP) Urban & Regional Planning – Thesis

45 Credit Hours

MinGPA cumulative 3.0. MinGrade C*. Degree M.U.R.P.

REQUIRED COURSES	
URP 510 Theory and History of Planning	3
URP 516 Planning Research Method	3
URP 507 Planning Legislative & Zoning	3
URP 525 Physical Planning and Urban Design	3
URP 526 Computer Applications in Planning	3
URP 531 Econ & Population Anal for Planners	3
URP 533 Land Use Planning	3
PROFESSIONAL READINESS	
[1]URP 527 Capstone Studio MinGrade B	3
[2]URP 529 Professional Practice	3
SPECIALIZATION OR ELECTIVES	12
THESIS	
Grade is Pass / Fail. MinHrs 6.	
[3]URP 599 Thesis	1-3
[4]Oral Defense	

*One grade of C allowed at graduation.
[1]Course may be repeated one time for elective credit.
[2]Grade is P/F. Course can be waived if student has passed AICP exam. If waived, hours replaced with an additional elective.
[3]First three credit hours for thesis proposal, second three credit hours for thesis completion.
[4]Oral Defense and approval by School of Graduate Studies required.

(URP) Urban & Regional Planning – Non-Thesis incl. AMP Option

30-45 Credit Hours

MinGPA cumulative 3.0. MinGrade C*. Degree M.U.R.P.

BASIC COURSES^	
URP 507 Planning Legislative & Zoning	3

URP 526 Computer Applications in Planning	3
[3]URP 529 Professional Practice	3
URP 531 Econ & Population Anal for Planners	3
REQUIRED COURSES	
URP 510 Theory and History of Planning	3
URP 516 Planning Research Method	3
URP 525 Physical Planning and Urban Design	3
URP 533 Land Use Planning	3
URP Elective[#]	3
PROFESSIONAL READINESS	
[1]URP 504 Internship [RPP]	3
[2]URP 527 Capstone Studio MinGrade B	3
SPECIALIZATION OR ELECTIVES	12

[RPP] = Research project paper or portfolio required.
*One grade of C allowed at graduation.
[1]Course can be waived for prior or non-credit planning experience with approval. If waived, hours replaced with an additional elective.
[2]Course may be repeated for elective credit.
[3]Grade is P/F. Course can be waived if student has passed AICP exam. If waived, hours replaced with an additional elective.
NOTE: URP 529 replaces Comprehensive Exam requirement.
^Students may be exempted from all or part of the Basic Courses, up to 12 credit hours, to complete the degree by the Coordinator of the MURP Program if courses were taken as an undergraduate at AAMU with MinGrade B.
[#]Student may be exempted from the URP Elective of 3 credit hours by the Coordinator of the MURP Program if they have an accredited undergraduate degree in urban planning

Concentrations, Specializations & Electives

(URP-EVP) ENVIRONMENTAL PLANNING SPECIALIZATION	
URP 542 Environmental Planning	3
URP 545 Environmental Policy	3
And Any **TWO COURSES** of the following:	
NRE 578 GIS, Spatial Analysis & Modeling	3
NRE 553 Hazardous Waste Management	3
NRE 580 Natural Resource Mgt Policy	3
URP 523 Site Planning	3
URP 533 Land Use Planning	3
URP 556 Independent Research	3
URP 564 International Development Planning	3
URP 566 Global Perspectives in a Planning Context	3

(URP-HCD) HOUSING & COMMUNITY DEVELOPMENT SPECIALIZATION	
URP 506 Urban Economics	3
URP 543 Housing Issues in Planning	3
And Any **TWO COURSES** of the following:	
SWK 630 Needs Assessment & Program Eval	3
URP 544 Historic Preservation	3
URP 553 Community Development Process	3
URP 556 Independent Research	3
URP 564 International Development Planning	3
URP 566 Global Perspectives in a Planning Context	3

(URP-TRA) TRANSPORTATION PLANNING SPECIALIZATION	
URP 535 Transportation Policy and Planning	3
URP 538 Transportation Plan Modeling	3
And Any **TWO COURSES** of the following:	
NRE 578 GIS, Spatial Analysis & Modeling	3
URP 539 Transportation Planning & Admin	3
URP 556 Independent Research	3
URP 564 International Development Planning	3
URP 566 Global Perspectives in a Planning Context	3

(URP) ELECTIVES	
URP 506 Urban Economics	3
URP 523 Site Planning	3
URP 535 Transportation Policy and Planning	3
URP 538 Transportation Plan Modeling	3
URP 539 Transportation Planning & Admin	3
URP 542 Environmental Planning	3
URP 543 Housing Issues in Planning	3
URP 544 Historic Preservation	3
URP 545 Environmental Policy	3
URP 553 Community Development Process	3
URP 556 Independent Research	3
URP 564 International Development Planning	3
URP 566 Global Perspectives in a Planning Context	3
URP 595 Directed Studies	1-6

Course Descriptions

All courses are not offered EVERY semester and session. Please check with the originating department for actual times offered.

Click on a course subject to be linked directly to that section.

Accounting

ACC 500 Accounting Concepts – 3 credit hours. To equip participants with a comprehensive understanding of the fundamental accounting principles, conceptual framework, and standard-setting processes vital for Financial Accounting and Reporting success. Prerequisite: None.

ACC 512 Accounting Analysis for Management – 3 credit hours. This course deals with concepts, theory, and applications of managerial accounting. Stress is on planning, control, problem solving, and decision-making. Prerequisite: MBA 506 or (ACC 203 and ACC 204).

ACC 531 Forensic Accounting & Analysis – 3 credit hours. This course provides a solid foundation for building skills in forensic accounting techniques, including gathering, interpreting, and documenting evidence. Students examine the investigative techniques used by accountants to conduct forensic examinations as well as the common schemes and techniques used to commit fraud. The skills acquired in this course will enable students to assist businesses in detecting, investigating, documenting, and preventing fraud. Prerequisite: ACC 500.

ACC 533 (MBA 533, CS 533) Cyber Security Risks, Controls and Assurance – 3 credit hours. This course prepares students to meet the new challenges in the world of auditing, internal controls and cyber security. Specifically, students will learn the theoretical advancements and best practices in information technology (IT) and cyber security controls. Students will also demonstrate the application of auditing principles to evaluation of IT controls. Prerequisite: ACC 500.

ACC 552 Financial Statement Analysis – 3 credit hours. Techniques, research methods and emerging tools to analysis financial statement information. Computer analysis of financial data to predict earnings and other financial ratios. Use of these techniques for valuation, predications, and other business decisions. Prerequisite: ((ACC 203 and ACC 204) or equivalent) or MBA 506.

ACC 563 (MBA 563) Accounting & Enterprise Risk Management Systems – 3 credit hours. This course explores the integration of accounting and other information within Enterprise Risk Planning (ERP) systems. Students will learn about ERP system implementation, risk management, security protocols, and data analytics, with a focus on hands-on experience using ERP system & Analytics software. Fraud risk will be an integral part of the risk assessment management evaluation. Prerequisite: ACC 500.

ACC 565 (FIN 565) Business Valuation and Financial Statement Analysis using Big Data – 3 credit hours. This course combines accounting and other financial information with big data analytics techniques to explore how data-driven insights can enhance decision-making. Students will work with large datasets learn how to identify business problems and leverage and apply analytical methods for business valuation, forensic, and financial statement analysis. Prerequisite: ACC 500.

ACC 571 Tax & Business Decision-Making – 3 credit hours. A study of federal tax structure, including legal, economic, and governmental implications, the central focus will be on business decisions, research methodology, and tax planning. Prerequisite: ACC 351, ACC 451, ACC 512.

ACC 572 Accounting Information Systems – 3 credit hours. A study of accounting information systems, including small to medium to large computer-based systems, the central focus will be on design and implementation of systems to meet all accounting informational needs for managers. This course carries a lab fee. Prerequisite: ACC 512.

ACC 577 Special Topics in Accounting – 3 credit hours. This is a course where contemporary accounting topics will be discussed . . . topics such as inflation accounting, social accounting, and other contemporary issues. Prerequisite: None.

ACC 590 Professional Certification Program Course (CPA, CIA, CMA) – 3 credit hours. A certification review course. Prerequisite: Instructor consent.

Apparel, Merchandising & Design

AMD 527 Consumer Textiles – 3 credit hours. The physical and chemical examination of fibers, yarns, structures, color and finishing techniques of textiles with major emphasis on the comparison and evaluation of fabrics for specific consumer uses. Theory and laboratory experience are provided which focus on decisions, processes and materials directly related to textile performance. Prerequisite: None.

AMD 528 Social-Psychological and Economic Aspects of Clothing – 3 credit hours. The study of clothing as it relates to the behavior of individuals and groups with emphasis on the production, consumption and use of clothing and textiles as related to social science theories. Prerequisite: None.

AMD 530 Special Problems – 3 credit hours. An investigation of problems in clothing, or issues and problems related to Apparel, Merchandising and Design and family well-being. Prerequisite: None.

AMD 533 Historic Costume – 3 credit hours. A comprehensive study of dress throughout periods of history, including the cultural and economic factors associated with the development, adoption and abandonment of styles. Prerequisite: None.

AMD 534L Advanced Costume Design – 3 credit hours. Creative problems in dress design tailored to individual needs; the application of flat pattern theory and Computer-Aided Design to garment design, incorporating the relationship of fabric geometry, hand, and surface ornamentation to garment design. Prerequisite: None.

AMD 535L Advanced Tailoring – 3 credit hours. The application of tailoring techniques to the construction of suits/coats for women and men. Traditional and contemporary tailoring techniques are explored. Prerequisite: None.

AMD 537 Fashion Merchandising Study Tour – 1-3 credit hours. A study of the many facets of the fashion industry, including tours of primary and secondary suppliers, apparel manufacturers, designer showrooms, fashion press, accessory showrooms, buying offices, testing laboratories, pattern companies, merchandising centers, museums, etc. Pre- and post-tour seminars and written assignments are required. Prerequisite: None.

AMD 540 Clothing for the Elderly – 3 credit hours. A study of the social, psychological, and economic aspects of clothing for the elderly. Prerequisite: None.

AMD 618 Textile Economics – 3 credit hours. An in-depth study of the economics of the textile and apparel industry with emphasis on the production and distribution of goods. Focus is placed on current, national and international problems. Prerequisite: None.

AMD 650 New Directions in Textiles & Clothing – 3 credit hours. A comprehensive approach to the study of current instructional and research trends and issues in the area of clothing and textiles. Prerequisite: None.

Biology

BIO 500 Current Concepts in Biology – 3 credit hours. The course is designed for beginning graduate students, requires brief reviews of modern biological concepts. Topics may include Bio-membranes, Stem Cells reviews, Community interactions and Biodiversity, Molecular Genetics, Enzymes, Bioenergetics, Genetics, Evolution, Concepts of Disease and Aging, Conservation Biology and Developmental Biology. Prerequisite: None.

BIO 510 Radiation Biology – 4 credit hours. Characteristics of radioisotopes; detection and counting techniques and instrumentation; tracer techniques, health and safety system. Prerequisite: instructor consent.

BIO 511 Biological Control – 4 credit hours. Designed to introduce components of resistance, use of parasites, predators and microorganisms' foreign exploration, shipment, release and establishment of imported parasites and predators will be discussed. Prerequisite: None.

BIO 512 Instrumentation in Biological Sciences – 3 credit hours. This course provides practical training in the operation and application of essential instruments used in biological research, including microscopes, pipettes, centrifuges, and dissection tools. Emphasis is placed on developing technical proficiency and understanding the functional principles of laboratory equipment for independent scientific investigation. Prerequisite: None.

BIO 513 Research Ethics – 1 credit hour. Prerequisite: None.

BIO 522 [UAH & AAMU] Microbial Physiology – 3 credit hours. The fundamentals and basic principles of microbial cell structure, growth and cellular responses to environmental changes. Topics include macromolecular synthesis of cell structures, metabolism, the genome, environmental effects, and regulation. The topics also cover the depth and range of physiological diversities found in microorganisms as well as their biotechnological exploitation. Lab Fee: level 4. Prerequisite: Microbiology, Organic Chemistry, and Biochemistry. Prerequisite: None.

BIO 523 Principles of Virology – 3 credit hours. The course will give a broad introduction into the concepts and techniques of molecular virology, which are applicable to research on human, animal and plant viruses. Topics include the principles of viral infectivity, multiplication and chemical constitution, laboratory techniques for viral isolation, cultivation, identification, and enumeration. Fundamental principles related to the interaction of viruses with host cells will be emphasized. Fee: Level 4. Prerequisite: None.

BIO 524 Mycology – 3 credit hours. Study of the various lines of the phycomycetes using representative species; the various series of the actinomycete, and representative pathogenic (crop and vegetable pathogens) and non-pathogenic heterobasidiomycetideae. Ontogenetic, cellular and structural study applied to all divisions, classes, series, orders, and families. Lab Fee: Level. Prerequisite: None.

BIO 525 Parasitology – 5 credit hours (3 clock hour lab period x2 per week). The protozoa and helminthes parasitic for humans and their laboratory identification are discussed. Arthropods are studied in relation to their roles as vectors. Lab fee: Level 4. Prerequisite: BIO 221.

BIO 526 Microbial Ecology – 3 credit hours. The relationship of soil and aquatic microorganisms and their importance in ammonification, nitrification, and other biological processes. Prerequisite: BIO 221.

BIO 531 [UAH & AAMU] Plant Physiology – 4 credit hours (3 clock hour lab period per week). A general introductory study of life processes of plants, including water relations, mineral utilization, metabolism, photosynthesis, digestion, respiration, assimilation, and growth as affected by growth hormones. Lab Fee: Level 3. Prerequisite: None.

BIO 533 Advanced Physiology I (Human Physiology) – 3 credit hours. Study of nerve and muscle cell function, fluid and electrolyte environment of body tissues, blood, heart, circulatory, nervous systems and alternative healing methods for diseases. Prerequisite: Organic Chemistry, preferably Biochemistry. Prerequisite: None.

BIO 534 Advanced Physiology II (Human Physiology) – 3 credit hours. Continuation of Advanced Physiology I with consideration of kidney function, human respiratory, digestive, reproductive, endocrine systems and disease alternative healing methods. Prerequisite: Organic Chemistry, preferably Biochemistry. Prerequisite: None.

BIO 535 Endocrinology – 4 credit hours. Current developments of anatomy, physiology, chemistry, and regulations of major endocrine glands. Laboratory sessions in biological and chemical assays of hormones. Prerequisite: None.

BIO 540 Molecular Biology – 4 credit hours. Study of structure behavior and function of the larger biological molecules, including biological oxidations, metabolism of carbohydrates, lipids, amino acids, and the genetic aspects of metabolism. Prerequisite: CHE 301.

BIO 541 Cell Physiology – 4 credit hours (3 clock hour lab period per week). Study the interconversions and functions of biomolecules in cells, including the major metabolic pathways, bioenergetics, interrelations of various pathways, and various mechanisms of metabolic regulation. Prerequisite: BIO/CHE 361 and 362 or instructor consent.

BIO 542 Analytical Biochemistry Lab – 4 credit hours. Advanced laboratory course dealing with modern techniques of molecular biology and biochemistry. Prerequisite: None.

BIO 543 [UAH] Cellular and Development Biology – 4 credit hours. Broad and comprehensive integrated approach to cellular and development biology through lectures, discussions, and selected laboratory experiences. Aspects of cellular structure and function will be coupled with relevant aspects of developmental mechanisms. Lectures will include such topics as mitosis, gametogenesis, nuclear-cytoplasmic interactions, role of genes in cellular and developmental expressions, mechanisms of hormone action on cellular function in development, cell movements and affinities, and selected morphogenesis of germ layer derivatives. Prerequisite: BIO 113, BIO 114, BIO 319, CH 101, CH 105, CH 113 or CH 123, CH 126 and CH 331 May be taken concomitantly.

BIO 544 [UAH] Cellular and Development Biology – 4 credit hours. Continuation of BIO 543. Broad and comprehensive integrated approach to cellular and development biology through lectures, discussions, and selected laboratory experiences. Aspects of cellular structure and function will be coupled with relevant aspects of developmental mechanisms. Lectures will include such topics as mitosis, gametogenesis, nuclear-cytoplasmic interactions, role of genes in cellular and developmental expressions, mechanisms of hormone action on cellular function in development, cell movements and affinities, and selected morphogenesis of germ layer derivatives. Prerequisite: None.

BIO 546 Cytogenetics – 4 credit hours. Detail analysis of composition, morphology and behavior of genes, especially as they relate to function, development and heredity. Prerequisite: None.

BIO 551 Insect Physiology – 4 credit hours. Metabolism and utilization of carbohydrates, lipids and nitrogen compounds; energy production, neuromuscular mechanics, hormones and morphogenesis; role of organs and organ systems in metabolism. Prerequisite: General Entomology or equivalent and Advanced Biochemistry.

BIO 552 Insect-Pest Management – 4 credit hours. Insect surveys, ecological basis for control, plant and animal resistance to insects, control by parasites, predators, microorganisms, and management by genetics principles, chemical attractants, chemical repellents, sterilization, insecticides, and integrated systems of pest management. Prerequisite: General Entomology or Advanced Applied Entomology.

BIO 553 [UAH & AAMU] Insect Taxonomy and Morphology – 4 credit hours. Classification of insects, external and internal anatomy of insects, with emphasis on the comparative and functional aspects. Prerequisite: BIO 455.

BIO 560 Environmental Biology – 3 credit hours. Principles of the interaction between living systems and their resources are considered. Particular emphasis will be given to current problems in the management of our natural resources including new approaches in the management of pest populations. Prerequisite: None.

BIO 561 [UAH] Physiological Ecology – 4 credit hours (3 clock hour lab period per week). Physiological and behavioral responses of organisms to natural changes in their chemical and physical environment. Lab Fee: Level 3. Prerequisite: BY 312 or instructor consent. Recommended: BIO 361 or BIO 532.

BIO 562 [UAH] Community Ecology – 4 credit hours (4 clock hour lab period per week). Detailed consideration of ecological principles and concepts, as well as biotic and abiotic factors relative to the development of plant communities and ecosystems. Lab Fee: Level 3. Field trips required. Prerequisite: BIO 312 and Taxonomy.

BIO 563 [UAH] Population Ecology – 4 credit hours (4 clock hour lab period per week). Distribution, population dynamics, and behavior of animal population in relation to environmental factors. Lab Fee: Level 3. Field trips required. Prerequisite: BIO 312 and Organic Chemistry.

BIO 564 [UAH] Limnology – 4 credit hours (4 clock hour lab period per week). Fresh-water environments and organisms exemplified by lakes, ponds, and streams in North Alabama. Includes laboratory and required field trips. Occasionally, Saturday field trips will be required in lieu of the week's laboratory session. Lab Fee: level 4. Prerequisite: BIO 312, BIO 315, BIO 371 or BIO 378, or instructor consent.

BIO 565 Phycology – 4 credit hours. Morphology of classes; growth requirements; physical and chemical stresses on growth and productivity. Succession and bioassay of pollutants. Systematic physiology and metabolism of ecology and environmental stress factors. Productivity culturing methods and economics. Man's use of biotechnology and industry. Terrestrial monitoring. Prerequisite: None.

BIO 570 Plant Pathology – 4 credit hours. History nonparasitic and parasitic diseases incited by bacteria, fungi, plasmodiophorales, nematodes, and viruses will be discussed. Disease control through exclusion, eradication, protection, and post resistance will be mentioned. Prerequisite: BIO 344.

BIO 571 Plant Anatomy and Physiology– 3 credit hours (3 clock hour lab period x2 per week). Ontogeny, differentiation, and maturation of the various tissues and organs of angiosperms. Investigate problems in the growth and development of an angiosperm using histological techniques. Prerequisite: BIO 372 or instructor consent.

BIO 572 Plant Taxonomy – 4 credit hours. Principles of classifying, naming, and identifying vascular plants with special emphasis on flowering plants, including a consideration of ecological factors influencing vegetation distribution. Prerequisite: None.

BIO 580 [UAH] Advanced Inveterate Zoology – 4 credit hours. Phylogenetic consideration of the invertebrate, including structural, functional, embryological, and physiological relationships, leading to an understanding of the complexity of animals. Includes laboratory and field trips. Prerequisite: Invertebrate Zoology or instructor consent.

BIO 590 Problems in Biological Sciences – 3 credit hours. Considers the problems of elementary and secondary school teachers of science in all areas of biological sciences. Emphasis on relations of biological organisms to their environment, stressing climatic and soil factors which influence their distribution and adaptations. Provision is made for individual investigation in the biological science. Prerequisite: None.

BIO 620 Applied Environmental Toxicology (Toxicology) – 4 credit hours. Detailed study of hazardous pollution in the environment: heavy metals, pesticides, radiation, ozone, hydrocarbons, their fate and impact on the ecosystem; assay of pollutants and their bioremediation. Risk assessment of pollutants in the environment and their management. Prerequisite: instructor consent.

BIO 621 [UAH] Pathogenic Bacteriology – 5 credit hours. (3 clock hour lab period x2 per week). Detailed study of bacteria that cause infections in humans. Mechanisms of pathogenicity and host-parasite relationships are emphasized. Prerequisite: BIO 361, BIO 421, BIO 430 or instructor consent.

BIO 622 Applied Industrial Microbiology – 3 credit hours. Physiological studies and fermentation processes. Function of microorganisms of industrial importance in the biological production of antibiotics, vitamins, organic acids, alcohol, amino acids, waste treatment and their assay. Prerequisite: Microbiology.

BIO 623 Advanced Virology – 4 credit hours. Outline of field of virology stressing the molecular biology of virus replication. Topics include immunology, genetics, and epidemiology. Emphasis on bacterial and vertebrae viruses, although plant and insect viruses may be discussed. Prerequisite: None.

BIO 624 Immunology – 4 credit hours (4 clock hour lab period per week). Theoretical and practical aspects of immunology. Current areas of immunology that are controversial will be discussed in detail. Lab Fee: Level 4. Prerequisite: BIO 361 and 430 or instructor consent.

BIO 625 [UAH & AAMU] Medical Mycology Lecture – 3 credit hours (1 clock hour lab period x2 per week). Comprehensive study of fungi pathogenic to man with emphasis on their properties, pathogenesis, and laboratory diagnosis. Topics will include interrelationship between fungi, the environment and food. Lab fee: level 4. Prerequisite: BIO 421, BIO 430.

BIO 631 Pharmacology – 3 credit hours. Lecture and laboratory course. Major topics include drug-receptor interaction, kinetics of drug absorption, distribution, and elimination, and a discussion of drugs affecting different systems. Also, to be considered are topics such as pharmacogenetics, toxicity, mutagenesis, teratogenesis, carcinogenesis, and drug interactions. Emphasis is on mechanism of action of drugs in relation to their use as therapeutic agents in medicine. Prerequisite: Advanced Physiology I and II.

BIO 632 Cardiovascular Physiology – 3 credit hours. Mechanisms of cardiac muscle excitation and interaction. Analysis of peripheral circulation. Neural regulation of circulation. Angiography, Electrocardiography, and Vectorcardiography as diagnostic tools. Prerequisite: Medical Physiology I & II.

BIO 633 Endocrinology – 3 credit hours. Anatomy, physiology and biochemistry of the endocrine glands. Discussion of the systemic effects of hormones, their regulation, integration, and mechanisms of action. Includes laboratory. Lab Fee: Level 4. Prerequisite: BY 361 and BY 532 or instructor consent.

BIO 641 Advanced Cell Biology – 4 credit hours. Integrated approach to the fine structure and function of various cellular processes. Special attention to particular aspects of cellular process each term, e.g., motility in cells, cellular differentiation, etc. Prerequisite: None.

BIO 642 Advanced Cell Physiology – 4credit hours. Biochemical and biophysical cytology. The cell as matter, life history of the cell, molecular basis of cellular activities, enzymes and energy conversions, functional localizations in subunits of the cell, mechanisms of motility, structure and function of cell membranes, effects of radiation on cells, biochemical control mechanisms. Prerequisite: None.

BIO 643 [UAH] Microscopy – 4 credit hours. Introduction to the various methods of preparation for transmission electron microscopy and an analysis of electromicrographs. Attention will also be given to supporting techniques such as phase

microscopy, autoradiography, scanning electron microscopy, negative staining, and cytochemistry. Prerequisite: instructor consent.

BIO 644 [UAH] Topics in Cell and Development Biology and Biological Fine Structure – 2 credit hours. Discussion of current topics in cell biology with emphasis on student participation. Both plant and animal cells will be emphasized. Depending on the number of students, some terms may be devoted to short research problems. Prerequisite: BIO 543 and BIO 643 or instructor consent.

BIO 645 Human Cytogenetics and its Clinical Application – 3 credit hours. Review of normal human chromosome structure and normal chromosome segregation and morphology with clinical considerations. Prerequisite: None.

BIO 646 [UAH AAMU] Molecular Genetics – 3 credit hours. The molecular mechanisms underlying genetic principles. Structure of genes and chromosomes; primary; secondary and tertiary structure of DNA; DNA replication; genetic recombination; RNA transcription; translation and genetic code; regulation of gene function; evolution at the molecular level. Prerequisite: BIO 319, CHE 361.

BIO 647 [UAH] Enzymology – 3 credit hours. Detailed study of enzymes including protein synthesis, the primary, secondary, tertiary, and quaternary structure, nomenclature, physiological and catalytic functions, enzyme kinetics, and metabolic regulations of enzyme activity. Prerequisite: BIO 542 or CHE 561 or instructor consent.

BIO 648 [UAH] Enzymology Laboratory – 2credit hours. Techniques of isolation, purification, and characterization of enzymes. Prerequisite: BIO 647.

BIO 649 Advanced Genetics I – 4 credit hours. Three hour lecture and one hour laboratory. This is the first of the two-course sequence and will provide instruction in genetics of viruses, bacteria and fungi. This instruction will emphasize a comparative approach of structure, function and expression of genetic material, genetic code, protein synthesis and transposable elements. Methods of cloning recombinant DNA in these groups will be discussed. Prerequisite: Principles of Genetics, BIO 311: Microbiology, BIO 430; Biochemistry, BIO 407.

BIO 651 [UAH] Medical Entomology – 4 credit hours. Insects and other arthropods as parasites and disseminators of disease. Mechanisms of life cycles, biology and control of insect parasites of humans. Lab Fee: Level 3. Prerequisite: BIO 361 and 455 or instructor consent.

BIO 652 Advanced Applied Entomology – 4 credit hours. Economic thresholds, economic injury levels, population dynamics, residues in food crops, chemical control, insect transmission of plant and livestock diseases. Prerequisite: General Entomology.

BIO 653 [UAH & AAMU] Taxonomy of the Immature Insect – 4 credit hours. Studies of the literature, comparative morphology, and techniques of identification of the immature stages of the insect, methods of collecting and preserving the immature stages. Prerequisite: BIO 455 or instructor consent.

BIO 660 [UAH] Ecosystem Dynamics – 4 credit hours. (4 clock hour lab period per week). An analytical study of the functional energetics, interrelationships and adaptive interactions of living organisms in terrestrial aquatic and marine environments. Methodology includes simulations, modeling, field and laboratory experimentation, and other predictive and investigational procedures. Field trips required. (Prerequisite BIO 564, BIO 565)

BIO 661 [UAH] Advanced Population Ecology – 4 credit hours (4 clock hour lab period per week). Interaction of population structure, genetic properties, and ecology factors in controlling the dynamics and evolutionary character of natural populations. Lab Fee: Level 3. Prerequisite: BIO 312, BIO 564, or BIO 565 or approval of instructor.

BIO 690 [UAH &AAMU] Seminar – 1 credit hour. Students report on current journal articles and research. Prerequisite: None.

BIO 691 [UAH & AAMU] Special Topics – 1-4 credit hours. Literature search relative to topics of special interest under direct supervision of an instructor. For graduate students. Prerequisite: None.

BIO 692 [UAH & AAMU] Research – 1-4 credit hours. Individual investigations at the graduate level into biological problems under the direct supervision of a member of the graduate faculty. A special problem may be carried out at the Marine Environmental Sciences Consortium, Dauphin Island, Alabama. Available to thesis students. Prerequisite: None.

BIO 699 [UAH & AAMU] Master's Thesis – 1-3 credit hours. Individual research towards completing the thesis requirement for the M.S. degree in Biology. Prerequisite: None.

Civil Engineering

CE 501 (CE 401) Structural Steel Design – 3 credit hours. Introduction to the design of steel structures to include behavior of members and their connections. Theoretical and practical basis for proportioning members is addressed. Prerequisite: undergraduate course in structural analysis.

CE 502 (CE 402) Reinforced Concrete Design – 3 credit hours. A study of the theory and design of reinforced concrete members. Design considerations for concrete bridges and buildings are included. Prerequisite: undergraduate course in structural analysis.

CE 504 (CE 404) Hydraulic Engineering and Design – 3 credit hours. A study of the similitude, and flow measurement; open channel flow, pipe flow and their applications; and design of various elements of hydraulic structures. Prerequisite: undergraduate course in fluid mechanics.

CE 508 (CE 408) Foundation Design – 3 credit hours. The study of shallow and deep foundation elements, determination of bearing capacity of spread footings, mat and pile foundations. This course also includes instruction on drilled caissons and piers as well as lateral earth pressure and the design of retaining structures. Prerequisite: undergraduate course or experience in soil mechanics.

CE 509 (CE 409) Public Health Engineering – 3 credit hours. A study of the engineering aspects involved in the control of the environment for the protection of health and the promotion of the comfort of man. Discussion will include communicable disease control, air pollution, refuse disposal, industrial hygiene, and radiological health hazards. Prerequisite: undergraduate course or experience in environment analysis.

CE 510 (CE 410) Transportation Engineering and Design – 3 credit hours. A study of engineering and design basics for highway transportation; elements of highway transportation and their characteristics; drivers; vehicles, volume, density, speed, and travel time; design for safety, service, and economy; highway alignment, cross section and geometric design elements. Prerequisite: undergraduate course or experience in transportation systems.

CE 512 (CE 412) Pavement Systems – 3 credit hours. A study of the design of highway and airport pavement systems; subgrades, sub-bases and bases; flexible and rigid pavements; drainage and earthwork; pavement evaluation and maintenance. Prerequisite: undergraduate course or experience in transportation systems.

CE 555 (CE 455) Wastewater Treatment – 3 credit hours. An introduction to wastewater characteristics and treatment processes; biological mechanism, reactors, waste treatment, and kinetics. The engineering design of physical processes such as sedimentation, thickening, and filtration, as well as chemical processes, processing of sludge and advanced wastewater treatment processes are included. A field trip to wastewater treatment plant is required. Prerequisite: undergraduate course in hydrogeology.

Chemistry

CHE 508 Chemistry in the Secondary Schools – 3 credit hours. Current methodology, research problems, and findings in chemistry as applicable to the secondary school. The student will become familiar with supplementary materials such as American Chemical Society publications (e.g. Chem. Comm., SPICE) as well as use of the Journal of Chemical Education for obtaining useful instructional materials. Prerequisite: None.

CHE 509 Laboratory Methods for Chemistry Teachers – 3 credit hours. Emphasis is placed on safety in the laboratory and the design and implementation of chemical experiments for the secondary school laboratory with limited facilities, as well as for the traditional high school chemistry laboratory. Prerequisite: None.

CHE 510 Current Development in Chemistry – 3 credit hours. New developments selected from significant advances in chemistry are presented. Course content will vary from year to year with growth and development of the science. Prerequisite: None.

CHE 511 History of Chemical Theory – 3 credit hours. History of chemistry from its ancient beginnings up to contemporary experimenters and philosophies. Evidence for selected theories is critically presented. Topics such as the periods of chemistry, the discovery of the elements, the role of chance in discoveries and historical aspects of fundamental laws are treated. Prerequisite: None.

CHE 512 Energy from Chemistry – 3 credit hours. Energy production from fossil fuel as well as nuclear energy and fuel cell technology. Other topics will include alternate energy sources, such as oil shale, battery research for electric vehicles, and other energy-producing facets of chemistry. Prerequisite: None.

CHE 514 Analytical Chemistry for Teachers – 3 credit hours. This course is designed for secondary school teachers who have not had a formal course in analytical chemistry. Emphasis will be placed on the basic fundamentals of analytical chemistry to include wet and dry methods as well as modern instrumental techniques. Prerequisite: None.

CHE 515 Laboratory Design for Elementary Teachers – 3 credit hours. This course is based on the use of the LESSON (Lawrence Livermore Laboratory Elementary Science Study of Nature) program. This program involves the use of specific inexpensive kit materials to allow experimentation with scientific principles on the elementary school level. Prerequisite: None.

CHE 612 Theory of Nuclear and Radiochemical Techniques – 3 credit hours. Introduction to the theory of nuclear and radiochemistry with practical experience with selected exercises, which illustrate fundamental properties of radio nuclides. Topics will include atomic and nuclear structure, radioactive decay, interaction of radiation with matter and methods for detection of radiation. Prerequisite: None.

CHE 613L Nuclear and Radiochemical Techniques Laboratory – 1 credit hour. Laboratory to accompany CHE 612. Radiation safety orientation, measurement of half-life, pulse height analyzers, and liquid scintillation counting techniques will be presented. Prerequisite: None.

Counseling

COUN 507 (PSY 507) Introduction to Rehabilitation Counseling – 3 credit hours. This course is an Introduction to the field of rehabilitation counseling and the role of the rehabilitation counselor. The course will provide an overview of the historical, legislative and philosophical forces that shaped the field of rehabilitation. The philosophical, social, psychological, ethical, and legal responsibilities of the rehabilitation professional, and economic basis for rehabilitation programs along with the impact of disabilities will be explored.

COUN 510 (PSY 510) Rehabilitation High and Low Technology – 3 credit hours. This course provides an overview of high and low technology focused on adaptive and assistive rehabilitation technology, including aids for daily living. This technology will assist individuals with disabilities to achieve their maximum potential and provide training to students interested in gaining expertise in the use of technology while working with people with disabilities across the human lifespan.

COUN 511 (PSY 508) Job Development and Placement – 3 credit hours. This course relates the psychological meaning of work, the vocational development theories of occupational choice, and labor market information to current methods of job development, selective placement and follow-up. Students will develop the competence to apply major career theories with different populations and within different settings, and how to assist individuals in obtaining and maintaining employment with a major focus on career counseling and job placement for persons with diverse disabilities. Prerequisite: None.

COUN 512 (PSY 509) Vocational Assessment – 3 credit hours. This course is designed to provide students with an overview of vocational evaluation and assessment, work adjustment, personal-social adjustment, and independent living services for persons with disabilities and special needs primarily as they are applied in rehabilitation facilities. Field trips to facilities providing evaluation are required.

COUN 513 Medical and Psychosocial Aspects of Rehabilitation – 3 credit hours. The course is designed to provide students with an overview of the major physical, emotional/mental, cognitive, and sensory and developmental disabilities with emphasis on medical, function, environmental and psychological aspects of disability. Additionally, there will be focus on the body systems and function; common physiological processes, health conditions and their clinical manifestations, and diagnoses. The course will also cover the functional and vocational implications of chronic illnesses and disabilities as well as rehabilitative considerations. The course will also acquaint students with medical terminology and various evaluation. Prerequisite: None.

COUN 514 (PSY 514) Human Growth and Development in Counseling – 3 credit hours. A study of human development through the life span including physiological, social, emotional, cognitive, language, and cultural influences. Prerequisite: None.

COUN 517 (PSY 553) Case Management for Rehabilitation – 3 credit hours. This course will examine the concept of case management as a critical component of the role of the rehabilitation counselor. There will also be an emphasis on the importance of community outreach and the rehabilitation counselor’s role in developing and maintaining effective

working relationships with community agencies. This course will review the major stages of the rehabilitation process, and examine the case and caseload management issues and challenges associated with each stage. Topic areas will include: Referral and Intake; Client Evaluation and Assessment; Rehabilitation Plan Development, Job Placement Planning; and Termination/Case Closure and Follow-up Issues and report writing..

COUN 520 (PSY 592) Professional Orientation in Counseling – 3 credit hours. An introduction to the professional practice of counseling, including a broad survey of issues such as its history and trends, ethical and legal standards. Course will emphasize preparation standards, credentialing/licensure, role and function of counselors, and the organizations and associations of the profession. Prerequisite: None.

COUN 525 Foundations of Alcohol and Drug Addiction – 3 credit hours. This course is designed to help students gain a general knowledge of alcohol and other drugs in the context of individual and cultural use. The course will cover the basic pharmacology of various substances, the prevalence of use in American culture, and issues related to prevention and treatment of addiction. This course serves as a prerequisite for many of the courses in the Addictions Counseling. One aspect of the course is also preparing students for the work force which includes (but not limited to) timeliness, written and oral presentation skills, and meeting deadlines. Hence, course requirements are designed to provide opportunities to enhance those skills. Prerequisite: None.

COUN 526 Crisis and Intervention in Counseling – 3 credit hours. This course is designed to help students gain a general knowledge of crisis counseling in the context of individual and cultural use. One aspect of the course is also preparing students for the work force which includes (but not limited to) timeliness, written and oral presentation skills, and meeting deadlines. Hence, course requirements are designed to provide opportunities to enhance those skills. Prerequisite: None.

COUN 527 Human Sexuality – 3 credit hours. An intensive study of the physiological, psychological, sociological, and ethical considerations of human sexuality.

COUN 528 Introduction to Community & Mental Health Counseling – In this course, students will learn the history, philosophy, trends, and practices in community mental health counseling agencies and counseling service programs. This course will review the roles and function of clinicians and help students in developing the knowledge and skills needed to work as professional counselors. Topics include: reviews of the profession, professional identity, management of programs, ethics; advocacy for clients; development and review of programs; understanding, assessing, and managing emergencies and crisis situations. Prerequisite: None.

COUN 530 (PSY 530) Family Counseling – 3 credit hours. This course covers the basic principles, techniques, applications, uses, and contraindicators of the major family therapy systems models. Specifically, the intersystem interface among intrapsychic, interpersonal, and family systems dynamics is addressed. Assessment techniques and intervention rationales are covered along with the role of the therapist and the therapist as a person. The concepts of family-of-origin, family functioning, structure, strength, and narratives will be studied through an experiential and didactic approach. Application of theory and research to practice is discussed. Prerequisite: None.

COUN 535 Counseling Theories – 3 credit hours. This course provides a survey of major theories of counseling. Areas covered include history of each theory, theory of personality development, theory of counseling application, research, client and counselor roles, and use with diverse groups. Prerequisite: None.

COUN 550 (PSY 556) Group Counseling – 3 credit hours. A comprehensive study of the major approaches, techniques and interventions used in group psychotherapy. Also emphasizes dynamics of group process including the types, stages and formation of groups. Prerequisite: COUN 535 and COUN 540.

COUN 540 (PSY 559) Counseling and Helping Relationships – 3 credit hours. The course is designed to provide an introduction and overview of various theoretical approaches to the helping relationship, counseling interview techniques and skills helpful in developing and maintaining a therapeutic relationship. Course will also cover helping techniques (with culturally diverse populations) as applied through advising, intervention, and consultation roles, behavior development and change as an interpersonal process. Practice in role-playing situations involving various helping and human relations skills and techniques will be covered. Prerequisite: COUN 535.

COUN 554 (PSY 554) Medical Aspects and Adjustment in Rehabilitation – 3 credit hours. This course provides an orientation to the medical profession and related rehabilitation professions. Discussion of body systems and functions, malfunctions and common physiological and diagnostic treatments and rehabilitative procedures as well as implications of disabilities within the overall scope of the rehabilitative process including rehabilitation considerations, vocational implications, clinical manifestations and functional limitations will be discussed including all major areas of client information. The

course includes synthesis of client information; rehabilitation plan development; knowledge of service delivery; identification of community, state, and local community resources, initiating, managing, and tracking individual clients.

COUN 560 (PSY 560) Career Counseling – 3 credit hours. This course is designed to provide an understanding of career development and theories and related life factors and career decision-making. Special emphasis will be placed on counseling processes designed to assess and assist individuals with career development problems and/or issues. The study of basic career development theories. Course also covers occupational and educational information sources and systems. Prerequisite: None.

COUN 565 Introduction of Community and Mental Health – 3 credit hours. In this course, students learn the history, philosophy, trends and practices within community mental health agencies. This course will review the roles and function of clinicians and help students in developing the knowledge and skills needed to work as professional counsellors. This will include reviews of the profession, professional identity, management of programs, and ethics, as well as teaching students how to advocate for clients; develop and review programs; understand, assess, and management emergencies and crises. Prerequisite: None.

COUN 570 (PSY 595) Multiculturism in Counseling – 3 credit hours. The course is focused on the development of knowledge, skills, and attitudes for more effective counseling with persons different from the counselor regarding characteristics such as: culture, race, gender, sexual orientation, physical disability, and religious preference. Substantial attention is given to developing awareness of one's own values, attitudes, and beliefs as they relate to functioning in a diverse society. Course also provides an understanding of how diverse values, morals, interaction patterns, social conditions, and trends relate to diversity and impact the counseling relationship. Prerequisite: COUN 540.

COUN 580 (PSY 558) Assessment and Testing – 3 credit hours. This course examines the principles of educational, psychological, and vocational assessment in a counseling context, including concepts necessary for the selection, administration, scoring and interpretation of individual and group tests. Also covers interpretation of clinical reports, and application of testing results. Prerequisite: None.

COUN 590 (PSY 585) Research & Program Evaluation in Counseling – 3 credit hours. This course examines areas including statistics, research design, and development of research and demonstration proposals in a multicultural and ethical context. It includes understanding the importance of research in advancing the counseling profession, program development and demonstration proposal; development and evaluation of program objectives, principles, models, and applications of needs and assessment; and culturally and ethically relevant strategies for interpreting the results. Self-growth experiential activities may be associated with the content of this course. Prerequisite: None.

COUN 591 (PSY 591) Psychosocial Aspects of Disabilities – 3 credit hours. Testing and assessment of the functional capacities of individuals with disabilities and appropriate intervention resources including assistive technology as appropriate; psychosocial aspects of selected disabilities to include alcoholism, chemical substance abuse, developmental delays, mental retardation, and mentally and emotionally disturbed. Issues to be addressed will include the impact of disability on the individual, family, and personal, social and cultural adjustment to life, and litigated disability cases. The administration of tests, test selection, test scoring & limitations as well as interpretation of test results, and resources for assessment will be a consideration.

COUN 594 (PSY 610) Diagnosis and Treatment Planning – 3 credit hours. The course is designed to introduce students to the concepts of psychopathology and to major diagnostic categories of the current DSM. Emphasis is placed on differential diagnosis and understanding of how cultural, biological, social, psychopharmacology and psychological factors are necessary when developing a holistic and ethical model of assessment and treatment planning. Prerequisite: None.

COUN 596 Pre-Practicum Understanding Personality – 3 credit hours. This course is structured as a fundamental counseling skills course, with the purpose of developing relationship building, basic assessments, goal setting, selecting client-aligned interventions, and evaluation of client outcomes required for Field Practicum. The course is designed as a content and practice-oriented skills development experience within a safe and encouraging environment. Prerequisite: None.

COUN 597 (PSY 597) Practicum II: Field Experience – 3 credit hours. This is a practicum at an approved field placement site for a minimum of 100 clocked hours observing and/or practicing clinical skills with individuals, couples, families, and/or groups under the direction of an approved supervisor with applications of counseling theories and strategies. Direct client service, record keeping, information and referral, appraisal, consultation, and evaluations are included. Prerequisite: Instructor consent and COUN 596.

COUN 599 Master's Thesis – 3 credit hours. The purpose of this master's level course is to assist and train students to conduct research and develop a thesis. Development of the thesis in this course includes all aspects of the research process to include development of research materials and procedures, conducting experiments, analysis of data, interpretation, and development of empirical scripts. This thesis course will allow students to develop and demonstrate original scholarship with guidance provided by the thesis advisor and thesis committee. The overall goal of this course is to allow students the opportunity to successfully propose, conduct, and defend the thesis project. Prerequisite: None.

COUN 601 (PSY 621) Counseling Internship II – 3 credit hours. The purpose of this advanced internship course is to help students implement counseling skills into counseling practice. Major emphasis is placed on the students involvement in successful practices at the educational level of interest. Students have met all academic and professional standards of practice before placement. Over the course of their Internship experiences students are required to complete 600 clock hours, of which at least 240 are direct client contact. Students will be expected to engage in weekly site supervision (individual/triadic) with their site supervisor and weekly group supervision is provided by the course faculty instructor. Prerequisite: instructor consent.

COUN 612 School Counseling Intern I – 3 credit hours. This placement is in a school setting consistent with the intern's major area of concentration. The school's philosophy, organization, and yearly calendar of counseling or activities will be stressed. Academic, as well as personal-social counseling and vocational exploration, will be emphasized. Prerequisite: None.

COUN 613 School Counseling Intern II – 3 credit hours. Prerequisite: None.

COUN 616 (PSY 616) Internship in Vocational Counseling I – 3 credit hours. Students spend a minimum of 300 hours in the field working part time (20 clock hours) a week during normal working hours under direct supervision of university faculty member and a selected staff member of a rehabilitation setting. Prerequisite: None.

COUN 617 (PSY 617) Internship in Rehabilitation Counseling II – 3 credit hours. Students spend a minimum of 300 clock hours in the field working part time (20 clock hours) a week during normal working hours under direct supervision of university faculty member and a selected staff member of a rehabilitation setting. Prerequisite: None.

COUN 600 (PSY 620) Counseling Internship I – 3 credit hours. The purpose of the course is to help students implement counseling skills into counseling practice. Major emphasis is placed on the student's involvement in successful practices at the educational level of interest. Students have met all academic and professional standards of practice before placement. Over the course of their Internship experiences students are required to complete 600 clock hours, of which at least 240 are direct client contact. For this semester, you will be required to earn a minimum of 200 clock hours, in which to pass the class you must obtain a minimum of 60 direct hours for the semester. Students will be expected to engage in weekly site supervision (individual/triadic) with their site supervisor and weekly group supervision is provided by the course faculty instructor. Prerequisite: None.

COUN 624 (PSY 605) Understanding Psychotropic Medications – 3 credit hours. This course is designed to acquaint non-medical mental health professionals (counsellors, social workers, and psychologists) with the category and therapeutic effects of drugs used to treat behavioral disorders, as well as the adverse effects of both prescribed and major illicit drugs. Prerequisite: None.

Computer Science

CS 511 Design and Analysis of Algorithms – 3 credit hours. Introduces and illustrates basic techniques for designing efficient algorithms and analyzing algorithm complexity. Topics will be chosen from graph algorithms, sorting and searching, NP-complete problems, pattern matching, parallel algorithms, and dynamic programming. Prerequisite: CS 215.

CS 513 Management Information Systems – 3 credit hours. Analysis of information requirements, Design approaches, processing methods, data management, and the role of computers in management information systems. Topics include models of an integrated system, and organization and social implications of information technology. Prerequisite: instructor consent.

CS 515 Numerical Analysis – 3 credit hours. Presents mathematical approach and computer solution to a wide variety of numerical problems. Topics include interpolation and approximation of data, solution of differential equations, summation series, numerical integration, solution of linear and non-linear systems of equations, and study of errors. Prerequisite: CS 109 or 204.

CS 517 Applications of Statistical Methods – 3 credit hours. Treats data, probability distributions, sampling techniques, normal distribution, hypothesis testing, linear and multiple regression, correlation, analysis of variance, time series, index numbers, and parametric tests. Prerequisite: MTH 237.

CS 519 (CS 412) Cloud Computing – 3 credit hours. The cloud computing course is designed to introduce the concepts and capabilities across various cloud service models including infrastructure as a Service (IaaS), Platforms as a Service (PaaS), Software as a Service (SaaS) and Business Process as a Service (BPaaS). This course includes various cloud architecture and cloud storage, data center design issues, security and privacy issues, application on commercial cloud computing platforms, and building mobile apps with a cloud-based backend. A variety of real-life case studies and many existing commercial cloud-based tools will be discussed. Prerequisite: CS 215.

CS 520 (CS 413) Introduction to Data Science – 3 credit hours. This course teaches fundamental concepts and techniques in data science and big data analytics. Students will learn concepts, techniques and tools they need to deal with various facets of data science practice, including data collection and integration, exploratory data analysis, predictive modeling, descriptive modeling, data product creation, evaluation, and effective communication. The emphasis will be placed on integration and synthesis of concepts and their application to solving problems. Prerequisite: CS 215 and senior standing.

CS 521 Object Oriented Programming and Design – 3 credit hours. Object modeling, dynamic modeling, functional modeling, analysis, system design, and object design methodologies. Introduction to various object-oriented design methodologies, including the Unified Modeling Language. Prerequisite: CS 215.

CS 523 Compiler Design – 3 credit hours. Basic mathematical theory underlying the design of compilers and other language processors and provides instruction on how to use that theory in practical design situations. Topics include lexical analysis, parsing, syntax-directed translation, code optimization, and code generation. Prerequisite: CS 215.

CS 525 Advanced Data Structures – 3 credit hours. Development of the efficient data structures used to produce more efficient solutions to classical problems, such as those based on the graph theoretical model, as well as to problems that arise in application areas of contemporary interest. Prerequisite: CS 215.

CS 531 Computer Architecture – 3 credit hours. Introduces computer architecture and system organization including virtual memory supports, cache, pipeline, vector processing, multiprocessor, and RISC architecture. Study and compare typical architectures to the extent that time permits. Prerequisite: CS 380.

CS 533 Cyber Security Fundamentals – 3 credit hours. This course will provide an overview of cyber physical system security. Students will be exposed to the spectrum of security activities, methods, methodologies, and procedures with emphasis on practical aspects of cyber physical system security. Topics include security principles, threats, attacks, security models, security policies, authentication, detection. Prerequisite: CS 485.

CS 535 Introduction to Bioinformatics – 4 credit hours. An interdisciplinary course melding information from computer/information sciences and molecular biology. Retrieval and interpretation of biomedical information, algorithms and software use for sequence alignment, similarity searching of macromolecular sequence databases, and exposure to Java or Perl. Prerequisite: instructor consent.

CS 541 Operating System Principles – 3 credit hours. Examines process synchronization, I/O techniques, buffering, file systems, processor scheduling, deadlocks, memory management, virtual memory, job scheduling, resource allocation, system modeling, operating system security, performance measurement and evaluation. Prerequisite: CS 215, CS 381.

CS 543 Computer Communications – 3 credit hours. Analysis of computer network architecture including topologies, media, switching, routing, congestion, control, protocols, and specific case problems. Addresses hardware interfaces and carriers, network security, and performance evaluation. Prerequisite: instructor consent.

CS 550 Artificial Intelligence – 3 credit hours. Formal concepts of artificial intelligence. Heuristic versus algorithmic methods, cognitive processes and simulation, artificial application programming techniques, and surveying the areas of game playing, vision, learning and natural language understanding. Students are provided direction for research using Internet and open literature resources. Prerequisite: CS 203, CS 109 or CS 206.

CS 551 Database Management Systems – 3 credit hours. Provides a conceptual understanding of database management systems in terms of the hierarchical, network, and relational models. Data modeling, database design and administration. Includes a review of file structures and a discussion of database implementation techniques. Prerequisite: CS 203.

CS 554 Neural Networks – 3 credit hours. Introduction to natural networks, supervised and unsupervised learning, neural network architectures, training algorithms, black board architecture, and other general concepts. Prerequisite: CS 109 or CS 206.

CS 555 Advanced Database Systems – 3 credit hours. Advanced database systems, including the areas of distributed and object-oriented database design, resource allocation, access plan selection, security measures, transition management, and query optimization. Prerequisite: CS 488.

CS 561 Software Engineering Methodology – 3 credit hours. Explores the traditional approach to software construction, software crisis, and software characteristics. Covers various software engineering paradigms, and the fundamental concepts of analysis, design, coding, testing and maintenance. Introduces various CASE tools. Prerequisite: CS 215.

CS 562 Multimedia Systems and Applications – 3 credit hours. Design and implementation of the technologies used to implement computer-based multimedia applications such as streaming video playback, video conferencing, interactive television, video editing, and hypermedia authoring. It acquaints the student with disciplines associated with multimedia, such as presentation software, the World Wide Web, HTML code, presentation design, and production. Other subjects that may be addressed as required for projects adopted for student productions: bitmap graphics, vector graphics, text design, digital photography, audio and sound design, and navigational element design. Prerequisite: instructor consent.

CS 563 Image Processing – 3 credit hours. General concept of image processing, sensing, sampling and quantization, image segmentation and edge detection, image sequence analysis, image enhancement and restoration, image understanding systems, applications of mathematical morphology. Prerequisite: MTH 203.

CS 570 Computer Graphics and Animation – 3 credit hours. Introduction to the basic concepts of computer science. Topics include display device characteristics, system considerations, raster vs. vector technology, line patterns, line drawing algorithms, image rendering, 2-D and 3-D modeling, and symmetry groups. Prerequisite: CS 203, CS 109 or CS 206.

CS 577 Fuzzy and Expert Systems – 3 credit hours. Theoretical and applications of fuzzy systems. Topics may include fuzzy set theory, approximate theory, fuzzy control, decision making under fuzzy environment, fuzzy operations research. Prerequisite: CS 203, CS 109 or CS 206.

CS 582 Wireless and Mobile Computing – 3 credit hours. This course is to provide an in depth understanding of the fundamental concepts of wireless networking and communication, data transmission and communication, protocols and problems of mobile computing and study the existing and proposed solutions for these problems from both research and development perspective. Some advanced topics include location management and mobility tracking, location-aware information services, security infrastructure, malware detection, mobile agents and mobile forensics will be covered in this course. Prerequisite: CS 215.

CS 591 Cooperative Educational Work Experience – 3 credit hours. Provides students with applied, hands-on experience in an industry (computer-related) environment. The student should have the advisor's approval prior to taking this course and should submit a report and defend before a departmental committee. Submission of a copy of the three-credit-hour equivalent certificate to the graduate office upon completion of the course is required. Prerequisite: Completion of all the core courses.

CS 593 Advanced Topics in Computer Science – 3 credit hours. This course is based upon the topic to be addressed and the instructor consent. Topics will be those of mutual interest to faculty and students and not currently available in the graduate program. Prerequisite: Graduate standing and instructor consent.

CS 597 Independent Study – 3 credit hours. Provides opportunity for the students to participate in the ongoing research in the department. The student will work in close interaction with the professor of mutual research interest. The student is required to present at least one research paper at a reputable conference and should be evaluated by a departmental committee of three members formed by the chairperson. Prerequisite: Completion of a minimum of 12 credit hours of graduate coursework.

CS 599 Thesis – 1-3 credit hours. This course consists of individual research towards completing the thesis requirement for M.S. degree in Computer Science. Prerequisite: None.

Curriculum Mathematics Education

CME 601 Teaching Mathematics Using Computers – 3 credit hours. A study of the use of computers in mathematics teaching and research, incorporating evaluations of instructional software and examining integrative techniques for applications of

microcomputers in middle grades math, consumer math, general math, geometry, advanced mathematics, trigonometry, and calculus. Prerequisite: Admission to Curriculum and Instruction Program. Note: Delivery is 100% online.

CME 610 Data Science in Education – 3 credit hours. Data Science in Education has emerged over the past decade as an interdisciplinary field encompassing Learning (e.g. educational technology, learning and assessment sciences), Analytics (e.g. visualization, computer/data sciences), and Human-Centered Design (e.g. usability, participatory design). This course will provide students with an overview of the field, examples of its use in educational contexts, and applied experience with tools and techniques for analyzing new sources of data from new perspectives. Student will be required to learn a programming language to build their skill in experience in the collection, analysis, and reporting of data throughout the course, they will be better prepared to help educational organizations understand and improve learning and the contexts in which learning occurs. Prerequisite: Admission to Curriculum and Instruction Program. Note: Delivery is 100% online.

CME 630 Remediation of Math Difficulty – 3 credit hours. An exploration of factors that contribute to mathematics difficulties in the elementary and middle school, tests that aid in the diagnosis of difficulties, and techniques for preparing and evaluating individualized educational plans and strategies for remedial instruction. Prerequisite: Admission to Curriculum and Instruction Program. Note: Delivery is 100% online.

CME 710 Numbers and Operations – 3 credit hours. An in-depth view of numbers and operations that undergird students' conceptual understanding of the historical foundations of numbers, number systems, and algorithms. Research with an emphasis on the demonstration of best practices and creative strategies to support student learning regarding the conceptual understanding of numbers and operations and common misconceptions will be explored. Prerequisite: Admission to Curriculum and Instruction Program. Note: Delivery is 100% online.

CME 720 Algebraic Thinking – 3 credit hours. An in-depth view of algebraic concepts that undergird students conceptual understanding of algebraic thinking. Research with an emphasis on the demonstration of best practices and creative strategies to support student learning regarding algebraic thinking will be explored. Prerequisite: Admission to Curriculum and Instruction Program. Note: Delivery is 100% online.

CME 730 Geometric Thinking – 3 credit hours. An in-depth view of geometric concepts that undergird students' conceptual understanding of geometric thinking such as the Van Hiele Model. Research with an emphasis on the demonstration of best practices and creative strategies to support student learning regarding geometric thinking will be explored. Prerequisite: Admission to Curriculum and Instruction Program. Note: Delivery is 100% online.

CME 795 Special Topics in Mathematics Education – 3 credit hours. This is not a required course but reserved as an elective or substitution course for candidates who wish to pursue further exploration of topics of special interest in the specialization. Permission from advisor must be acquired. The course may be substituted for a required course. Prerequisite: Advisor approval.

Communications

COMM 501 Social Media – 3 credit hours, 3 contact hours. An exploration of the structure, influence and strategic use of social media platforms such as Instagram, X, TikTok and YouTube. Students will engage with topics such as algorithmic visibility, influencer culture, digital identity, audience engagement, content moderation and platform governance. The course combines critical analysis with practical assignments in content creation, campaign planning and audience analytics. Prerequisite: None.

COMM 502 Political Communication and Social Change – 3 credit hours. Investigates the degree to which political opinions and actions are influenced by the mass media, particularly television and new media, as well as the influence of the mass media on public policy. Topics to be covered include the history of the mass media, recent trends in the new media, theories of attitude formation and change, and social change communication. Prerequisite: None.

COMM 503 Mass Media Ethics – 3 credit hours, 3 contact hours. The examination of the ethical challenges and dilemmas that media professional face in the production, distribution and consumption of mass media content. Drawing on theories of ethical and legal frameworks, the course explores the responsibilities of journalists, broadcasters, content creators, advertisers and digital media producers in an increasingly complex media environment. Prerequisite: None. Corequisite: None.

COMM 504 Mass Media Law – 3 credit hours, 3 contact hours. This graduate-level course provides an in-depth examination of the legal frameworks that govern mass media in the United States. Emphasizing constitutional principles and statutory regulations, the course explores how legal doctrines affect journalism, digital media, advertising and more, while special focus will be paid to First Amendment, defamation and privacy case law. Prerequisite: None. Corequisite: None.

COMM 505 Theory/Research Communication – 3 credit hours. A study of theory and research methods used in the communication discipline. Participants will be exposed to an overview of methods and techniques used for the systematic, theoretical observation of communication behavior. Prerequisite: None. Corequisite: None.

COMM 506 Advanced Television Production – 3 credit hours, 3 contact hours. An intensive, hands-on exploration of the creative and technical processes involved in professional television production. Emphasis will be placed on storytelling, visual composition, multi-camera directing, sound design, lighting and the integration of emerging digital technologies and platforms in contemporary television. Prerequisite: None. Corequisite: None.

COMM 507 Advanced Screenwriting – 3 credit hours, 3 contact hours. Emphasizing structure, character development, dialogue, and visual storytelling, the course guides students through the process of developing original scripts from concept to polished draft. The course covers key elements of screenwriting, including three-act structure, genre conventions, dramatic tension, scene construction and adaptation. Prerequisite: None. Corequisite: None.

COMM 508 Advanced Film Production – 3 credit hours, 3 contact hours. A comprehensive exploration of the entire film production process, from pre-production planning to post-production execution. With an emphasis on hands-on experience, students will gain expertise in the technical, creative and logistical aspects of filmmaking, including cinematography, directing, sound design, editing and production management. Prerequisite: None. Corequisite: None.

COMM 509 Advanced Mass Media Writing – 3 credit hours, 3 contact hours. The advanced techniques of writing for various mass media platforms, including print, digital and social media. Emphasizing both the craft and the ethical responsibilities media writing. Students will develop the ability to produce clear, engaging and impactful content across diverse formats, from news articles and feature stories to blog posts, releases and social media campaigns. Prerequisite: None. Corequisite: None.

COMM 511 Strategic Communication – 3 credit hours. Introduction to the fundamental theories, concepts, and applications of strategic communication to meet a variety of organizational goals. Provides an overview of practices in communication management, integrated marketing communication, and public relations. The course's purpose is to describe how these elements can be combined to create seamless programs that affect the various publics of business and not-for-profit organizations; and how such programs increase organizational value and effectiveness. Prerequisite: None.

COMM 512 Gender and Communication – 3 credit hours. Explores gender and communication issues through a range of feminist and cultural perspectives, both within the North American and other national contexts. Attention will be given to how the academic study of gender relates to real-life situations going on in the world at this moment. The course will emphasize mediated communication – news, television, film, and other popular culture – and the ways that language, culture and representation enter into these mediums. Prerequisite: None.

COMM 520 Communications Media Internship – 3 credit hours, 3 contact hours. Tailored to individuals pursuing careers in journalism, public relations, digital media, broadcasting, advertising or related fields, this course provides students with the chance to apply classroom knowledge to actual media production, content creation and communications strategies within industry settings. Relationships will be durable and consistent with local area partners. Prerequisite: None. Corequisite: Must earn greater than 15 credit hours before taking.

COMM 521 Master's Project – 3 credit hours, 3 contact hours. A capstone course designed for students to demonstrate mastery of knowledge; skills & concepts acquired throughout the Communications program of study. Under the guidance of a faculty advisor, students will select a topic or project that aligns with their career interests and academic goals. The project can take the form of an original media production, a comprehensive research paper, a media strategy plan or a critical analysis of industry trends. Prerequisite: None. Corequisite: Must earn greater than 15 credit hours before taking.

Communications Specialist

CSP 500 Survey of Communication Studies 3 credit hours. An introductory communication course designed to present the basics of human communication and an overview of the skills needed to become a competent communicator. The communication process is examined in its many forms, elements, functions and effects. Prerequisite: None.

CSP 501 Rhetorical Theory – 3 credit hours. The study and practice of persuasion, including the basic precepts of rhetorical theory, the structures and strategies of arguments, and the analysis and study of symbol use. The course offers an introduction to the scholarly study of rhetoric to facilitate students' interpretive and critical thinking in culture, business, politics and life in general. Prerequisite: None.

CSP 503 Professional Ethics & Communication – 3 credit hours. Focus on ethical theory, research, and application and how a knowledge of language and critical thinking can make better communicators as well as consumers of communication. Various aspects of classical and contemporary ethical theory are covered, applying it to various forms of communication: politics, journalism, public relations, advertising, the internet, etc. Prerequisite: None.

CSP 504 Managing Workplace Diversity & Inclusion – 3 credit hours. Examines theories, research and principles on intercultural communication, with the intent of enhancing cultural sensitivity and ability to recognize, accept and adapt to cultural diversity. The purpose is to improve one's ability as a leader in the communications field to address diversity in organizations. Prerequisite: None.

CSP 505 Leadership & Communication – 3 credit hours. Exploration of the role communication plays in successful leadership and management strategies. Communication theory and skill development in organizational settings will be discussed with an emphasis on interpersonal skill development, team and meeting facilitation, informational interviewing, team presentation and self-assessment. Prerequisite: None.

Communicative Sciences & Disorders

CSD 500 Introduction to Communication Disorders – 3 credit hours. An overview of the various disorders and current research and trends in the field of speech-language pathology and audiology. Prerequisite: None.

CSD 501 Business & Professional Communication – 3 credit hours. This course emphasizes the importance of effective communication between individuals and large groups in business settings. Types of professional presentations will be examined as well as how to create them. Prerequisite: None.

CSD 502 Voice and Diction – 3 credit hours. This course is designed to present specialized knowledge relevant to the understanding of speech communication. It will assist students in developing the ability to discriminate the sounds used in Standard American English and how the sounds are represented symbolically according to the International Phonetic Alphabet (IPA). Prerequisite: None.

CSD 503 Communication in Corporate America – 3 credit hours. This course emphasizes the importance of effective communication between individuals and large groups in business settings. Types of professional presentations will be examined as well as how to create them. Prerequisite: None.

CSD 504 Advanced Evaluation and Assessment of Communicative Disorders – 3 credit hours. Emphasizes skills in the areas of measurement and evaluation, specification of goals and objectives, selection and development of measurement tools, delineation and execution of strategies for obtaining, analyzing, and interpreting test results for the speech-language pathologist. Prerequisite: None.

CSD 509 Habilitation and Rehabilitation of the Hearing Impaired – 3 credit hours. Provides an overview of speech-language development characteristics of the hearing-impaired child. Alternate communications will be explored. Prerequisite: None.

CSD 510 Stuttering and Other Disorders of Speech Flow – 3 credit hours. Provides the information necessary to define and describe normal dysfluency, cluttering, and organic dysprosody and to distinguish them from stuttering. Prerequisite: None.

CSD 513 Language Disorders in Adults – 3 credit hours. Designed to give students knowledge and skills in language dysfunction, such as in the assessment and treatment of dysphasia, the evaluation and management of dysarthria; rationale and methodology associated with group and individual counseling procedures and communication problems of the aged. Prerequisite: None.

CSD 514 Audiology – 3 credit hours. Designed to give the student knowledge and skills in the complete auditory assessment of the peripheral mechanism, causes and characteristics of disorders of hearing, and types of remediation available. Prerequisite: None.

CSD 515 Language Development - Communicative Disorders – 3 credit hours. The study of normal language development with special emphasis on development of phonological, syntactic, and semantic systems in children. Prerequisite: None.

CSD 516 Advanced Clinical Practicum – 3 credit hours. Provides the student with clinical practice and experience under the direct supervision of faculty or supervisors who hold the CCC from the American Speech-Language-and-Hearing Association (ASHA). Prerequisite: None.

CSD 520 Language Disorders in Children – 3 credit hours. Exploration of the nature of language disorders and their effects on the total child. Prerequisite: None.

CSD 522 Voice Disorders – 3 credit hours. Designed to promote understanding of the etiology, diagnosis, and intervention strategies/treatment of voice disorders. Prerequisite: None.

CSD 525 Case Management in Speech-Language Pathology – 3 credit hours. This course is designed as an extension of a student's experience at the graduate level into the speech clinic and/or real-world job site. Students refine listening skills, counseling and psychotherapy techniques and examine the role of the SLP in assisting clients through grieving processes. Application techniques are taught to assist in programming for a variety of communication problems. Behavior therapy to modify speech behaviors of individuals with communication problems will be discussed. Prerequisite: None.

CSD 534 Articulation and Developmental Phonological Disorders – 3 credit hours. Provides the student with theoretical and practical knowledge in the nature and etiology of articulation and developmental phonological disorders, as well as current assessment instruments and intervention strategies. Prerequisite: None.

CSD 538 Neuroanatomy – 3 credit hours. Provides an overview of neuroanatomical structure, identification of the parts of the central nervous system, an understanding of brain circulation, composition of neurotissue, and anatomy and physiology of the spinal cord and nerves. Prerequisite: None.

CSD 539 Craniofacial Anomalies – 3 credit hours. The purpose of this course is to provide the student with an understanding of problems in speech and voice production which are associated with abnormalities of the oro-facial development; upper respiratory functions; their relation to speech and voice production; identification of abnormal function and its effect on speech pathology assessment and treatment. Observation of a qualified clinician in diagnosis and remediation will be required. Prerequisite: None.

CSD 544 Motor Speech Disorders – 3 credit hours. An advanced study of the symptoms and treatments associated with motor speech disorders. This course is designed to provide the student with a background in basic neuroanatomy and functional neurology so that the student will be able to utilize most effectively the therapeutic approaches that have been developed to provide appropriate intervention for individuals that have experienced neurologically related disorders. This course will also focus on the treatment and scope of practice associated with these disorders. Prerequisite: None.

CSD 545 Swallowing and Swallowing Disorders – 3 credit hours. An advanced study of the symptoms and treatments associated with Dysphagia (swallowing disorders). This course is designed to provide the student with a background in basic neuroanatomy and functional neurology so that they will be able to utilize most effectively the therapeutic approaches that have been developed to provide appropriate intervention for individuals that have experienced neurologically related disorders. This course will also focus on the treatment and scope, or practice associated with swallowing disorders in children and adults. This course will include a survey of the research literature, current management trends and professional and health care industry standards utilized in the rehabilitation of patients within the medical setting. Prerequisite: None.

CSD 550 Seminar in CSD – 3 credit hours. This course involves the discussion of current trends and topics in the field of communicative sciences and disorders. Topics will include, but are not limited to pharmacology, genetics, developmental coordination disorder (DCD), brain-based learning, and nonverbal learning disabilities (NLDs). Prerequisite: None.

CSD 598 Research Methodology in Communication Disorders – 3 credit hours. Designed to provide an introduction to the conceptual framework of research, and research designs. The primary objective is an understanding of research methods to facilitate interpretation, evaluation, and application of research information. Prerequisite: None.

Curriculum & Instruction

CUI 600 Foundations of Education and Schooling – 2 credit hours. Students will do an in-depth study of the history of education and schooling in America stressing all levels of education and emphasizing curriculum (including the lived curriculum), teachers, students, big ideas and the complications and challenges facing today's P-12 and postsecondary institutions as well as the prospects of education and schooling in a post-modern era. Prerequisite: None.

CUI 700 Doctoral Seminar: Introduction to Advanced Studies – 1 credit hour. The course will introduce doctoral students to disciplinary readings and writing for advanced study, as well as expectations as a doctoral student in the Curriculum and Instruction degree program. Prerequisite: None.

CUI 701 Social-Political Aspects of Education – 3 credit hours. The course critically examines the interplay between education and the broader social and pollical contexts in which it is embedded. Students explore how educational change is shaped by, and in turn shapes, social ideologies, political practices, and cultural forces. Students will draw on interdisciplinary scholarship, to interrogate issues of power, ideology, and policy in driving educational change. Prerequisite: Admission to PhD CUI Program.

CUI 721 Curriculum Theory – 3 credit hours. Explores the theoretical constructs of the K-12 curriculum relating to the nature and function of curriculum, curriculum development process, and curriculum evaluation procedures through the lens of a broad history of movements and trends in curriculum and instruction. Students will also examine contemporary curriculum issues including common models of a curriculum development and adoption and will analyze selected contemporary approaches to curriculum. Prerequisite: None.

CUI 722 Understanding Intersectionality in Advancing Educational Equity – 3 credit hours. Students will examine intersectionality as an integrated approach to analyzing the complex, interconnection among patterns of discrimination based on race, gender, and other social identities, with the goal of highlighting how resulting inequalities are experienced. Students will reflect on implications for exploring the relationship between knowledge and experience and understanding identify including the role the study of intersectionality plays in revealing the power dynamics within a melting pot society such as America. Prerequisite: None.

CUI 723 Impact of Social Justice and Equity Studies Curriculum – 3 credit hours. Examines how education can help create more equitable, fair and just societies, ultimately contributing to high performing educational systems. The course will explore multiple perspectives on social justice and examine efforts at local, state, national and global levels. Students will focus on articulating efforts in classrooms and schools with wider community initiatives by confronting stereotypical thinking and misconceptions of race and ethnicity in the United States to reveal the underlying social, economic, and political conditions that disproportionately affect people of color. Prerequisite: None.

CUI 725 Instructional Strategies for Diverse Adult Learners – 3 credit hours. Using the undergirding principles of Andragogy, the course will engage students in methods and strategies for instructing diverse learners in different settings including virtual, and face-to-face, and for informal and formal learning environments. Prerequisite: None.

CUI 727 Race, Gender and Social Class and Instructional Practice – 3 credit hours. Students will engage in interdisciplinary analyses to understand the functions, limits, and possibilities of schooling with respect to race, class, and gender relations as social forces that inform and shape the organization of schools and various educational spaces including formal and informal learning communities. The transformative functions of curriculum and instruction to effect social change and create more just societies will be explored. Students will reflect on how racial/ethnic; gender and class consciousness and experience shape one's conception of self and how it is likely to affect educators' perceptions, and one's identity development and achievement. Prerequisite: None.

CUI 730 Educational Program Design & Assessment – 3 credit hours. This course provides advanced study of the theory, practice, and critique of program design and assessment in educational contexts. Students will engage with foundational and contemporary scholarship on evaluation methodologies, institutional accountability, and organizational change. Emphasis is on designing research-informed programs, critiquing existing models, and generating original frameworks for assessing educational effectiveness. Prerequisite: CUI 721 and RCH 700.

CUI 900 Dissertation – 1 to 9 credit hours. This course allows graduate students to complete and orally defend a proposal for doctoral candidacy, conduct research, develop a dissertation, and defend it in an oral examination. Students must pass the candidacy before proceeding to conducting research phase. Note: Education Administration Specialization students take six (6) credit hours. Prerequisite: Pass candidacy examination.

Early Childhood Education

ECH 502 Workshop in Early Childhood Education – 3 credit hours. This course is designed to allow graduate candidates the opportunity to study or work on topics or projects of collective concern. Topics vary. Prerequisite: None.

ECH 506 Curriculum Design – 3 credit hours. Curriculum design in light of the latest understandings and needs in early childhood education with some experience in the implementation of certain aspects of the curriculum in laboratory school P-3. Prerequisite: None.

ECH 516 Multi-Sensory Approaches to Learning – 3 credit hours. The development of the sensory avenues and the concomitant processes in infancy and childhood, including concept information, development of these processes, and evaluating process are given consideration. Practical experiences identifying learning disabilities. Prerequisite: None.

ECH 517 Theory, Methods and Materials in Early Childhood Education – 3 credit hours. The philosophies and methods extant in early childhood education, their purposes and efficacy, including a look at special education and its involvement in the mainstream of education. It will include laboratory observation and participation. Prerequisite: None.

ECH 519 Home, School, Community Collaboration – 3 credit hours. This course will address family systems theory, family involvement models, and the family support approach. Focus will be given to engaging families in their child's learning and development and the multiple influences on a young child's development. Consideration will be given to best strategies to include the community in the early childhood classroom. The connection that exists between home, school, and the community will be examined. Prerequisite: Admission to graduate studies, EPP, and advisor approval.

ECH 595 Internship – 6 credit hours. There are multiple internship courses based on the specific content area. This course entails one semester of full-time teaching under the immediate direction of cooperating teachers and university supervisors in the P-12 public schools. A fee for the edTPA portfolio assessment is proposed for candidates to purchase who are enrolled in the internship course (student teaching). The Alabama State Department of Education is requiring the edTPA assessment starting September 01, 2018 for teacher candidates to receive certification. The cost for the edTPA portfolio submission to Pearson is $300.00. Prerequisite: Candidates must be enrolled in the internship. Corequisite: submit edTPA.

ECH 602 Strategies of Parent Involvement – 3 credit hours. The importance and optimal role of parent involvement factors in the being and becoming of the child and adolescent through the various stages of the metamorphosis to maturity and beyond. The method will be competency-based and permit selection of a particular stage in the role of parent involvement for concentration at any given age and stage of human development by each of the class members, while at the same time pursuing a comprehensive knowledge of the role of parenting at all stages, with an emphasis on optimal strategies for involvement. The student will be required to demonstrate the ability to prescribe strategies for parent involvement at each stage of the child/adolescent development. Prerequisite: None.

ECH 698 Thesis I – 3 credit hours. Candidates will complete the proposed thesis. Prerequisite: None.

ECH 699 Thesis II – 3 credit hours. Candidates will complete the thesis. Prerequisite: None.

Early Childhood & Elementary Education

ECE 503 Learning Styles – 3 credit hours. This course takes an in-depth look at the personal and behavioral characteristics of an individual which can be identified as learning styles. Prerequisite: None.

ECE 504 Problems in Improving Reading – 3 credit hours. Investigations of the practices and trends in the teaching of reading materials of instruction in reading, particularly remedial materials; techniques and materials for prevention of reading difficulties; and diagnosis and remediation of reading difficulties. Prerequisite: None.

ECE 505 Concepts of ELE/ECH Mathematics – 3 credit hours. This course presents research-based teaching strategies for elementary and early childhood mathematics. Topics covered will include number concepts, algebraic thinking, geometry, measurement, and probability. Special emphases are placed on the eight effective teaching practices. Prerequisite: None.

ECE 507 Children's Literature – 3 credit hours. Consideration will be given to locating and evaluating children's books and to the method of organizing, teaching, and evaluating a literature program for children. The philosophy of the selection and study of literature, emphasizing appropriate content, good style, and suitability of various age groups are examined. Extensive reading and sharing of children's literature are required. Prerequisite: None.

ECE 509 Trends and Issues in Social Studies – 3 credit hours. A detailed consideration of problems concerned with selection of what to teach; the grade placement of content, methods, and materials of teaching; and means of evaluating achievements in social studies with particular attention given to recent trends. Prerequisite: None.

ECE 510 Problems in Improving Science Teaching – 3 credit hours. In this course, investigations and evaluations will be made of instructional methods designed to challenge pupils at each level of their elementary science and health program. The course will include such topics as the earth and universe, living things, matter and energy, magnetism and electricity, nutrition, hygiene, and other personal health components. Prerequisite: None.

ECE 512 Investigation of Language Arts – 3 credit hours. The course is a study of the total language arts program. Emphasis is on understanding the language processes, literacy development, and the interrelatedness of communication competencies—listening, speaking, reading/writing current research, goals, trends, issues, instructional strategies, programs, materials, and assessment/evaluation techniques are examined. Class sessions are designed to be interactive with class members giving demonstrations that involve fellow classmates in hands-on participation and active discussion. Prerequisite: None.

ECE 514 Basic Skills – 3 credit hours. This course is a critical evaluation of recent developments in the teaching of basic skills in the elementary school. Prerequisite: None.

ECE 518 Environmental Education Across the Curriculum – 3 credit hours. This course is designed to assist educators in improving their teaching of kindergarten through eighth grade levels, specifically as it relates to environmental education. Goals, objectives and teaching strategies associated with environmental education will be reviewed in keeping with the characteristic needs of learners at specific age levels. Emphasis will be placed on the interrelatedness of environmental education with traditional curriculum content areas, especially science. Participants also will explore practical applications of environmental education philosophies. The course incorporates "hands-on" habitat studies, inquiry-based learning, nationally acclaimed environmental education programs and a residential component stressing cooperative learning. Prerequisite: None.

ECE 520 Foundations of Teaching Reading – 3 credit hours. A fundamental course designed to establish a foundation of the essential reading skills that can be used effectively by pre-service teachers. This course focuses on teaching reading to a diverse population of elementary students using a variety of approaches. Prerequisite: None.

ECE 521 Research in Elementary & Early Childhood Education – 3 credit hours. This course is concerned with Reviewing the Literature around a topic of interest of the candidate, according to the latest APA Manual. This course makes it possible for a candidate to pursue an area of special interest and develop an understanding of how to study a topic in-depth. This research is done under the supervision of the instructor and may culminate with an examination based on the content of the research. Prerequisite: None.

ECE 602 Theoretical Foundations of Early Childhood Education – 3 credit hours. This course traces the story of elementary and early childhood education. Candidates evaluate the theoretical basis for P-6 programs through research, readings, and class discussions. Prerequisite: None.

ECE 603 Field Research – 3 credit hours. This course is designed for Educational Specialist degree candidates in early childhood or elementary education for the purpose of developing research skills. Projects will involve models that draw upon teachers' own questions, knowledge, and concerns as a basis for exploration and action. Candidates will develop an understanding of research that is designed to both inform and support teachers' engagement in classroom issues. Candidates will identify an area of interest and move from conception of a field-based research topic to an analytic framework for analyzing data. All candidates will submit a substantial written research report that includes a thorough review of the scientific literature. Presentation of an informal oral report is required. Prerequisite: Permission of the Chair of the Reading Program is required for candidates to receive credit for reading/literacy research.

ECE 612 Advanced Instructional Strategies for Young Children – 3 credit hours. This course presents and explores a scientific approach to classroom instruction. It is designed to foster the development of a personal philosophy of teaching which will serve as a guide for action in all phases of traditional and innovative instruction and will involve strategies for analysis of teaching, individualized instruction, and mode of evaluation of learning. Prerequisite: None.

ECE 620 Advances Research in Early Childhood/Elementary Reading/Language Arts Curriculum – 3 credit hours. This course drills down to the details of selecting curricula, grade placement of content, methods, and materials of teaching, current research, and means of evaluating achievements in Language Arts with particular attention given to recent trends in Language Arts education. Special focus will be placed on social justice and anti-racism education. Prerequisite: None.

ECE 625 Trends in Teaching Social Studies in Elementary Schools – 3 credit hours. This course drills down to the details of selecting curricula, grade placement of content, methods, and materials of teaching, current research, and means of evaluating achievements in social studies with particular attention given to recent trends in social studies. Special focus will be placed on social justice and anti-racism education in teaching social studies. Prerequisite: None.

ECE 630 Advanced Research in Teaching Early Childhood/Elementary Mathematics Education – 3 credit hours. This course places emphasis on the selection of curriculum, the grade placement of content, methods, and materials of teaching, current research, and means of evaluating achievements in mathematics. Recent trends and research in mathematics

education will be explored. Special focus will be placed on equity, access, curriculum and teaching of mathematics for all students. Prerequisite: None.

ECE 635 Teaching Education Programs in Technology – 3 credit hours. Current development in college programs for the preparation of teachers for early childhood and elementary classrooms; analysis of technological development to enhance instruction - online instructional strategies, simulation situations, avatars, video tapes and film feedback, models of teaching, interaction analysis and microteaching systems in teacher education. Prerequisite: None.

ECE 671 Reading and Research in Elementary and Early Childhood – 3 credit hours. This course is concerned with guiding the candidate in the development of the first three chapters in the thesis, according to the latest APA Manual. This course makes it possible for a candidate to pursue an area of special interest and develop the foundation of a thesis completing the first three chapters (a thesis is directed by a major advisor who may choose not to use the three chapters developed in this course in the completion of the candidate's actual thesis). This study is done under the supervision of the instructor and may culminate with an examination based on the content. Prerequisite: None.

ECE 715 Urban Studies in Early Childhood/Elementary Education Studies – 3 credit hours. Designed to prepare graduate students to teach young children who come from urban and/or culturally different backgrounds. Through use of multimedia source materials, students gain knowledge of background and culture of culturally different learner, determine role of teacher, explore techniques of discipline and classroom management. Survey motivational and instructional techniques and examine, prepare and adapt a variety of instructional materials for individual, small group and large group instruction. Prerequisite: None.

ECE 720 Advance Learning Theories and Curriculum in Early Childhood/Elementary Education – 3 credit hours. Study of contemporary, learning theories through critical analysis of research. This course will expose candidates to critical voices in science education. Race, equity, diversity and science education policies will also be examined. Individual learning styles in the context of early childhood and elementary curriculum, planning and implementation. Specials focus on brain-based research and growth mindset theory will be explored. Prerequisite: None.

Economics

ECO 500 Survey of Economic Analysis – 3 credit hours. This course is designed for students with limited or no background in economic theory at the undergraduate level.

ECO 503 Macroeconomic Theory – 3 credit hours. Examination of the modern theory of income, employment, and the price level along with their principal determinants, interaction of the product and money markets and changes in the level of economic activity over time. Prerequisite: ECO 500 or its equivalent.

ECO 509 International Economics – 3 credit hours. An analysis of the forces that determine international specialization; balance of payments analysis; exchange rates systems; and evaluation of current international economic policies and programs.

ECO 514 Managerial Economics – 3 credit hours. Managerial economics is designed to provide the student with a working knowledge of economic theories of consumer and producer behavior and their application to the decision-making process of firms in allocating their resources. Among the topics included are: the firm as an economic entity, consumer choice, demand, decision making under uncertainty, production, cost theory, pricing theory, and the effects of different competitive environments (with emphasis on market structure analysis). Prerequisite: ECO 500 or an undergraduate two-course sequence in principles of economics.

Education Administration

EDA 701 Foundations of Administration in Education – 3 credit hours. Survey of the types of educational organizations and institutions and their role in professional and career development. Students will study the historical, political and sociological underpinnings for the establishment, and control of post-secondary education organizations including students, and curricula control; teaching and learning environment, and role in the community. Prerequisite: None.

EDA 702 Data-Driven Planning and Management of Education Organizations – 3 credit hours. The study of the basic principles, concepts, and models in the establishment of goals assessing and analyzing needs; identifying resources and analyzing alternative strategies and selecting strategies; securing and allocating resources and formulating the program implementation plan; operating and evaluating programs within the educational organization. Prerequisite: None.

EDA 703 Curriculum Planning and Implementation – 3 credit hours. Trends and issues in the development and implementation of curriculum, including for traditional college and university, community college, vocational technical education, continuing education, and community services. Prerequisite: None.

EDA 704 Evaluation of Curriculum – 3 credit hours. This course will examine a variety of curriculum evaluation methods and techniques focused on measuring and determining the extent to which courses, learning activities, opportunities, and assessments expressed in the formal curriculum produced the intended results/outcomes. Prerequisite: None.

EDA 705 Personnel Development, Coaching and Team Building – 3 credit hours. Techniques and procedures for effective staff development, staff coaching, and team building are studied. The dynamics of educational organizations and community relations are explored, considering community diversity and the socio-emotional political influences on school operations. Students will explore and apply coaching competencies and focus on ethical considerations associated with the coaching groups and teams vs. coaching individuals. Prerequisite: None.

EDA 706 Higher Education Law & Policy – 3 credit hours. Introduces students to the legal and policy frameworks that govern post-secondary and higher education in the United States. Students will examine the legal rights and responsibilities of institutions, faculty, staff, and students. Topics will include academic freedom, Title IX and other major civil rights statutes, free speech, accreditation, government oversight, and the regulation of independent, non-profit and for-profit institutions. Prerequisite: None.

EDA 790 Internship in Education Administration – 3 credit hours. This is a field laboratory, supervised experience in which students are given strategic opportunities to meet and work alongside their peers, alumni, and industry professionals to network and share ideas related to their advanced area of study prior to graduation. Students will be in actual working situations to gain experience in structural organization, administrative or supervisory behavior and practices, and problem-solving activities. The residency/internship will include experiences in educational settings relevant to the interest of the student. Internship report required for completion. Prerequisite: None.

EDA 795 Special Topics in Education Administration – 3 credit hours. Not a required course but reserved as a substitution course for candidates who wish to pursue further exploration of specific interest in the specialization. Permission of advisor must be acquired (may substitute for a required course in cognate only based on student interest). Prerequisite: Advisor consent.

Educational Leadership

EDL 530 Data Driven Decision Making – 3 credit hours. Students in this course will learn to collect and interpret various types of data that increase student achievement. Both formative and summative evaluative concepts in interpreting test data and program implementation will be analyzed. The importance of developing a learning community focused on continuous school improvement will be studied. A fee of $133.00 for Watermark is required for the course. Prerequisite: 3.0 GPA and admitted into the Instructional Leadership Program. Corequisite: Field experience.

EDL 543 Legal and Ethical Aspects of School Operations – 3 credit hours. This course will review the interrelationships of the national, state, and local governments as contributors to educational policy. The federal constitution and statutes, and state statutes and policies will be studied to gain knowledge about system and individual liability for constitutional violations, torts, and contracts. State board and local policies are studied in light of statutory and judicial mandates pertaining to student classifications, employment and contractual rights of teachers, and methods of program administration. Local school policies and operations pertaining to due process, tenure, transfer, suspension, and termination are critiqued in light of federal legislation, state statutes and guidelines, and relevant court decisions. The ethical considerations required by the Professional Standards Commission are an integral part of this course. Further, this course will review the Alabama Educator Code of Ethics which magnifies the professional behavior and responsibility of educators in Alabama and serves as a guide to ethical conduct. The code protects the health, safety and general welfare of students and educators; outlines objective standards of conduct for professional educators; and clearly defines actions of an unethical nature for which disciplinary sanctions are justified.

EDL 547 Education Finance – 3 credit hours. This course will help candidates gain an understanding of why education and school finance are important and why current practices exist. The course will explain what is contained in a strategic financial plan, the accounting and budgeting systems, financial framework, and examine how school leaders prepare and administer strategic financial plans. This course will also examine sources of public revenue and their appropriateness in financing education and stimulate creative/reflective thinking in relation to the role of finance in American education. Also, the course will help candidates to gain and understanding of concepts and principles of school finance and their application to school support programs. Candidates will examine the economic efforts of expenditures for education. And, become familiar with characteristic patterns of state support and their effects on local school districts. Finally, students will gain a basic understanding of the current system of financing public education in Alabama, through the 1995 Foundation Program.

EDL 563 Curriculum Development, Improvement and Assessment – 3 credit hours. This course will review the curriculum and instructional program of the school. Emphasis will be on the planning, developing, implementing, managing, and evaluating aspects of curriculum instruction.

EDL 564 School Community Relations – 3 credit hours. This course is designed to aid prospective and current school administrators in understanding the importance of studying, designing and implementing programs to address the needs and problems of the school and its specific publics.

EDL 566 Management of School Operations – 3 credit hours. This course is designed to aid school administrators in resolving managerial problems associated with duties and responsibilities of school personnel, facilities, fiscal management, transportation, load services, athletic operations, and scheduling.

EDL 567 Instructional Leadership – 3 credit hours. This course will examine the work a learning-centered school leader does—which is to work with teachers in ways that promote lifelong learning skills that include inquiry, reflection, collaboration, and a dedication to professional growth and development. The course will also focus attention on how a learning-centered school leader must help teachers improve their skills so they can help students achieve more.

EDL 569 Collaboration, Mentoring, and Human Resource Development – 3 credit hours. This course will help candidates gain an understanding of personnel functions and responsibilities of school leaders. Students develop skills in forecasting personnel needs and in recruiting, selecting, orienting, mentoring, assigning, developing, compensating, and evaluating personnel. These and other personnel decisions should be made with attention to their potential effect on instruction and student learning. Attention is given to major federal and state legislation, executive orders and court decisions that provide direction in the development of human resource programs that address the rights of diverse groups within the work force.

EDL 596 Residency/Internship in Instructional Leadership – 3 credit hours. This is a field laboratory, supervised experience in which advanced graduate students will be involved in actual working situations to gain experience in structural organization, administrative or supervisory behavior and practices, and related problems. The residency will include experiences where the candidate will be observing, participating and leading activities that mirror the role of the k-12 administrator.

EDL 636 Advanced Education Law and Policy – 3 credit hours. Federal and state statutes are studied related to the rights of students and employees. State and local policies are reviewed in light of statutory and judicial mandates pertaining to student classifications, employment, and contractual rights of teachers and other staff. Major federal legislation, state statutes and policies, and relevant court decisions will be used in analyzing local educational policies and operations. Prerequisite: None.

EDL 637 Strategic Organizational Leadership – 3 credit hours. This course is designed to develop the leadership knowledge and skills required to lead collaborative learning processes. Major emphasis is placed on developing the required leadership skills required to transform schools into true learning organizations where teachers, administrators, and community work collaboratively to improve student achievement and provide a positive diverse learning culture for student populations with ever-changing needs.

EDL 638 Mentor Training & Ethics of School Leaders – 3 credit hours. This course will provide insight into the nature and focus on the process of mentoring, so that the learning of the mentor can be facilitated in ways that enrich, enable, enliven, and engage the learning and development of the mentee. Additionally, the course will focus on leading the teacher mentoring & induction program and examine the role of the mentor in improving teacher performance based on EDUCATE Alabama. Further, the ethical considerations required by the Professional Standards Commission are an integral part of this course. This course will review Ethics in Education and the Alabama Educator Code of Ethics which magnifies the professional behavior and responsibility of educators in Alabama and serves as a guide to ethical conduct. The code protects the health, safety and general welfare of students and educators; outlines objective standards of conduct for professional educators; and clearly defines actions of an unethical nature for which disciplinary sanctions are justified.

EDL 639 Educational Facilities Development and Management – 3 credit hours. This course is designed to help future administrators understand how to plan school facilities which will best serve the needs of a changing and diverse student population. Further, this course explores the role of the district personnel in management, evaluation, and improvement of policies and programs related to school operations and facilities management and design.

EDL 641 Adult Learning Theory – 3 credit hours. This course is designed for principals and other instructional leaders to help them understand current adult learning theories and approaches to teaching and learning as well as the practical

curriculum applications. School administrators must foster a cohesive culture of learning and a resistance to change in order to meet the needs of faculty and students. Further, this course will address the critical aspects of the teaching-learning process-student differences, learning, student motivation, facilitating and monitoring teaching and learning, classroom management, assessing student learning, and assessing and changing school climate and culture.

EDL 643 Seminar in Instructional Leadership – 3 credit hours. This course will explore processes and systems used in promoting positive school culture by engaging stakeholders to achieve the schools vision. Further, the course will explore programs and services that focus on special programs such as special education; English language learners; career and technical education programs; pre-K; as well as adolescent literacy programs. The course will also focus on issues associated with the learning community; building school culture and change; managing the organization; and school improvement.

Electrical Engineering

EE 503 (EE 403) Feedback System Analysis and Design – 3 credit hours. A study of open and closed loop systems; time domain analysis; transfer functions, poles, and zeros; frequency response, Bode plots; root locus methods; system stability, Routh-Hurwitz criterion, Nyquist criterion; system compensation and design; state space methods, state equations, state transition matrix, and system response. Prerequisite: undergraduate course in electrical signal analysis.

EE 504 (EE 404) Communication Theory – 3 credit hours. A study of communication signals and systems; AM and FM methods; pulse code modulation; multiplexing, and digital communications. Prerequisite: undergraduate course in electrical signal analysis.

EE 510 (EE 410) Microwave Engineering – 3 credit hours. A review of electromagnetic theory, transmission lines and waveguides, circuit theory for waveguide systems, impedance matching and transformation, passive microwave devices, electromagnetic resonators, and periodic structures and filters. Prerequisite: undergraduate course in electromagnetic theory.

EE 520 (EE 420) Power Systems – 3 credit hours. Fundamental concepts of power system analysis, transmission line parameters, basic system models, steady state performance, network calculations, power flow solutions, symmetrical components, fault studies, operating strategies and control. Prerequisite: undergraduate course or experience in energy conversion.

EE 521 (EE 421) Advanced Power Systems – 3 credit hours. The intent of the course is to reinforce the fundamental concepts of Power Systems I and build upon them including the ongoing modernization and restructuring of the electric utility industry It is intended to cover the following topics: Renewable energy sources including micro-grids, photovoltaic and wind generation, transmission line parameters, steady-state operation of transmission lines, power flow, economic dispatch and optimal power flow, three phase, steady-state, normal operating condition. It would also explain the role of state-of-the-art transformers in power transmission and distribution systems. High voltage DC, distribution systems, synchronous generators, voltage stability, transient stability, power system controls, including generator voltage control, etc. Prerequisite: EE 202, 301, 420.

EE 522 (EE 422) Smart Grid Cyber Security – 3 credit hours. SMI & CS is intended for senior EE students who have completed introductory and intermediate courses in circuits, signals, and power systems. The scope of the course covers the two distinct aspects (a) smart metering infrastructure, and (b) security and privacy challenges that come along from the backdoor. Topics will include Fundamentals of smart grids; smart metering infrastructure (SMI); SMI and security aspects at subscriber end and at the utility end; SMI and security aspects in smart metering communication/sensors networks; SMI and subscribers' privacy aspects; SMI, and attack detection and recovery. Prerequisite: EE 202, 301, 420.

EE 525 (EE 425) High Performance Computing – 3 credit hours. This course introduces students to the cutting edge of high-performance computing, examining both parallel and distributed architectures and the networks that interconnect them. The course covers a number of topics, ranging from computing and network architecture, design of software applications, to hands-on supercomputing. Prerequisite: undergraduate courses or experience in numerical methods and programming.

EE 526 (EE 426) Next Generation Mobile Networks – 3 credit hours. Architecture, applications, and services is intended for senior EE students and graduate students. The scope of the course covers the architecture, application, and service aspects of 5G mobile networks. Topics include: Radio aspects of 5G telecommunication system; evolved packet core which is based on modern IP-based architecture designed to provide flexible platform and standard mechanisms to interwork with other IP-based systems; Internet of Things (IoT), which is the second wave of wireless communication revolution that began with the widespread adoption of smart phones; smart grid networks; public safety services based on 5G broadband networks; cloud services and cloud computing; hypervisor and virtual machines. Prerequisite: EE 301, 404.

EE 531 (EE 431) Advanced Semiconductor Engineering – 3 credit hours. Principles of device electronics, physics of band models, Schottky barriers, bipolar and unipolar devices, conduction phenomena, SRH generation-recombination statistics, role of defects and noise. The course provides an introduction to wide-bandgap semiconductors and devices. Prerequisite: undergraduate course or experience in semiconductor engineering.

EE 541 (EE 441) Digital Signal Processing – 3 credit hours. A review of discrete time signals and systems; sampling of continuous time signals, sampling theorem; discrete time Fourier transforms; Z-transforms; region of convergence; applications; discrete Fourier transforms; fast Fourier transforms; design of digital filters, IIR filters, FIR filters, and computer-aided design. Prerequisite: undergraduate course or experience in signal processing.

EE 551 (EE 451) Integrated Circuit Fabrication – 3 credit hours. Introduction to principles of monolithic IC fabrication including bipolar and MOS transistor processing. The course includes active and passive device and process design, simulation, cleanroom procedures, in-process and final test and evaluation techniques, yield, chip assembly and packaging. Prerequisite: undergraduate course or experience in semiconductor devices.

EE 552 (EE 452) Semiconductor Instrumentation – 3 credit hours. Basic principles of semiconductor testing and evaluation. Various tools and techniques will be introduced for test and evaluation of semiconductor materials, devices and integrated circuits. Prerequisite: undergraduate course or experience in semiconductor devices.

EE 590 (EE 490) Special Topics – 3 credit hours. This course focuses on topics based on modern trends in electrical engineering. The specific of each course offering will vary and will be identified at the beginning of each semester. Prerequisite: None.

EE 605 Reconfigurable Computing Systems – 3 credit hours. This course covers the concept, hardware platforms and software support systems for reconfigurable computing (RC) utilizing field programmable gate arrays (FPGAs). Topics include computer aided design tools for FPGAs (compiler, high-level synthesis and 3rd party tools), examples of relevant applications, static vs. dynamic reconfiguration, architectural approaches, operating system (OS) support, and future trends. Prerequisite: None.

EE 610 Embedded Computing Systems – 3 credit hours. Utilizing microcontroller-based systems, this course examines both the hardware and software aspects associated with embedded devices. The architecture and assembly language for popular microcontrollers and how to utilize a variety of input/output options that include binary ports, A/D and D/A converters, communication ports, standardized protocols, and interfacing techniques for various applications. Prerequisite: None.

EE 615 Probabilistic Signals and Systems – 3 credit hours. Characterization of random phenomena in engineered systems. Discrete- and continuous-parameter probabilistic models. Electrical noise. Detection and estimation. Applications in signal/image processing, communication, networking and control. Prerequisite: None.

EE 620 Reverse Engineering – 3 credit hours. Course explores techniques for reverse engineering of semiconductor devices. Applications for reverse engineering, including competitive benchmark analysis, intellectual property concerns, verification and validation of devices, testing for security concerns, and failure analysis studies. Prerequisite: None.

EE 625 Digital Systems Synthesis – 3 credit hours. This course covers hardware design techniques using IEEE standardized Hardware Description Language (HDL), and block level methods. In depth discussion of digital system design methodologies, including structural, behavioral, and FSM based specifications of hardware, HDL-based simulations and test-benches. Synthesis techniques for user-defined primitives (UDP), data types, operators, VHDL constructs for assignments, case, functions, procedures, processes with application to FPGAs. Prerequisite: None.

EE 630 Antenna Theory and Design – 3 credit hours. This course discusses aperture theory, aperture antennas, horns, reflectors, feeds, and various types of phased array antennas. Identification of performance parameters and their utility for design of antennas, such as printed circuit antennas, slots, phased arrays. Process of antenna measurements, and utilization of computer codes for numerical analysis of antennas. Prerequisite: None.

EE 635 Global Positioning System – 3 credit hours. Engineering and physical principles on which GPS operates, including orbital dynamics, relativity principles, electromagnetic wave propagation in a plasma, signal encoding, receiver design, error analysis, and numerical methods for obtaining a navigation solution. Emphasis is placed on understanding receiver design. Prerequisite: None.

EE 640 Radio Wave Propagation – 3 credit hours. Course covers fundamental concepts for understanding, evaluating, and predicting radio propagation effects throughout the radio spectrum under a variety of scenarios. The behavior of radiated electromagnetic waves in atmosphere, space, urban and indoor environments is analyzed. Techniques for designing practical communication systems are discussed. Prerequisite: None.

EE 650 Non-Linear Controls – 3 credit hours. Course covers modeling and analysis of the stability and performance properties of nonlinear systems, analysis and design of nonlinear control systems using Lyapunov theory, feedback linearization, and nonlinear controller design tools. Design skills developed will be based on both extensions of linear tools as well as the latest direct nonlinear methods. Prerequisite: None.

EE 660 Test Engineering – 3 credit hours. This course introduces students to functional testing and simulation of failure modes using device parameter variation. Applications to military and industrial systems, electronic and electro-mechanical systems are emphasized. Students will develop testing procedures and algorithms. Prerequisite: None.

EE 670 Artificial Intelligence – 3 credit hours. This course provides an overview of topics in the field of artificial intelligence (AI), designing an expert system and applying expert system technology in designing and analyzing engineering systems. Topics include propositional calculus, predicate calculus, semantic networks, frame systems and production rules. Various search techniques will be examined. Prerequisite: None.

EE 675 Machine Learning – 3 credit hours. The course discusses practical approaches to machine learning and statistical pattern recognition. Topics include introduction to fundamental algorithms for linear regression, classification, model selection, support vector machines, dimensionality reduction and clustering. Applications will be developed utilizing real and synthesized data sets. Prerequisite: None.

EE 690 Independent Study – 3 credit hours. Investigation of problems in electrical engineering. Topics must be supervised and approved by an EE faculty advisor. Prerequisite: None.

EE 699 Electrical Engineering Thesis – 1 to 3 credit hours. This course consists of individual research towards completing the thesis requirement for the M.S. degree in Electrical Engineering. Prerequisite: None.

Elementary Education

ELE 509 Evaluation in Elementary Schools – 3 credit hours. This course is designed to develop candidates' understanding of the principles and procedures of evaluation in elementary classroom settings. Both formal and informal methods of evaluation will be emphasized, including designing and constructing criterion-referenced tests, analyzing and interpreting results of norm-referenced tests, as well as developing portfolios, rubrics, checklists, and other performance assessments. National standards and the evaluation of personnel, programs, and curricula will be included in this course.

ELE 511 Workshop in Elementary Schools – 3 credit hours. This course is designed to allow graduate candidates the opportunity to study or work on topics or projects of collective concern. Topics vary.

ELE 519 Elementary School Curriculum – 3 credit hours. The course is designed to help students develop or extend their knowledge base regarding curricular and instructional concepts, designs, problems, and variables. Students will study the historical, psychological, philosophical and social foundations of the elementary school curriculum. The course will focus on characteristics of children/learners, curriculum designs, strategies for learning, and content areas in the elementary school.

ELE 595 Internship – 6 credit hours. There are multiple internship courses based on the specific content area. This course entails one semester of full-time teaching under the immediate direction of cooperating teachers and university supervisors in the P-12 public schools. A fee for the edTPA portfolio assessment is proposed for candidates to purchase who are enrolled in the internship course (student teaching). The Alabama State Department of Education is requiring the edTPA assessment starting September 01, 2018 for teacher candidates to receive certification. The cost for the edTPA portfolio submission to Pearson is $300.00. Prerequisite: Candidates must be enrolled in the internship. Corequisite: submit edTPA.

ELE 614 Teaching Strategies for the Affective Dimension of Reading – 3 credit hours. The content of the course is centered around teaching strategies that motivate children to seek self-actualization through pleasure and knowledge acquired from reading. Techniques of bibliography and children's literature related to the affective domain are included.

ELE 698 Thesis I – 3 credit hours. Candidates will complete the proposed thesis.

ELE 699 Thesis II – 3 credit hours. Candidates will complete the thesis.

English

ENG 500 Writing for Graduate Students – 3 credit hours. This course meets during the regular sessions and during the summer session to help students gain competency in writing. The course cannot be used as credit toward a graduate degree.

ENG 501 History of the English Language – 3 credit hours. Growth of the English Language from the Old English period to our time. Special attention is given to Old English and Middle English and those aspects most responsible for the present state of the English language.

ENG 502 Linguistics and Literature – 3 credit hours. The close relationship between linguistics and literature. Further, it shows how and understanding of one enhances the study of the other.

ENG 503 Biography – 3 credit hours. A study of either the history of biography or specific trends, such as mythical patterns. Emphasis is placed on critical analyses of examples.

ENG 504 Criticism – 3 credit hours. A study of literary criticism which may vary from a survey of the history of literary criticism to criticism of a particular genre or period. Practical application of theory is stressed.

ENG 505 The Novel – 3 credit hours. A study of selected novels designed to stress historical development of the genre, elements of the novel, or trends of a particular period.

ENG 506 The Essay – 3 credit hours. A study of selected essays. The emphasis may vary from a historical study to a study of the categories, argumentation, description, exposition, and narration.

ENG 507 Drama – 3 credit hours. A survey of the historical development of drama or concentration on the drama of a particular period. Includes critical analyses and reading plays as literature and/or theatre.

ENG 508 Shakespeare – 3 credit hours. A study of at least eight plays with occasional attention to the poems.

ENG 509 Chaucer – 3 credit hours. A study of The Canterbury Tales and other major works.

ENG 510 Milton – 3 credit hours. A study of Paradise Lost and other major works.

ENG 511 Tennyson – 3 credit hours. A study of In Memoriam and other major works.

ENG 512 Sixteenth Century English Literature – 3 credit hours. A study of the writers in prose and poetry (exclusive of drama) with major concern given to the theory and practice of lyric and epic poetry, romance, epyllion, and the verse essay.

ENG 513 Eighteenth Century English Literature – 3 credit hours. A survey of the major works of Pope, Swift, Johnson, Boswell, Goldsmith, and Burns. Writers of intellectual prose, including Hume, Gibbon, and Burke, are also studied.

ENG 514 Twentieth Century American Literature – 3 credit hours. A survey of major figures and movements from Frost to the present. The emphasis varies from poetry to fiction to drama each time the course is offered.

ENG 515 Bibliography – 3 credit hours. A study of bibliographical practices with reference to literary history, research, and criticism. This course must be taken by students who wish to write a thesis under the direction of a member of the English Faculty. It must be completed before the student begins research for a thesis. Students who wish to substitute this course for EDU 503 should petition the Dean of Graduate Studies.

ENG 516 Poetry – 3 credit hours. Elements of poetry and intellectual developments as reflected in poetry. This course may be approached as a survey of poetic development or may concentrate on a particular period.

ENG 517 Seventeenth Century English Literature – 3 credit hours. Includes a study of essayists, poets, and dramatists from Francis Bacon through John Dryden, with major emphasis on the currents of thought that influenced the literature.

ENG 520 Structural English Grammar – 3 credit hours. A study of the structures of the English language with emphasis on the forms and functions of its components. Prerequisite: None.

ENG 601 American Literature Before 1900 – 3 credit hours. A survey of American literature from its beginning through the nineteenth century, concluding with Stephen Crane.

ENG 602 Romantic Movement – 3 credit hours. A critical, historical and appreciative study of the English Romantic Movement. Attention is given to Blake, Wordsworth, Coleridge, Scott, Byron, Shelley, Mary Godwin, Mary Shelley, Dorothy Wordsworth, Hazlitt, Lamb and DeQuincy.

ENG 603 Composition Theory and Rhetoric – 3 credit hours. This course emphasizes the study of rhetoric and composition as a means of fostering the development of writing abilities. Theoretical insights and practical approaches in the acquisition of composition skills will be explored. Special attention will be given to the relevant and current pedagogy that will help to provide practical approaches in the teaching of composition.

ENG 604 Shakespearean Tragedy – 3 credit hours. A study of one or more early tragedies and five tragedies of 1602-1608, with attention to the most important critical and scholarly approaches.

Food & Animal Science

FAS 503 Food Microbiology – 4 credit hours. Theoretical and practical studies on the role of microorganisms in foods pertaining to processing, preservation, spoilage and Pathogenicity. Quantitative and qualitative microbial evaluation procedures applicable to food industry and science. Term paper and presentation of current topics in the subject area are required. Prerequisite: BIO 330, BIO 330L.

FAS 504 Animal Hygiene and Parasitology – 3 credit hours. This course has a comprehensive background in the housing and management of farm animals, including parasitic diseases in farm animals. The laboratory is intended to give practical training in the identification of parasites. Prerequisite: BIO 103, BIO 103L.

FAS 505 (FAS 402) Meat & Poultry Science & Technology – 3 credit hours. Histological and physiological aspects of skeletal muscle affecting meat quality. Principles of processing and preservation of meat and meat products. Methods of studying and evaluating meat characteristics and composition. Selection, identification and utilization of wholesale and retail cut of meat. Term paper and presentation of current topics in the subject area are required.

FAS 507 Food Chemistry – 4 credit hours. Provides a broad overview of the chemistry of food constituents and their contribution to functional, flavor and textural characteristics as well as chemical and physical changes in food components during processing and storage. Prerequisite: (CHE 301, CHE 301L) or instructor consent.

FAS 508 Food Analysis – 4 credit hours. Methods of analysis of foods and the application of these methods in the food industry. Analytical procedures using current equipment for the detection and quantification of nutrients, anti-nutrients and other components will also be discussed. Prerequisite: FAS 507 or instructor consent.

FAS 521 Poultry Products Technology – 3 credit hours. Factors affecting poultry products quality, their identification, control and maintenance. Information on procurement, processing, packaging and distribution of poultry products will be disseminated. A term paper and presentations of current topics in the subject area are required.

FAS 528 Physiology of Reproduction – 4 credit hours. A study of early fetal growth, differentiation and development of the gonads, secondary sex organs and the gametes. Comparative anatomy and physiology of the male and female reproductive tracts of the common domestic species; including mechanism of endocrine control of reproduction, fertilization, cleavage, implantation and parturition. Advantages of cryo-preserving sperm, ova and embryos are also discussed.

FAS 538 Fruits, Vegetables and Cereal Products Technology – 3 credit hours. The post-harvest handling of fruits, vegetables and cereals including storage, preservation and utilization; post-harvest physiology, controlled atmosphere storage, processing and preservation etc. will be discussed. Experience is provided in developing appropriate information and applying it to the decision-making process in the food industry.

FAS 540 Research Methods in Biosciences – 3 credit hours. Principles associated with research analysis in bioscience. To understand various research methods using practical applications. Data collection, management and organization with emphasis in population inferences, hypothesis testing, experimental units, scientific process and an introduction to experimental designs in Bio-Health Sciences. Prerequisite: None.

FAS 550 Regulation of Food Safety and Quality – 3 credit hours. History of food laws and regulations; various agencies involved in enforcing the food laws; and how these agencies carry out their assigned duties. This course is open to other majors. Prerequisite: instructor consent.

FAS 552 (FAS 652) Food Quality Assurance – 3 credit hours. Basic principles of quality assurance related to the food processing industry. Various attributes and characteristics of food quality and product quality evaluation methods will be presented to set forth examples of producers', processors', consumers' and regulators' concerns in maintaining food quality.

FAS 553 Agricultural Biochemistry – 4 credit hours. Introduction to the fundamentals of biochemistry. Intermediary metabolism, mechanism of inheritance and gene manipulation techniques will be discussed. Accompanying laboratory deals with basic techniques in biochemistry. Prerequisite: CHE 204, (CHE 301 or equivalent).

FAS 560 Animal Anatomy and Physiology – 3 credit hours. Fundamental aspects of anatomy and physiology in a wide range of domestic species. Provides in-depth information on the guiding principles of this key area of study for animal science students, fostering a thorough understanding of the complex make-up of domestic animals. Incorporates practical information, with descriptions of anatomic or physiological events in companion or domestic animals to demonstrate everyday applications. Prerequisite: None.

FAS 561 Food Engineering – 4 credit hours. Principles of elementary mechanics, physical properties of food and processing materials, heat transfer, fluid mechanics, psychrometrics, refrigeration and dehydration for design of food processing systems. Steady and unsteady-state heat transfer problems. Analysis of different aspects of a food system from the engineering viewpoint. Prerequisite: MTH 126, PHY 103).

FAS 572 Food Processing – 4 credit hours. Application of basic principles and practices of unit operations for food processing and preservation. Understanding of prediction methods for design of food processes such as canning, freezing and dehydration. Effect of processing on food quality, food storage. Class presentation and a term paper are required. Prerequisite: FAS 461L, FAS 561).

FAS 582 (FAS 782) Food Packaging and Quality Control – 3 credit hours. This course addresses the interrelationships of basic food and packaging concepts. It covers the selection of appropriate materials in designing food packages. Application of technical content appropriate to solve problems in food packaging (research and development). Prerequisite: (FAS 472L or FAS 572 or FAS 461L or FAS 561) or instructor consent.

FAS 586 Advanced Topics in Animal Science – 3 credit hours. An advanced graduate level course with independent studies in current literature associated with advanced topics in Animal Science. This course will review endocrine systems, hormonal regulation and integration of monogastric and ruminant nutrition in vertebrate species, from the molecular to the whole-organism level.

FAS 601 Scientific Writing – 3 credit hours. Students will learn how to write and publish a scientific paper, how to prepare conference abstracts and how to write their thesis. Topics that will be covered in this course include: components of a manuscript, good vs bad writing, the scientific literature, preparing presentations, writing a thesis. Prerequisite: None.

FAS 602 Produce Safety – 3 credit hours. The course will provide a foundation of Good Agricultural Practices (GAPs), information about wildlife co-management, FSMA Produce Safety Rule requirements, and details on developing a farm food safety plan. In addition to learning about produce safety best practices, key parts of the FSMA Produce Safety Rule requirements will be discussed. Students will gain an understanding of microorganisms relevant to produce safety and where they may be found on the farm, how to identify microbial risks, practices that reduce risks, and how to begin implementing produce safety practices on the farm. The following topics will be covered in the course: Introduction to Produce Safety, Worker Health, Hygiene, and Training, Soil Amendments, Wildlife, Domesticated Animals, and Land Use, Agricultural Water (Part I: Production Water; Part II: Postharvest Water), Postharvest Handling and Sanitation and How to Develop a Farm Food Safety Plan. Prerequisite: None.

FAS 605 Special Problems – 1-3 credit hours. Involves a detailed experimental study of a chosen problem in food science or animal science. Prerequisite: instructor consent. Note: Can be taken twice as an independent study course for Food Science Ph.D. students.

FAS 610 Sensory Science – 3 credit hours. This course is designed provide a study of the advanced principles, methodologies, theories and formal analyses of sensory science. Sensory methods continue to evolve, as sensory science is one of the newest and rapidly growing areas of food science. This course will provide students with an in-depth view into the more complex sensory methodologies and theories. Appreciation and understanding of the core sensory principles is the key to

effective applications of sensory testing procedures. The students will be introduced to sophisticated sensory testing parameters, settings, and logical, measurable outcomes thus providing applicable, understandable, and usable information for student transition into industry

FAS 611 Food Toxicology – 3 credit hours. Principles and problems in evaluating the wholesomeness and safety of foods, food components, food additives and food contaminants; selective toxicity, detoxification mechanisms, structure and biological activity of food toxicants.

FAS 615 Food Enzymes – 3 credit hours. Even though the course will deal with properties of enzymes in general, emphasis will be placed on those properties of enzymes used specifically in food processing and practical application of enzymes at the various phases of the food industry.

FAS 617 Food Flavors and Pigments – 3 credit hours. A detailed study of the chemistry and organoleptic characteristics of flavor compounds, food colors and pigments, their formulations, modification, methods of incorporation and regulatory considerations.

FAS 622 Advanced Livestock Judging – 2 credit hours. Advanced instruction and training for prospective livestock judging instructors. In depth study of criteria involved in accurate evaluation, objective and fundamental measurements for assessing the breeding or market value of different livestock species. Special emphasis is placed on proper procedures for giving oral reasons in comparing beef cattle, dairy cattle, horses, poultry, rabbits, sheep, goats and swine. Prerequisite: FAS 355 or instructor consent.

FAS 623 Quantitative Genetics – 3 credit hours. Advanced principles of animal and plant breeding with emphasis on quantitative techniques used to augment genetic improvement. Access to computer facilities and software programs, which simulate various selection strategies based upon biological genetic systems, will be available.

FAS 624 Animal Models and Responsible Conduct in Biomedical Research – 3 credit hours. The course is designed to discuss key issues associated with animal models and the responsible conduct of research. Students will follow the research process from inception to planning, conducting, reporting, and reviewing biomedical research. The use of laboratory animals and food-producing animals in biomedical research concerning both human and animal health and diseases will be discussed. The course also seeks to provide a practical overview of the rules, regulations, and professional practices that define the responsible conduct of research. Prerequisite: None.

FAS 626 Food Ingredient Technology – 3 credit hours. This course is designed provide a study of the advanced principles, methodologies, theories and formal analyses of ingredient technology. Food ingredients and additives, including natural ingredients, FDA approved artificial ingredients, and compounds used in food processing will be evaluated. Hands-on learning will be emphasized in efforts to cover functionality, chemical properties, applications and usage limits of food ingredients. The students will be introduced to the latest as well as tried and tested food ingredients from all functions and areas, thus providing applicable, understandable, and usable information for student transition into industry

FAS 630 Advanced Reproductive Physiology – 3 credit hours. This course presents topics associated with relevant advances in mammalian reproduction and biotechnology research. Topics include: physiology, morphology and development of gametes; transport and survival of gametes; fertilization, cleavage and implantation; experimental manipulation of embryos; the ovary-folliculogenesis, egg maturation and ovulation; the testes - spermatogenesis and androgen synthesis; maternal recognition and maintenance of pregnancy, induction of parturition and causes of abortion. Prerequisite: FAS 430 or instructor consent.

FAS 632 Monogastric Nutrition and Metabolism – 3 credit hours. Review of recent advances in monogastric nutrition and metabolism. Discussion of nutrient requirements, balanced rations for livestock animals and balanced diets for human beings. Student seminars on current topics in monogastric nutrition.

FAS 636 Science of Food Culinology – 3 credit hours. The course will cover the intersection of culinology and food science. The primary course goal is to explain how the science behind the food or food production is necessary knowledge in the area of culinary arts. Lectures will include topics such as: how does cooking change flavors, the business of new product development, production of protein base foods, etc. Prerequisite: None.

FAS 640 Product Development and Research – 3 credit hours. Art, science and technology of developing and marketing new food products through lecture and hands-on experience. Each student will be responsible for submitting a proposed topic, literature review and proposed methodology for manufacturing the product. Product models will be further tested.

FAS 642 Minerals and Vitamins in Foods and Nutrition – 3 credit hours. Chemical structures and analytical methods applicable to minerals and vitamins. Role of minerals and vitamins in the food industry and their importance in nutrition and diseases.

FAS 644 Proteins in Foods and Nutrition – 3 credit hours. Supply of and the need for proteins in the world; characteristics of proteins from animal and plants; processing and preservation of protein foods; unconventional protein sources; assimilation and importance of proteins in nutrition including effects of toxic proteins, peptides and amino acids.

FAS 646 Carbohydrates and Lipids in Foods and Nutrition – 3 credit hours. Physical and chemical structures; analytical methods applicable to research; and reactions, interactions and metabolism of carbohydrates and lipids in food industry and diseases.

FAS 652 (FAS 552) Food Quality Assurance – 3 credit hours. This course deals with the advanced principles of quality assurance related to its application in the manufacturing of food products in the food industry. It covers the selection and application of quantitative, qualitative tools, statistical methods, and techniques to improve the management of prerequisite quality systems in processing facilities. Prerequisite: (FAS 472L or 572) or instructor consent.

FAS 654 Food Microbiological Techniques – 3 credit hours. An advanced laboratory techniques course stressing analytical examination of microorganisms in food systems. Prerequisite: FAS 503, FAS 507.

FAS 657 Analytical Techniques and Instrumentation – 3 credit hours. Review of modern techniques and instrumentation used in analyzing and characterizing food components.

FAS 658 Food Microstructure – 3 credit hours. Microstructure of foods will be studied using scanning and transmission electron microscopy, light microscopy and fluorescence microscopy. Effects of various processing methods in relation to the microstructure, identification and characterization of macromolecules and use of x-ray microanalyses in evaluating mineral composition of foods will be covered. Preparation methods for food samples for studying microstructure, interpretation of micrographs, and identification of food components will also be covered.

FAS 659 Food Systems Biosecurity and Bioterrorism – 3 credit hours. This course is designed to provide students information and practices in order to increase their knowledge and understanding of basic concepts in biological terrorism directed at the nation's agriculture infrastructure. A particular emphasis will be made toward terrorist acts utilizing food and animal through demonstrations and exercises. Topics covered in this course will include terrorism defined, biological agents, economic/social impacts of terrorism, response by regulatory agencies and government to terrorist acts. Scenarios will be presented from previous acts and potential acts to incorporate critical thinking and thoughtful discussions.

FAS 662 Food Rheology – 3 credit hours. Concepts, principles and application of rheology with focus on food and related biological materials. Study of standard rheological methods and mathematical relationships describing major rheological variables. Relationship between rheology and texture. Principles and application of extrusion to food materials.

FAS 671 Introduction to Biotechnology – 3 credit hours. Provides an assessment of the accomplishments and future of biotechnology and genetic engineering and their application to human health, food, plants and animals. The student will learn the basic principles of recombinant DNA technology, plant and animal biotechnology, Federal regulation of biotechnology, job categories and more.

FAS 676 Food Processing and Nutrients – 3 credit hours. Deals with those principles that relate processing procedures to the nutritional value of foods. The effects of various production, processing, storage and packaging techniques on nutrient availability and retention, including nutrition labels on foods.

FAS 678 Applied Nutrigenomics – 3 credit hours. The goal of this course is to stimulate critical thinking and discussion among graduate students about techniques and current research findings in nutrigenomics. Students will gain some practical knowledge to apply Nutrigenomics in laboratory settings. Prerequisite: Any advanced food science course.

FAS 686 Advanced Topics in Animal Science – 1-3 credit hours. Students may choose to study selected topics in animal breeding, animal nutrition, poultry production, animal physiology or dairy science. A comprehensive study of the selected topic will be made.

FAS 697 Seminar – 1 credit hour. A review and discussion of current literature in food science and animal science. Students will prepare a presentation to students, colleagues and faculty.

FAS 698 Master's Report - Research Paper – 1-4 credit hours. A document that critically analyzes current literature review or a report based on a data obtained from research. The report should provide a rationale for the work undertaken; articulate a question or problem that guided the research; describe the statistical methods used to analyze data.

FAS 699 Research for Master of Science – 1-6 credit hours. Original research that is used toward the completion of M.S. requirements in Food Science. Consists of an in-depth study of a topic that includes a rationale of the research conducted and the statistical methods used to analyze data.

FAS 701 Advanced Food Microbiology – 3 credit hours. This course is open to advanced graduate students. Current literature discussions will include newly emerging food pathogens and their control, food spoilage microbes and the utility of microorganisms in processing and preservation of food and their potential health benefits.

FAS 707 Advanced Food Chemistry – 3 credit hours. Recent advances in chemistry and biochemistry of foods including chemical reactions occurring during food processing, storage and utilization by man.

FAS 711 Advanced Food Toxicology – 3 credit hours. Review of recent advances in food toxicology including methodology of evaluation of toxicants, detoxification mechanisms, biological activities and regulatory and legal considerations.

FAS 736 Advanced Sensory Evaluation – 3 credit hours. An experimental study of the effects of variations in treatments on the quality of food, with an emphasis on panel training, product optimization and correlations of sensory data with objective measure of foods. Activities in sensory laboratory are integral to instruction.

FAS 741 Advances in Nutrition – 3 credit hours. Discussion topics in this course will encompass advances in nutritional methodologies (heavy isotopes, non-invasive techniques), current aspects of impact of food processing on nutrition and health, and other topics of interest to the students.

FAS 761 Advanced Food Engineering – 3 credit hours. Thermodynamics, reaction kinetics and transport phenomena fundamentals in food rheology, heat transfer, freezing and melting processes, evaporation and dehydration, and other physical separation processes employed in food industry will be considered.

FAS 771 Advanced Food Biotechnology – 3 credit hours. Provides an assessment of the accomplishments and future of food biotechnology. The students will study how specific genes are isolated, cloned and used to transform plants, animals and micro-organisms to enhance or produce new ingredients and how fermentation technology, genetic engineering, bioprocessing, and monoclonal antibody production can be of benefit to human health and nutrition. FDA regulations and social and ethical ramifications of biotechnology will be discussed.

FAS 772 Advanced Food Processing – 3 credit hours. Methods of food preservation and ingredient manufacture by radiation, heat processing, dehydration and chilling with emphasis on the unit operations including design and operation of the various food processing equipment used in the food industry will be studied.

FAS 780 Functional Foods & Neutraceuticals in Health Disease – 3 credit hours. Students may choose to study the selective topics in cereals, meats, food product development and formulation, food microbiology, sensory evaluation, dairy products technology or postharvest physiology and processing of fruits and vegetables. A comprehensive study of the selected topics will be made. Advanced topics in food science and technology, from basic to applied research, including current issues in food science and technology and critical analysis of current research literature.

FAS 782 (FAS 582) Advanced Food Packaging – 3 credit hours. Advanced Food Packaging and Quality Control course addresses the interrelationship between foods and packaging, and how it impacts shelf life, and food quality and safety. Technical content includes the intrinsic and extrinsic complex factors in food packaging system design and overall quality and safety assessment of packaged products.

FAS 796 Advanced Topics in Food Science – 3 credit hours. Students may choose to study the selective topics in cereals, meats, food product development and formulation, food microbiology, sensory evaluation, dairy products technology or postharvest physiology and processing of fruits and vegetables. A comprehensive study of the selected topics will be made. Note: Can be taken twice as an independent study course for Food Science Ph.D. students.

FAS 797 Seminar – 1 credit hour. Food science faculty and Ph.D. students reviewing current developments in food science and related topics through visiting presenters and by reviews of current literature.

FAS 798 Teaching Experience for Doctoral Students – 3 credit hours. This course will enable Ph.D. students to learn how to teach including the opportunity to design and implement course modules with a faculty mentor. In this course, each Ph.D. student will draft at least one course syllabus that may be used to teach an independent course. Course topics will include methods of course design, syllabus construction, critical thinking, student learning outcomes, formative and summative evaluation methods, analytic vs. holistic grading rubrics, and practical steps to propose and teach a new course. Research on college students and successful new faculty will be discussed. The products created in this course will form a vital part of any teaching portfolio. This course is designed to provide training and experiential learning in teaching for Ph.D. students.

FAS 799 Research for Ph.D. – 1-3 credit hours. Original research that is used toward the completion of dissertation requirements for a Ph.D. in Food Science. Consists of an in-depth study of various topics that includes a critical analysis of current literature, rationale of the research conducted, and the statistical methods used to analyze data..

Family & Consumer Sciences

FCS 505 Curriculum Planning and Development in Family and Consumer Sciences – 3 credit hours. An overview of philosophies of curriculum development and the identification of principles, practices, and internal/external forces impacting the curriculum development process. Special emphasis is placed on methods and techniques of curriculum designed for specific target audiences in Family and Consumer Sciences.

FCS 508 Trends and Issues in the Profession – 3 credit hours. Designed to evaluate and synthesize trends and issues of the profession and society as a whole, and their impact and/or implications for the family and consumer sciences profession and various Family and Consumer Sciences related organizations.

FCS 511 Administration, Leadership and Supervision in the Profession – 3 credit hours. Principles of administration and leadership to include an analysis of management/leadership styles, and roles and responsibilities of individuals in various supervisory positions.

FCS 512 Technological Advances and Application in the Profession – 3 credit hours. Critique of current technology used in the various program areas in Family and Consumer Sciences. Emphasis is placed on acquiring basic computer skills and computer integration and application in various specializations.

FCS 514 Seminar – 1 credit hour. Presentation of thesis and comprehensive reports by graduate students. A discussion of current research trends and issues in the various specializations is provided.

FCS 530 Special Problems – 3 credit hours. An investigation of problems in one of the specialized areas of the profession, or issues and problems related to family well-being.

FCS 590 Research Methods in the Agricultural Sciences – 3 credit hours. This course introduces students to the principles and techniques of development of conceptualizing, planning, conducting, and reporting research; development of qualitative and quantitative research designs; development of research questions and hypotheses; review and critiquing of scientific studies; step-by-step processes involved in sampling, measurement, analyses, interpretations, summarizing and ethics in research.

FCS 595 Internship – 6 credit hours. There are multiple internship courses based on the specific content area. This course entails one semester of full-time teaching under the immediate direction of cooperating teachers and university supervisors in the P-12 public schools. A fee for the edTPA portfolio assessment is proposed for candidates to purchase who are enrolled in the internship course (student teaching). The Alabama State Department of Education is requiring the edTPA assessment starting September 01, 2018 for teacher candidates to receive certification. The cost for the edTPA portfolio submission to Pearson is $300.00. Prerequisite: Candidates must be enrolled in the internship. Corequisite: submit edTPA.

FCS 599 Master's Thesis – 1-6 credit hours. An investigation of a research problem for the completion of the master's thesis in an area of concentration (Apparel, Merchandising and Design; Human Development and Family Studies; or Nutrition and Hospitality Management) under the supervision of an assigned advisor.

FCS 600 Program Planning and Evaluation – 3 credit hours. Designed to acquaint students with the principal elements and steps necessary to plan and evaluate formal and non-formal educationally related Family and Consumer Sciences programs.

FCS 601 Public Policy and Issues – 3 credit hours. An identification of the role of family and consumer professionals in community, state and national public policy issues related to the family. Analysis of how to develop interactions with

related local, state and national organizations to facilitate finding solutions to individual and family problems and concerns.

FCS 603 Philosophical Issues in the Profession – 3 credit hours. A study of the theoretical and conceptual bases of Family and Consumer Sciences.

FCS 610 Internship – 3 credit hours. Supervised work experience.

FCS 699 Action Research II – 3 credit hours. An investigation of research problems for the Specialist degree.

Education Foundation

FED 500 Professional Seminar – 3 credit hours. This course will introduce candidates to a variety of fundamental questions about education, immerse candidates in seminal works in the educational literature, and give candidates ways of framing and analyzing educational issues which candidates may draw on during their professional career. This courses' literature focuses on teaching and learning in elementary and secondary classrooms and the connection between these classrooms and the larger social context. Candidates will learn how to think, analyze, argue, and write – about teaching and learning, schools and society, teachers, students, and the public – using graduate level discourse, research, theory, imagination and discipline.

FED 501 Foundations of Education – 3 credit hours. This course provides a thorough understanding of the teaching profession and balanced discussion of controversial issues with emphasis on: professional development; school-based management; the history of education in China, globalization, legal protection regarding teachers and students; problems with and prospects for No Child Left Behind legislation, the role of technology in schools and classrooms, school choice and charter schools, curriculum and testing standards, promising instructional innovations and intervention and many other topics that affects schools, and education in general.

FED 503 Introduction to Educational Research – 3 credit hours. This course provides a survey of typical research methods used in conducting research in a teaching and learning environment. Relevant concepts and issues involved in conducting educational research are also explored. Additionally, a brief review of common statistical operations is presented.

FED 504 Evaluation of Teaching and Learning – 3 credit hours. This course offers a complete exploration into the pertinent theories, research, procedures, and problems that are tied to the processes of teaching and learning. It provides an overview of the various strategies that are involved in assessing instruction and improving student learning. Education candidates will take in an in-depth look at the procedures involved in planning, designing, and critically evaluating various assessment measures. A field experience is required. Prerequisite: Admission to the Educator Preparation Program.

FED 520 Teacher Performance Support – 1-3 credit hours. This course will support professionals in the development of an edTPA portfolio that is required for certification in Alabama and to submit the portfolio for scoring by Pearson by the end of the semester in which the candidate is enrolled in the course. It is intended for professionals who are NOT enrolled in the internship initial teacher preparation programs. Alabama requires the completion of an edTPA portfolio to become certified. AAMU's candidates complete the edTPA assessment during student teaching. However, this course is intended for those who have not met the AL required cut score during the internship on the edTPA and need to retake it. Prerequisite: GPA 3.25, completed Internship w/ grade of C or higher. Corequisite: submit edTPA.

FED 521 Foundation of Multicultural Education – 3 credit hours. Prepares the educator for perceiving, believing, evaluating, and behaving in different cultural settings. It should help the educator become more responsive to the human condition, individual cultural integrity, and cultural pluralism in today's society.

FED 529 Computer-Based Instructional Technologies – 3 credit hours. This course provides knowledge and hands-on training of the current and emerging instructional technologies for the graduate pre-service teacher candidates and the in-service teachers. Students will learn the technology skills, the theoretical foundation of the technology-assisted learning, and various techniques for designing and delivering instruction by integrating technology. This class provides mostly a hands-on learning experience, plus the theories and issues of the current emerging technology in education. The hands-on work includes the commonly used programs like Microsoft Word, PowerPoint, Excel, database, and instructional web page development; multimedia production includes sound editing, basic graphics design and image editing; the software evaluation includes the educational software evaluation, learning resources evaluation, searching and integrating adequate informational resources for the K-12 school settings. For this course, the cooperative learning and student-centered constructivist learning are highly valued within and out of the class. Blackboard will be the networked learning place for the students and the teacher to communicate and collaborate on the issues of the technology-assisted learning

and the hands-on projects. The theories of educational technology include learning theories and technology integration issues in education. After this course, the students will be developed professionally in terms of knowledge, skills, and disposition relating to the integration of current and emerging technology in education. A fee of $133.00 for Watermark is required for this course. Prerequisite: 3.0 GPA.

FED 531 Current and Emerging Instructional Technology – 3 credit hours. The course is designed to help educators develop skills in using desktop publishing, computer graphics, hypermedia environments, telecommunications, and optical technology. Prerequisite: ELE 530 or an equivalent graduate level course.

FED 532 Curriculum Integration of Instructional Technology – 3 credit hours. The content will focus on the following major areas: principles of instructional design, techniques for integrating computers and related technologies into the school's curriculum, designing and evaluating software and coursework, hypermedia for instructional uses, and repurposing interactive video material. Prerequisite: ELE 530 and FED 531.

FED 533 The Context of Urban Education – 3 credit hours. This survey course is designed to enhance candidates' knowledge of urban schooling, especially as related to dynamics of race, class, and culture. This course includes a residency component in Huntsville urban schools and allows candidates the opportunity to gain knowledge and analyze the historical, socioeconomic, and political factors influencing urban education in an authentic environment. This course also allows candidates, in the context of an urban school environment, to analyze the distribution of opportunity in cities and their schools; effective instructional and organizational practices that close the achievement gap, including multicultural education, the development of positive school cultures, and the use of community services and resources.

FED 534 Educational Leadership & Technology – 1 credit hour. This course is designed to support educational leaders in understanding and utilizing technology to impact overall instructional leadership and school improvement. In this course, participants will examine the importance and role of instructional technology in the 21st century school, the instructional technology competencies needed by educational leaders, strategies to build and sustain to become a more effective instructional leader.

FED 601 Philosophical and Socio-Political Underpinnings of Education – 3 credit hours. An integrated study of major theoretical, sociological and philosophical underpinnings of education. Students will examine the challenges and trends that shape education in the United States, focusing on cultural, socioeconomic, and political issues that affect education. The course will draw on seminal through contemporary theories and philosophies including critical theory and Afrocentric philosophies, will ask students to examine their dispositions, knowledge, and skills, and determine their path for growth and contribution to education. Prerequisite: None.

FED 604 Advanced Evaluation of Teaching and Learning – 3 credit hours. An in-depth study of the theories, processes and procedures relating to the evaluation of teaching and student learning.

FED 606 Culture and Language Diversity – 3 credit hours. This course examines the broad range of cultural competence focusing on implication in language diverse education, including ethnicity, socioeconomic level and gender. It explores ethical issues in language diverse education, including ethnicity, socioeconomic level and gender. It explores ethical issues in language diverse education and invites students to develop a personal ethical stance regarding educational practice.

FED 607 Introduction to Qualitative Research Methods – 3 credit hours. Students will be introduced to the basic ideas of qualitative research methods available for educational researchers. Students will get a basic understanding about data collection, description, analysis and interpretation in qualitative research. Prerequisite: None.

FED 696 Action Research I – 3 credit hours. This course will teach roles and skills necessary to be an effective Action Researcher. The class will give students the skills needed to work on problems specific to schools and school leadership. Additionally, the course is also designed to identify the theoretical foundations of action research, develop practical applications, investigate the applicability of action research in a current work setting, and develop an action research plan. Prerequisite: None.

FED 697 Action Research II – 3 credit hours. The course is designed to guide candidates through the development of a problem, data collection, analyses and feedback. Candidates will also design a course of action to address the issues, make implementation of the research and assess the results.

FED 701 Advanced Qualitative Research Design and Analysis – 3 credit hours. Advanced Qualitative Research Design and Analysis - This course addresses the skills and knowledge necessary for completion of a qualitative dissertation including research design, data analysis and repr4esentation, trustworthiness, and ethical considerations in research with

human subjects. The course allows students to individually examine specific qualitative methods such as case study and a fully developed proposal is required by the end of the course. Prerequisite: None.

FED 702 Design and Analysis of Educational Experiments – 3 credit hours. Practical application of statistical principles to the design and analyze experimental data in education. Students will plan and evaluate research in education and explore experimental designs appropriate for educational research with special emphasis on multivariate procedures. The course is computer oriented, and fully developed proposal is required by the end of the course. Prerequisite: None.

FED 703 Evaluation of Research in Education – 3 credit hours. Analyze research designs that entail carrying out structured assessment of the value of resources committed to a project or specific goal and of organizational processes and products. A fully developed proposal is required by the end of the course. Prerequisite: None.

Finance

FIN 511 Financial Management and Policy – 3 credit hours. This is an introductory graduate course in the art of money and capital management at the level of the firm. Topics covered include methods used to maximize the value of the firm, financial statement analysis, capital budgeting, the cost of capital, working capital management, dividend policy, and lease financing. The mathematics of finance will also be explained to the student. Prerequisite: MBA 506 or an undergraduate course in principles of finance.

FIN 541 Security Analysis and Portfolio Management – 3 credit hours. A study of the various analytical techniques used to appraise the value of various securities, including marketing analysis and industry analysis. This course also covers the methods and practices used in selecting and administering the securities of institutional and large individual investors. Prerequisite: FIN 511.

FIN 542 Money and Capital Markets – 3 credit hours. A study of the theoretical concepts and actual operations of money and capital markets, the central focus will be on interest rate determination, role of financial intermediaries, and the operations of short- and long-term capital markets. Prerequisite: FIN 511.

FIN 543 International Finance – 3 credit hours. A detailed analysis of the treasurer's functions and controller's activities in managing the finance function of multinational firms. In particular, flow of short-term funds, Euro and Petro-dollars, floating exchange rates, and problems of recurring parity changes are emphasized. Prerequisite: FIN 511.

Materiel Engineering Systems

GEN 500 Engineering System Analysis – 3 credit hours. This course introduces students to basic MATLAB and LabVIEW programming languages. Programming concepts are illustrated with engineering applications. Prerequisite: bachelor’s degree in engineering or admission into the Systems and Material Engineering Program.

GEN 590 Special Topics – 3 credit hours. This course focuses on topics based on modern trends in materiel engineering. The specifics of each course will be identified prior to it being offered.

GEN 600 Special Topics – 3 credit hours. This course focuses on topics based on modern trends in materiel engineering. The specifics of each course will be identified prior to it being offered.

GEN 601 Life-Cycle Design Engineering – 3 credit hours. This course is intended to provide insight and experience in theory and in practice in dealing with product complexity associated with such design processes. Topics include contemporary techniques such as product realization process, robust design, design for six-sigma, and design for manufacturability. Also considered are systems architectural principles; system optimization; standardization; and case studies in real-life product design projects. Prerequisite: admission into the Systems and Materiel Engineering Program.

GEN 602 Product Assurance Engineering– 3 credit hours. This course discusses techniques for establishing product specifications, process controls for quality assurance, compatibility analysis, and product reliability and maintainability. Topics include system reliability; confidence intervals-limits; normal and exponential distribution; failure analysis; the Weibull model in life testing; quality control; aging and system reliability; and case studies. Prerequisite: bachelor’s degree in engineering or admission into the Systems and Materiel Engineering Program.

GEN 603 Analysis and Simulation Methods– 3 credit hours. The course centers on stochastic search methods for system optimization and the analysis and construction of Monte Carlo simulations. The focus is on issues in algorithm design and mathematical modeling, together with implications for practical implementation. Prerequisite: admission into the Systems and Materiel Engineering Program.

GEN 604 Test and Evaluation Engineering – 3 credit hours. This course provides an intensive introduction to test methods and evaluation techniques; statistical considerations in measurement uncertainties; experiment planning, designing, debugging, and execution; instrumentation for data acquisition; signal processing; techniques for data analysis and evaluation; methods for hardware verification and validation. Prerequisite: admission into the Systems and Materiel Engineering Program.

GEN 605 Engineering Project Management – 3 credit hours. Theory and practice of managing technical projects, including the application of modern project management software to efficiently plan, schedule, and control project activities. Topics include selecting project alternatives, managing project teams, risk management, work breakdown structures, precedence grids, precedence node diagrams, analytical methods for network solutions, resource scheduling, leveling and allocation, financial analysis of projects, and project-scheduling simulation. Prerequisite: admission into the Systems and Materiel Engineering Program.

GEN 606 Fundamentals of Systems Engineering – 3 credit hours. Fundamental analysis of the systems engineering life-cycle process. Emphasis is placed on process activities performed by systems engineers throughout the life cycle of a system, including system thinking, life-cycle management, risk management, decision-making, needs identification, requirements formulation, integration, verification and validation, business and mission analysis, configuration management, quality management, Model-based systems engineering, reliability, availability, and maintainability, and system safety. Students are encouraged to pursue the Certified Systems Engineering Professional (CSEP) examination.

GEN 610 Model-Based Systems Engineering – 3 credit hours. This course is an introduction to Model-Based Systems Engineering (MBSE), with emphasis on the application of the Systems Modeling Language (SysML) to support system requirements, design, analysis, verification, and validation activities throughout the life cycle phases of a system. Prerequisite: None.

GEN 690 Systems and Materiel Engineering Project– 3 credit hours. The course is designed to demonstrate students' accumulated skills in managing complex systems under the supervision of a faculty mentor. The completed project report should bring together the knowledge and skills developed in the core courses and elective courses that comprise a student's program of study. It is expected that every capstone project will address the learning outcomes of the program.

Geography

GEO 503 Geography of Asia – 3 credit hours. Physiographic and political divisions of Asia and the development of present cultural activities in each region. Reference is made to national and international problems in relation to the present world order.

GEO 505 Cartography for Elementary and Secondary Schools – 3 credit hours. Principles of map construction and interpretations as related to the teaching of the Social Science in elementary and secondary schools. Problems of scale, projection, symbolization, and map reproduction are considered.

Graduate Studies

GST 699 Continuing Registration (CR) for Graduate Study – 0 credit hour. This course is intended for students who have completed course requirements or thesis and dissertation credit hour requirements for their graduate program but need to meet the continuous enrolment policy. There is no limit on the number of times a student can enrol. Prerequisite: graduate standing.

Human Development & Family Study

HDF 500 Family Development and Culture – 3 credit hours. A review of theoretical approaches in studying the family. Emphasis is placed on the family life cycle and family systems as impacted by culture.

HDF 515 Social and Emotional Development of Children – 3 credit hours. Concerned with how family and community elements affect the social and emotional development of children. Topics will include the agents and outcomes of socialization, such as values, morals and self-esteem.

HDF 517 Consumer Behavior – 3 credit hours. Topics will include facts important to individuals as purchasing agents.

HDF 518 Parenting Perspectives – 3 credit hours. An analysis of theories, practices and research related to parent-child interactions. Attention will focus on parenting with regard to family structure, goals, values, styles of parenting and the developmental characteristics of children from birth through adolescence.

HDF 519 Child Development Programs – 3 credit hours. Provides an analysis of programs for children from birth to six years of age. Concerned with the arrangement of the physical environment in addition to the instructional program that promotes children's physical, social, emotional, cognitive and language development.

HDF 520 Family Resource Management – 3 credit hours. Explores the principles and methods of managing family resources. The analysis, planning and management of resources will be studied.

HDF 521 Youth Programs – 3 credit hours. Concerned with the developmental characteristics and needs of children during the middle childhood and teenage years. Emphasis will be placed on the development of appropriate activities for both in-school and out-of-school groups.

HDF 524 Adults and their Relationships – 3 credit hours. Analysis of the stages of adulthood and relationships during those years.

HDF 526 Multi-Sensory Approaches to Learning – 3 credit hours. The development of the sensory avenues and concomitant processes in infancy and childhood, including concept information.

HDF 530 Special Problems in Child Development – 3 credit hours. An investigation of problems related to family and individual child development.

HDF 544 Support Systems for the Elderly – 3 credit hours. A study of ways to involve family and community organizations in meeting the needs of the elderly.

HDF 604 Readings in the Profession – 3 credit hours. This course provides a study of all facets of child growth, development and learning.

HDF 610 Strategies of Parent Involvement – 3 credit hours. Covers the importance and utilization of parents in programs that serve children and adolescents. Students will evaluate some of the practices that are currently in use.

Higher Education

HEA 622 Program Development in Higher Education – 3 credit hours. A study of the background and development aims, and problems of the curriculum in junior colleges and universities.

HEA 623 Planning, Management, and Evaluation in Higher Education – 3 credit hours. The study of the basic principles, concepts, and models in the establishment of goals assessing and analyzing needs; identifying resources and analyzing alternative strategies and selecting strategies; securing and allocating resources and formulating the program implementation plan; operating and evaluating programs in junior colleges, colleges, and universities.

HEA 624 American Education – 3 credit hours. Overview and historical development of higher education in America; social context, unique characteristics, present status, scope, diversity, and current issues and trends in American higher education.

HEA 625 Community College – 3 credit hours. Philosophy, history, organization, establishment and control, students, and curriculum of the two-year college; its teaching and learning environment, role in the community and career orientation.

HEA 626 Finance in Higher Education – 3 credit hours. Financial aspects of the operation of junior colleges, colleges, and universities.

HEA 635 The Community College Curriculum – 3 credit hours. Trends, problems, and issues in the development of the Community Junior College Curriculum, including vocational-technical education, continuing education, and community services, are studied.

HEA 680 Educational Supervision for the Practitioner – 3 credit hours. This course is designed to provide specific, practical assistance to on-the-job supervisors in the successful realization of their profession of instruction. The course deals with task areas and a collection of accepted patterns for supervision, definite procedures, techniques, and devices.

History

HIS 501 Historiography – 3 credit hours. Development of historical thought and history as a discipline. It seeks to provide students with an understanding of the nature of history by examining the evolution of historical studies and the trends in historical thought.

HIS 509 Afro-American History – 3 credit hours. A survey course of Afro-American history which emphasizes the Afro-American experience in modern American history. Post-Reconstruction is the essential background for turn of the century developments and those events that have determined the present role of Afro-Americans in society and the world.

HIS 510 Foundations of American Civilization – 3 credit hours. A detailed analysis of the origin and development of American democracy, including economic and social institutions.

HIS 512 History of the South – 3 credit hours. A reappraisal of the Old South and the Civil War and Reconstruction Period with special emphasis on the political, economic, and social problems of the New South.

HIS 513 Constitutional History of the United States – 3 credit hours. A reappraisal of the formation of the United States Constitution and its operation in the early years, with special emphasis on recent interpretations by the United States Supreme Court covering current political, economic, and social problems.

HIS 514 Contemporary American History – 3 credit hours. Specific considerations of the problems of the United States as a great world power, and the major political, economic, and social internal problems.

HIS 520 Contemporary European History – 3 credit hours. A detailed study of the current forces of nationalism, regionalism, and internationalism operating within Europe, including Europe's use of these factors in relation to the rest of the world.

HIS 521 Modern Asia – 3 credit hours. The emergence of new independent nations of the Far East, Middle East, and Near East will be analyzed as to their formation, development, and current problems, both foreign and domestic.

HIS 522 African History - A survey course which places special emphasis on modern Africa and seeks to understand the forces that have shaped African societies and are playing an important role in African history today.

HIS 523 Latin American History – 3 credit hours. A survey course which places special emphasis on modern Latin America and seeks to understand the forces that have shaped Latin American societies and are playing an important role in Latin American history today, including the Caribbean.

HIS 525 Philosophy of History – 3 credit hours. A study of the principles of historical interpretation through an analysis of the major speculative theories of history and of the major critical issues in the field. Religious, secular, and scientific approaches to historical interpretation will be considered, including but not limited to, those of Augustine, Vico, Kant, Hegel, Herden, Ranke, Ricbert, Dilthey, Collingwood, Spengler, Toynbee, Sorokin, Huxley, and Chardin. Prerequisite: HIS 501.

HIS 609 Selected Topics in Afro-American History – 3 credit hours. This course is designed to introduce students to some of the main topics growing out of the Afro-American experience. Although the Afro-American experience is part of the general history of America, this course places emphasis on those events that helped shape the African's experience in America. The topics discussed and analyzed, for the most part, are those that have reference to situations or issues posing unique and interesting problems, questions, or perspectives during major periods of Afro-American history.

HIS 614 Selected Topics in 20th Century U.S. History – 3 credit hours. Each semester this course will focus on one major topic of 20th Century U.S. History, which will be examined in depth, both the necessary background and, particularly, the nature of the issue and its current developments.

HIS 615 Modern World History – 3 credit hours. Background and significance of selected topics in twentieth century world history (e.g., the emergence of Africa, the crisis in the Middle East, developments in Southern Africa, etc.).

HIS 698 Individual Research in History – 3 credit hours. Independent reading or research directed by assigned faculty involving a survey of existing research on a given topic, an area of interest to the student or a report on the early stages of work on a thesis.

Kinesiology

KINS 507 (PED 507) Management of PE and Sport – 3 credit hours. This course is designed to familiarize students with the general principles of administration in physical education and athletic programs, as well as some of the current challenges that arise in these fields. Students will be introduced to and participate in class discussions on organization and leadership management, compliance, DEI, academic, eligibility, student development, media relations, financial operations, marketing. Prerequisite: None.

KINS 512 (PED 512) Biomechanics of Exercise and Sports – 3 credit hours. This course was designed to provide the student with a generalized, qualitative approach to mechanical kinesiology or biomechanics. This course will follow a systematic program to enable the student to build a foundation for understanding the science of motion. Prerequisite: None.

KINS 515 (PED 515) Legal Issues in PE and Sports – 3 credit hours. This is a required kinesiology course designed to emphasize the legal issues and concepts related to areas of the physical activity and sports industry. Areas covered will include negligence, intentional torts, constitutional law, FERPA, HIPPA, Title IX, hazing, personnel disputes, and other relevant issues from a legal perspective. Prerequisite: None.

KINS 598 (PED 598) Research in PE – 3 credit hours. This course is designed to familiarize students with research and scholarly writing to prepare them to write a Master's Report as part of their fulfillment of their degree in the Master of Kinesiology program. Prerequisite: None.

Interdisciplinary Studies

IDST 500 Research Methods – 3 credit hours. This course introduces students to the fundamental principles and techniques of research development, including the conceptualization, planning, execution, and reporting of scientific studies. It emphasizes the design of qualitative, quantitative, and mixed-methods research, formulation of research questions and hypotheses, and critical evaluation of existing literature. Prerequisite: None.

IDST 505 Capstone Seminar – 3 credit hours. The Interdisciplinary Capstone Seminar is a graduate seminar in which students utilize the knowledge and skills gained through the degree program to create a proposal for a culminating research report that critically addresses a problem or issue in the interdisciplinary fi eld of study. Students professionally and academically communicate their findings through written work and oral presentations. Prerequisite: None.

IDST 598 Research Report – 3 credit hours. This course provides academic credit for independent project related research conducted under the supervision of the instructor. The course does not involve regular class meetings, assignments, or examinations. The scope and direction of project are determined by the student in consultation with the instructor, consistent with the requirements of the degree program. Prerequisite: None.

IDST 599 Masters Thesis – 1-6 credit hours. This course provides academic credit for independent thesis research conducted under the supervision of a faculty advisor. The course does not involve regular class meetings, assignments, or examinations. The scope and direction of research are determined by the student in consultation with the thesis advisor, consistent with the requirements of the degree program. Prerequisite: None.

Logistics & Supply Chain Management

LSM 536 Logistics and Supply Chain Management – 3 credit hours. Critical examination of logistics and supply chain management (SCM) role in both the commercial and military sectors; strategic foundations that support supply chain and operational skills required to develop and/or design an effective supply chain. The cross-functional integration of premier business processes within the organization and across the network of enterprises that make up the supply chain. Additional topics include demand management, procurement and supply chain, performance-based logistics, data warehousing, reverse supply chain logistics, transportation management, supply chain logistics information systems, logistics outsourcing, third-party logistics, supply chain performance measurement, supply chain economics, and supply chain finance.

LSM 571 Adaptive Supply Chain Management – 3 credit hours. The emphasis is on supply chain visibility, agility and adaptivity to planning, executing, sensing and responding based on real-time signals, to changes in business/military environments and in addressing market and customers' needs. It explains and discusses concepts, characteristics and practices of supply chain visibility, agility and adaptivity. It also describes and discusses the essentials of supply chain collaboration and coordination, as well as supply chain management information technology tools. Prerequisite: LSM 536 or instructor consent.

LSM 572 Logistics and Supply Chain Risk Management – 3 credit hours. The focus is on global sourcing issues, risk and uncertainties, supply chain logistics vulnerability and disruption, enterprise-wide risk management, crisis response logistics management, and Homeland Security's global supply chain logistics measures within the context of the commercial and military environments. Prerequisite: None.

LSM 599 Strategic Supply Chain Planning – 3 credit hours. Supply chain network design, strategic network optimization, collaborative supply chain planning process, operations and distribution planning, inventory optimization, demand management, strategic sourcing, and supplier relationship management to enhance corporate performance and military

combat readiness. Discuss sustainability, reverse logistics and contemporary trends in supply chain management. Prerequisite: LSM 536 or instructor consent.

Master in Business Administration

MBA 503 Quantitative Methods for Business – 3 credit hours. This course covers descriptive and inferential statistical methods used in business. Students would learn about the appropriate statistical techniques for describing and analyzing data, as well as the interpretation of the results. Statistical software will be used. Topics include graphical and quantitative description of data, probability theory, important discrete and continuous probability distributions, estimation of parameters, testing of hypotheses using sample data, analysis of variance, chi-square test, regression methods, and other quantitative decision-making tools. Prerequisite: Pre-calculus algebra.

MBA 506 Foundations of Accounting and Finance – 3 credit hours. This course provides non- business students coming into the program with a basic understanding of the concepts of accounting and finance. It covers the techniques of the preparation and use of financial statements, the basic concepts of corporate finance, the structure of financial markets, and the process of financial analyses.

MBA 507 Basics of Management and Marketing – 3 credit hours. The primary objective for this course is to introduce those MBA students who lack formal undergraduate courses in management and/or marketing to the basic management and marketing fundamentals before they plunge into advanced theoretical courses. The course is an exploratory one that will help students to answer the basic questions: What does a manager do? What is management? How did it evolve? What is marketing? What is the marketing concept? What is target marketing? What is the marketing mix?

MBA 517 Global Issues in Business – 3 credit hours. This is an integrative course that not only focuses on the study of the environment and management of international business but also on the strategy, environment-assessment, and cross-functional processes designed to implement a strategy as management deals with contemporary global issues that confront the business such as legal/political policies, socio-cultural differences and social changes, financial and economic institutional development demands upon marketing, management, finance, accounting, and human resources. Prerequisite: None.

MBA 520 Quantitative Analysis in Business Management – 3 credit hours. This course introduces a structured approach to problem solving and the fundamental quantitative methods used to formulate and solve problems to support business decision making. Students will practice both analysis of complex situations and communication of results based on these decision models. Prerequisite: None.

MBA 521 Organizational Development and Change Leadership – 3 credit hours. This course aims to provide an understanding of the theories, models, and strategies involved in leading organizational change. Students will explore the complexities, practical approaches, challenges, and potential impacts of change on organizations, employees, and other stakeholders. This course is designed to equip students with the knowledge, skills, and mindset required to drive and navigate organizational change initiatives. The course will focus on developing the necessary competencies to lead and facilitate successful change initiatives within diverse organizational contexts. Prerequisite: None.

MBA 522 Supply Chain Management & Business Analytics – 3 credit hours. This course critically examines the role of supply chain management (SCM) and business analytics in unlocking the optimum performance of organizations across all sectors including the commercial and military sectors. The course focuses on global sourcing issues, risk and uncertainties, vulnerability and disruption in supply chains. This course connects fundamental concepts and techniques of data science and big data analytics for predictive and descriptive data modeling so that organizations thrive in their current business ecosystem and skillfully adapt to future changes. Prerequisite: None.

MBA 550 Independent Research in Business – 3 credit hours. This is for a major research project involving an in-depth study of an issue in any of the business areas. The project, conducted under the guidance of an instructor, will culminate into a detailed, comprehensive paper on the issue. Prerequisite: Consent of the MBA Director.

MBA 590 MBA Experiential Learning Opportunity (ELO) I – 3 credit hours. The purpose of this course is to offer MBA students real and relevant work experience while in the MBA program. This is one experiential learning course that MBA students can take to work for their internships or coops. All course requirements and procedures are facilitated with the ELO office housed with the CBPA. Prerequisite: None.

Mechanical Engineering

ME 512 (ME 412) Analysis and Synthesis of Gas Turbines and Components – 3 credit hours. A review of aerothermodynamics of propulsion systems, characterization of power plant utilization, and operation cycle analysis. On-off design

performance, component characterization, component design, component matching, optimization, and introduction to power plant integration systems in a fixed or moving architecture are also covered. Prerequisite: (ME 310 and ME 360) with minGrade C.

ME 513 (ME 413) Rocket Propulsion – 3 credit hours. Current advances in rocket propulsion; thermodynamics of non-reacting and chemically reacting ideal gases; rocket nozzle design; rocket heat transfer; ideal rocket performance parameters; chemistry of propellants; ground testing; liquid rocket engine systems; introduction to solid propellant rockets. Prerequisite: (ME 310 and ME 360) with minGrade C.

ME 516 (ME 416) Gas Dynamics – 3 credit hours. A study of the fundamental theory of one-dimensional gas dynamics: Isentropic flow, flow in converging-diverging nozzles, shock propagation, normal and oblique shock theory, Prandtl-Meyer expansions, Fanno line flow, and measurement methods. Prerequisite: (ME 310 and ME 360) with minGrade C.

ME 518 Internal Combustion Engines – 3 credit hours. This course studies the fundamentals of how the design and operation of internal combustion engines affect their performance, efficiency, fuel requirements, and environmental impact. Topics include fluid flow, thermodynamics, combustion, heat transfer and friction phenomena, and fuel properties, with reference to engine power, efficiency, and emissions. Students examine the design features and operating characteristics of different types of internal combustion engines: spark-ignition, diesel, stratified-charge, and mixed-cycle engines. Prerequisite: ME 312.

ME 520 Mechanical Vibrations – 3 credit hours. The course will cover fundamental concepts on the vibration of mechanical systems including, but not limited to, review of systems with one degree for freedom, introduction to matrix methods, transfer functions for harmonic response, impulse response, and step response, convolution integrals for response to arbitrary inputs, principle frequencies and modes, applications to critical speeds, measuring instruments, isolation, torsional systems, introduction to nonlinear problems. Prerequisite: ME 320.

ME 521 Mechatronics Engineering Design – 3 credit hours. Modeling and control of actuators and electro-mechanical systems. Performance and application of microprocessors and analog electronics to modern mechatronic systems. Prerequisite: ME 451.

ME 523 Methods of Mathematical Engineering – 3 credit hours. This course covers a broad spectrum of mathematical techniques needed to solve advanced problems in engineering. Topics include linear algebra, the Laplace transform, ordinary differential equations, special functions, partial differential equations, and complex variables. Application of these topics to the solutions of physics and engineering problems is stressed. Prerequisite: MTH 227.

ME 541 (ME 441) Renewable Energy – 3 credit hours. Studying the impact of renewable energy, including physical principles, existing and emerging technologies, & interaction with the environment. Energy demand; transmission and storage; solar, biofuel, generation by hydroelectric, wind, and geothermal sources, as well as waves and tidal generation. Prerequisite: (ME 310 with minGrade C) or instructor consent.

ME 542 (ME 442) Solar Thermal Engineering – 3 credit hours. Fundamentals of solar energy transport: radiation heat transfer, convention, conduction and phase change processes. Design and operation of solar photovoltaic (PV) and solar thermal systems. Heat exchangers and solar collectors: intermediate methods of thermal design, flow arrangements, effects of variable conditions. Solar energy concentration, concentrated solar power systems. Solar energy storage. Solar cooling, solar thermal power and cogeneration. Applications to the design of solar thermal engineering systems. Prerequisite: (ME 310 with minGrade C) or instructor consent.

ME 562 Advanced Fluid Mechanics – 3 credit hours. The mechanics of Newtonian viscous fluids. The use of modern analytical techniques to obtain solutions for flows with small and large Reynolds numbers. Fluid transport properties, review of integral analysis, Navier-Stokes equations, exact and similarity solutions, boundary layers, vorticity, jets and wakes. Prerequisite: ME 360.

ME 571 (ME 471) Systems Engineering – 3 credit hours. The systems engineering process is defined and investigated in this course. Among the topics introduced and studied are conceptual, preliminary, and detail design concepts using modern tools such as CAD, optimization, and systems test and evaluation in completing designs built for increased reliability, maintainability, and supportability. Environmental and social impact and life-cycle costs are also introduced. Prerequisite: undergraduate courses in advanced engineering mathematics.

ME 572 (ME 472) Economic Evaluation of Design – 3 credit hours. The concepts of life-cycle costs and optimization of alternatives are investigated. The formal study of decision-making and economic theory is applied to engineering projects. Case studies are used. Prerequisite: ((ECO 200 or ECO 231 or ECO 232) and ME 231) with minGrade C.

ME 581 (ME 481) Quality and Reliability Assurance – 3 credit hours. An introduction to probability and statistics. Quantitative techniques for establishing product specifications and process controls for quality assurance, ISO 9000; the role of reliability in manufacturing operations; and so forth, are covered. Prerequisite: ME 204 with minGrade C.

ME 582 (ME 482) Operations Planning and Scheduling – 3 credit hours. Analysis and design of production and control systems for both intermittent and continuous manufacturing, inventory effects on production, and production control techniques review of Just In Time manufacturing. Emphasis is given to extending concurrent engineering techniques and methods for manufacturing and product development. Prerequisite: MTH 227 with minGrade C.

ME 597 Engineering Seminar – 3 credit hours. The oral dissemination and defense of scientific and engineering concepts is a fundamental communication tool that you will employ throughout your professional career. In this course, you will participate in five activities that will hone your oral presentation skills: observation, question, critique, research, and presentation. Prerequisite: None.

ME 610 Advanced Heat Transfer – 3 credit hours. Introduction to the three basic modes of heat transfer — conduction, convection and radiation. conservation laws and the energy transport equation; conduction heat transfer – one-dimensional, two-dimensional, steady-state and transient systems; laminar convection; heat-exchanger design; fundamentals of radiative energy transport, radiative exchange between surfaces, radiative heat-transfer in absorbing-emitting-scattering media; introduction to Monte Carlo techniques; heat- and mass-transfer analogies; advanced multimode heat-transfer problems. Prerequisite: ME 312.

ME 613 Advanced Propulsion – 3 credit hours. Turbulent combustion, combustion instability and control, solid propellants and explosives, chemical kinetics, pollutant formation and destruction, computational methods for reacting flow. Prerequisite: ME 413.

ME 620 Current Advances in Solid Mechanics – 3 credit hours. Strength, stiffness, and stability of mechanical components and structures. Fundamental principles of stress analysis: three-dimensional stress and strain transformations, two-dimensional elasticity, contact stresses, stress concentrations, energy and variational methods. Stresses and deformations for rotating shafts, thermal stresses in thick-walled cylinders, curved beams, torsion of prismatic bars, and bending of plates. Projects relate analysis to engineering design. Prerequisite: ME 425.

ME 621 Advanced Computer-Aided Engineering – 3 credit hours. This is a course in the applications of computing tools to the engineering design. Simulation tools and techniques for virtual prototyping and design optimization will be introduced. A team design project will be undertaken using these modern simulation tools. Prerequisite: ME 380.

ME 625 Fatigue Damage and Failure Analysis – 3 credit hours. Mechanical and microstructural aspects of nucleation and growth of cracks under cyclic loading conditions, notch effects, cumulative damage, multiaxial loading, and fatigue crack propagation. Nonlinear fracture mechanics including elastic-plastic and time-dependent fracture, advanced test methods, J-integral theory, and extensions. Prerequisite: ME 425.

ME 631 Manufacturing System Design – 3 credit hours. Fundamentals of process planning. Automated process planning approaches and algorithms. Geometric modeling for process planning. Modeling and analysis of flexible fixturing systems. Mechanical assembly planning. Prerequisite: ME 432.

ME 651 Current Advances in Robotics – 3 credit hours. Analysis and design of robotic systems including arms and vehicles. Kinematics and dynamics. Algorithms for describing, planning, commanding, and controlling motion force. Prerequisite: ME 451.

ME 660 Computational Fluid Dynamics – 3 credit hours. The course will cover introductory aspects of Computational Fluid Dynamics (CFD) with focus on canonical flow problems, while providing exposure to the latest advancements in discretization methods for fluid flow problems. We will use programming languages (Octave or Matlab) and commercial software such as Fluent. Prerequisite: ME 360 and ME 312.

ME 681 Reliability and Risk Assessment – 3 credit hours. This course covers interpretations of the concept of reliability. Topics include basic reliability rules; random variables and distribution functions; functions of random variables; and applications to quality control and the reliability assessment of mechanical/electrical components, as well as simple

structures and redundant systems. Methods for reliability and risk assessment of complex systems (event-tree and fault-tree analysis, common-cause failures, human reliability models); uncertainty propagation in complex systems (Monte Carlo methods, Latin Hypercube Sampling); and an introduction to Markov models. Prerequisite: ME 481.

ME 699 Mechanical Engineering Thesis – 6 credit hours. Six course units are required (excluding research project units) in which a suitable thesis under the direction of a faculty advisor must be completed and defended. Prerequisite: None.

Management

MGT 510 Operations Management – 3 credit hours. This course covers the study of the concepts and techniques related to the operations function. The operations function is responsible for planning, organizing, and controlling resources in order to efficiently and effectively produce the goods and services customers want, as well as meet the goals of the organization. Topics include operations planning, forecasting, process analysis, quality management, materials management, scheduling, MRP/ERP, project management, just-in-time and lean techniques, supply chain management, and other decision-making tools for management. Prerequisite: MBA 503 or equivalent.

MGT 515 Organizational Theory and Behavior – 3 credit hours. This course will deal with the macro and micro aspects of organizations. It will emphasize the behavior of people within organizations. The impacts of environment on human behavior are examined. Conditions of organization viability and renewal, as well as structures used in their internal and external elaboration, are also considered. Prerequisite: MBA 507 or an undergraduate introductory course in management.

MGT 516 Strategic Management – 3 credit hours. This course is designed to develop an understanding of strategy, policy, and decision-making as applied to the overall management of large corporations or other formal organizational structures. The course objectives are achieved through the integration of economic, marketing, accounting, finance, and management fundamentals. The case method is used. Prerequisite: Completed 24 credit hours towards MBA Program.

MGT 545 Foundation of Database Management Systems – 3 credit hours. This course focuses on the important process of database design. A highly useful methodology for designing databases is presented and illustrated through a variety of examples. On the completion of this course, the student should be able to use database management systems such as Access to set up and manipulate data files, query a data file, and format a report. The student should also be able to compare the capabilities of a single file record management system with database management system. Prerequisite: MGT 502 or equivalent, or instructor consent.

MGT 554 Training and Development – 3 credit hours. This course emphasizes the broadening role of training in corporate life. Training is a systematic process of altering the behavior of employees in a direction that will achieve organizational goals. Training and development is an attempt to improve current and future employee performance by increasing an employee's ability to perform through learning, usually by changing the employee's attitude or increasing his or her skills and knowledge. Prerequisite: None.

MGT 564 Human Resource Management – 3 credit hours. A critical examination will be made of personnel functions, such as selection, training, placement, transfers and promotions, performance appraisal policies, motivation, inventory of skills, and human resource development. Prerequisite: None.

MGT 565 Entrepreneurship/Small Business Management – 3 credit hours. Interdisciplinary course dealing with various aspects of starting a small business; selecting promising ideas, initiating enterprises, exploiting opportunities, obtaining initial financing, site selection, and licensing. Prerequisite: None.

MGT 566 Management and Labor Relations – 3 credit hours. This course introduces students to substantive topics that define and explain the relationship between labor and management. It examines the history of the labor movement, and the rights and duties of both parties as defined by various labor laws. It also examines the labor relations process as it relates to negotiating and administering the labor agreement, and resolving issues related to employee discipline, rights and prerogatives of management and employee groups, wage issues, administrative issues and the use of arbitration to resolve labor disputes and maintain labor peace. Moreover, it examines how the labor relations process works in the public, federal and non-traditional sectors of the economy. Prerequisite: MGT 515.

MGT 570 Special Topics in Negotiation – 3 credit hours. Negotiation and Conflict Management presents negotiation theory – strategies and styles – within an employment context. In addition to the theory and exercises presented in class, students practice negotiating with role-playing simulations that cover a range of topics, including difficult situations such as cross-cultural mentoring and an emergency. Other special cases discussed include abrasiveness, dangerousness, racism,

sexism, whistleblowing, and ethics. The course covers conflict management as a first party and as a third party; third-party skills include helping others deal directly with their conflicts, mediation, investigation, arbitration, and helping the system change as a result of a dispute. Prerequisite: instructor consent.

MGT 580 Emerging Information Technologies – 3 credit hours. This course examines various managerial and technical issues associated with the introduction of new information technologies within the firm. Topics include environmental scanning for new Information Technologies (IT) developments, assessment of new IT, and legal/ethical issues. Prerequisite: None.

MGT 595 Leadership in Organizations – 3 credit hours. In this course the student explores, expand, and improve their personal and practical approach to leadership and management. The course is intended to allow students to study and understand major theories and models of leadership, evaluate the effectiveness of these theories in an applied experiential context, and apply different leadership styles through a case study format. Students will examine, model, and adjust their own personal style and ethics for real-world useful applications. Prerequisite: None.

MGT 596 Contracting Competencies in Federal Acquisition – 3 credit hours. This course examines seven guiding theories that frame the contracting competency model utilized by the Department of Defense (DoD) and various other federal organizations. One intent of the course is to initiate preparation for the DoD contract certification exam. Another intent of the course is to show the interrelationships of various aspects of management to include human resource skills such as communication and how it might impact skills such as negotiations. The course's main focus is to introduce the student to contract guiding principles, competencies in the pre-award phase of contracting, competencies in the award phase of contracting, and competencies in the post award phase of contracting. Prerequisite: None.

MGT 597 The Federal Contracting Process – 3 credit hours. This course is a study of the various phases in the life of an acquisition takes place in order for the student to be aware of specific job tasks required to place an item or service on contract. In addition, the student is introduced to terms and conditions written in contracts. The origination of a clause is discussed as is redress when a term is broken by a party to the contract. Techniques on how to research the Federal Acquisition Regulation are discussed. The acquisition life cycle is studied. Prerequisite: None.

Marketing

MKT 514 Management of Marketing Activities – 3 credit hours. This course develops the societal, managerial, and strategic underpinnings of marketing. It presents concepts and tools for analyzing any market and marketing environment to discern opportunities, as well as principles for researching and selecting target markets. It also deals with strategic marketing and describes how firms can develop their marketing strategies. In addition, the course is concerned with tactical marketing, describes how firms handle each element of the marketing mix, and examines the administrative side of marketing, namely how firms organize, implement, and control marketing efforts. This course also features a unit on the global environment and a unit on customer satisfaction. Prerequisite: MBA 507 or an undergraduate introductory course in marketing.

MKT 532 Consumer Behavior – 3 credit hours. A review and evaluation of major theories of consumer behavior from the economics, behavioral science, and marketing literatures, topics include buyer behavior models, problem/need recognition, search behavior, information processing, involvement and motivation, learning theory , cultural-lifestyle-social class influence, role of consumer perceptions and attitudes in decision making, family decision making, adoption and diffusion of innovations, consumer trends, and behavioral influence strategies. Prerequisite: MKT 514.

MKT 538 (LOG 538) International Marketing and Logistics – 3 credit hours. This course is an in-debt analysis of the specific issues, factors, and conditions which affect the marketing and logistic of products and services on a global, as opposed to a domestic basis. Attention will be focused on the challenges of identifying and evaluating opportunities in overseas markets, developing and adapting marketing strategies in relation to specific national market needs and constraints, and coordinating these strategies on a worldwide basis. Prerequisite: MKT 514.

Mathematics

MTH 500 Quantitative Review for Graduate Students – 3 credit hours. This course is designed to develop basic understanding of college algebra, usage of concepts of quantification: arithmetic computation, linear and quadratic equations, inequalities, the geometry of elementary figures and similarity, measurement, set operations, coordinate systems, probability, and data analysis, including frequency distributions and descriptive statistics. Credit for this course may not be counted toward any degree requirement. Placement in this course is determined by performance on a standardized test instrument.

MTH 501 Mathematics Seminar I - 1 credit hour. Investigation and discussion of problems related to mathematics instruction and/or special topics in mathematics.

MTH 504 A Survey of Higher Mathematics – 3 credit hours. Concepts of sets, logic, probability, abstract algebra, and elementary function theory.

MTH 505 Selected Topics in Calculus and Analytic Geometry – 3 credit hours. Principal ideas and techniques of calculus and analytic geometry from a contemporary point of view.

MTH 506 Computers and the Teaching of Mathematics – 3 credit hours. A brief overview of basic concepts in computer science; mathematics materials for computers and computing; laboratory practice in programming mathematical curriculum materials.

MTH 507 Abstract Algebra – 3 credit hours. Elementary theory of groups, rings, fields, vector spaces, and linear transformations. Prerequisite: MTH 504 or instructor consent.

MTH 508 Linear Algebra – 3 credit hours. Systems of linear equations, vector spaces, matrices, linear transformations, change of basis, determinants, characteristic roots and vectors. Prerequisite: (MTH 504, MTH 507) or instructor consent.

MTH 525 Computer Theory and Programming – 3 credit hours. Advanced concepts in computer science; mathematics materials for computers and computing; and laboratory practice in programming mathematical curriculum materials.

MTH 533 Foundations of Geometry – 3 credit hours. Euclidean geometry, non-Euclidean geometry, analytic geometry, finite geometry, and similarity in Euclidean space.

MTH 552 Analysis I – 3 credit hours. Functions, sequences, limits, continuity, uniform continuity, derivatives, intermediate value theorem. Prerequisite: MTH 505 or instructor consent.

MTH 553 Analysis II – 3 credit hours. Integration, bounded variation, series, convergences, elementary functions, and sequences and series of functions. Prerequisite: MTH 552.

MTH 620 Topology – 3 credit hours. The topology of the real line; Euclidean, metric, and topological spaces; connectedness; compactness; and continuity. Prerequisite: MTH 552 or instructor consent.

MTH 651 Mathematical Logic – 3 credit hours. Principles of logic and the elementary structure of mathematics; connectives and quantifiers, sets and relations; negation; inductive and deductive reasoning. Prerequisite: MTH 504 or instructor consent.

MTH 665 Theory of Numbers – 3 credit hours. Divisibility, congruencies, residues, Diophantine analysis, sieve methods, and geometry of numbers. Prerequisite: MTH 507 or instructor consent.

MTH 673 Probability and Statistical Analysis – 3 credit hours. Algebra of sets; empirical frequency distributions; combinatorics; mathematical expectation; discrete and continuous probability distributions; probability densities; hypothesis testing; and estimation. Prerequisite: MTH 504 or instructor consent.

MTH 681 Mathematics Seminar II – 1 credit hour. A study, by seminar method, of additional topics in mathematics from the history of mathematics, algebra, linear algebra, geometry, or analysis.

MTH 682 Mathematics Seminar III – 1 credit hour. A study, using research methods, of current topics in mathematics and/or mathematics education.

Music

MUS 503 Advanced Keyboard Techniques – 2 credit hours. This course is designed to enhance technical proficiency, pedagogical expertise, and collaborative strategies on keyboard instruments. Prerequisite: None.

MUS 512 Advanced Percussion Techniques – 2 credit hours. This course is designed to instruct instrumental teachers in the advanced art of playing and teaching instruments of the percussion family. The student will acquire some proficiencies on each instrument as well as acquire advanced pedagogical skills for teaching each instrument. Prerequisite: None.

MUS 517 Graduate Conducting – 2 credit hours. A review of basic conducting coupled with a study of advanced techniques for choral and instrumental ensembles.

MUS 520 History and Philosophy of Music Education – 3 credit hours. A study of the historical development of music education in the United States, and the philosophies that encouraged music education’s growth.

MUS 530 K-12 Music Curriculum – 3 credit hours. A course in the development and implementation of the music education curriculum.

MUS 533 Applied Music I, Violin – 1 credit hour. In the applied music courses, basic technical principles are stressed in accordance with the student's current performance ability on the violin. Strategies are chosen or designed thereafter to escalate technical competence developmentally, to maximize the student's growth and technical proficiency, musical understanding, expressive performance, and musical taste. The same degree of learning strategies is utilized in the areas of acquaintance with stylistic characteristics, musical chronology, and composer variety. Prerequisite: None.

MUS 534 Applied Music II, Violin – 1 credit hour. In the applied music courses, basic technical principles are stressed in accordance with the student's current performance ability on the violin. Strategies are chosen or designed thereafter to escalate technical competence developmentally, to maximize the student's growth and technical proficiency, musical understanding, expressive performance, and musical taste. The same degree of learning strategies is utilized in the areas of acquaintance with stylistic characteristics, musical chronology, and composer variety. Prerequisite: None.

MUS 535 Applied Music I, Viola – 1 credit hour. In the applied music courses, basic technical principles are stressed in accordance with the student's current performance ability on the viola. Strategies are chosen or designed thereafter to escalate technical competence developmentally, to maximize the student's growth and technical proficiency, musical understanding, expressive performance, and musical taste. The same degree of learning strategies is utilized in the areas of acquaintance with stylistic characteristics, musical chronology, and composer variety. Prerequisite: None.

MUS 536 Applied Music II, Viola – 1 credit hour. In the applied music courses, basic technical principles are stressed in accordance with the student's current performance ability on the viola. Strategies are chosen or designed thereafter to escalate technical competence developmentally, to maximize the student's growth and technical proficiency, musical understanding, expressive performance, and musical taste. The same degree of learning strategies is utilized in the areas of acquaintance with stylistic characteristics, musical chronology, and composer variety. Prerequisite: None.

MUS 537 Applied Music I, Cello – 1 credit hour. In the applied music courses, basic technical principles are stressed in accordance with the student's current performance ability on the cello. Strategies are chosen or designed thereafter to escalate technical competence developmentally, to maximize the student's growth and technical proficiency, musical understanding, expressive performance, and musical taste. The same degree of learning strategies is utilized in the areas of acquaintance with stylistic characteristics, musical chronology, and composer variety. Prerequisite: None.

MUS 538 Applied Music II, Cello – 1 credit hour. In the applied music courses, basic technical principles are stressed in accordance with the student's current performance ability on the cello. Strategies are chosen or designed thereafter to escalate technical competence developmentally, to maximize the student's growth and technical proficiency, musical understanding, expressive performance, and musical taste. The same degree of learning strategies is utilized in the areas of acquaintance with stylistic characteristics, musical chronology, and composer variety. Prerequisite: None.

MUS 539 Applied Music I, Double Bass – 1 credit hour. In the applied music courses, basic technical principles are stressed in accordance with the student's current performance ability on double bass. Strategies are chosen or designed thereafter to escalate technical competence developmentally, to maximize the student's growth and technical proficiency, musical understanding, expressive performance, and musical taste. The same degree of learning strategies is utilized in the areas of acquaintance with stylistic characteristics, musical chronology, and composer variety. Prerequisite: None.

MUS 540 Applied Music II, Double Bass – 1 credit hour. In the applied music courses, basic technical principles are stressed in accordance with the student's current performance ability on double bass. Strategies are chosen or designed thereafter to escalate technical competence developmentally, to maximize the student's growth and technical proficiency, musical understanding, expressive performance, and musical taste. The same degree of learning strategies is utilized in the areas of acquaintance with stylistic characteristics, musical chronology, and composer variety. Prerequisite: None.

MUS 541 Applied Music I, Piano – 1 credit hour. In the applied music courses, basic technical principles are stressed in accordance with the student’s current performance ability. Strategies are chosen or designed thereafter to escalate technical competence developmentally, to maximize the student’s growth and technical proficiency, musical understanding, expressive performance, and musical taste. The same degree of learning strategies is utilized in the areas of acquaintance with stylistic characteristics, musical chronology, and composer variety. Prerequisite: None.

MUS 542 Applied Music II, Piano – 1 credit hour. In the applied music courses, basic technical principles are stressed in accordance with the student’s current performance ability. Strategies are chosen or designed thereafter to escalate

technical competence developmentally, to maximize the student's growth and technical proficiency, musical understanding, expressive performance, and musical taste. The same degree of learning strategies is utilized in the areas of acquaintance with stylistic characteristics, musical chronology, and composer variety. Prerequisite: None.

MUS 545 Applied Music I, Flute – 1 credit hour. In the applied music courses, basic technical principles are stressed in accordance with the student's current performance ability on the flute. Strategies are chosen or designed thereafter to escalate technical competence developmentally, to maximize the student's growth and technical proficiency, musical understanding, expressive performance, and musical taste. The same degree of learning strategies is utilized in the areas of acquaintance with stylistic characteristics, musical chronology, and composer variety. Prerequisite: None.

MUS 546 Applied Music II, Flute – 1 credit hour. In the applied music courses, basic technical principles are stressed in accordance with the student's current performance ability on the flute. Strategies are chosen or designed thereafter to escalate technical competence developmentally, to maximize the student's growth and technical proficiency, musical understanding, expressive performance, and musical taste. The same degree of learning strategies is utilized in the areas of acquaintance with stylistic characteristics, musical chronology, and composer variety. Prerequisite: None.

MUS 547 Applied Music I, Oboe – 1 credit hour. In the applied music courses, basic technical principles are stressed in accordance with the student's current performance ability on the oboe. Strategies are chosen or designed thereafter to escalate technical competence developmentally, to maximize the student's growth and technical proficiency, musical understanding, expressive performance, and musical taste. The same degree of learning strategies is utilized in the areas of acquaintance with stylistic characteristics, musical chronology, and composer variety. Prerequisite: None.

MUS 548 Applied Music I, Oboe – 1 credit hour. n the applied music courses, basic technical principles are stressed in accordance with the student's current performance ability on the oboe. Strategies are chosen or designed thereafter to escalate technical competence developmentally, to maximize the student's growth and technical proficiency, musical understanding, expressive performance, and musical taste. The same degree of learning strategies is utilized in the areas of acquaintance with stylistic characteristics, musical chronology, and composer variety. Prerequisite: None.

MUS 551 Applied Music I, Voice – 1 credit hour. In the applied music courses, basic technical principles are stressed in accordance with the student's current performance ability. Strategies are chosen or designed thereafter to escalate technical competence developmentally, to maximize the student's growth and technical proficiency, musical understanding, expressive performance, and musical taste. The same degree of learning strategies is utilized in the areas of acquaintance with stylistic characteristics, musical chronology, and composer variety. Prerequisite: None.

MUS 552 Applied Music II, Voice – 1 credit hour. In the applied music courses, basic technical principles are stressed in accordance with the student's current performance ability. Strategies are chosen or designed thereafter to escalate technical competence developmentally, to maximize the student's growth and technical proficiency, musical understanding, expressive performance, and musical taste. The same degree of learning strategies is utilized in the areas of acquaintance with stylistic characteristics, musical chronology, and composer variety. Prerequisite: None.

MUS 553 Advanced Vocal Diction – 2 credit hours. A survey course dealing with the pronunciation and enunciation of English, Italian, French, German, Latin and Afro-American Dialects.

MUS 559 Applied Music I, French Horn – 1 credit hour. In the applied music courses, basic technical principles are stressed in accordance with the student's current performance ability on the french horn. Strategies are chosen or designed thereafter to escalate technical competence developmentally, to maximize the student's growth and technical proficiency, musical understanding, expressive performance, and musical taste. The same degree of learning strategies is utilized in the areas of acquaintance with stylistic characteristics, musical chronology, and composer variety. Prerequisite: None.

MUS 560 Applied Music II, French Horn – 1 credit hour. In the applied music courses, basic technical principles are stressed in accordance with the student's current performance ability on the french horn. Strategies are chosen or designed thereafter to escalate technical competence developmentally, to maximize the student's growth and technical proficiency, musical understanding, expressive performance, and musical taste. The same degree of learning strategies is utilized in the areas of acquaintance with stylistic characteristics, musical chronology, and composer variety. Prerequisite: None.

MUS 561 Applied Music I, Trumpet – 1 credit hour. In the applied music courses, basic technical principles are stressed in accordance with the student's current performance ability on the trumpet. Strategies are chosen or designed thereafter to escalate technical competence developmentally, to maximize the student's growth and technical proficiency, musical understanding, expressive performance, and musical taste. The same degree of learning strategies is utilized in the areas of acquaintance with stylistic characteristics, musical chronology, and composer variety. Prerequisite: None.

MUS 562 Applied Music I, Trumpet – 1 credit hour. In the applied music courses, basic technical principles are stressed in accordance with the student's current performance ability on the trumpet. Strategies are chosen or designed thereafter to escalate technical competence developmentally, to maximize the student's growth and technical proficiency, musical understanding, expressive performance, and musical taste. The same degree of learning strategies is utilized in the areas of acquaintance with stylistic characteristics, musical chronology, and composer variety. Prerequisite: None.

MUS 563 Advanced Brass Techniques – 2 credit hours. This course is designed to provide information on the playing and teaching of brass instruments. The student will acquire some proficiencies playing each instrument as well as advanced pedagogical skills for teaching each instrument. Prerequisite: None.

MUS 571 Applied Music I, Clarinet – 1 credit hour. In the applied music courses, basic technical principles are stressed in accordance with the student's current performance ability on the clarinet. Strategies are chosen or designed thereafter to escalate technical competence developmentally, to maximize the student's growth and technical proficiency, musical understanding, expressive performance, and musical taste. The same degree of learning strategies is utilized in the areas of acquaintance with stylistic characteristics, musical chronology, and composer variety. Prerequisite: None.

MUS 572 Applied Music II, Clarinet – 1 credit hour. In the applied music courses, basic technical principles are stressed in accordance with the student's current performance ability on the clarinet. Strategies are chosen or designed thereafter to escalate technical competence developmentally, to maximize the student's growth and technical proficiency, musical understanding, expressive performance, and musical taste. The same degree of learning strategies is utilized in the areas of acquaintance with stylistic characteristics, musical chronology, and composer variety. Prerequisite: None.

MUS 573 Advanced Woodwind Techniques – 2 credit hours. This course is designed to instruct instrumental teacher in the advanced art of playing and teaching of woodwind instruments. The student will acquire some proficiencies on each instrument as well advanced pedagogical skills for teaching each instrument. Prerequisite: None.

MUS 581 Applied Music I, Percussion – 1 credit hour. In the applied music courses, basic technical principles are stressed in accordance with the student's current performance ability on percussion. Strategies are chosen or designed thereafter to escalate technical competence developmentally, to maximize the student's growth and technical proficiency, musical understanding, expressive performance, and musical taste. The same degree of learning strategies is utilized in the areas of acquaintance with stylistic characteristics, musical chronology, and composer variety. Prerequisite: None.

MUS 582 Applied Music II, Percussion – 1 credit hour. In the applied music courses, basic technical principles are stressed in accordance with the student's current performance ability on percussion. Strategies are chosen or designed thereafter to escalate technical competence developmentally, to maximize the student's growth and technical proficiency, musical understanding, expressive performance, and musical taste. The same degree of learning strategies is utilized in the areas of acquaintance with stylistic characteristics, musical chronology, and composer variety. Prerequisite: None.

MUS 583 Applied Music I, Tuba – 1 credit hour. In the applied music courses, basic technical principles are stressed in accordance with the student's current performance ability on the tuba. Strategies are chosen or designed thereafter to escalate technical competence developmentally, to maximize the student's growth and technical proficiency, musical understanding, expressive performance, and musical taste. The same degree of learning strategies is utilized in the areas of acquaintance with stylistic characteristics, musical chronology, and composer variety. Prerequisite: None.

MUS 584 Applied Music II, Tuba – 1 credit hour. In the applied music courses, basic technical principles are stressed in accordance with the student's current performance ability on the tuba. Strategies are chosen or designed thereafter to escalate technical competence developmentally, to maximize the student's growth and technical proficiency, musical understanding, expressive performance, and musical taste. The same degree of learning strategies is utilized in the areas of acquaintance with stylistic characteristics, musical chronology, and composer variety. Prerequisite: None.

MUS 589 Applied Music I, Trombone – 1 credit hour. In the applied music courses, basic technical principles are stressed in accordance with the student's current performance ability on the trombone. Strategies are chosen or designed thereafter to escalate technical competence developmentally, to maximize the student's growth and technical proficiency, musical understanding, expressive performance, and musical taste. The same degree of learning strategies is utilized in the areas of acquaintance with stylistic characteristics, musical chronology, and composer variety. Prerequisite: None.

MUS 590 Applied Music II, Trombone – 1 credit hour. In the applied music courses, basic technical principles are stressed in accordance with the student's current performance ability on the trombone. Strategies are chosen or designed thereafter to escalate technical competence developmentally, to maximize the student's growth and technical proficiency, musical

understanding, expressive performance, and musical taste. The same degree of learning strategies is utilized in the areas of acquaintance with stylistic characteristics, musical chronology, and composer variety. Prerequisite: None.

MUS 593 Advanced String Techniques – 2 credit hours. Each of these courses is designed to instruct and strengthen instrumental teachers in performance, pedagogical skills, acoustics and literature. Prerequisite: None.

MUS 595 Internship – 5 credit hours. There are multiple internship courses based on the specific content area. This course entails one semester of full-time teaching under the immediate direction of cooperating teachers and university supervisors in the P-12 public schools. A fee for the edTPA portfolio assessment is proposed for candidates to purchase who are enrolled in the internship course (student teaching). The Alabama State Department of Education is requiring the edTPA assessment starting September 01, 2018 for teacher candidates to receive certification. The cost for the edTPA portfolio submission to Pearson is $300.00. Prerequisite: Candidates must be enrolled in the internship. Corequisite: Submit edTPA and MUS 596.

MUS 596 Graduate Seminar – 1 credit hour. This course is designed to assist candidates with preparation and submission for evaluation of edTPA Portfolios. Prerequisite: Completion of all program courses and MUS 595.

MUS 610 Survey of Music Theory – 3 credit hours. A review of harmony and concepts of form with a goal toward analysis, improving aural skills in the classroom and arranging.

MUS 611 Analytical Techniques – 3 credit hours. An intensive examination of how musical elements and concepts of sonata form are used in Classical and Romantic compositions. Prerequisite: MUS 610.

MUS 612 Analytical Techniques – 3 credit hours. An intensive examination of how musical elements and concepts of sonata form are used in Classical and Romantic compositions. Prerequisite: MUS 610.

MUS 620 Survey of Music History – 3 credit hours. A general survey of the History of music from antiquity to the present.

MUS 621 History of Musical Styles – 3 credit hours. An in-depth examination of music from 1600 to 1860. Prerequisite: MUS 620.

MUS 705 Research Methods in Music Education – 3 credit hours. An in-depth exploration of research problems and methodologies in music education. This course covers both theoretical and practical approaches, including the application of pure and action research. Students will critically analyze and evaluate existing research studies in the field of music education. Prerequisite: None.

MUS 710 Assessment in Music Education – 3 credit hours. This course offers a comprehensive foundation in the principles and practices of assessment in music education. It addresses key areas such as learning theory, assessment design, item writing, test statistics, item analysis, and rubric development. Students will apply these concepts by creating assessments tailored to their specific teaching contexts. Prerequisite: None.

MUS 720 Psychology of Music – 3 credit hours. This course offers a comprehensive exploration of key areas in music psychology. Students will delve into topics including acoustics, psychoacoustics, and the science of hearing and perception music cognition, emotional and physiological responses to music, the interplay between music and the brain, psychology of music learning, and the roles of music in anthropology and sociology. Prerequisite: None.

MUS 730 Philosophy of Music Education – 3 credit hours. This course explores the contributions of key philosophers to art, aesthetics, and music, featuring thinkers such as Plato, Aristotle, Boethius, Kant, Schiller, Hegel, Schopenhauer, Hanslick, Meyer, Langer, Goodman, Clifton, Adorno, and others. Emphasis is placed on helping students develop and articulate their own personal philosophies through both written and oral expressions. Prerequisite: None.

MUS 740 Teaching Music in Higher Education – 3 credit hours. This course prepares students for careers in post-secondary education by covering essential topics such as learning theories, curriculum development, assessment, music technology, AI, and instructional materials for teaching music at the collegiate level. Additionally, it provides guidance on preparing effective job application materials, including resumes, cover letters, and teaching statements, to help students successfully navigate the academic job market. Prerequisite: None.

MUS 750 Pedagogical Conducting – 3 credit hours. This course focuses on advanced conducting techniques, including baton control, score reading, rehearsal strategies, score analysis, repertoire selection, programming, and interpretative skills. Prerequisite: None.

MUS 760 Pedagogy of Music Theory – 3 credit hours. This course provides an in-depth introduction to the specialized field of teaching music theory. Students will explore recent debates, current scholarship, and online resources to gain a comprehensive understanding of pedagogy for music theory and aural skills training. The course emphasizes best practices for presenting these topics in classroom setting. With a strong focus on professional development, it equips students with the skills and knowledge needed for effective secondary-level and college-level teaching. Prerequisite: None.

MUS 795 Directed Study in Music – 3 credit hours. This course offers students the chance to undertake an independent project in music education, guiding them through the process of designing, executing, and producing a final deliverable. To start, students complete a proposal form in consultation with the coordinator who then assigns a faculty supervisor. The proposal requires approval from the faculty supervisor, coordinator, and chair. Students carry out their directed study projects independently, with regular meetings with their faculty supervisor and exchanges of drafts and materials via email. Each directed study project culminates in a deliverable tailored to the nature of the project. Possible deliverables include, but are not limited to: curriculum documents, websites, research papers, position papers. Prerequisite: None.

Nutrition & Hospitality Management

NHM 501 Advanced Maternal and Child Nutrition – 3 credit hours. A study of the nutritional requirements in relation to the biological and physical changes during pregnancy, lactation and infancy through adolescence. Emphasis will be placed on the analysis and application of dietary standards relative to each population group and survey of the latest research.

NHM 502 Advanced Quantity Foods – 3 credit hours. (Practicum Included.) A study of various quantity food system operations in relation to food purchasing, storage, preparation and service. Experience is gained in quantity food preparation and use of institutional food service equipment through a quantity food laboratory and practicum assignments.

NHM 503 Experimental Foods – 3 credit hours. Experimental studies of the effects of variation of ingredients and preparation treatments on the quality characteristics of food.

NHM 504 Breastfeeding and Human Lactation – 3 credit hours. A comprehensive review of the theoretical background and the clinical management of breastfeeding and human lactation.

NHM 505 Contemporary Problems in the Hospitality Industry – 3 credit hours. Consideration and analysis of relevant industry problems and issues facing management personnel in the hospitality industries.

NHM 511 Nutrition Education Program Planning and Implementation –3 credit hours. The development and implementation of nutrition education programs for grades K-12. Students will gain experience in developing program objectives, learning strategies, teaching materials and resource files for a nutrition education program.

NHM 530 Special Problems – 1-3 credit hours. An investigation of problems in nutrition or on issues and problems related to food and/or nutrition and family well-being.

NHM 548 Food and Nutrition Workshop – 3 credit hours. Topics will vary. Selected phases of food, nutrition and institutional management will be addressed focusing on current trends and issues in the area.

NHM 610 Current Trends in Food and Nutrition – 3 credit hours. Critical evaluation of research in food and nutrition.

NHM 612 Adolescent and Geriatric Nutrition – 3 credit hours. Nutritional problems of adolescents and aging individuals, nutritional requirements and dietary requirements of these age groups. The effect of nutrition on the developmental processes of adolescents and the rate of biological aging.

Natural Resources & Environmental Sciences

NRE 501 Floral and Garden Center Management – 3 credit hours. Management of garden centers, including financing, selection of a location, design of the facilities, greenhouse construction, selection of plant materials, personnel management, marketing, and maintenance of plant materials. Principles and practices of establishment and management of a retail flower shop. Prerequisite: NRE 101 or instructor consent.

NRE 503 Techniques for Land Judging – 3 credit hours. Fundamental principles of soil science as related to land, differences in soils and their capabilities, methods of soil conservation and improvement, treatments to improve productivity and selection of suitable home sites.

NRE 506 Soil Microbiology – 4 credit hours. A study of the properties and classes of microorganisms as related to soil and crop production. Effects of microorganisms on the fertility, and chemical and physical properties of soil. Prerequisite: BIO 101, BIO 102, BIO 330.

NRE 510 Forage Management – 3 credit hours. A study of the soil-plant-animal complex as it relates to the morphology, physiology and utilization of forages. Emphasis will be on agronomic practices and physiological considerations in forage management in Alabama. Prerequisite: NRE 101 or (BIO 203, BIO 204).

NRE 511 Weed Science and Herbicide Technology – 3 credit hours. Phenology of weeds, habitat management by cultural, mechanical, biological and chemical means, dissipation and phytotoxicity of herbicides. Application and physiological relationships of herbicides and recent advances in weed control problems. Prerequisite: NRE 101 or (BIO 204, BIO 204L).

NRE 514 Crop Production Technology – 3 credit hours. Emphasis on techniques for different soil, climate, moisture, and temperature requirements for successful crop production. Prerequisite: NRE 101, NRE 310.

NRE 515 Seed Biology – 4 credit hours. Biological and physiological aspects of seed development, maturation, longevity, dormancy, storability, invigoration treatments, and process of germination in agriculture (crop, vegetable, and tree seeds will be emphasized). Prerequisite: NRE 440 and instructor consent.

NRE 517 Sustainable Crop Production – 3 credit hours. Principles of sustainable agriculture with modern crop production practices, management of biological, physical, and human resources to optimize field crop production in a sustainable and cost-effective manner. Emerging biotechnologies, precision agriculture, etc. are highlighted. Prerequisite: None.

NRE 521 Plant Propagation – 3 credit hours. Principles, processes, methods and materials involved in sexual and asexual propagation of plants. Prerequisite: NRE 101 or instructor consent.

NRE 522 Landscape Design and Construction – 4 credit hours. Advanced landscape design, including finished drawings, selection and arrangement of plants, design of construction features, preparation of bills of materials, and cost estimates. Prerequisite: NRE 423.

NRE 523 Ornamentals I – Trees and Shrubs – 3 credit hours. Type, characteristics, adaptation, maintenance, and functional uses of ornamental plants used in landscape design with a special emphasis on trees, shrubs, vines and groundcovers. Prerequisite: NRE 101 or instructor consent.

NRE 524 Horticulture Marketing and Management – 3 credit hours. An analysis of produce marketing, pricing, postharvest handling, supply and demand, and marketing crops through produce outlets and differing management and scenarios. Resource "game playing." Prerequisite: instructor consent.

NRE 525 Lawn and Turf Management – 3hrs. Methods and principles of establishing and maintaining residential lawns as well as special-purpose turf grasses for commercial landscapes, golf courses or athletic fields, including weed and pest control.

NRE 527 Ornamentals II – Flowers and Foliage Plants – 3 credit hours. Identification, culture, and use of herbaceous annuals and perennials, bulbs, herbs and ornamental grasses. Flower bed and border preparation and maintenance; selection, installation, and care of tropical foliage plants in interior settings; use of light, plant acclimatization, growing media, fertilizers, containers, and pest control. Prerequisite: NRE 101 or instructor consent.

NRE 528 Fruit and Vegetable Production – 3 credit hours. Commercial fruit and vegetable culture, including site selection and preparation, classes of vegetables, species of fruits, establishment, pest control, and harvesting are emphasized. Prerequisite: NRE 101 or instructor consent.

NRE 531 Principles of Plant Breeding – 3 credit hours. Principles, methods and techniques involved in plant breeding and its application to field crops. Prerequisite: BIO 203, BIO 204, BIO 311.

NRE 532 Plant Disease Diagnosis – 4 credit hours. General principles and methods in identification, epidemiology, etiology and control of major plant diseases. Prerequisite: instructor consent.

NRE 533 Introduction to Molecular Genetics – 3 credit hours. Prokaryotic DNA structure and replication, restriction analysis, sequencing, transcription, translation, gene regulation, and gene expression. Co-requisite: must be taken with NRE 533L Prerequisite: At least one course each in biology and genetics or instructor consent.

NRE 533L Introduction to Molecular Genetics Laboratory – 1 credit hour. Basic techniques used in molecular genetics and provides a step-by-step approach and hands-on experience in the field of recombinant DNA technology. Co-requisite: NRE 533.

NRE 534 Cytogenetics – 4 credit hours. Chromosome structure, mechanics and behavior, their significance for problems of genetics, evolution and the origin of species. Emphasizing inter- and intrachromosomal aberrations and heteroploidy. Prerequisite: A course in genetics.

NRE 535 (CS 535) Introduction to Bioinformatics – 4 credit hours. An interdisciplinary course melding information from molecular biology and computer/information sciences. Structure and function of proteins and nucleic acids, retrieval and interpretation of bioinformation, algorithms and software use for sequence alignment, similarity searching of nucleic acid/protein sequence databases, and exposure to JAVA and PERL.

NRE 537 Plant Tissue Culture Methods and Applications – 3 credit hours. Application of tissue culture techniques for the improvement of economic plants; hands-on laboratory procedures will be emphasized. Prerequisite: CHE 102, BIO 204 and instructor consent.

NRE 538 Plant Genetics – 2 credit hours. Both qualitative and quantitative gene actions are considered. Methods of testing hypotheses, chromosome mapping, selection procedures, gain from selection procedures, measuring heritability and other factors are covered. Prerequisite: A course in genetics.

NRE 540 Seed Production Practices – 4 credit hours. Principles and practices in the production of pure seeds, with emphasis on harvesting, drying and storage, crop and weed seed identification and laboratory practices in seed testing, official rules for testing seeds, and seed laws for marketing. Prerequisite: NRE 101 or NRE 310.

NRE 541 Phytophysiology – 4 credit hours. A study of the environment-plant growth interaction in the physiology of plants with emphasis on whole plant processes. Prerequisite: NRE 101.

NRE 545 Bioinformatics Applications – 3 credit hours. Analysis of genomic data, high-throughput sequencing, functional genomics, and proteomics. Emphasizes mastering of various tools for analyzing DNA, RNA, and protein data, understanding of underlying algorithms, and their application to biological problems.

NRE 550 (NRE 450) Earth Science – 3 credit hours. Overview of earth science concepts, processes, and categories, with emphasis on plate tectonics, volcanism, weathering and erosion, global weather and climate, vegetation, and soil. Emphasis is placed on human interactions and relationships with the physical environment and resulting public policy and management conflicts, and strategies. Prerequisite: None.

NRE 551 (NRE 451) Environmental Toxicology – 3 credit hours. Toxic effects of environmental chemicals on living systems, the chemical and biological characteristics of major pollutants, their origins and uses, and the exposure, transformation and elimination of toxic substances by biological systems. Prerequisite: (CHE 102, CHE 302) or instructor consent.

NRE 552 (NRE 452) Soil Fertility and Fertilizers – 3 credit hours. Relationship of soil chemistry, forms of nutrients in soils and role of plant nutrients in crop production, and other factors associated with soil productivity, basic concepts of fertilizer application and manufacturing. Prerequisite: CHE 102 and NRE 251.

NRE 553 (NRE 453) Hazardous Waste Management – 3 credit hours. The impact, technologies, problems and issues associated with hazardous wastes and management practices. Case studies of hazardous waste spills, risk assessments, and remediation techniques. Prerequisite: instructor consent.

NRE 554 Tropical Soils – 3 credit hours. Study of the morphology, and the physical, chemical and fertility characteristics of tropical soils, indicating their differences from temperate region soils and which management system is best suited for them. Prerequisite: None.

NRE 555 Micronutrients in Plant Soil Systems – 3 credit hours. Composition and properties of micronutrients in soil in relation to the nutrition and growth of plants. Prerequisite: NRE 452.

NRE 556 Soil Clay Mineralogy – 3 credit hours. A study of the mineral composition, crystal structure and properties of clay-size minerals of soils and clay deposits. The origin, geological significance, structure and chemistry of clay minerals; techniques of identification and characterization of common clay and clay-size minerals. Prerequisite: NRE 251 and NRE 350.

NRE 560 (NRE 460) Soil Chemistry – 3 credit hours. Chemical and mineralogical composition of soils, fundamental chemical properties of soils, soil colloids, exchange phenomena in soils, and soil reactions. Prerequisite: CHE 102 and NRE 251.

NRE 561 (NRE 461) Soil Physics – 4 credit hours. Study of physical make-up and properties of soil, including structure, thermal relationship, consistency, plasticity, water, and how they are related. Prerequisite: PHY 103 and NRE 251.

NRE 562 Plant Pathology Techniques – 4 credit hours. General principles and methods of isolation, culture and inoculation of plant pathogens (bacteria, fungi, nematodes, and plant viruses). Prerequisite: NRE 101 or BIO 204.

NRE 563 Plant Nutrition and Water Relations – 3 credit hours. Mineral nutrition, function and metabolism, ion and water relations, translocation in vascular plants, and physiological responses to biotic stresses. Photosynthesis, respiration, and other aspects of plant metabolism are covered Prerequisite: NRE 101, NRE 251.

NRE 564 Plant Growth and Development – 3 credit hours. A study of recent developments related to growth regulation and plant development as influenced by auxins, gibberellins, cytokines, ethylene, inhibitors, and environmental factors. Prerequisite: NRE 441.

NRE 565 (NRE 465) Applications of Geostatistics – 3 credit hours. Concepts and methods to describe and analyze environmental data. Use of geostatistical models in sampling experimental design, mapping contaminant concentration, risk analysis, remediation, planning and probability analyses. Conceptual development of relationships between theory, research and action in managing natural resources. Prerequisite: MTH 112, MTH 113, (NRE 430 or equivalent).

NRE 567 Plant Virology – 3 credit hours. Principles and methods of detection, isolation, chemical constitution, replication, transmission, and control of plant viruses. Prerequisite: NRE 432 or NRE 562.

NRE 568 Allelopathy – 3 credit hours. Introduction to terminology, history of allelopathy and examples from various fields of agriculture and plant biology. Roles of allelopathic compounds, their chemical nature, movement, absorption and translocation by other plants and their effectiveness. Prerequisite: None.

NRE 570 (NRE 470) Soil, Plant and Water Analysis – 4 credit hours. Principles and application of chemical and instrumental methods in the analysis of soil, plant, and water samples; experimental and descriptive inorganic and organic analyses; spectrophotometry, atomic and molecular absorption and emission spectroscopy, mass spectrometry, X-ray diffraction and fluorescence, gas and ion chromatography, and ion-selective electrodes (CHE 102, CHE 202, NRE 251.

NRE 571 (NRE 471) Aerial Photo-Interpretation – 3 credit hours. Detection, identification, and analysis of objects or features from aerial photographs. Sensing devices and other equipment related to photogrammetry application. Interpretation of terrain, vegetation, and cultural features. Prerequisite: instructor consent.

NRE 572 (NRE 472) Soil, Water and Air Pollution – 3 credit hours. Fate of chemical fertilizers, pesticides, and other agricultural and industrial pollutants in relation to environmental quality. Effects of these factors on checks and balances of natural terrestrial and aquatic ecosystems. Prerequisite: CHE 102, NRE 251.

NRE 573 Air Pollution: Theory and Techniques – 3 credit hours. Source, fate, interaction of gaseous and suspended pollutants, biological implications, analytical methods. Prerequisite: None

NRE 574 (NRE 774) Quantitative Approaches in Remote Sensing – 3 credit hours. A "hands-on" approach with computer analysis or remotely sensed data, software design, classification algorithms, and image pre-processing overlay and enhancement. Theory and concepts of field instrumentation will be demonstrated and discussed. Prerequisite: NRE 476.

NRE 575 (NRE 475) Principles of Wetlands – 3 credit hours. Wetlands as important environments, their importance to surface and ground water quality and to aquatic and terrestrial wildlife; use of constructed wetlands in waste treatment applications, and principles of wetland delineation. Prerequisite: instructor consent.

NRE 576 (NRE 476) Remote Sensing of the Environment I – 4 credit hours. The principles of remote sensor systems and their utility, natural resource inventory and management, land use planning and environmental monitoring. Interpretation of color infrared photos, multispectral and thermal scanners, and radar imagery. Prerequisite: instructor consent.

NRE 577 (NRE 477) Insect Biology and Pest Management – 3 credit hours. Biology of insects, emphasizing taxonomy, basic structure and function, ecology and the management of insect pest populations. The course includes a weekly three-hour laboratory for developing skills in identification and collection of insects. Prerequisite: instructor consent.

NRE 578 (NRE 478) GIS, Spatial Analysis and Modeling – 4 credit hours. Provides theoretical and practical skills needed for using GIS for analyzing spatial phenomena at different scales. Focuses on principles and methods of spatial analysis and their application to different disciplines such as urban planning, environmental science, and natural resource management. Prepares students for advanced GIS course. None.

NRE 580 (NRE 480) Natural Resource Policy – 3 credit hours. Evaluation of land and forest problems and policies in the United States; analysis of current social and resource characteristics that have shaped policy Prerequisite: instructor consent.

NRE 581 (NRE 481) Hydrology & Watershed Management – 3 credit hours. Occurrence and movement of water over the earth's surface. The hydrologic cycle, runoff relations, relationship of precipitation to stream flow with frequency analysis, unit hydrograph theory, flood routing, and probability in hydrology, hydrologic simulation and stochastic methods in hydrology. Prerequisite: instructor consent.

NRE 582 Forest Tree Improvement – 3 credit hours. Practical problems, concepts and techniques to genetic improvement of forest trees Prerequisite: instructor consent.

NRE 583 (NRE 483) Forest Resource Economics – 3 credit hours. Discussion of the market, price, and cost affecting factors as they relate to timber harvesting techniques for determining the best economic alternative Prerequisite: instructor consent.

NRE 584 (NRE 484) Ecological Processes – 3 credit hours. Review of ecological concepts and processes. Investigations into the ecological role of fire and wetlands. Prerequisite: NRE 374 or instructor consent.

NRE 588 Wildlife Techniques – 3 credit hours. Introduces students to a broad range of methods and equipment used by wildlife professionals to gather information on wild animals and their habitats.

NRE 591 Graduate Seminar – 1 credit hour. Prerequisite: instructor consent.

NRE 593 Global Perspectives in Agriculture, Biological Sciences and Environment: International Exchange & Study Abroad – 1-12 credit hours. A study abroad program. Students will register at AAMU, but actually take a load equivalent to the credit hours at one of the cooperating international institutions. Travel and additional fees required.

NRE 594 (NRE 494) Irrigation Drainage – 4 credit hours. Students will learn designing and construction of irrigation and drainage structures. This course integrates soil and water physics; irrigation development; crop water requirements & scheduling; irrigation planning and design; drainage criteria; design discharges; surface/sub-surface drainage systems design; irrigation drainage structures; land grading and excavation; lab and field exercises and measurements. Prerequisite: For NRES students - NRE 351. For Civil Engineering students - (EGC 305; CE 305) or instructor consent.

NRE 600 Techniques for Teaching Horticulture in K-12 – 3 credit hours. Provides horticultural education as a supplement to general science and botany. Experiences with ornamentals, floriculture, fruits, vegetables and soil to improve understanding of nature and horticulture.

NRE 602 Scientific Writing in Biological Sciences – 3 credit hours. Preparation of scientific evidence for the thesis or dissertation or for publication in scientific journals, parts of the scientific paper, graphical and tabular presentation of data, sources of funding to support research, writing research grants, the editorial process, elements of style, and ethics. Prerequisite: ENG 304.

NRE 605 Instrumental Techniques for Plant and Soil Science – 3 credit hours (1 clock hour lecture and 4 clock hour lab period per week). The principles and practice of atomic absorption spectrophotometry, Kjeldahl digestion, gas chromatography, amino acid analysis, electrophoretic separation techniques, inductive couple plasma mass-spectroscopy (ICPMS), inductive couple plasma (ICP), ion chromatography (IC), scanning electron microscopy, thermocouple psychrometry, porometry, and immunoassay. Prerequisite: instructor consent.

NRE 612 Field Research Techniques in Agronomy – 2 credit hours. Principles of field plot research, Hypothesis and treatments, procedures in large/small plot experimentation, such as laying out of experiments, size and shape of plots, border effects, selection of valid error term, parameters, technique of data collection, their summarization and publication of results or research paper. Prerequisite: instructor consent.

NRE 620 Vegetable Crop Production – 3 credit hours. Commercial vegetable production with emphasis on beans, peas, cole, root, bulb, tuber, salad crops, potherbs, and greens. Prerequisite: BIO 204 or NRE 101.

NRE 629 Biostatistics – 4 hrs. For biology and agriculture related majors, emphasizes the application of statistical ideas and methods to the experimental and comparative studies by addressing descriptive statistics, probabilities, statistical inference, hypothesis testing and related errors, power and sample size, applications of statistical tests (e.g., chi-square, analysis of variance, regression, correlation, and nonparametric approaches), statistical assumptions, and statistical software applications. Prerequisite: MTH 112 or higher level.

NRE 630 Principles of Experimentation – 4 hrs. Introduction of experimental designs used in biology and agriculture related fields, emphasizing error variance minimization and estimation, bias avoidance, confounding control, temporal and spatial dimensions, qualitative and quantitative variables, restrictions on randomization, nesting, fixed and random factors, and mixed models. Applications of related statistical software are included. Prerequisite: NRE 629.

NRE 636 Regression Analysis – 3 credit hours. Analysis and interpretation of linear, multiple and polynomial regression models using standard computer programs. Correlation, stepwise methods, and use of dummy variables included. Emphasis on application and use of analysis. Prerequisite: NRE 629 or equivalent.

NRE 639 Applied Data Analysis with Computer Programs – 3 credit hours. Applied data analysis using various software such as SAS, SPSS, and R. Data entry, data manipulation, descriptive statistics, graphic plots, implementation of common statistical tests, and interpretations of outputs from software programs. Prerequisite: NRE 430 or NRE 629.

NRE 686 Ecological Restoration of Hardwood Forest Ecosystems – 3 credit hours. Introduces students to broad range of methods and equipment used by wildlife professionals to gather information on wild animals and their habitats.

NRE 687 Landscape Ecology – 3 credit hours. Study of ecological science with emphasis on interactions between spatial patterns and ecological processes characterized by spatial explicitness and scale multiplicity. Provides integrative theoretical basis, technical tools, and applications for land management.

NRE 689 Forest Ecological Management – 3 credit hours. Integrated management of forest resources including plant, site, and landscape processes. Interrelationships of forestry practices, wildlife and range management, hydrology, recreation, and other demands. Prerequisite: NRE 373 or instructor consent.

NRE 690 Advanced Topics in Soil and Plant Science – 1-3 credit hours. Independent research on current advanced topics of interest in the area of soil and plant science. Topics to be selected by the student and work performed under supervision of a faculty member. Prerequisite: Graduate standing and instructor consent.

NRE 698 Master's Report – 4 credit hours. A literature review, survey or a report of experimentation. A requirement for all non-thesis majors.

NRE 699 Master's Thesis – 1-6 credit hours. Research work towards completing the thesis requirements for M.S. in Plant and Soil Science.

NRE 701 Applied Forest Ecology – 3 credit hours. Ecological and silvicultural foundations for conservation and sustainable use of forest resources, enhancement of wildlife habitat, water and soil protection, and increase recreational value of forest ecosystems ith emphasis on upland, hardwood forest ecosystems.

NRE 710 Plant Ecology – 3 credit hours. Physical and biotic environment of crops in relation to crop culture, production, and geographic distribution, relation among the human population, crop productivity, and the environment. Prerequisite: NRE 251, NRE 310.

NRE 715 Seed Biology – 4 credit hours. Biological and physiological aspects of seed development, maturation, longevity, dormancy, storability, invigoration treatments, and process of germination in agriculture (crop, vegetable, and tree seeds will be emphasized). Prerequisite: NRE 440 or instructor consent.

NRE 716 Modeling Natural Resources Management – 3 credit hours. This course is designed to use computer models in managing natural resources. Experience in model development and validation will be provided Prerequisite: instructor consent.

NRE 724 Horticulture Marketing and Management – 3 credit hours. An analysis of produce marketing, pricing, postharvest handling, supply and demand, and marketing crops through produce outlets and differing management and scenarios. Resource "game playing." Prerequisite: instructor consent.

NRE 725 Stress Physiology of Crops – 3 credit hours. Responses of plants to environmental stresses including drought, heat, cold, chilling, biotic and mechanical stress. The mechanism for adaptation or tolerance to these stresses, the metabolic and hormonal responses to onset of stress. Prerequisite: NRE 541.

NRE 730 Applied Multivariate Analysis – 3 credit hours. Use of MANOVAs, canonical correlation, discriminate analysis, principal component analysis, and factor analysis. Emphasis on applications and interpretation of computer outputs. Prerequisite: NRE 629, NRE 630.

NRE 731 Advances in Ecological Research – 3 credit hours. Further develop graduate student's knowledge, critical thinking, and research skills in forest ecology. The course emphasizes scientific approaches, review of current issues and developments in ecological research.

NRE 733L Advanced Molecular Genetics Laboratory – 2 credit hours. Recombinant DNA technology, DNA and mRNA isolation, Genomic and cDNA cloning, physical analysis of recombinants, DNA sequencing, oligonucleotide synthesis and design. Prerequisite: NRE 533, NRE 533L, NRE 663.

NRE 734 Cytogenetics – 4 credit hours. Chromosome structure, mechanics and behavior, their significance for problems of genetics, evolution and the origin of species. Emphasizing inter- and intra-chromosomal aberrations and heteroploidy. Prerequisite: A course in genetics.

NRE 735 Advanced Soil Classification – 3 credit hours. Principles of the comprehensive system of soil classification and other classification systems, advanced study of soil formation, soil characterization and methods of studying soil genesis. Prerequisite: NRE 350.

NRE 738 Plant Genetics – 2 credit hours. Both qualitative and quantitative gene actions are considered. Methods of testing hypotheses, chromosome mapping, selection procedures, gain from selection procedures, measuring heritability and other factors are covered. Prerequisite: A course in genetics.

NRE 750 Advanced Soil Chemistry – 4 credit hours. Surface chemical reactions of colloidal particles in the soil such as the adsorption phenomenon, zeta potential and surface charge. Thermodynamics of soil reactions, action exchange reactions, and clay organic complexes and interactions. A one credit hour lab included. Prerequisite: NRE 460, CHE 401, CHE 402.

NRE 744 Genomics – 3 credit hours. "Genomics" emerged due to advances in genetics and sequencing technology. This course will focus on the basics and recent developments in structural, functional, and comparative genomics. It will also cover transcriptomics, proteomics, metagenomics, and systems biology, using examples from the three domains of life. Prerequisite: Instructor consent.

NRE 751 Advanced Soil Physics – 4 credit hours. A mathematical study of the physical properties of the soil, to water flow in both saturated and unsaturated soil, soil temperature and heat flow, internal drainage and water redistribution, solute transport and their effects on water uptake by plants. A one credit hour laboratory included. Prerequisite: instructor consent.

NRE 763 Advanced Molecular Genetics – 3 credit hours. Molecular cloning by recombinant DNA, restriction enzyme and mapping, isolation of recombinant clones, isolation of MRNA from eukaryotes, synthesis of CDNA oligonucleotide site directed mutagenesis, and state of the art DNA sequencing. Prerequisite: instructor consent.

NRE 767 Plant Virology – 3 credit hours. Principles and methods of detection, isolation, chemical constitution, replication, transmission, and control of plant viruses. Prerequisite: NRE 432 or NRE 562.

NRE 774 (NRE 574) Quantitative Approaches in Remote Sensing – 3 credit hours. A "hands-on" approach with computer analysis of remotely sensed data, software design, classification algorithms, and image pre-processing overlay and enhancement. Theory and application of field instrumentation. Prerequisite: NRE 476.

NRE 775 Advanced Principles of Geographic Information Systems – 4 credit hours. GIS applications in environmental and natural resource inventories and analyses; major components of GIS; raster and vector data structures; modules for data input,

verification, storage and output; digital terrain models; spatial analysis and modeling. Prerequisite: (CS 409, URP 526) or their equivalent.

NRE 778 Remote Sensing of the Environment II – 3 credit hours. Remote sensing of the environment and microwave remote sensing using active and passive sensors. Data analysis and interpretation of the electromagnetic response of the radiometers and radars. Concepts of microwave brightness temperature from passive systems, radar backscatter and emission models. Prerequisite: NRE 476, NRE 576.

NRE 779 Advanced Environmental Geostatistics – 3 credit hours. Application of geostatistics to environmental problems. Methods for determining number of environmental samples and their distribution. Extensive use of the U.S. Environmental Protection GEO-EAS and GEOPACK software for variogram analysis and Kriging. Prerequisite: MTH 170, NRE 465, NRE 629, NRE 565.

NRE 781 Advanced Hydrology – 4 credit hours. Study of physical hydrological processes and interactions among hydrology, ecology, biogeochemistry, and human activities. Provides a hands-on experience in various aspects of professional and research hydrology.

NRE 793 Global Perspectives in Agriculture, Biological Sciences and Environment: International Exchange & Study Abroad – 1-12 credit hours. A study abroad program. Students will register at AAMU, but actually take a load equivalent to the credit hours at one of the cooperating international institutions. Travel and additional fees required.

NRE 798 Teaching Experience for Doctoral Students – 2 hrs. This course is designed to provide experiential learning in teaching for Ph.D. students. Ph.D. students will assist teaching faculty in teaching courses, preparing lectures, and show proficiency in utilizing teaching aids and developing innovative means of teaching science subjects. The students gain one semester of teaching experience in the subject of their specialization. Prerequisite: NRE 602, NRE 591.

NRE 799 Doctoral Dissertation – 1-6 credit hours. Individual research work towards completing the dissertation requirements for the Ph.D. in Plant and Soil Science.

Public Administration

PAD 500 Seminar in Public Administration – 3 credit hours. The historical and political context of public administration; politics and economics of public bureaucracy; managing governmental organizations; public finance and the national economy; values, ethic, and public interest; the interface between public administrators and citizens. Prerequisite: None.

PAD 501 Research Methods in Public Administration – 3 credit hours. Examines various methods for designing and conducting interpretive (qualitative) and positivistic (quantitative) research for organizational improvements, policy research and decision making in the public sector. Various modes of data-gathering and analysis are discussed and the logic underlying the methods explored. Prerequisite: None.

PAD 502 Organizational Theory and Behavior – 3 credit hours. A review of classical and emerging theoretical perspectives on human organizations and critically analyzes emerging domestic and global ideas and issues shaping and being shaped by the public sector. Prerequisite: None.

PAD 503 Public Budgeting & Finance – 3 credit hours. Comprehensive theoretical underpinning for research. Focuses on models associated with descriptive and prescriptive budgeting and finance research. Prerequisite: None.

PAD 510 Strategic Planning and Management – 3 credit hours. Presents the strategic planning process as it is utilized in contemporary settings. Focuses on how the strategic planning process is applied in the public and non-profit sectors. Prerequisite: None.

PAD 511 Public Policy Formulation and Analysis – 3 credit hours. Developing strategies and tactics for identifying and solving implementation problems. Implementation as a design, evaluative, and learning process. Analysis of implementation case studies. Prerequisite: None.

PAD 512 Social Justice & Equity – 3 credit hours. A study involving a structured approach to full and equal participation of all groups in society that is shaped to enhance disparity, engagement and productivity while visioning and reimagining the equitable distribution of resources for societal growth and community development. Prerequisite: None.

PAD 513 Human Resource Management – 3 credit hours. Examines the major concepts, theories, procedures and themes needed for effective management of human resources in the public and non-profit sectors. Topics include merit and civil service

systems, organized public labor, recruitment, classification, performance appraisal, disciplinary and grievance procedures, training and staff development, diversity and anti-discrimination policy and strategies, ethics/morality and personnel law. Prerequisite: None.

PAD 514 Ethics and Administrative Responsibility – 3 credit hours. Ethical dimensions of the public service; value dilemmas, administrative ethics and accountability, responsibility in making public choices, whistleblowing, the public interest; equality and equity in democracy. Prerequisite: None.

PAD 515 Leadership in Organizations – 3 credit hours. Focuses on leadership as a strategic tool as well as an individual competence, i.e., what leadership means, is, and does. Examines critical strategic functions encountered at both the organizational and individual levels. Prerequisite: None.

PAD 516 Introduction to Emergency Management – 3 credit hours. The study of the strategies for managing disasters including the organization of the resources and responsibilities needed to prepare for emergencies, response, mitigation and recovery. Prerequisite: None.

PAD 517 Organizational Planning and Response – 3 credit hours. Focuses on examining the action plan and positioning the organization for success based upon a set of clearly defined goals and creating task and performance standards to meet the goals. The students will lean the four pillars of planning, strategic, tactical, operational and contingency and how these pillars are utilized in a project management environment to respond to environmental and global disasters. Prerequisite: None.

PAD 518 Emergency Management Law – 3 credit hours. Understanding the foundation of emergency management law and the relationship of the law to the three branches of the United States government. The course will use the case study approach in solving problems related to tort law, especially in the areas of negligence and liabilities. Prerequisite: None.

PAD 519 Risk, Crisis and Inter-Agency Communication – 3 credit hours. An understanding of how interagency communication, consequence management and collaboration is essential in facilitating an event, alert dissemination and rapid response. It will also examine the strategies for addressing emergencies and other environmental and health related Crisis. Prerequisite: None.

PAD 520 Emergency Management Leadership – 3 credit hours. An understanding of crisis management, contingency and consequential leadership and the development of skills necessary for leading in crisis situations. The study will also involve an understanding of leadership styles and how each style is useful depending on the emergency situation. Prerequisite: None.

PAD 521 Global Disaster Response and Recovery – 3 credit hours. This study will involve an understanding of international law, the role of the United Nations in disaster response and recovery. The course will also examine the role of NGOs such as the international Red Cross, the UN International Recovery platform, the Law of the sea, the WHO, UNDP, ILO and the World Bank and others, their successes and failures and the best international practices for disaster response and recovery. Prerequisite: None.

PAD 522 Administration of Criminal Justice – 3 credit hours. Criminal justice encompasses many roles and responsibilities, including responding to victims, punishing or rehabilitating criminals, and developing laws and policies. To carry out these tasks effectively and responsibly, taking into account current trends and ethical considerations, criminal justice professionals need to understand underlying factors, such as the root causes of crime and the impact of crime on communities. Students will learn the best leadership approaches for the effective administration of criminal justice programs. Prerequisite: None.

PAD 523 Comparative Criminal Justice System – 3 credit hours. The students will learn the various approaches that political units utilize in an attempt to maintain social order. The focus here will be on the policies, practices, institutions agencies and people responsible for identifying, prosecuting, adjudicating and punishing criminal law violators. Prerequisite: None.

PAD 524 Community Development and Restorative Justice – 3 credit hours. Examines the impact and consequences of Crime and actions necessary to repair the injury caused by crime. Examines developmental efforts at the community level in the United States; relates community development to community organization and examines current efforts, especially those based on the concept of self-help, to generate and implement community develop programs to assist in abating recidivism and enhance self-sufficiency for past offenders and their re-entry into society. Prerequisite: None.

PAD 525 Juvenile Justice and Youth Violence – 3 credit hours. The course will review the broad area of juvenile law and the role of law enforcement agencies the courts in adjudicating juvenile offenses. It will also assess the foundational and historical issues related to youth violence and juvenile delinquency and examine specific issues such as, violence and juvenile offenders, recidivisms, institutional violence, risk assessment, psychopathy, self-control and gang membership and what strategies have been effective in managing the situation. Prerequisite: None.

PAD 526 Special Topics in Criminal Justice – 3 credit hours. This course is designed to address substantive topics, problems and issues not covered in other courses but are important to the contemporary study and understanding of criminal justice and the professional development of graduate students. Prerequisite: None.

PAD 527 Public Policy Research in Criminal Justice – 3 credit hours. Since its inception, the Department of Homeland Security has profoundly impacted public policy and administration. Students in this course examine homeland security history, concepts, policies, and strategies of prevention and response. Topics include ethical issues, telecommunications, technology, threat assessment, contingency planning, and risk management. Students apply fundamental concepts and principles of homeland security to case studies and current issues. Prerequisite: None.

PAD 528 Seminar in Homeland Security – 3 credit hours. Since its inception, the Department of Homeland Security has profoundly impacted public policy and administration. Students in this course examine homeland security history, concepts, policies, and strategies of prevention and response. Topics include ethical issues, telecommunications, technology, threat assessment, contingency planning, and risk management. Students apply fundamental concepts and principles of homeland security to case studies and current issues. Prerequisite: None.

PAD 529 Emergency Preparedness and Response – 3 credit hours. Preparedness, risk assessment, and mitigation are key components to effective emergency management and all-hazard planning and response. Students in this course focus on the methods and techniques required to assess an organization or government's risk associated with the protection of human life and capital assets. They study ways to evaluate the social vulnerabilities to disaster and the special needs of at-risk populations, and they explore methods to reduce vulnerabilities and build capacity through structural and non-structural mitigation. Prerequisite: None.

PAD 530 Seminar in Law, Society, and Homeland Security – 3 credit hours. Legal decisions and the law have an impact on the creation of public policy as it relates to Homeland Security. Students in this course explore the relationship between laws and public policy and the impact court decisions have on policy and policy leaders. Topics include legal concepts and terminology, legal jurisdictions, case law, seminal cases, and the Supreme Court's roles and procedures. Students apply fundamental legal concepts and principles to case studies and contemporary problems. Prerequisite: None.

PAD 531 Cyber Security, Technology, and Homeland Security – 3 credit hours. n consideration of modern technological innovation and the spread of knowledge through digital means, the relationship between technology and criminal activity is increasing. In this course, students explore this relationship and gain a comprehensive view of cybercrime, including current trends. They learn how law enforcement agencies use technology to track and apprehend criminals. Through real-world scenarios, students examine legal responses to cybercrime and learn different approaches and techniques for solving cybercrimes and handling related challenges. Students also have the opportunity to gain a comprehensive understanding of building cases and prosecuting crimes through practical exercises in identification, data mining, and the protection and gathering of evidence. Prerequisite: None.

PAD 532 Seminar in Terrorism Legislation and Policy – 3 credit hours. Anti-terrorism and terrorism legislations are laws designed to fight terrorism and in many instances the law attempts to create policies, intra and inter agency or organizational apparatus aimed at fighting terrorism. Seminar topics will include weapons of mass destruction, law enforcement response actions, crime scene management, computer crime (cybercrime) and intellectual property theft, document security and fraud prevention and other global strategies aimed at eliminating terrorism threats around the world. Prerequisite: None.

PAD 533 Selected Contemporary Issues in Homeland Security – 3 credit hours. The homeland security field continues to evolve. The course is designed to identify and examine emerging contemporary issues such as immigration and border security, civil rights and liberties, election security, emergency communication, human trafficking, economic security and disasters and will receive special analysis in this course. There will be an in-depth investigation of inter-governmental functions and major programs on the federal, state, and local levels of government, including modes of analysis, models of decision making, evaluation methods, and styles of executive leadership and management challenges by employing examples of past and current policies in the field of homeland security. Prerequisite: None.

PAD 598 Research Design – 3 credit hours. This course is designed as a research design experience intended to guide students through the process of initiating and developing their master's report. Students learn how to apply aspects of their core courses into the development and writing of a formal research paper for submission to the university, in accordance with specified requirements from the graduate school. Prerequisite: PAD 500 and PAD 501 and PAD 502 and PAD 503.

PAD 599 Capstone Project or Independent Study – 3 credit hours. Experiential learning in a government, not-for-profit entity, or a suitable public agency OR a capstone project. Both culminate in the development and writing of a research paper for submission to the university, which specifies its format. Supervision by a member of the department faculty. Prerequisite: PAD 500 and PAD 501 and PAD 502 and PAD 503.

Physical Education

PED 500 History and Philosophy of Physical Activity and Sport – 3 credit hours. This course is designed to assist the student in developing a more in-depth historical perspective of events that have impacted physical education and sport. The course analyzes developments prior to and after 1885. The emergence of each inter-disciplinary area of study which undergirds the field of kinesiology is also examined and shown in its relationship to the allied professions. This course is offered during varying terms. Prerequisite: PED 598.

PED 501 Sociology of Sport and Physical Education – 3 credit hours. This course is a comprehensive study in the fields of physical education with special emphasis on current issues, trends and problems. Students will also be provided with a broad perspective on the economic, political, and social aspects of sports in the western hemisphere. Prerequisite: none.

PED 502 Fitness/Research Application and Evaluation – 3 credit hours. Investigation and comparative analysis of the latest research in contemporary areas of education such as competency-based education, school-based management, fitness and wellness concepts and total quality education.

PED 503 Advanced Exercise Physiology – 3 credit hours. In-depth background regarding the physiological effects of physical activity on the human body. This course represents a contingency-based approach to developing additional background information and skills specific to application, analysis, synthesis and evaluation levels of learning as required by the graduate program in physical education.

PED 504 Curriculum and Instruction in Physical Education – 3 credit hours. Designed to assist with the development of specific analytical skills using various instructional constructs. The dynamics of curriculum building, formulation of a plan of evaluation and how to differentiate its components are discussed in detail.

PED 505 Procedures – 3 credit hours. Develop specific skills in the total approach to self-appraisal and student success. In addition, the student is required to research the following topics and their interrelatedness: content, analysis, test-item analysis, test-banks, behavioral accountability, evaluation and computer-based instructions, mastery learning and personalized systems of instruction. Special seminars are included.

PED 506 Evaluation and Measurement in Physical Education & Sport – 3 credit hours. This course is designed to enhance students understanding and ability to apply strategies used in evaluation and measurement of performance in physical education and exercise science. Emphasis will be placed on strategies appropriate for gathering data for research and assessment purposes.

PED 507 Management in Physical Education and Athletic Programs – 3 credit hours. The purpose of this course is to promote the development of skills in planning, organizing, budgeting, supervision, evaluation and other essential management functions. Strategies for purchasing and managing equipment and facilities, maintaining a legal environment and developing effective lines of communication will also be examined.

PED 508 Sport and Exercise Psychology – 3 credit hours. The course includes an overview of the relationships between psychological factors and motor performance; research methods associated with motor behavior and sport psychology; and review of the literature and current issues regarding the psychomotor variables related to sports participation and competitive athletics.

PED 509 Coaching Theory and Techniques – 3 credit hours. The course is designed to expose the student to new and/or different techniques, theories and philosophies of coaching. It includes an in-depth examination of the philosophies factors that impact individuals and their performance in the athletic setting. The student will develop intervention strategies, techniques and skills to enhance their physiological effectiveness in the athletic domain.

PED 511 Science and Medicine in Sport – 3 credit hours. This course is designed for students who expect to pursue careers as certified athletic trainers, sport coaches, fitness professionals, physical therapists, physical educators, or any other area of exercise and sport science. This course will cover the (professional-based and scholarly-based) body of knowledge that can help them effectively perform the responsibilities of their job, regarding many aspects of sport medicine and sport science - concerning both recreational and competitive athletes. Prerequisite: PED 598.

PED 512 Biomechanics of Exercise & Sports – 3 credit hours. This course was designed to provide the student with a generalized, qualitative approach to mechanical kinesiology or biomechanics. This course will follow a systematic program to enable the student to build a foundation for understanding the science of motion.

PED 513 Advanced Strength Training and Conditioning – 3 credit hours. This course is designed for practitioners in the exercise and sport sciences who need the knowledge and skills for developing and administering safe and effective strength training and conditioning programs. Any individual who will have responsibility for weight room supervision and conditioning programs will benefit from this course. The course presents the principles of conditioning and includes best practices for training and conditioning human performers. Successful completion of this course is preparation for potential certification as an Exercise Physiologist and/or Strength and Conditioning Coach. Prerequisite: PED 598.

PED 514 Current Readings in Physical Activity and Sport – 3 credit hours. Competent professionals in the physical activity world need an ability to discuss and debate issues from an informed perspective, based on in-depth knowledge of an issue. The course combines readings that will increase awareness and knowledge of key issues facing professionals in physical activity and sport. Various practical applications related to evidence-based practice will be explored. Issues will be investigated and students will develop/defend their informed viewpoints. Prerequisite: PED 598.

PED 515 Legal Issues in Physical Activity and Sport – 3 credit hours. This is a required Kinesiology course designed to provide emphases on legal issues and concepts related to areas of the physical activity and sport industry. Areas covered will include negligence, intentional torts, constitutional law, FERPA, HIPAA, Title IX, hazing, personnel disputes, and other relevant issues from a legal perspective. The course embodies a critical-thinking approach to developing additional background information and skills specific to application, analysis, synthesis, and evaluation levels of learning. Prerequisite: PED 598.

PED 516 Movement for Special Populations (Adapted PE) – 3 credit hours. The course is designed for teacher candidates and students in the allied fields of Kinesiology/human performance to examine the role of physical education and physical activity in meeting the special needs, interests, and abilities of students with various physical, social, mental, and emotional differences. Also provided is in-depth information regarding how to record medical histories, growth patterns, levels of motor learning, and how to design individualized physical education/activity programs. Prerequisite: PED 598.

PED 523 Advanced Fitness Assessment and Exercise Prescription – 3 credit hours. This course is based on the principles of health-risk assessment, fitness testing, and exercise prescription. Focus will turn to assessing individuals for classification/stratification into target health-risk groups. Course content will also address current practices in physical education, exercise physiology, and rehabilitation associated with prescribing exercise for human performers with diverse goals and needs. Successful completion of this course is preparation for potential certification or licensure in Exercise Physiology and/or the Strength/Conditioning profession. Prerequisite: PED 598.

PED 556 Instructional Strategies for Physical Education – 3 credit hours. Students will apply content knowledge for teaching K-12 PE. They will plan and implement developmentally appropriate experiences that are both varied, diverse, and aligned with the local, state, and national standards. Instructional strategies will include, but not be limited to, use of technology as well as verbal and non-verbal communication. Students will be required to select appropriate assessments for monitoring student learning, and engage in continuous reflection and professional growth. Prerequisite: None.

PED 595 Internship – 6 credit hours. There are multiple internship courses based on the specific content area. This course entails one semester of full-time teaching under the immediate direction of cooperating teachers and university supervisors in the P-12 public schools. A fee for the edTPA portfolio assessment is proposed for candidates to purchase who are enrolled in the internship course (student teaching). The Alabama State Department of Education is requiring the edTPA assessment starting September 01, 2018, for teacher candidates to receive certification. The cost for the edTPA portfolio submission to Pearson is $300.00. Prerequisite: Candidates must be enrolled in the internship. Corequisite: submit edTPA.

PED 598 Research in Physical Activity and Sport – 3 credit hours. This is a required Kinesiology course designed to provide students with learning opportunities involving consumption and use of scholarly research. Study of scientific literature and topics will be addressed from the interdisciplinary areas of physical activity (i.e., physical education, human

performance, sports science, kinesiology, etc.). Attention will also focus on "APA Style" and guidelines for scholarly communication. This course is a co-requisite/prerequisite for all other courses in the program. Prerequisite: None.

PED 599 Graduate Seminar – 1 credit hour. This course is designed to assist candidates with preparation and submission for evaluation of edTPA Portfolios. Prerequisite: Completion of all program courses and PED 595.

Physics

PHY 500 Analytical Mechanics – 3 credit hours. Generalized coordinates, ignorable coordinates, conservative fields, velocity dependent potentials, canonical transformations, and Hamiltonian mechanics. Hamilton's equations of motion and application to simple dynamical systems. Hamilton-Jacobi theory, small oscillations, Larmor precession, asymmetrical top. Prerequisite PHY 321 or equivalent.

PHY 501 Concepts of Modern Physics – 3 credit hours. Basic concepts; special theory of relativity, wave-particle duality. The Atom: atom structure, introduction of quantum mechanics; properties of matter; physics of molecules, the solid state; the nucleus, the atomic nucleus, nuclear transformation, elementary particles.

PHY 502 Bio-Physics – 3 credit hours. Some physical forces exemplified in man, matter waves, sound and ultrasound, electromagnetic radiation and matter, radioactivity; biological tracers, big molecules - structure of macromolecules and living membranes, speeds of some processes in biological studies on nerve and muscle, the language and concepts of control.

PHY 503 Methods of Mathematical Physics – 3 credit hours. Vector analysis, matrix analysis, functions of a complex variable, calculus of residues, differential equations, special functions of mathematical physics, Fourier series, Fourier transforms, tensor analysis. Prerequisite PHY 303 or equivalent.

PHY 504 Physics in Modern Technology – 3 credit hours. Physical basis of computers, communication systems, propulsion and power generation; energy and environment, properties of special materials, infrared detecting devices, satellites and long range weather predictions, transistors, chips and printed circuits. his course will be taught through seminars by invited specialists in each of the areas. However, there will be a faculty member coordinating the course who will design techniques for student participation and methods for evaluation of student performance. Prerequisite: PHY 201 or equivalent.

PHY 505 Electromagnetic Theory I – 3 credit hours. Maxwell's equations, electrostatics, magnetostitics, wave propagation, radiation, waves in transparent and conducting media, resonant cavities, electrodynamic potentials, multi-pole expansions, covariant formulation of electrodynamics. Prerequisite PHY 331 or equivalent.

PHY 506 Electromagnetic Theory II – 3 credit hours. Radiation from a moving charge, scattering, radiation damping and electrodynamics in material media, special theory of relativity, motion of charged particle in electric and magnetic fields. Cherenkov radiation. Bremsstrahlung, classical theory of dispersion and dispersion relations, electrodynamics of moving media. Magneto- hydrodynamics and plasma physics. Prerequisite: PHY 505.

PHY 518 Thermodynamics and Statistical Mechanics – 3 credit hours. A survey of thermodynamics from classical and statistical mechanics point of view. Prerequisite PHY 341 or equivalent.

PHY 519 Advanced Statistical Mechanics – 3 credit hours. Foundations of classical and quantum statistical mechanics, kinetic theory of gases, Liouville and Boltzman H theorems, ensembles, quantum statistical mechanics, statistics of independent particles, applications to magnetic phenomena and cooperative interactions, non-equilibrium statistical mechanics. Prerequisite: PHY 518.

PHY 521 Quantum Mechanics I – 3 credit hours. Postulates of quantum mechanics. Schrödinger equation. Simple systems, elementary scattering theory, potential wells and tunneling, bound states, Hillbert's Space, matrix mechanics. Prerequisite: PHY 421 or equivalent.

PHY 522 Quantum Mechanics II – 3 credit hours. Angular momentum, coupling, Wigner-Eckart theorem, Application to atomic spectra, elementary quantum theory of electromagnetic fields; elementary perturbation theory. Prerequisite: PHY 521.

PHY 525 Solid State Physics I– 3 credit hours. Classification of solids by forces, properties and symmetries, lattice vibration and its quantization in terms of phonons, interaction of phonons with electromagnetic fields. Bloch theorem, band structure, optical, dielectric and magnetic phenomena. Prerequisite PHY 451 or equivalent.

PHY 531 Mathematical Methods in Applied Physics I – 3 credit hours. Review of analysis in the complex plane, evaluation of definite integrals, contour integration, differential equations and special functions. Green's function, Fourier integrals, linear vector spaces. Prerequisite PHY 503 or equivalent.

PHY 532 Mathematical Methods in Applied Physics II – 3 credit hours. Review of analysis in the complex plane, evaluation of definite integrals, contour integration, differential equations and special functions. Green's function, Fourier integrals, linear vector spaces. Prerequisite PHY 503 or equivalent.

PHY 537 Advanced Laboratory – 3 credit hours. Selected experiments in optics, atomic and nuclear and solid-state physics, high vacuum and machine shop experience.

PHY 552 Problems in Physical Science – 3 credit hours. Physics of particles and aggregate physics of fields, wave physics, quantum physics.

PHY 600 Solid State Physics II – 3 credit hours. Classification of solids by forces, properties and symmetries, lattice vibration and its quantization in terms of phonons, interaction of phonons with electromagnetic fields. Bloch theorem, band structure, optical, dielectric and magnetic phenomena. Prerequisite PHY 451 or equivalent.

PHY 601 Seminar/Colloquium – 0 credit hours. Provides a structural opportunity to graduate students to engage with current research topics in physics through departmental colloquia, invited talks, and student presentations. Prerequisite: None.

PHY 610 Introduction to Solar-Terrestrial Physics – 3 credit hours. Effects of solar disturbances on the Earth’s environment. Distinct modes of energy and momentum transfer from the Sun’s surface to the Earth. Formation of solar wind. Interplanetary magnetic field and magnetic sectors. Formation of the magnetosphere. Effects of quiet and disturbed solar wind on the magnetosphere, ionosphere and thermosphere. Solar flares and coronal mass ejections. Effects on man-made facilities. Space weather forecast and prediction.

PHY 612 Physics of the Sun and the Solar Wind – 3 credit hours. The structure of the Sun. Heat transport and convection inside the Sun. The solar atmosphere and its structure: the photosphere, chromosphere and corona. Solar spectrum and chemical composition. The Sun’s magnetic fields. Quiet and active Sun. Sunspots and solar cycle. Solar flares and particle acceleration. Coronal mass ejections. The solar wind, its dependence on solar cycle and heliographic latitude. The interplanetary magnetic field and its transport to the Earth. Solar events and space weather.

PHY 614 Physics of the Magnetosphere – 3 credit hours. Formation and structure of the magnetosphere. Cold and hot plasma in the magnetosphere. Electric and magnetic fields and motion of charged particles in the magnetosphere. Transverse and field-aligned currents in the magnetosphere. Magnetospheric convection. Geomagnetic disturbances and storms. Waves and resonant oscillations in the magnetosphere. Geomagnetic pulsations. Particle acceleration and particle precipitation into the ionosphere. Types of auroras and global distribution of auroral activity. Acceleration of particles to high energies and generation of the radiation belts. Indices for geomagnetic activity, their meaning and importance for space weather prediction.

PHY 617 Physics of the Ionosphere and Thermosphere – 3 credit hours. Survey of the upper atmosphere and ionosphere. Stratifications based on composition, temperature and ionization. Morphologies. Diurnal, seasonal, annual and solar cycle variations. Solar and geomagnetic control of the ionosphere and atmosphere. Effects of solar electromagnetic and corpuscular radiation and cosmic rays. Neutral atmospheric and ionospheric modeling. Active and passive remote sensing of the atmosphere and ionosphere.

PHY 620 Radio Wave Propagation in the Ionosphere - Historical perspective – 3 credit hours. Characteristics of electromagnetic waves and plasmas. Propagation electromagnetic of waves through homogeneous and inhomogeneous media, isotropic and anisotropic media, and dispersive media. Plasma properties. Motion of charged particles in electric and magnetic fields. Magnetoionic theory and Appleton’s formula. Radio sounding of the ionosphere: ionosonde and incoherent scatter sounders. Topside sounding from satellites.

PHY 625 Planetary Atmospheres and Ionospheres – 3 credit hours. Atmospheres of inner planets (Mercury, Venus, Earth and Mars) and outer planets (Jupiter, Saturn, Uranus and Neptune): Composition, pressure and temperature structures. Circulation and convection. Similarities and differences. Photochemistry in Jovian atmospheres. History and evolution. Atmospheric escape. Atmospheric clouds. Ionospheres and magnetospheres of inner and outer planets. Similarities and differences. Planetary spacecraft missions. Atmospheres of Pluto, Titan and Triton.

PHY 632 Elements of Materials Science – 3 credit hours. Engineering requirements on materials, arrangement of atoms in materials, metallic phases and their properties, ceramic phases and their properties, multi-phase materials. The effect of macrostructure upon properties of materials, corrosion and thermal behavior of materials in service. Prerequisite: PHY 451 or equivalent.

PHY 633 Physical Metallurgical Principles – 3 credit hours. Principles underlying the structure and behavior of metals, equilibrium and non-equilibrium phase relations in metal and alloys, kinematics of diffusion and nucleation. Phase transformations, heat treatment and hardenability. Prerequisite: PHY 632.

PHY 634 Crystal Physics and Crystal Growth – 3 credit hours. Description and determination of atomic arrangement in perfect and imperfect crystals, binding forces elastic waves in solids, photons and lattice vibration, Brilliouin zones, thermal properties of solids, X-ray diffraction, Fourier analysis in diffraction. Basic principles and phenomena involved in the growth and perfection of crystalline solids from melt, solution, vapor, electrodeposition, etc. Discussion of the merits of various preparation methods. Prerequisite: PHY 632.

PHY 635 Magnetic and Optical Properties of Materials – 3 credit hours. Dia-, para- and ferro-magnetism, magnetic relaxation and resonance phenomena. Electronic and thermal conductivity of metals, superconductivity. Relationship between electronic structure and optical properties of solids, magneto-optics infrared photoconductivity, excitations, infrared and Raman spectra due to lattice vibrations, impurity-induced lattice absorption, spectra of ions in crystals. Prerequisite: PHY 632.

PHY 636 Semi-conductor Physics – 3 credit hours. Semiconductor principles, electron band theory of solids. Electronic properties of insulators and semiconductors, Hall effect. Defect states and interaction in semiconductors, elemental and compound semiconductors. Recombination and trapping, organic semiconductors. Prerequisite: PHY 632.

PHY 637 Special Topics in Materials Science – 3 credit hours. Topics will be selected in accordance with the special interest of students. Prerequisite: instructor consent.

PHY 638 Imperfection in Solids – 3 credit hours. General theory of imperfections, relation of lattice defects to the physical properties of crystals, point defects and their relation to transport properties in metallic, covalent and ionic crystals, geometric and energetic aspects of dislocation theory, relation between dislocation mechanics and mechanical properties of crystals, structure and properties of interfaces. Prerequisite: PHY 632.

PHY 639 Electron Spectroscopy and Electron Diffraction – 3 credit hours. Principles and techniques of electron microscopy. Use and maintenance of electron microscopes, preparation of specimens for electron microscopy by replication transmission, study of fine structures in hardened alloys, demonstration of dislocation movements, distribution and identification as to type, Burger's vector. Prerequisite: PHY 632 or equivalent.

PHY 640 Mechanical Behavior of Solids – 3 credit hours. Behavior of materials under stress, elastic/plastic deformation in single crystals, critical resolved shear stress, microscopic yield, ductility, mechanical twinning, effect of temperature and rate of deformation, mechanical properties in tension, true stress-strain, work hardening compression, creep, fracture mechanics. Prerequisite: PHY 632.

PHY 642 Materials for Energy Production Devices – 3 credit hours. Material limitations for the operation of fossil fuel and nuclear power generation systems, microstructure and properties of materials in terms of current and future demands on temperatures, stresses and chemical and radiation attacks, possible future materials. Solar cells and selective solar radiation filters. Prerequisite: PHY 632 or equivalent.

PHY 644 Modern Composite Materials – 3 credit hours. Fundamental aspects of modern composite materials, particulate and fibrous reinforcement, micro-mechanics, failure modes, fiber- reinforced plastics and metals, inorganic particulate composites and dispersion-strengthened metals, testing and analysis concepts. Ceramic materials and applications. Prerequisite: PHY 632.

PHY 645 Computational Methods for Kinetic Processes in Plasma Physics – 3 credit hours. Particle-in-cell is used to investigate kinetic processes. Kinetic instabilities, particle acceleration, radiation and reconnection, applications for astrophysical plasmas kinetic simulation, relativistic astrophysical plasma such as collision less shocks in relativistic jets, reconnection, kinetic Kelvin-Helmholtz instability and mushroom instability. Prerequisite: (PHY 505 and PHY 506) or equivalent.

PHY 648 Advanced Laboratory in Material Science – 3 credit hours. Experiments will be conducted out of the following: X-ray diffraction, Hall effect and transport properties, Dielectric constant measurement as a function of frequency. Study of dislocations using microscope, specific heat measurements with DSC-4.

PHY 649 Geometrical Optics – 3 credit hours. Review of image formation, ray tracing, optical invariants, monochromatic and chromatic aberrations, geometrical image evaluation. Prerequisite: PHY 401 or equivalent.

PHY 650 Instrumental Optics – 3 credit hours. Optical systems design, testing optical components, fabrication, coating, mirrors and prisms, introduction of Fourier Optics. Prerequisite: PHY 401 or equivalent.

PHY 651 Spectroscopy – 4 credit hours. Spectra of atomic and molecular systems, energy levels, vibrational and rotation levels, lifetimes, Raman spectra, molecular and atomic lasers. Prerequisite: PHY 401 or equivalent.

PHY 655 Optics Laboratory – 4 credit hours. Selected experiments in interference, diffraction, optical imaging systems, holography, lasers, detectors, UV, visible and IR spectroscopy.

PHY 657 Physical Optics and Interferometry – 4 credit hours. Propagation and vector nature of light, dipole radiation, Lorentz atom, Rayleigh scattering, dispersion, Coherence and interference, design and use of conventional two beam and multibeam interferometers, evaluation of interferograms. Prerequisite: PHY 649.

PHY 660 Quantum Optics – 3 credit hours. Planck's radiation law and Einstein coefficients, quantization of radiation field, photon concept, photon statistics, interaction of radiation with matter, spontaneous emission, Dicke super-radiance. Prerequisite: PHY 521 or equivalent.

PHY 663 Electro-Optical Systems – 4 credit hours. Theory, design and use of electro-optical devices and system optical properties, performance criteria, applications of electro-optics, magneto-optic and acousto-optic devices, behavior of electro-optic devices as circuit elements, modulators rotators, and isolators. Prerequisite: PHY 657 or equivalent.

PHY 665 Lens Design – 4 credit hours. Paraxial Optics, aberration theory, image assessment, Fourier optics, merit function, mathematical methods, least squares, damped lest squares, decent methods, metric. Prerequisite: PHY 649 or equivalent).

PHY 667 Ambient Energy Harvesting – 3 credit hours. The objectives of the course are to make students conversant with various forms of ambient energy harvesting and their applications. Topics include overview of global energy demand, various energy sources and types of energy and the transformation mechanisms among them. Basic concepts of ambient energy sources and harvesting, advantages and disadvantages of ambient energy harvesting, photovoltaic energy harvesting, piezoelectric energy harvesting, piezoelectric effects and materials, thermal energy harvesting, thermoelectric, ferroelectric and pyroelectric effects and materials, electrostatic (capacitive) energy harvesting, and applications of electric energy harvested and future directions. Prerequisite: PHY 632.

PHY 670 Non-Linear Optics – 3 credit hours. Photon echo, self-induced transparency, self-focusing, scattering of light, parametric amplification, harmonic generation, damage effects. Prerequisite: PHY 657 or equivalent.

PHY 671 Laser Physics I – 4 credit hours. Density matrix-formulation of interaction of radiation with matter, laser threshold condition, optical resonators, pressure effects, survey of laser types and mechanisms. Prerequisite: PHY 657 or equivalent.

PHY 672 Laser Physics II – 4 credit hours. Density matrix-formulation of interaction of radiation with matter, laser threshold condition, optical resonators, pressure effects, survey of laser types and mechanisms. Prerequisite: PHY 657 or equivalent.

PHY 675 Thin Films and Integrated Optics I – 4 credit hours. Semiconductor and metallic films, design methods of multilayer interference filter coating, guided waves in dielectric films and fibers, beam-to-guide couplers, survey of devices for integrated optics. Prerequisite: PHY 671 or equivalent.

PHY 680 Holography – 3 credit hours. The Gabor hologram, hologram as a zone plate, Fresnel image, Fourier-transform and reflection holograms, applications to interferometry, information storage, and optical processing. Prerequisite: PHY 657 or equivalent.

PHY 685 (PHY 485) Introduction to Magnetic Materials – 3 credit hours. This is the first of the two course series on magnetism. The phenomenon of magnetism was known since a few thousand years ago. Today our understanding of magnetism is

connected to the concept of spin magnetic moment and the orbital magnetic moment. This course will give an introduction into the fundamentals of magnetism, including magnetic materials and their use in magnetic devices. This is a selective course for graduate students. Prerequisite: PHY 451.

PHY 686 (PHY 486) Magnetic Devices – 3 credit hours. This is the second of the two-course series on magnetism. Topics on magnetic phenomena and magnetic materials will be discussed with examples of magnetic devices for physical science and engineering students. The course is based on a combination of physical principles (materials physics, condensed mater, physics of magnetism) and examples of their applications. Lecture examples, lecture and home work problems throughout the course will be based on applications to magnetization process and magneto-transport phenomena. This is a selective course offered for graduate students. Prerequisite: PHY 685.

PHY 690 Introduction to Biophotonics – 4 credit hours. This is an interdisciplinary course dealing with applications of laser techniques to biology and medicine. Topics include fundamentals of light matter interaction, principles of lasers and laser technology, interaction of light with cells and tissues, bioimaging applications, optical biosensors including fluorescence sensing and fiber-optic biosensors, light activated therapy, tissue engineering with light, microarray technology for genomics and proteomics, principle of laser tweezer action and manipulation of single DNA molecules, Bionanophotonics and Biomaterials for photonics.

PHY 692 Nanophotonics – 3 credit hours. This will be an interdisciplinary course dealing with applications related to fusion of nanotechnology with photonics. Topics include nanoscale optical and electronic interactions, near field optical interactions, quantum dots, quantum wells, quantum wires, metallic nanoparticles and metallic nanostructures, rare-earth doped nanostructures, epitaxial growth and nanochemistry, nanostructured polymeric media, photonic crystal sensors, near-field nanolithography, and bioderived materials.

PHY 699 Master's Thesis – 1-3 credit hours. Research work towards completing the thesis requirement.

PHY 701 Applied Solid State Electronics I – 3 credit hours. Semiconductor devices, rectifier and amplifier circuits, logic control, analog and digital transducers, optoelectronics, VLSI circuit fabrication memory devices, computer aided engineering of VLSI systems, VLSI microprocessor system design. Prerequisite: PHY 451 or equivalent.

PHY 703 Laser Systems – 4 credit hours. Survey of a variety of laser systems and prepares the student to contribute to the design of new laser systems. The course starts with a general description of lasers and optical amplifiers in terms of relatively simple rate equations. Various classes of lasers (e.g., optically pumped solid lasers, gas lasers, organic dye lasers, etc.). Designs of specific laser systems from each class will be described in detail (e.g., CW Nd: YAG laser, argon ion laser, rhodamine 6G dye laser, etc.). Other topics, which will be covered, include optical resonator mode theory, techniques for controlling and modifying laser outputs, and techniques for measuring the spectral and temporal properties of laser beams. Prerequisite: PHY 671 or equivalent.

PHY 705 Solid State Diffusion – 3 credit hours. Fundamentals of diffusion in the solid state. Special emphasis to diffusion kinetics for atoms and crystals. Prerequisite: PHY 634.

PHY 710 Thermodynamics of Materials – 3 credit hours. Advanced treatment of thermodynamic properties of inorganic materials. Introductory thermodynamics. Application of laws of thermodynamics to chemical behavior of elements, compounds and solutions. Discussion of heterogeneous equilibrium, chemical reactions and thermodynamics of structural defects and interfaces. Prerequisite: PHY 518 or equivalent.

PHY 712 Optical Phase Conjugation I – 3 credit hours. Conjugation by parametric mixing in transparent media, transient response of Kerr-like phase conjugation, degenerate four wave mixing, optical phase conjugation in photo refractive crystals stimulated Raman scattering and Brilliouin scattering, wave front reversal, and phase conjugation under stimulated scattering. Prerequisite: PHY 670 or equivalent.

PHY 714 Optical Phase Conjugation II – 3 credit hours. Phase conjugation and high-resolution spectroscopy by resonant degenerate four wave mixing in semiconductors, wave front reversal by a reflecting surface optical resonator using phase conjugate mirrors, applications of optical conjugation. Prerequisite: PHY 712 or equivalent.

PHY 715 Fiber Optics – 3 credit hours. Basic principles of optical fiber communication and applications, materials and fiber preparation, propagation in optical fibers, wave guides and their fabrication, fiber optic cables and cable connectors, detectors and measurement techniques, semi-conductor light sources for optical fiber communications, system design. Prerequisite: PHY 657 or equivalent.

PHY 720 Radiation Effects in Crystalline Solids – 3 credit hours. A unified treatment based on governing principles in defect structure thermodynamics and kinetics of equilibrium and nonequilibrium systems. Discussion of radiation effects in metals and semiconductors. Prerequisite: PHY 632 or equivalent.

PHY 725 Optical Fiber Communications – 4 credit hours. Basic concepts of fiber-optic communications, channel multiplexing and modulation formats, light emitting diodes and semiconductor lasers, receiver noise, bit-rate error, system architecture, local-area networks, dispersion broadening, coherent light wave systems, multichannel communication systems, multiplexing and demultiplexing, crosstalk, optical amplifiers, soliton communication systems, communication systems of future. Prerequisite: PHY 715 or equivalent.

PHY 730 Solidification Process – 3 credit hours. Principles of control of structure, properties and shape in processes involving liquid-solid and vapor-solid transformations. Heat flow, solute redistribution, nucleation, growth kinetics. Resultant structures and properties. Prerequisite: PHY 634.

PHY 735 Materials for Radiation Detectors – 3 credit hours. This course will be more extensive rather than intensive. Discussion of materials problems for devices using ceramics, semiconductors and pyroelectric materials. Materials for detectors for ranges in x-ray, gamma-ray, ultra-violet, visible, near-infrared and far–infrared. Prerequisite: PHY 632 or equivalent.

PHY 745 Advanced Plasma Theory – 3 credit hours. Advanced plasma theory such as Vlasov theory, electrostatic and electromagnetic waves in a hot plasma, wave damping processes, micro-instabilities, quasilinear theory; numerical simulation of plasmas, applications to space and astrophysics, kinetic simulation with particle-in-cell code applied to relativistic astrophysical plasma such as collision less shocks in relativistic jets, reconnection, kKHI. Prerequisite: (PHY 505 and PHY 506) or equivalent.

PHY 750 Laser Spectroscopy – 3 credit hours. Tunable coherent light sources, Doppler limited absorption and fluorescence spectroscopy with lasers, Laser Raman as Brillouin Spectroscopy, High resolution sub-Doppler spectroscopy, trim-resolved laser spectroscopy, optical Ramsay fringes, ultra-high resolution. Prerequisite: PHY 651 or equivalent.

PHY 755 Optics Laboratory II (Sample List) – 3 credit hours.

1. Growth and decay of holographic grating formed in photo-refractive crystals with coherent laser beams.
2. Optical phase conjugation through degenerate four wave mixing in photo-refractive crystals.
3. Laser photo acoustic spectroscopy of I2 using N2 laser-pumped dye laser
4. Holography
5. Laser photo-acoustic studies in gases using Ar-ion laser
6. Optogalvanic spectrum of Ne using tunable dye laser
7. Laser-excited fluorescence in laser material crystals

PHY 761 Fabrication and Characterization of Nanostructures in Glasses – 1 credit hour. For students pursuing research. The course deals with preparation of oxide glasses embedded with inorganic ions. The student will be exposed to/learn the details involved in the calculation of amounts required of different chemicals based on the glass composition including molar concentrations. Students will be taught glass making by the melt quenching technique and polishing the glasses using different grit size powders. Student will learn the methods used in the glass characterization using optical and other methods. The student has to submit a paper at the end of the semester to receive the grade. Prerequisite: none.

PHY 762 Fabrication and Characterization of Heterostructures – 1 credit hour. The course deals with preparation and characterization of oxide and semiconductor multi-and single thermoelectric thin films. The student will be exposed to/learn the details of the preparation of the efficient thermoelectric devices from the suitable thermoelectric materials. Students will be taught thin film deposition techniques, preparation of the substrates, and coating of the different layers by DC/RF sputtering deposition technique. Student will learn the methods used in the thermoelectric thin film characterization using thermoelectrical methods including Seebeck coefficient, van der Pauw 4 probe Hall Effect-Electrical resistivity measurement and laser supported thermal conductivity measurements. The student has to submit a paper at the end of the semester to receive the grade. Prerequisite: none.

PHY 763 Fabrication and Characterization of Composite Thin Films – 1 credit hour. The objectives of the course are to make students conversant with introductory knowledge of various forms of electronic composites and their fabrication techniques in thin film form, and applications. Topics include overview of science of composite materials science, various types of composites, and their fabrication techniques in the thin films; characterization techniques will be for nanocomposite films for their use in ambient energy harvesting, piezoelectric energy harvesting, and pyroelectric energy harvesting, and energy storage. Prerequisite: PHY 451.

PHY 764 Amorphous Organic Thin Films – 1 credit hour. This course provides hands-on experience and theoretical understanding to students. The students will make pure and nanoparticle doped amorphous solid organic thin films from homogeneous mixtures of raw materials (such as from distilled water, polyvinyl alcohol, and multi-walled carbon nano-tubes). Moreover, the student will deposit the solutions into drying vessels and remove films from the same, measure film dimensions, film resistivity and low-frequency dynamic dielectric. Prerequisite: PHY 421 and PHY 451.

PHY 765 Nanotechnology of Materials & Applications – 3 credit hours. This course introduces the fundamental concepts of nanoscience and nanotechnology with emphasis on materials and real-world applications. Topics include the definition and classification of nanomaterials, quantum effects at the nanoscale, experimental methods for nanoscale characterization, and applications in nanoelectronics, nanomedicine, and energy. Prerequisite: PHY 632 or instructor consent.

PHY 771 Signal Processing – 3 credit hours. Fourier analysis and two-dimensional line, a systems-scalar diffraction theory, Fresnal and Fraunhofer diffraction frequency analysis of optical imaging systems, optical filters, coherent optical processing, incoherent optical processing, hybrid processors, and linear and non-linear optical data processing. Prerequisite: PHY 505 or equivalent.

PHY 775 Thin Film and Integrated Optics II – 3 credit hours. Optical wave guide modes, wave guide fabrication techniques: deposited thin films, molecular beam epitaxial crystal growth, substantial dopant atoms, wave guide losses, input and output couplers, electro-optic modulators, acousto-optic modulators, semiconductor laser and modulation, hetero-structure lasers, and integrated optical detectors. Prerequisite: PHY 675 or equivalent.

PHY 791 Applied Solid-State Electronics II – 3 credit hours. Semiconductor devices, rectifier and amplifier circuits, logic control, analog and digital transducers, optoelectronics, VLSI circuit fabrication memory devices, computer aided engineering of VLSI systems, VLSI microprocessor system design. Prerequisite: PHY 451 or equivalent.

PHY 792 Selected Topics – 3 credit hours. Introduction to novel synthesis mechanisms such as nanoparticles, nanotubes, nanowires, and nanostructured thin films, emphasizing their synthesis, structural and property characterization, novel physical and chemical properties, applications, and contemporary literature. However, other topics related to present job requirements can be replaced and taught. Prerequisite: PHY 632 and instructor consent.

PHY 793 Selected Topics – 1-3 credit hrs. This is a selected topic course in physics. Students will select four to five topics and pursue focused studies and research. The course covers Schrodinger equation, Dirac equation, Pauli equation, Klein-Gordon equation, solitons and other nonlinear differential equations, UV-Visible Spectrometer, Atomic Force Microscope, Scanning Electron Microscope, Fourier Transform Infrared Spectroscopic, thin film physics and other topics on instrumentations and their usage. Prerequisite: Consent of instruction

PHY 794 Selected Topics – 1-3 credit hours. This course shall provide a comprehensive introduction to the latest and emerging topics in applied materials science via seminars. Prerequisite: PHY 632.

PHY 796 Selected Topics in Materials Science – 3 credit hours. This course shall introduce smart materials, types of smart materials, properties, and applications: single crystalline, poly-crystalline, and, thin-film, and thick-film forms; and examine their principle of operation and applications. Major categories of materials will be Ferroelectrics, Piezoelectrics, Pyroelectrics, and electro-optical. However, other emerging topics of materials science could be replaced and taught. Prerequisite: PHY 632 and instructor consent.

PHY 797 Advanced Topics in Materials Science – 3 credit hours. This course shall provide a comprehensive introduction to electronic materials processing techniques: single crystalline, poly-crystalline, and amorphous electronic materials in bulk, thin-film, and thick-film forms; and ceramics. However, other emerging topics of materials science could be replaced depending upon the job market and taught. Prerequisite: PHY 632 and instructor consent.

PHY 799 Dissertation – 1-12 credit hours. Individual research towards completing dissertation requirements.

Political Science

PSC 502 International Relations – 3 credit hours. An evaluation of all types of international organizations and critical analysis of the foreign policies of the major nations and their relationship with each other. Particular attention will be given to the emerging nations of Africa and Asia.

PSC 511 American Political Thought – 3 credit hours. American political thought from colonial Puritanism to the present, including the philosophies of John Cotton, Roger Williams, Thomas Paine, Jefferson, Hamilton, Garrison, Calhoun, Wilson, the Roosevelts, etc.

PSC 610 Contemporary Problems in American Government – 3 credit hours. An inquiry into the nature of recently emergent sociopolitical phenomena and the fashion in which they impact the political process in the United States. Problems relative to the functioning of traditional political institutions and processes, the advent of unconventional modes of political activity, and the increased importance of international affairs as a constraint on political decision making, will be principal points of emphasis.

PSC 698 Individual Research in Political Science – 3 credit hours. Independent reading or research directed by assigned faculty involving a survey of existing research on a given topic, an area of interest to the student, or a report on the early stages of work on a thesis.

Psychology

PSY 502 Descriptive & Inferential Behavioral Statistics – 3 credit hours. Methods of statistics; the meaning and importance of statistics as a scientific tool in social science research, including the following topics: sampling, frequency distributions, central tendency, graphic representation, reliabilities, hypothesis testing, standard deviation, regression, estimation, and application.

PSY 503 Foundations of School Counseling – 3 credit hours. This course is designed to provide students with an orientation to the profession of school counseling. The course will include an examination of the philosophy, history, and current trends in school counseling and education as well as the concept of developmental counseling programs for P-12 students. The course will also explore the national and state standards for school counseling programs. Prerequisite: None.

PSY 512 Adolescent Psychology – 3 credit hours. Study of the age period between 12 and 19. Physical, social, and psychological development during this period will be investigated. The overlapping of several theoretical orientations will be integrated.

PSY 515 Experimental Psychology – 3 credit hours. Scientific investigation of motor learning, verbal learning, psychophysics, and individual differences.

PSY 516 Physiological Psychology – 3 credit hours. A functional investigation of basic neural and endocrine processes and their correlation with behavior.

PSY 557 Organization and Administration of Guidance Services – 3 credit hours. Lectures, case methods, reading demonstration projects, group processes, and individual work used to explore the philosophy of guidance services, functions, and programs.

PSY 561 Individual Testing – 3 credit hours. An intensive study of the construction, administration, and scoring of the Stanford Binet, the Wechsler Adult Intelligence Scale, and the Wechsler Intelligence Scale for Children. Prerequisite: instructor consent.

PSY 563 Learning Theory – 3 credit hours. A study of the various learning theories and their application in counseling and education.

PSY 564 Independent Study – 3 credit hours. The student with the major advisor may elect to study a particular problem area of breadth and depth of knowledge. A research paper is required as a product outcome of such study.

PSY 571 Abnormal Psychology – 3 credit hours. Study of behavioral disorders classified in the Diagnostic and Statistical Manual.

PSY 587 Cognitive Behavioral Psychology – 3 credit hours. The design of research studies in psychology and guidance. The student designs a study and carries it out under the supervision of the instructor. Reports of research done by the student are read and evaluated by the instructor and suggestions are made as to their improvement. Prerequisite: PSY 502.

PSY 594 Advanced Educational Psychology – 3 credit hours. This course provides an exploration of the principles of psychology applied to teaching and learning, techniques of educational evaluation, and models of cognitive and social development.

PSY 599 Master's Thesis – 1-3 credit hours. The presentation in proper format of an original piece of research. Four faculty members shall guide the student in the completion of the thesis.

PSY 602 Industrial Psychology – 3 credit hours. Psychology as a functioning instrument in ascertaining work attitudes, motivations, job satisfaction, morale, production, potential, fitting the workers to the job, and establishing worker-employer rapport.

PSY 603 Introduction to School Psychology – 3 credit hours. An introduction of the psychologist to the school setting. The cognitive role will be a major focus of attention.

PSY 614 Introduction to Vocational Rehabilitation Counseling – 3 credit hours. Overview of the field of rehabilitation. It focuses on the institutional approach to the problems of clients.

PSY 618 School Psychometry Internship I – 3 credit hours. Satisfactory performance as a school psychometrist in a full-time internship of the equivalent in a school or schools supervised by a qualified school psychologist. Prerequisite: instructor consent.

PSY 622 Clinical Internship I – 3 credit hours. The student is expected to learn the procedures for intake and case openings and the record keeping procedure, and to know all of the services of the comprehensive mental health clinic, as well as to be cooperative in carrying out assigned tasks. The student is expected to be a front-line therapist, utilizing the therapeutic techniques called for by the history and present symptoms. Prerequisite: instructor consent.

PSY 623 Clinical Internship II — 3 credit hours. The student is expected to learn the procedures for intake and case openings and the record keeping procedure, and to know all of the services of the comprehensive mental health clinic, as well as to be cooperative in carrying out assigned tasks. The student is expected to be a front-line therapist, utilizing the therapeutic techniques called for by the history and present symptoms. Prerequisite: instructor consent.

PSY 625 Personnel Psychology – 3 credit hours. The principles of employee selection, retention, promotion, and compensation are covered in this course.

PSY 626 Seminar in Personnel Psychology – 3 credit hours. This course seeks to cover all aspects of the personnel administrator's job. Topics covered include affirmative action, health care compensation packages, career ladder concepts, profit sharing, in-house educational programs, and company recreation programs.

PSY 627 Organizational Psychology – 3 credit hours. Beginning and development of organizations and the role they play in society. It utilizes a systems approach to understanding the dynamics of an on-going organization.

PSY 646 Internship in School Psychology – 6 credit hours. Supervised experiences in the school in actual professional situations as a school psychologist.

PSY 653 Counseling the Elderly – 3 credit hours. A study of the unique needs of the elderly as seen in therapy. Specific techniques that have been tried and evaluated for their appropriateness either the elderly will be studied.

PSY 660 Consultation – 3 credit hours. Strategy for counselors functioning as consultants within elementary schools, secondary schools, post-secondary schools, community agencies, and mental health facilities.

PSY 661 Needs Assessment – 3 credit hours. Various uses of needs assessment, such as personal environment, program planning and evaluation, and exploration of various models of needs assessment.

PSY 665 Seminar in Psychology – 3 credit hours. Seminar designed to meet the educational needs of current students in Psychology and Guidance. Subjects of contemporary interest will be explored in depth by students and reported to the class. Open to AA students only.

PSY 682 Problems in Counseling with Adolescents – 3 credit hours. Consideration of the special problems encountered in counseling with adolescents. Methods of dealing with these problems and improving the counseling techniques. Open to AA students only.

PSY 683 Problems in the Administration of Guidance Services – 3 credit hours. Dealing with the problem of administering a guidance service in educational or community agencies. Problems of leadership program evaluation and planning. Prerequisite: Course in Organization and Administration of Guidance Services. Open to AA students only.

PSY 686 Advanced Social Psychology – 3 credit hours. Group structure, topology, and dynamics. Communications within and between people and the improvement of impaired relationships. Group influence in changing behavior.

PSY 698 Field Research I – 3 credit hours. A quasi-experimental research project designed to evaluate or develop programs in schools. A research design and methodology must be approved as well as data analysis and techniques.

PSY 699 Thesis – 1 to 6 credit hours. An original research of sufficient magnitude to warrant the conclusion that candidates show evidence of mastery of research tools, techniques, and understanding.

Research

RCH 700 Survey of Educational Research Methods – 3 credit hours. Introduces students to a variety of methods used in educational research. This survey course addresses the difference between qualitative and quantitative research and basic versus applied research methods. Prerequisite: None.

RCH 706 Introduction to Quantitative Research – 3 credit hours. This course is designed to prepare students for advanced quantitative methodology courses in the doctoral program. The course will introduce descriptive statistics, data analysis and data presentation techniques as well as a rigorous introduction to statistical inference: sampling theory, confidence intervals, and hypothesis testing among other quantitative research designs, data mining and analysis techniques and tools. This course will also introduce regression analysis, with an emphasis on interpretation of regression results. Prerequisite: None.

RCH 735 Doctoral Research Seminar – 3 credit hours. This advanced doctoral seminar is designed to transition students from developing research competence to producing publishable scholarly work and preparing a defensible dissertation. The course emphasizes writing, iterative revision, peer review, and genre awareness. Students will draft, and refine a manuscript and dissertation proposal and anchor their broader scholarship. Students will practice how to write for scholarly audiences. Prerequisite: RCH 710 or RCH 711.

Reading

RDG 512 Language Arts Across the Curriculum – 3 credit hours. This course provides students with the knowledge, skills, and dispositions required of a teacher of language arts. Course content includes the integration of the components of the language arts into the self-contained and departmentalized/content area classrooms at P-12 levels. Knowledge and practical insights for teaching language arts will be gained by examining scientifically based research and effective methods of instruction. Topics to be covered include reading, writing, listening, speaking, spelling, vocabulary, grammar and usage, and handwriting.

RDG 515 Teaching Reading I – 3 credit hours. This introductory course provides students with the knowledge, skills, and dispositions required of a teacher to build comprehension in the content areas at the P-12 levels through the activation of prior knowledge; metacognitive strategies; schema theory; use of before, during, and after reading strategies; amount of reading; text structure; deep discussion and questioning; vocabulary development; writing connected to reading; and study skills.

RDG 516 Teaching Reading II – 3 credit hours. Students will learn techniques for assessing reading ability and designing and implementing instruction to improve the reading ability of students reading below grade level at the P-12 levels. Topics to be covered include the role of the diagnostic teacher, gathering data formally and informally, designing diagnostic lessons, selecting appropriate instructional techniques and materials, and the role of technology. Cognitive, home, school, and other factors will be used to gather data to diagnose a student's strengths and weaknesses in reading and design a research-based program for acceleration of reading ability. Prerequisite: RDG 515.

RDG 517 Children's and Adolescent Literature – 3 credit hours. This course provides students with the knowledge, skills, and dispositions required of a teacher relative to the various genres of children's and adolescent literature and their relationship to beginning reading, enhancement of reading comprehension, and intervention instruction in the various content areas.

RDG 595 Internship for Reading Specialist Certification – 6 credit hours. This internship provides students with opportunities to refine and implement the knowledge, skills, and dispositions required of a reading specialist in school and classroom settings. Students will demonstrate their competencies in providing and/or assisting with the implementation of effective, research-based developmental reading and reading intervention instruction, literacy programs at the P-12 grade levels, and professional development activities.

RDG 700 Trends and Issues in Reading/Literacy – 3 credit hours. Students will learn about the historical movements (basal readers, whole language, phonics, multicultural influences, etc.) that have affected current practices in reading/literacy research theories and instruction. Various aspects of reading will be traced back to their beginnings.

RDG 701 Assessment in Reading/Literacy – 3 credit hours. Political, social, economic, and psychological implications of reading/literacy assessment are explored through examination of the testing movement and of issues that have emerged from the movement.

RDG 702 Quantitative Research Methods in Reading/Literacy – 3 credit hours. Students will learn quantitative research methods that are used to investigate reading/literacy. Students will work collaboratively with a faculty member in carrying out a research proposal by formulating questions, designing a study, creating testing instruments and approaches to data analysis.

RDG 703 Qualitative Research Methods in Reading/Literacy – 3 credit hours. Students will learn qualitative research methods that are used to investigate reading/literacy. Students will work collaboratively with a faculty member in conducting a research proposal by formulating questions, designing a study, creating testing instruments, and approaches to data analysis.

RDG 704 Curriculum in Reading/Literacy – 3 credit hours. Students will investigate research and practice relative to various aspects of reading/literacy such as teaching reading, writing, literature, grammar, usage, and spelling.

RDG 705 Seminar in Reading - Special Topics – 3 credit hours. This curriculum is designed to meet the individual interests of students relative to topics in reading/literacy. Individually selected topics will be addressed in an in-depth manner.

RDG 706 Advanced Seminar in Reading/Literacy – 3 credit hours. Major topics in reading/literacy will be studied. Emphasis will be placed on analysis, synthesis, and interpretation of original research.

RDG 707 Advanced Clinical Application in Reading/Literacy – 3 credit hours. This course will require the student to gain an in-depth understanding of formal and informal assessments used in diagnosis of reading difficulties. Under close supervision, the graduate student will work with children with serious reading problems by assessing, establishing a program of acceleration, tutoring, and recording and reporting results.

RDG 708 Leadership in School Program Development – 3 credit hours. In this course students will examine leadership theory and research, leadership styles, coaching, and methods for affecting change in curriculum and instruction.

RDG 709 Advanced Study in Content Area Reading – 3 credit hours. Students will examine the research that identifies the aspects of content area reading, which impact student achievement.

RDG 710 Doctoral Dissertation Research in Reading/Literacy – 1-6 credit hours. The graduate student will complete a proposal for a detailed research study, conduct the study, and defend the completed dissertation during an oral examination.

RDG 713 Family Literacy – 3 credit hours. The course is intended to introduce the student to concepts in Family literacy from a multidisciplinary perspective. A variety of topics will be explored such as theoretical perspectives related to family literacy, specific practice and strategies used and strategies used to promote family literacy in collaboration with schools and communities, explore diverse family literacy.

RDG 720 New Literacies, Digital Technologies and Learning – 3 credit hours. This course is designed to develop educators who are able to use a range of digital technologies as a seamless part of literacy instruction.

RDG 721 Theory & Research in Literacy – 3 credit hours. Doctorial seminar provides an in-depth exploration of literacy theory, research, and practice.

RDG 795 Special Topics in Reading and Literacy – 3 credit hours. (Not a required course) but reserved as a substitution course for candidates who wish to pursue further exploration of specific interest in the specialization. Permission of advisor must be acquired. Prerequisite: None.

Science Education

SCED 700 Current Trends in Science Education – 3 credit hours. This course will provide an in-depth examination and analysis of current topics and cutting-edge trends in science education. Course participants will examine emerging science education

research and the theoretical foundations and methodologies employed in trending research. This course will also explore contemporary practices significant to the field of science education. Prerequisite: None

SCED 701 Discourse in Science Education – 3 credit hours. This course will examine seminal research tied to student learning, thinking and discourse in science education. Course participants will be expected to apply theoretical knowledge to topics including constructivism, critical thinking, problem solving, discourse, and schema theory. Prerequisite: None.

SCED 703 Gender and Science Education – 3 credit hours. This course will provide an overview of gender-related issues tied to the field of science education. The historical and theoretical perspectives of equity and gender in the science disciplines will be examined. Prerequisite: None.

SCED 704 Nature & Practice of Science – 3 credit hours. This course explores key topics tied to the nature and practice of science. Through research and case study analysis, course participants will examine important aspects of science such as tenets of the nature of science, the beliefs and practices that have shaped science, and the philosophical, historical, cultural, and social perspectives that have undergirded science. Ethics in science will also be discussed. Prerequisite: None.

SCED 705 Science, Technology, Society and Environment – 3 credit hours. The intersecting roles of science and technology and their influence and impact on society and the environment will be examined. This science classroom will serve as the lens through which the implications of science and technology on society and the environment will be discussed. Prerequisite: None.

SCED 707 Communities of Inquiry: Curriculum and Instruction – 3 credit hours. Developing communities of inquirers in the science classroom is the focus of this course. Course participants will explore the theories and practices that are used to establish learning communities in the science classroom. Prerequisite: None.

SCED 709 Critical Voices in Science Education – 3 credit hours. Through critical analysis of research, this course will expose candidates to critical voices in science education. Race, equity, diversity and science education policies will also be examined. Prerequisite: None.

SCED 795 Special Topics – 3 credit hours. Not a required course but reserved as a substitution course for candidates who wish to pursue further exploration of specific interest in the specialization. Permission of advisor must be acquired. Prerequisite: None.

Secondary Education

SED 515 Reading in the Content Area – 3 credit hours. This course stresses the relationship between achievement in reading and success in the content area. The course focuses upon the content teacher's responsibility for the development of reading skills in each content area.

SED 521 English Language Arts in the Secondary School – 3 credit hours. This course will consider objectives of English in the secondary school, content and organization of the English curriculum, and direction of learning in the English program.

SED 522 Mathematics in the Secondary School – 3 credit hours. Literature, research, and content in mathematics, current trends, experimental programs, graduation of subject matter, criteria for program evaluation, and basic issues.

SED 523 Social Science in the Secondary School Curriculum – 3 credit hours. The course content, along with related material, will consist of the examination of the basic purposes and objectives of the social studies program in the junior and senior high school and recent trends and developments in the field, selecting and organizing content materials, planning various kinds of learning experiences, and exploring effective ways of teaching and learning democratic citizenship.

SED 524 Science in the Secondary School Program – 3 credit hours. For teachers and supervisors of science in the junior and senior high school. Units of subject matter presented through assigned reading, lectures, demonstrations, and discussions will be studied. Students will participate in demonstrations, selected laboratory work, and field trips. There will be a comprehensive examination covering of the content of general science.

SED 527 Guiding Learning in the Secondary School – 3 credit hours. Basic principles and techniques of learning as related to the various fields and levels of Secondary Education.

SED 530 The Secondary School Curriculum – 3 credit hours. Principles of curriculum construction as they apply to the secondary school and the various subject areas; will be a critical study of recent efforts to combine fields of subject matters.

SED 595 Internship – 6 credit hours. There are multiple internship courses based on the specific content area. This course entails one semester of full-time teaching under the immediate direction of cooperating teachers and university supervisors in the P-12 public schools. A fee for the edTPA portfolio assessment is proposed for candidates to purchase who are enrolled in the internship course (student teaching). The Alabama State Department of Education is requiring the edTPA assessment starting September 01, 2018 for teacher candidates to receive certification. The cost for the edTPA portfolio submission to Pearson is $300.00. Prerequisite: Candidates must be enrolled in the internship. Corequisite: submit edTPA.

SED 596 Graduate Seminar – 1 credit hour. This course is designed to assist candidates with preparation and submission for evaluation edTPA Portfolios. Prerequisites: Completion of all program courses. Corequisites: SED 595.

Special Education

SPE 500 Teaching Secondary Students with Disabilities in General Classrooms – 3 credit hours. This course is designed to introduce the graduate level teacher to principles useful for working with secondary students demonstrating a variety of academic, behavioral, and social needs. A practicum is required.

SPE 501 Introduction to the Study of Exceptional Children – 3 credit hours. This course provides an overview of the various exceptionalities and an introduction to basic special education services and procedures.

SPE 515 Language Development – 3 credit hours. This course involves the study of normal language development, with emphasis on the development of the phonological, syntactic, and semantic systems in children with disabilities.

SPE 516 Collaborative Consultation – 3 credit hours. This course is designed to provide teachers with knowledgeable skills required to successfully facilitate intervention strategies with general education classroom teachers and other education support personnel in meeting the needs of children with disabilities in an inclusive educational setting. Additional skills are designed to facilitate efforts of special education teaching personnel in facilitating intervention strategies with parents and community agencies in assisting students with disabilities to make a successful transition from the school to employment and community living activities

SPE 518 Application of Child Development to Special Education – 3 credit hours. An in-depth study of the principles and theories of child development from early childhood through adulthood. Specific emphasis is upon the implications of child development theory on teaching exceptional students.

SPE 520 Learning Strategies for Adolescents – 3 credit hours. This course is designed to provide teachers of children with disabilities in grades 6-12 with current strategies for assessing student learning styles and modifying instructional methods for optimal student learning.

SPE 522 Learning Strategies for Elementary Schools – 3 credit hours. This course is designed to provide teachers of children with disabilities in grades K-6 with validated, research-based approaches to plan for and incorporate student learning styles in inclusive classrooms to for optimal student learning. A practicum is required.

SPE 524 Sign Language – 3 credit hours. American Sign Language and Finger spelling will be taught with opportunities for group practice, opportunities with children and adults who are deaf and/or hard of hearing.

SPE 525 Advanced Assessment and Planning for Secondary Special Education – 3 credit hours. A course covering the historical development of lifespan planning, transition planning models and programming, techniques for developing and implementing individualized education plans to include transition plans, behavior plans and instructional strategies includes requisite skills in designing, developing, implementing, and evaluating academic, vocational, social and life skills for students with exceptionalities in grades 6-12.

SPE 530 Management of Classroom Behavior – 3 credit hours. This course represents a performance-based approach designed to enable the teacher candidate and other school personnel to become an educational service professional with knowledge, skills, and dispositions required by institutional, state, regional, and national standards. Through a constructivist design, learning will be facilitated by the advance candidate's participation in activities that will involve the intellect as well as dispositions. Creativity in learning will be facilitated by collaboration that should result in continual reflection and self-assessment. The ultimate outcome of this course is the further development of a skilled, highly proficient, advance-level educational practitioner.

SPE 540 Advanced Assessment and Planning – 3 credit hours. A course designed to support candidates in developing essential skills required to implement appropriate assessments to determine eligibility for special education services, and to

acquire knowledge and skills needed for developing and implementing individualized education plans (IEP) and individualized transition plans (ITP). Includes exploration of appropriate instructional strategies and student supports to promoted IEP and ITP implementation. Prerequisite: None.

SPE 541 Teaching Early Childhood Students with Disabilities in General Classrooms – 3 credit hours. This course is designed to provide pre-service teachers an opportunity to plan methods and materials to be used in inclusive settings, addressing the educational needs of students with disabilities birth through grade three.

SPE 545 Introduction to Early Childhood Special Education – 3 credit hours. This course covers the rationale for early childhood special education and provides a comprehensive overview of major principles and practices relating to the provision of services to young children with disabilities from birth through age eight.

SPE 546 Parent and Family Assessment, Support, and Cooperation – 3 credit hours. This course is designed to investigate methods of family assessment and evaluation as well as methods in training, counseling, and support of young children with disabilities.

SPE 548 Assessment in Early Childhood Special Education – 3 credit hours. This course emphasizes the basic skills and knowledge that are required to analyze, select, and implement effective assessment practices with children with disabilities.

SPE 549 Adaptive Techniques and Methods in Early Childhood Special Education – 3 credit hours. This course involves the study of techniques and methods that are requisites to adapt early childhood curricula to the specialized needs of young children with disabilities from birth through age eight.

SPE 550 Seminar in Early Childhood Special Education – 3 credit hours. This course is designed to provide teachers of children with disabilities aged 0– 8 with current strategies for assessing student learning styles and modifying instructional methods for optimal student learning.

SPE 560 Contemporary Issues and Trends in Special Education – 3 credit hours. This special topic course includes a broad perspective of the contemporary issues in the field of special education. Topics such as inclusion, special education law, advocacy, federal regulations and trends, transition, distance education, service delivery models and practices, and trends in identification, eligibility, and placement will be emphasized. The importance of reviewing and evaluating research-based practices in special education will be explored. Prerequisite: None.

SPE 563 Advanced Positive Behavior Interventions and Supports – 3 credit hours. This course includes assessing, designing, and implementing positive behavioral supports for students experience behavioral challenges. Concepts regarding reinforcement, replacement behaviors, and evidence-based practices to address challenging behavior will be the foundation for this course. The principles and techniques of Applied Behavioral Analysis to effect positive behavioral change will be emphasized. This course includes advanced research based behavioral techniques that can be implemented, validated and assessed. Current trends in behavioral research and intervention will be addressed. Prerequisite: None.

SPE 566 Curriculum and Instruction for Elementary Special Education – 3 credit hours. A methods and materials course in implementing and evaluating individualized educational plans; research-based approaches to teaching functional skills; developmental programming; data-based management (including technological applications); evidence-based approaches to teaching basic skills and adaptation of curriculum; and intervention implementation with fidelity. The course will include reviewing, evaluating, and selecting curriculum; best instructional practices and research-based strategies; using various methods for evaluation of student progress, developing interpersonal interactions, and addressing issues for transition from preschool to kindergarten. Candidates will further develop best practices and application for inclusive environments. Prerequisite: None.

SPE 567 Curriculum and Instruction for Secondary Students with Disabilities – 3 credit hours. This course is focused on development, implementation, and evaluation of individualized educational plans rooted in culturally responsive teaching techniques; special approaches to teaching functional skills; developmental programming; data-based management; specialized approaches to teaching basic skills and adaptation of curriculum, especially for students who are diverse and included in the secondary general education classroom. The course will include reviewing, evaluating, and selecting curriculum; evidence-based practices and research-based interventions; implementing various methods for evaluation of student progress, while including technological applications; improving interpersonal interactions, and addressing issues of transition from school to work. Prerequisite: None.

SPE 595 Internship – 6 credit hours. There are multiple internship courses based on the specific content area. This course entails one semester of full-time teaching under the immediate direction of cooperating teachers and university supervisors in the P-12 public schools. A fee for the edTPA portfolio assessment is proposed for candidates to purchase who are enrolled in the internship course (student teaching). The Alabama State Department of Education is requiring the edTPA assessment starting September 01, 2018, for teacher candidates to receive certification. The cost for the edTPA portfolio submission to Pearson is $300.00. Prerequisite: Candidates must be enrolled in the internship. Corequisite: submit edTPA.

SPE 609 Seminar in Special Education – 3 credit hours. This course is designed to stimulate the candidate's thinking in the field of special education, current research, programming innovations, curricular trends, and theoretical perspectives to be discussed.

SPE 610 Evidence-based Interventions in Special Education – 3 credit hours. This course is focused on development, implementation, and evaluation of Evidence-Based Practices (EBP) for students with severe and persistent learning and behavioral needs. Students will explore Intensive Interventions in Academics and Behavior as well as Strategic Instruction Model-Learning Strategies. The course will include reviewing, evaluating, and selecting interventions; best instructional practices and research-based strategies; and using various methods for evaluation of student progress. Prerequisite: None.

SPE 635 Reading Disabilities: Diagnosis and Evidence-based Intervention – 3 credit hours. The goal of this course is to prepare in-service inclusive special education teachers and interventionists working with students with intensive reading needs. The candidate will acquire skills in content and principles of individualized instruction for students with severe reading problems using the data-based individualization (DBI) process, as a framework for addressing the needs of students who require intensive intervention. The course will explore instructional activities that include modeling, error correction, and fluency building. Prerequisite: None.

SPE 637 Single Subject Research Design in Education – 3 credit hours. This course presents DBI as a framework for providing Intensive Interventions to students with persistent and significant academic and behavioral challenges. An overview of DBI, and progress monitoring techniques (academic and behavioral) using Single Subject Research designs will be presented. The advantages and the disadvantages of using general outcome measures versus mastery measures for progress monitoring will also be explored. Prerequisite: None.

SPE 641 Evaluation and Methods and Materials of Special Education – 3 credit hours. This course is designed to present innovative positions regarding how children in special education may be aided in the learning process.

SPE 642 Math Disabilities: Diagnosis and Evidence-based Intervention – 3 credit hours. This course is a study of the problems students with disabilities exhibit in mathematics and the exploration of explicit teaching practices and interventions that are proven to be successful. An overview of math disabilities, to include dyscalculia, diagnostic, remedial and intervention practices that meet national and state standards and reflect National Council of Teachers of Mathematics (NCTM) scope and sequence in mathematics are explored, developed and applied. Prerequisite: None.

SPE 643 Curriculum Planning K-6 – 3 credit hours. This course focuses on the study of the philosophical and psychological foundations of special education and designing curriculum specific to addressing the needs of individuals with disabilities within an inclusive education setting in grades K-6.

SPE 644 Curriculum Planning 6-12 – 3 credit hours. This course focuses on the study of the philosophical and psychological foundations of special education and designing curriculum specific to addressing the needs of individuals with disabilities within an inclusive education setting in grades 6-12.

SPE 660 Family and School Consultation, Coaching, and Mentoring – 3 credit hours. This course is designed to develop essential communicative/interactive interpersonal skills, as we as collaborative problem-solving skills in special education, counseling, and other disciplinary team members. It will focus on Cognitive Coaching to support novice teachers develop effective practices through mentoring support. Prerequisite: None.

SPE 664 Supervising Collaborative Consultation Programs K-6 – 3 credit hours. This course is designed to provide opportunities for teachers of young children with disabilities with practical experience in facilitating collaborative activities among special educators and general educators, families, and interagency personnel.

SPE 665 Supervising Collaborative Consultation Program 6-12 – 3 credit hours. This course is designed to provide opportunities for teachers of adolescents with disabilities with practical experience in facilitating collaborative activities among special educators and general educators, families, and interagency personnel.

SPE 667 Professional Writing – 3 credit hours. This course focuses upon professional writing strategies and processes for professional educators. The course emphasis is upon identifying funding sources, professional organizations, and refereed journals for which professional writing is appropriate.

SPE 685 Capstone Research for Special Education Intervention – 3 credit hours. The capstone research project will encompass a research study using quantitative, qualitative, or mixed methods research. Scholar practitioners should be able to conduct research or program evaluation studies in the area of Special Education. This culminating research project is intended to teach scholars how to carry out research and to evaluate their own research skills. Scholar practitioners also learn scholarly writing skills for presentation to professional audiences, and to be consumer of good research. Participants conduct focused education research studies within their own schools and/or district setting related to aspects of student achievement and reflective practice for school improvement. Individually designed research projects will demonstrate the ability to support K-12 urban school personnel in the systematic implementation and use of data to determine early learning outcomes, student achievement, or growth in student achievement in order to evaluate the effectiveness of services provided to students with disabilities. Prerequisite: None.

Social Work

SWK 500 Social Work Practice I – 3 credit hours. The course focuses on the history, foundation domains and roles of social work practice. It introduces the generalist social work practice model with emphasis on an overview of the social work profession, discussion of social work values and ethics, and applications of the generalist model to individuals and families. Required of all students in the 60-hour degree program. Prerequisite: Admission to the MSW program.

SWK 501 Social Work Practice II – 3 credit hours. Continuation of SWK 500. Explores further the roles, domains, philosophy and roles of social work practice. Basic theory, values, ethics and methods generic to social work practice at various system levels are presented with an emphasis on practice with mezzo and macro systems (e.g., families, groups organizations and communities). This course is required of all students in the 60-hour degree program. Prerequisite: SWK 500.

SWK 510 Social Work Policy & Services I – 3 credit hours. Examines the historical evolution of social welfare institutions; political, economic, religious, social and ideological perspectives will be analyzed. This course is required all students in the 60-hour degree program.

SWK 511 Social Work Policy & Services II – 2 credit hours. Continuation of SWK 510 - Social Work Policy & Services I. Emphasizes analytic models of welfare policies and lays framework for decision making. Contemporary issues will be discussed, and international policies examined. This course is required for all students in the 60-hour degree program. Prerequisite: SWK 510.

SWK 520 Human Behavior in the Social Environment I – 3 credit hours. Theories concepts, and knowledge about human development and behavior within the context of the social environment through the study of life cycle development in the ecological system. Major social and cultural institutions and their impacts on diverse individuals, families, groups and organizations will be examined. This course is required for all students. This course is required for all students in the 60-hour degree program.

SWK 521 Human Behavior in the Social Environment II – 3 credit hours. This is the second of a two-course sequence dealing with adult development, including old age and death. The societal impact of families, groups, and organizations on the elderly and the elderly interaction with these systems and their diverse impacts will also be discussed. This course is required for all students in the 60-hour degree program. Prerequisite: SWK 520, SWK 500, SWK 510.

SWK 522 Race, Ethnicity, Gender and Diversity – 3 credit hours. This course will introduce and sensitize students to the major concepts of culture, sub-culture, race, ethnicity and gender, cultural diversity, and pluralism and conflicts caused ethnocentrism, discrimination and prejudice. Further, it will emphasize public policies as well as interpersonal responses and the relationship between race, ethnicity, gender, diversity and social work practice. Emphasis is placed on the examination of major ethnic sub-cultures as well as sub-cultural groupings based on such factors as gender, race, ethnicity, religion, national origin, age, sexual orientation, physical and mental abilities and other differences in human populations. The common elements of oppressions are emphasized, and prejudicial and discriminatory practices are evaluated from both micro - and macro theoretical frames of reference. This is a course is required of all students.

SWK 523 Rural-Urban Social Work – 2 credit hours. Develop and apply theoretical knowledge and skills used in Urban and Rural Social Work Practice. Overall, the course assumes general knowledge of basic concepts in issues/problems, policies, community organizations, administration, service delivery systems, resource allocation, sociological knowledge, and program implementation in both urban and rural environments. Students will engage in projects that involve assessing the needs of rural communities and suggest intervention strategies. Teamwork reflecting professional standards of individual performance will be stressed as a means of accomplishing the objectives. Group and individual assignments will be used to assist students to develop teamwork, personal practice skills and competencies in evaluating practice. Thus, a group project involving rural-urban issues and problems, policy formation, planning, implementation, evaluation and issues feedback is used as a medium for the application of knowledge and skills. This course is required of all students. Prerequisite: (SWK 500, SWK 510, SWK 520) or Advanced Standing.

SWK 530 Applied Social Work Research – 3 credit hours. This outline covers the general content and assignments included in the syllabus. During the regular academic year, completion of this course typically requires about 14 to 16 weeks. Successful completion requires the ability to consume a great deal of written information, the use of complex thinking skills to understand social work applications, and advanced conceptualization and organization skills for preparation of the assignments. For most students this course represents and introduction to research, but it is, nevertheless, a graduate level course. Therefore, all students are expected to perform accordingly. For these reasons, all assignments are required, and work must be submitted in a timely manner. This outline was prepared for students' ease in moving toward a successful completion of the course. This is the first of two research courses. This course is required of all students in the 60 hour degree program.

SWK 581 Field Practicum & Seminar I – 4 credit hours. This is the first practicum course in the three-part practicum sequence. The purpose of this sequence is to expose students to the professional application of theory practice in community- based human service organizations. This course can be taken concurrent with or subsequent to classroom instruction. The field practicum courses must be taken in sequence and is a requirement for all students. Prerequisite: SWK 500, SWK 510, SWK 520, SWK 522, SWK 530. Corequisite: SWK 501, SWK 511, SWK 521, SWK 523).

SWK 587 Social Work Empowerment – 3 credit hours. This is a bridge course, which strengthens and assures a common core of professional knowledge for all advanced standing students prior to the beginning of coursework in Concentration areas. It explores the foundations, domains, values, ethics, philosophy, and roles of generalist social work. The foundations include human behavior in the social environment, social work and social welfare policy, practice, research, and fieldwork. Understanding the relationship of each of the foundation areas to the others, as well as their impact and interactive effects on social work practice will be important in this course. The historical and contemporary use of empowerment and strengths perspectives will be examined along with the impact of factors such as race, sex, gender, class, and other diversity issues on practice decisions made in these contexts. Classroom learning and assignments will include application of ecological perspectives and problem-solving processes; assessment and planning skills; differential utilization of knowledge of the impact of race, ethnicity, class, culture, gender, sexual orientation, and varying abilities on social work relationships. This is a required introductory course exclusively planned for all advanced standing students. Other students may not take this course without permission from the Program Chair/Coordinator.

SWK 600 Social Work Intervention Strategies with Vulnerable Clients – 3 credit hours. This practice seminar focuses on relationship-building, assessment and interventions with vulnerable individuals and families. Theories needs (e.g., mental illness, delinquency, and physical handicaps), foster care, and protected services for abused and neglected children. Social Work values and ethics will be infused throughout the course. This course is required of all students in the Family and Child Welfare concentration. Prerequisite: (SWK 510, SWK 511, SWK 520, SWK 521) or instructor consent.

SWK 601 Social Work Practice with Groups – 3 credit hours. Methods and skills for engaging, assessing and intervening with task and treatment groups are explored. Concepts and ethics applied to group work are emphasized. Also discussed are therapeutic interventions and theories appropriate for group work. Required of all students in the Direct Practice Concentration. Prerequisite: (SWK 600, SWK 602) or instructor consent.

SWK 602 Social Work Practice in Health & Mental Health – 3 credit hours. This course highlights critical issues faced by social workers within the mental health system and the worker's accountability in various practice settings. Engagement, assessment and intervention strategies will be explored. Theoretical perspectives and treatment models useful in mental health practice are emphasized. Prerequisite: (SWK 500, 501, 520, 521) or instructor consent. This course is a requirement for all students in the Community Mental Health specialization.

SWK 604 Theory and Practice of Social Welfare Administration & Planning – 3 credit hours. Provides the knowledge base and beginning competency required for the mid-level administration of a social welfare organization within the community.

Theoretical perspectives on the evolutionary development of administration and grounded principles of management will be discussed. Social Work ethics, values, methods, knowledge and skills introduced in earlier courses will lay the foundation for additional work in these areas. Contemporary issues impacting on modern organizations, including but not limited to economic and social justice, diversity issues including race, women, gays and lesbians, and people who are physically and mentally challenged, will be discussed. The student will gain a comprehensive view of Administration in the macro environment and will solidify his/her perception on the administrative style of choice. Course Prerequisite include ALL the foundation courses or consent of the instructor.

SWK 605 Organizational Behavior and Management – 3 credit hours. This course is predicated on the assumption that people are truly the most valuable asset in any organization; therefore, management must demonstrate a realistic appreciation of workers, individually and collectively. This course deals with the management of people, inter-personal interactions, and relationships within organizations including, but not limited to, individual and group behavior, motivation, learning, leadership, supervisory behavior, communication, role, status and conflict resolution. Professional social work values and ethics including an abiding respect for the dignity and worth of the individual will be emphasized. The role of diversity (ethnic, racial, sexual orientation, religious, physical and mental abilities and gender) and the social policy of affirmative action will be discussed. 2nd year standing. NOTE: Students must register for this course in the Psychology Dept. (PSY 627) or the Department of Management & Marketing (MBA 515). As a concentration course, Prerequisite include all the foundation year courses or consent of the instructor.

SWK 610 Family & Child Welfare Policy – 3 credit hours. The predominant focus of this course is to identify, discuss and integrate family and child welfare issues and policy. Although the course discussions will be on child welfare policies affecting children and families in general, the emphasis will be on children and families with special needs, e.g. protective services, foster care and adoption. The concept of the "best interest of the child" will be analyzed in depth. This course traces the historical development of child welfare services in the U.S. from the beginning of the twentieth century until the present time. Five areas of services, programs and policies will be discussed: adoption, teenage pregnancy and parenthood, children with special needs (e.g., mental illness, delinquency, and physical handicaps), foster care, and protected services for abused and neglected children. Social Work values and ethics will be infused throughout the course. This course is required of all students in the Family and Child Welfare concentration. Prerequisite: (SWK 510, SWK 511, SWK 520, SWK 521) or instructor consent).

SWK 613 Budgeting and Financial Management – 3 credit hours. Basic knowledge and theoretical underpinnings required to manage the fiscal and budgetary aspects of human service organizations. The course emphasis is the development and administration of fiscal resources to effectively meet the mission and goals of the organization. Along with the practical aspects of budget planning, development and implementation, the course will address major funding sources for human service organizations, and the strategies of influencing and accessing these sources. The role of politics and its impact on social services within our society will be explored, and students will be taught to manage with decreasing resources especially in rural areas. Required of all Policy, Planning and Administration concentration students. Prerequisite: All foundation year courses or instructor consent.

SWK 614 Principles of Planning and Program Implementation – 3 credit hours. The focus of this course is on the concept of planning within social welfare agencies institutions for the purpose of program implementation. Students acquire knowledge and understanding of planning concepts, strategies, and objectives for program development, implementation and evaluation. An ecological system perspective is applied to promote understanding of the interrelationships among individuals (micro systems), families, groups (mezzo systems), organizations/institutions and communities (macro systems). Likewise, a problem-solving approach is used to provide content for understanding the differential strategies for resolving needs of individuals, families, and small groups, and larger organizational or community systems. Theoretical, empirical, and experimental contents are utilized to provide the student with an awareness of both comparative and contrasting aspects of systemic planning with other activities required in program implementation and program evaluation. Required of all Policy, Planning and Administration concentration students. Prerequisite: All foundation year courses or instructor consent).

SWK 615 Grant Writing – 2 credit hours. Explores various grant writing theories and skills and demonstrates practical application of the process. Students will assist agencies and organizations to apply for local, state, federal, and international grants for their programs or projects. Required of all students in the Policy, Planning and Administration concentration. Prerequisite: All foundation year courses or instructor consent).

SWK 616 Issues & Policies in Community Mental Health – 3 credit hours. Examines the impact of policies on social work practice in mental health settings, including local, state and national policies from which services are derived. Also examines the differential impact of race, ethnicity and social class on policy formulation and service delivery in mental health settings.

This course is required of all students in the Community Mental Health concentration. Prerequisite: (SWK 500, SWK 501, SWK 520, SWK 521) or instructor consent).

SWK 621 Family Theories and Processes – 3 credit hours. This advanced level practice course explores sociological concepts of marriages and families in contemporary society; vulnerable families; family preservation; and the assessment and treatment of marriages and families. Treatment models, techniques, and strategies are highlighted. Social work values and ethics, research on marriages and families and the treatment thereof, and cultural diversity issues are emphasized. This course is required of all students in Direct Practice. Prerequisite: (SWK 500, SWK 501, SWK 520, SWK 521, SWK 601, SWK 602, SWK 610) or instructor consent.

SWK 623 Trauma-informed Care – 2 credit hours. This course will introduce students to the use of 12 common trauma-informed practice elements, with emphasis on diversity, equity, and inclusion, in the intervention and treatment of traumatized children and their families. The course conceptualizes a trajectory of intervention that considers the impact of trauma, the intervention objective(s) that may be used to ameliorate that impact, and the identification of practice elements that, if used skilfully, will support the intervention objective. Prerequisite: (SWK 500, SWK 501, SWK 510, SWK 511, SWK 520, SWK 521, SWK 522, SWK 523, SWK 530).

SWK 630 Needs Assessment and Program Evaluation – 3 credit hours. This course builds on foundation courses and the need for scientific problem-solving, decision-making and accountability in professional social work practice. Knowledge of the social work research process is the foundation upon which students will develop needs assessment and program evaluation skills. Understanding of social work knowledge, values, skills and ethics associated with practice, policy, and human behavior perspectives will be articulated in the student's conceptualization and development of either a need assessment or a program evaluation. Additionally, these skills will be applied to a variety of social systems and social problems for the purposes of promoting, sustaining, and enhancing individuals, families, groups, communities, and societal well-being. Prerequisite: SWK 530 or instructor consent.

SWK 631 Research Project/Thesis – 1-3 credit hours. This course offers students the opportunity to prepare an empirically based research thesis derived from a practice problem. The thesis is designed to make a significant contribution to a special area of interest within the student's concentration. Upon approval by the student's Thesis Committee, or the research project panel, and acceptance by the Dean of the School of Graduate Studies (Graduate Bulletin, 1999-2000), students complete their research and thesis under the guidance of a graduate faculty member and thesis committee. Upon completion of the research project, the thesis is defended before the student's thesis committee. Prerequisite: Completion of all first-year courses, or Advanced Placement status, and Registration for SWK 631: Research Project.

SWK 632 Thesis Option – 1-3 credit hours. This course offers students the opportunity to prepare an empirically based research thesis derived from a practice problem. The thesis is designed to make a significant contribution to a special area of interest within the student's concentration. Upon approval by the student's Thesis Committee, or the research project panel, and acceptance by the Dean of the School of Graduate Studies (Graduate Bulletin, 1999-2000), students complete their research and thesis under the guidance of a graduate faculty member and thesis committee. Upon completion of the research project, the thesis is defended before the student's thesis committee. Prerequisite: Completion of all first-year courses, or Advanced Placement status, and Registration for SWK 631: Research Project.

SWK 641 Crisis Intervention – 2 credit hours. In-depth exploration of the history and theory of crisis intervention and brief therapies. Crisis intervention and short-term theoretical models and techniques are applied to diverse and vulnerable populations. Also examined are social work values and related ethical dilemmas, legal and professional issues and social work research, particularly the evaluation of practice effectiveness. Prerequisite: (SWK 500, SWK 510, SWK 520) or instructor consent.

SWK 642 Sexual Abuse: Assessment & Intervention – 2 credit hours. Issues of sexual abuse and rape across cultures. The emphasis is on childhood sexual abuse, incestuous and non-familial, and its effects on the developing child and the adult survivor. Protective service issues as well as psychotherapeutic issues will be addressed. Course content includes assessment of sexual abuse; treatment philosophies and techniques for children and adult survivors, including individual, family and group therapy; assessment of childhood sexual abuse in custody and visitation cases; false memory syndrome; offender treatment; and social work roles, including protective services worker, therapist, and witness. Building on the knowledge of human behavior and diversity, social work practice, and social welfare policy acquired in the study of the core curriculum, this course emphasizes the application of this knowledge in the area of childhood sexual abuse and rape. It is an elective in the Direct Practice concentration, and builds upon this body of knowledge, especially SWK 600, SWK 602, SWK 610 and SWK 616. Prerequisite: (SWK 500, SWK 501, SWK 521, SWK 522) or instructor consent.

SWK 643 Interventions with Children and Adolescents – 2 credit hours. Provides an overview of practice with emphasis on physical, psychological, and cultural developmental engagement, processes and characteristics unique to children and adolescents. The course also explores assessment and intervention strategies useful with children/adolescents in family, group, and institutional settings. Critically examines values, ethics, research and other issues regarding effective practice with this vulnerable population. Prerequisite: (SWK 500, SWK 510, SWK 520) or instructor consent.

SWK 644 HIV/AIDS: Critical Issues in Social Work – 2 credit hours. This course focuses on the biological, social and psychological dynamics of HIV/AIDS. It is designed to prepare social work majors and students majoring in other disciplines to be knowledgeable of HIV/AIDS and its disproportionate impact on African Americans and people of color.

SWK 647 Social Work and Spirituality – This course will introduce and sensitize students to the concepts of spirituality/religiosity. Examines spirituality/religiosity and its relevancy to social welfare and social work. The focus is on skills and knowledge needed for effective participation in both micro and macro social work practice settings as a social work professional. Social work values and ethics will be infused in the course. An elective. Prerequisite: (SWK 500, SWK 501, SWK 510, SWK 511, SWK 520, SWK 521) and (concentration yr standing or instructor consent).

SWK 652 Social Work and Law – 2 credit hours. This seminar examines the judicial system and its relevancy to social welfare and social work. The focus is on skills and knowledge needed for effective participation in the legal process as a social work professional. Prerequisite: (SWK 500, SWK 501, SWK 510, SWK 511, SWK 520, SWK 521) or instructor consent.

SWK 658 International Social Welfare and Social Work – 2 credit hours. Sensitizes students to the knowledge base required in international social welfare and social work practice and international social work education. Further, it will emphasize the significance of traditional and modern ways of foreign welfare and social work practices in developed and developing countries. Emphasis is placed on the examination of macro, mezzo and micro social systems and their interaction. Further, these concepts will be discussed in class: demography, social issues/problems, community development, community organization, transfer of technology, non-governmental organizations (NGOs), governmental organization (GOs) and the like. Prerequisite: (SWK 510, SWK 511, SWK 520, SWK 521) or instructor consent.

SWK 660 Assessment of Individuals – 3 credit hours. In-depth focus on assessment and diagnosis in social work practice with some attention to change personality theories. Includes in-depth discussion and critique of DSM-IV-TR and its use in social work practice. Information on assessment etiology and treatment of mental illnesses is provided. Required of all students in direct practice concentrations. Prerequisite: Completion of all foundation courses or instructor consent.

SWK 663 Substance Abuse – 2 credit hours. Examines the impact of substance abuse on individuals, families, groups, organizations/institutions and communities. Also, societal responses, contributing factors, social problems, policies, programs, services, intervention strategies, and needed resources will be examined. Prerequisite: (SWK 500, SWK 501, SWK 520, SWK 521) or instructor consent.

SWK 667 Social Work Practice with Aging – 2 credit hours. Discusses impact of mental illness on the elderly. Focuses on demographic issues and problems of the aged will be infused into the course content with a special emphasis on Alzheimer's disease and other mental illnesses. Assessment and intervention strategies used by social workers will be examined. Prerequisite: (SWK 500, SWK 501, SWK 520, SWK 521, SWK 522) or instructor consent.

SWK 680 Field Practicum & Seminar II – 4 credit hours. This is the second practicum course in the three-part sequence. Prerequisite: All foundation year courses. Corequisite: SWK 600 or SWK 616 and SWK 621.

SWK 681 Field Practicum & Seminar III – 4 credit hours. This is the last course in the three-part practicum sequence. Prerequisite: SWK 680.

SWK 682 Introduction to Integrated Behavioral Health & Primary Health Care – 2 credit hours. This course is designed to expose students of social work to integrated behavioral health care. Students will become knowledgeable of the roles of primary care and behavioral health providers working in integrated care settings, theories, and models of care, and cross-cultural issues. They will get experience in interaction, screening, and evaluation. Because the populations treated in primary care settings range in severity across both the physical and mental health dimensions, students will gain skills in engaging and supporting patients with a variety of health issues. Prerequisite: None.

SWK 689 Integrative Seminar – 3 credit hours. Focuses on social work as a profession and on integration of all curriculum areas in the professional practice of social work. Emphasis will be placed on all aspects of professional social work practice including methods, knowledge, values, ethics, skills and legal issues. This course is required of all students and should be taken during the semester that students are graduating from the program.

SWK 690 Evidenced-based Practice with Families & Children Impacted by Opioid and Other Substance Use Disorders – The course is designed to broaden the knowledge, skills, and competence of social work students working as paraprofessionals with families, children, and family members who are in guardianship positions and are impacted by opioid use disorders (OUD) and other substance use disorders (SUD). Furthermore, showing expertise and awareness of the issues experienced in children, adolescents, and transitional aged youth in medically underserved and high demand regions who are at risk for mental health problems and SUDs is a special emphasis. Prerequisite: None.

SWK 698 Independent Study – 1- 3 credit hours. Students may register for one to three hours of independent study with a professor competent in the area of student's interest. An application for Independent Study must be approved by both the instructor consenting to supervision and the MSW Program Coordinator. An independent study must not replicate another course in the MSW curriculum.

SWK 700 Doctoral Seminar I – 1 credit hour, 1 contact hour. This course serves as an introduction to the PhD in social work program, providing students with an understanding of the expectations and demands of doctoral-level study. Students will also become familiar with the faculty members and their research interests, fostering connections within the academic community. The course follows a synchronous modality, with weekly 3-hour meetings. Prerequisite: None. Co-requisite: None.

SWK 701 History of Social Work and Social Welfare – 3 credit hours, 3 contact hours. Through an in-depth examination and analysis, this course explores the historical development and evolution of social welfare values, professions, practices, and policies in the United States. Students will gain a comprehensive understanding of the field's foundations and how they have shaped contemporary social work. The course is offered in a hybrid synchronous modality, with classes meeting every other week for three hours. Prerequisite: None. Co-requisite: None.

SWK 704 Social Welfare Policy Analysis and Planning – 3 credit hours, 3 contact hours. Focusing on policy analysis and development, this course enables students to engage in a policy research project centered around their specific research interests. Students will gain a deep understanding of policy processes, analysis techniques, and the impact of policies on social welfare. The course is offered in a hybrid synchronous modality, with classes meeting every other week for three hours. Prerequisite: SWK 700 and SWK 701 and SWK 710 and SWK 720. Co-requisite: None.

SWK 710 Theories and Frameworks in Social Work I – 3 credit hours, 3 contact hours. This course delves into the theories and frameworks utilized in social work interventions with individuals, families, and groups. Students will explore various theoretical perspectives and their practical applications in real-world social work scenarios. The course follows a hybrid synchronous modality, with classes meeting every other week for three hours. Prerequisite: None. Co-requisite: None.

SWK 711 Theories and Frameworks in Social Work II – 3 credit hours, 3 contact hours. Building upon the theories and frameworks explored in the previous course, this class delves into social work interventions with large groups and communities. Additionally, theories and frameworks specific to rural and urban social work practices are discussed, enabling students to address unique challenges and opportunities in these contexts. This class meets every other week online. Prerequisite: SWK 700 and SWK 701 and SWK 710 and SWK 720. Co-requisite: None.

SWK 720 Research Methods in Social Work – 3 credit hours. Providing a comprehensive overview, this course equips students with the fundamental concepts and methodologies used in quantitative and qualitative research methods. Students will develop essential research skills necessary for conducting rigorous social work studies. The course meets weekly for 3 hours in a synchronous modality. Prerequisite: None. Co-requisite: None.

SWK 721 Quantitative Methods in Social Work Research – 3 credit hours. This course provides students with a solid foundation in quantitative research designs and conceptual issues relevant to social work research. Students will learn to evaluate and assess the effectiveness of social work interventions using systematic quantitative approaches. The course follows a synchronous modality, with weekly three-hour meetings. Prerequisite: SWK 700 and SWK 701 and SWK 710 and SWK 720. Co-requisite: None.

SWK 722 Qualitative Methods in Social Work Research – 3 credit hours. Through an exploration of the history, philosophical background, research designs, methods, and analysis techniques in qualitative research, this course equips students with the necessary tools to conduct qualitative research in the field of social work. The course meets weekly for 3 hours in a synchronous modality. Prerequisite: SWK 700, SWK 701, SWK 703, SWK 704, SWK 710, SWK 711, SWK 720, SWK 721. Co-requisite: None.

SWK 723 Assessment and Program Evaluation – 3 credit hours, 3 contact hours. Focusing on principles, strategies, and techniques of program evaluation, this course enables students to identify, clarify, and apply defensible criteria for assessing the value, quality, utility, and effectiveness of social programs. Students will gain practical skills in conducting, documenting, reporting, and presenting assessment or evaluation findings. The course is offered in a hybrid synchronous modality, with classes meeting every other week for three hours. Prerequisite: SWK 700, SWK 701, SWK 703, SWK 704, SWK 710, SWK 711, SWK 720, SWK 721. Co-requisite: None.

SWK 725 Trauma Informed Research – 3 credit hours. This course will introduce students to the use of 12 common trauma-informed elements that must be considered when researching marginalized populations, with emphasis on an examination of intersection in the study of traumatized children and their families. The course conceptualizes a trajectory of intervention that considers the impact of trauma, the intervention objective(s) that may be used to ameliorate that impact, and the development of research that will prioritize and respect the need for research with these populations. The course also highlights research on trauma-informed elements and the importance of such studies in the context of diversity in research. This will allow doctoral students to identify, study, and develop empirically supported research regarding children and families impacted by trauma. The course meets twice every week, as an elective in the summer semesters for 8 weeks. Prerequisite: SWK 700 and SWK 701 and SWK 704 and SWK 710 and SWK 711 and SWK 720 and SWK 721.

SWK 726 Advanced Integrated Behavioral Health and Primary Care Research – 3 credit hours. The course is designed to equip students to research patient care, to study collaborative and interdisciplinary teams, to research evidence-based practices and quality improvement strategies, and make use of informatics. The overarching aim is to prepare researchers to analyze demographic shifts in the nation's patient base and changes in practice environments. This advanced course focuses on the integration of behavioral health and primary care through evidence-based practices, theoretical frameworks, and rigorous research. Intended for PhD students, the course is geared towards developing advanced research and practice capabilities essential for leadership positions in integrated healthcare settings. Students will perform critical analyses of current literature, apply theoretical models, and create. The course meets twice weekly, as an elective in summer semesters for 8 weeks. Prerequisite: SWK 700 and SWK 701 and SWK 704 and SWK 710 and SWK 711 and SWK 720 and SWK 721.

SWK 730 Statistical Methods I – 3 credit hours. This course provides an in-depth understanding of statistics as a scientific tool in social science research. Students will learn various statistical methods, their meanings, and their importance. The course follows a synchronous modality, with weekly three-hour meetings. Prerequisite: SWK 700, SWK 701, SWK 703, SWK 704, SWK 710, SWK 711, SWK 720, SWK 721. Co-requisite: None.

SWK 731 Statistical Methods II – 3 credit hours. Building upon the foundational statistical knowledge gained in the previous course, this class explores various multivariate analyses and their applications in social work research. Students will learn advanced statistical concepts and techniques. The course follows a synchronous modality, with weekly three-hour meetings. Prerequisite: SWK 700, SWK 701, SWK 703, SWK 704, SWK 710, SWK 711, SWK 720, SWK 721, SWK 722, SWK 723, SWK 730. Co-requisite: None.

SWK 740 Doctoral Seminar II – 3 credit hours, 3 contact hours. As the second of three developmental courses, this class supports students in further developing their dissertation proposals. Students will focus on finalizing the research question and initiating the literature review process. The course is offered in a hybrid synchronous modality, with classes meeting every other week for three hours. Prerequisite: SWK 700, SWK 701, SWK 703, SWK 704, SWK 710, SWK 711, SWK 720, SWK 721, SWK 722, SWK 723, SWK 730. Co-requisite: None.

SWK 741 Doctoral Seminar III – 3 credit hours. This course supports students in drafting their dissertation proposals. Students who do not submit the culminating assignment, a dissertation proposal DRAFT that meets minimum standards, will be assigned an Incomplete. Students assigned an Incomplete will have two semesters to complete the dissertation proposal DRAFT and fulfill all requirements for this course. This synchronous course enables students to meet weekly, individually or in groups. Prerequisite: None. Corequisite: None.

SWK 799 Dissertation Research – 3-9 credit hours. Students must pass candidacy through the successful defense of the dissertation proposal before entering continuous matriculation. Students may enrol for 3, 6, or 9 dissertation credit hours per semester through the successful defense of their dissertation. Prerequisite: SWK 741.

Systems Engineering

SYE 523 Statistical Methods for Engineers – 3 credit hours. Application of problem-solving tools and procedures for statistical analysis and interpretation of research data. Introduction to probability, descriptive data analysis, distribution functions, interval estimation, test of hypothesis, regression models, and analysis of variance.

SYE 532 System Safety – 3 credit hours. Theories, concepts, applications, and practices of system safety, including accident analysis, hazard analysis, design for safety, human factors and safety, controlling safety during operations, and management of projects and systems. Integration of safety skills and resources into all phases of a project's or system's life cycle is emphasized.

SYE 534 Quality Management for Engineers – 3 credit hours. Tools and techniques for quality management and performance excellence, including fundamental principles, criteria, and historical foundations in the management and measurement of quality and productivity. Topics include a review of basic statistics and probability; process variation; statistical process control charting and capability analysis for process, product, and management systems; Six Sigma; an introduction to design of experiments (DOE) in business and industry.

SYE 570 Systems Verification, Validation and Testing – 3 credit hours. This course covers the techniques and tools for the verification, validation, and testing (VV&T) of complex systems throughout their life cycle. It emphasizes an understanding of quality assessment; inspection; proof-of-correctness; traceability; writing verification, validation, and test plans; and relevant VV&T standards. Students will be engaged in projects in systems engineering design and formal approaches to system verification, validation and testing. Prerequisite: None.

Urban & Regional Planning

URP 500 Fundamentals of Planning – 1 credit hour. The course provides a fundamental understanding of the field of urban and regional planning, the actors in the planning process, and contemporary planning issues and methods for beginning students. The parameters of planning and the contexts within which the profession is practiced are stressed.

URP 504 Internship – 3 credit hours. The purpose of this course is to provide on-the-job training for students who have not had any prior work experience in the field for which they are training. Students perform a pre-determined work assignment under direct agency supervision of ten hours during fall and spring semesters, and 20 hours during the summer. Individual work plans and learning outcomes are established to support the internship experience. Prerequisite: six (6) credit hours earned in the MURP program.

URP 506 Urban Economics – 3 credit hours. A study of the economic forces underlying urban phenomena or problems; industrial and residential location, urban transportation, waste disposal and pollution, urban government finance, poverty, crime and income, maintenance programs. Prerequisite: None.

URP 507 Planning Legislative & Zoning – 3 credit hours. The course focuses on statutory law, policies and the constitutional framework which support the authority for planning and guiding urban and regional development. Through the examination of enabling legislation models, general plans, zoning, development reviews systems, and planning law, this course provides an understanding of how law and urban policy intersect and thus influence the planning process.

URP 510 Planning Theory and History– 3 credit hours. This course examines the evolution of the urban and regional planning profession. It presents alternative theories of planning and critically examines procedural, substantive, and decision-making theories of planning practice. The course also explores the relationship of history and theories of planning to equity, diversity, ethics and values issues in the society and in the profession.

URP 511 Quantitative Methods – 3 credit hours. A basic graduate course on statistical concepts and methods with applications in urban and regional planning. It is intended to give the student a broad understanding of the meaning, purpose, methods and use of descriptive and inferential procedures in urban analysis and planning. It includes a review of basic mathematical concepts fundamental to quantitative methods, linear and nonlinear functions focusing on growth curves, data measurement and display, descriptive statistics and probability, and introduction to use of computer software packages (SPSS) as a tool in analysis of planning related data.

URP 513 Urban Geography – 3 credit hours. This course analyzes the location, evolution (including decline and rebirth) of cities, and functional classification of cities. Urban growth theories and economic influence of cities over larger geographic areas are also studied.

URP 515 Regional Development Theory – 3 credit hours. This course provides an introduction to regional development theory, issues and policy. The topics covered in the course include location of economic activities, trade and other forms of contact between regions, processes of regional growth and decline, reasons for different levels of economic development, relations between more or less developed regions, the effects of globalization on development, and implication for regional planning policy.

URP 516 Planning Research Method – 3 credit hours. The course focuses on research methods and statistical concepts with applications in urban and regional planning. The course exposes various types of research that are conducted and the kinds of problems each method possesses. It introduces the student to basic concepts and problems encountered in urban and regional planning research, including types of data and measurement, sampling, descriptive and inferential statistics, bivariate and multivariate methods, and research design. This course is designed to provide the students with the competency to be educated consumers of research for urban and regional planning. Prerequisite: None.

URP 521 Planning Research II (Applied Research Methodology) – 3 credit hours. This course presents a range of concepts which provide a foundation for the student to understand and apply appropriate research methods according to the research need. Both quantitative and qualitative research designs are explored along with techniques of data collection, treatment, analysis and interpretation which support development and preparation of professional plans and reports and their evaluation in the practice of planning. Prerequisite: instructor consent's approval required.

URP 523 Site Planning – 3 credit hours. This is a graduate level course designed to develop the skills of course participants involved in the processes, procedures and techniques of land development. This course introduces the technical aspects, language, and professional perspectives of site development. Specific topics covered may include those arising from environmental conditions, topography, policy and regulation, and culture. Prerequisite: None.

URP 525 Physical Planning and Urban Design – 3 credit hours. This course focuses on local land use planning and site design. It is designed to provide the students with the basic methods and tools of physical planning and urban design including evaluation and implementation strategies. This course provides students with the basic knowledge of how sites are designed and used. Students will learn site design processes and strategy and the creation of site plans and physical development standards. Prerequisite: None.

URP 526 Computer Applications in Planning – 3 credit hours. This course is designed for beginning graduate students in urban and regional planning. It begins with an overview of excel and exploration of GIS web resources. It advances to application of Arc GIS desktop in local and regional planning. Approximately half of the class time during the semester is dedicated to teaching Arc GIS while the other half focuses specifically on the application of Arc GIS in the development, preparation and presentation of a database containing tables, maps and graphs typically required for the preparation of comprehensive plans in planning agencies. Prerequisite: instructor consent.

URP 527 Capstone Studio – 3 credit hours. The course focuses on comprehensive plan making at the community, municipal, and/or regional level. The course provides the students with practical experiences in integration and application of various components of the planning process into a planning document. It emphasizes the use of research, analytical, forecasting, and/or evaluation methods in plan-making. Students will complete an applied planning project to serve as Master's Report that assesses the student's writing skills. Prerequisite: None.

URP 529 Professional Practice – 3 credit hours. The purpose of the course is to assist students in understanding the role of the practicing planners. The objectives are to teach the concept of professionalism, train students in the ethical conduct of a professional planner, prepare students for careers as a practitioner within private and public domains. The course is specifically designed to prepare students to meet requirements of membership in the American Institute of Certified Planners (AICP) and encourage students to take the AICP exam. All assessment in the Comprehensive Examination will be captured in the practices for the AICP exam. This course is also to replace the Comprehensive Examination. Prerequisite: (URP 510, URP 511, URP 507, URP 521, URP 526) and ((URP 525, URP 531) or instructor consent).

URP 531 Economic and Population Analysis for Planners – 3 credit hours. The course examines the interactive relationships between demographic, economic and other social processes which impact on the quality of life, and influence planning policies and programs. Topics covered in the course include the vital processes of population change, economic processes and activity forecasting, and their cumulative impacts on urban and regional structures and planning policies.

URP 533 Land Use Planning – 3 credit hours. This course focuses on analysis of major determinants of land use, growth potentials and land use alternatives for urban regions. Current policy issues, and approaches and techniques of land use planning at the national, state and local levels, and their impact on community revenues and outlays will also be explored. Prerequisite: None.

URP 534 Community Facilities Planning – 3 credit hours. This course is designed to set forth and explore the methods, techniques, analysis and planning for the delivery of basic community facilities in terms of programs, policies, and physical facilities. Areas of exploration include community parks, water and sewage, airports, fire protection, solid waste and related special community facilities. In addition, community organizational structures are also described as they related to the delivery of services and facilities operation.

URP 535 Transportation Planning – 3 credit hours. This course provides a general overview of transportation planning practice and policy in the United States. The course reviews the economic and political history of public versus private oversight of transportation and the implications this has on how transportation policy and planning are motivated. Contemporary issues in transportation, methods to regulate them, and their equity and efficiency impacts are broadly reviewed. Practice components of the course include travel demand measurement and management strategies, including how these vary with the guiding role of a transportation planning or engineer practitioner. Prerequisite: None.

URP 536 Health and Urban Planning – 3 credit hours. This course examines federal legislation and legislative actions which have influenced the broad spectrum of health planning services, emergency medical services, nursing home standards, health maintenance organizations and relevant responsibilities of planners in the broadening health planning field.

URP 537 Transportation and Land Use – 3 credit hours. This course investigates the relationship between travel behavior and the built environment, including how land uses influence travel behavior and how transportation investments influence location behavior. Planning and policy intervention strategies aimed at addressing contemporary transportation-land use challenges are reviewed in their conceptual framework, effectiveness, and side effects. One module of the course surveys the four-step model used in regional planning practice. Prerequisite: None.

URP 538 Transportation Plan Modeling – 3 credit hours. This course is designed to present an in-depth orientation to contemporary transportation planning computer model packages and analytical techniques. Practical applications are provided to gain experience in transportation data generation, data management, program execution and interpretation of computer output. Prerequisite: URP 535.

URP 539 Transportation Planning & Administration – 3 credit hours. This course will focus on a broad examination of mass transit issues including legislation, funding, technology assessment planning, and planning process, implementation, and management of public transportation operations.

URP 542 Environmental Planning – 3 credit hours. This course explores the relationship between the natural environment and physical planning. Ramifications of federal, state, and local environmental analysis and impact assessment are also discussed. Broad aspects of the environment including physical, social, economic, cultural, and aesthetic are presented as a means of ensuring environmental stability for future generations.

URP 543 Housing Issues in Planning – 3 credit hours. This course provides an introduction to housing markets and existing housing programs. It examines the structure of the demand and supply of housing and the various methods used by the public sector to intervene in the housing market. The different programs and policies used by governments at all levels to serve different housing goals and how well they work are analyzed. In addition, it examines the methodology and techniques for assessing housing conditions and needs and presents case studies of current innovative approaches for addressing community housing problems. Prerequisite: URP 506.

URP 544 Historic Preservation and Neighborhood Conservation – 3 credit hours. Overview of the historic preservation field including topics such as taxation, gentrification, minority displacement, aesthetic revitalization, structural rehabilitation, alternative uses and other issues relevant to the conservation and preservation of historic facilities and neighborhoods are addressed.

URP 545 Environmental Policy – 3 credit hours. This course focuses on how to assess the likely impacts of land use plans and projects on the bio-physical and socio-economic environment. It examines federal, state and local environmental regulations with an emphasis on translating environmental assessment results into public policy, conceptualization of the mitigation of identifiable environmental conflicts.

URP 553 Community Development Process – 3 credit hours. Elements of community resource development strategies based on developmental practices of private investors and governmental agencies. Special attention is given to the political, business and citizen organizational structure at the local level and their relevant impact on code enforcement practices and developmental practices.

URP 555 Terminal Research Proposal – 1 credit hour. This course is the initial development stage of the terminal research paper. The research proposal outlines the approach for conducting the research, with focus on the research design. The proposal is developed under the supervision of the student’s approved research committee.

URP 556 Independent Research – 3 credit hours. A formal presentation of an investigation directed by an assigned faculty member within the department with respect to the student’s specialization. It is intended to meet the needs of students for study in

urban planning beyond the regularly scheduled courses. The research will consist of either a survey of existing research on a given and specific area of study, an area of the student's interest beyond the scope of instructional courses or work on a problem approved by the faculty of the department. Registration for this course requires a written approval of the faculty advisor and the Chairman of the department.

URP 557 Terminal Research – 2 credit hours. Non-thesis, faculty guided research paper developed independently by the student. The paper must thoroughly explore a relevant issue (topic or question) which shall be substantiated by data derived from primary or secondary sources. The research topic or issue must be related or derived from the student's specialty area. Prerequisite: URP 511, URP 521, URP 555.

URP 559 Planning Project – 2 credit hours. This is an applied research focused on the examination of a planning issue or problem under the supervision of the student's project committee culminating in the presentation of a report on the planning project. Prerequisite: URP 511, URP 521, URP 555.

URP 560 International Program Management and Evaluation – 3 credit hours. This course is intended to enable the student to gain an understanding of the principles, issues, processes and problems involved in the planning, management and evaluation of international programs. Specific examples are provided from projects and programs supported by the U.S. Agency for International Development (USAID) and other principal public and private agencies.

URP 561 Regional Development and Planning – 3 credit hours. This course is an introduction to the theory and practice of regional development and planning. It covers certain examples of regional planning in the United States but the main cases analyzed are drawn from regions in Low- and Middle-Income Countries (LMIC). It is open to students with interest in planning for regions specifically, rather than urban jurisdictions. Open to BSUP students upon advisor approval. Prerequisite: Instructor consent.

URP 564 International Development Planning – 3 credit hours. This course aims to help students understand how planning is conducted in low-and-middle income countries. It gives the historical and institutional background needed to understand the context and challenges in the global South by considering, among others, planning practices, critical issues in the areas, theories and processes of international development, and the challenges and opportunities of development aid. It is open to students with interests in the global dimensions of planning who seek critical understanding of tools and practices used in international development and planning. Open to BSUP students upon advisor approval. Prerequisite: Instructor consent.

URP 566 Global Perspectives in a Planning Context – 3 credit hours. Global problems such as climate change, pandemics, and social and racial struggle have highlighted the interdependence of the world, and the need to solve humanity's challenges globally. This case-based course provides students the opportunity to study and understand planning issues such as urbanization, housing, transportation or environment at the international level. It is open to students with interests in international work, and to those aiming to be informed planners with the ability to draw from planning environments outside the U.S. Ultimately, this course seeks to bring in knowledge from worldwide practices, comparing and contrasting experiences among the global South, as well as South to North. Prerequisite: Instructor consent.

URP 599 Thesis – 3 credit hours. Preparation of a scientific research report evidencing a significant contribution to the candidate's special area of interest and study. The thesis is based on the compilation and analysis of primary and secondary data including actual "field related" research approved by the thesis committee and accepted by the Dean of the School of Graduate Studies and Extended Education. Prerequisite: URP 511 and URP 521.

URP 595 (UPL 495) Directed Studies – 1-6 credit hours. Individual and group problems dealing with application of planning theory and practice. Opportunities to select foreign and domestic planning project of special interest. Prerequisite: None.

US 519 Seminar of Social Policy Issues – 3 credit hours. This course provides the student with the opportunity to analyze demographic changes, needs and ideological debates which affect social policy in the US compared with other societies.

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Ouf, Ahmed	Urban and Regional Planning

Note: When a program is not listed above, the Chair is the Program Coordinator.