Master of Science
in
Computer Science

Department of Electrical Engineering & Computer Science
College of Engineering, Technology & Physical Sciences
Alabama A&M University
Main points:

1. Computer Science is a good career choice
2. Alabama A&M University Department of Electrical Engineering & Computer Science provides excellent preparation for a career in Computer Science
Program Focus

• The graduate program is designed to equip students with advanced knowledge in both computer science theory and application.

• The graduate program provides basic competence in the principal areas of computer science. Student will build expertise in one of a number of practical and theoretical subjects, working toward a deeper understanding under the guidance of a faculty member.
Application Process & Admission Requirements

- Submit online application to graduate study web page
- 3 recommendation letters
- Pay application fee
- Official transcript

- Hold bachelor's degree in computer science, engineering, or related areas;
- Complete GRE
- Valuable GPA

Contact Info:  
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Core Courses

- Computer science is programming intensive

- Includes
  - Design & Analysis of Algorithm
  - Object-oriented Programming & Design
  - Computer Architecture
  - Operating System Principles
  - Database Management Systems
  - Software Engineering Methodology
Elective Courses

- Cyber Security Fundamentals (new)
- Robotics (new)
- Management Information Systems
- Numerical Analysis
- Applications of Statistical Meth.
- Compiler Design
- Advanced Data Structures
- Information to Bioinformatics
- Computer Communications
- Artificial Intelligence
- Neural Networks

- Advanced Database Systems
- Image Processing
- Multimedia Systems and Applications
- Computer Graphics and Animation
- Fuzzy and Expert Systems
- Cooperative Educational Work Experience
- Advance Topics in Computer Science
- Independent Study
Scholarships and Assistantships

- **Strengthening Computer Science Graduate Program (HBGI SCSGP)** that is supported by Title III office for African-American students

- **Contact Info:**
  
  **Dr. Joel Fu (Coordinator)**
  
  Jian.fu@aamu.edu
  
  256-372-8461

- **Financial Aid available:**
  
  Student Financial Aid, Alabama A&M University,
  P.O. Box 907, Normal, AL 35762
  
  [http://www.aamu.edu/Admissions/financialaid/Pages/default.aspx](http://www.aamu.edu/Admissions/financialaid/Pages/default.aspx)
Two Options

- **Thesis Option**
  (total 33 credit hrs)
  
  - 18 credit hours of core courses
  - 9 credit hours of electives
  - 6 credit hours of thesis

- **Non-Thesis Option**
  (total 36 credit hrs)
  
  - 18 credit hours of core courses
  - 18 credit hours of electives
  - Comprehensive exam
Sample of MSCS Study Plan

First year at AAMU/MSCS:

<table>
<thead>
<tr>
<th>Column1</th>
<th>Semester1</th>
<th>Summer</th>
<th>Semester2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Design &amp; Analysis of Algorithm</td>
<td>CMP500 Elective</td>
<td>Operating System Prin.</td>
</tr>
<tr>
<td></td>
<td>Object-oriented Prog. &amp; Design</td>
<td>CMP500 Elective</td>
<td>Database Mgt. Sys.</td>
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<tr>
<td></td>
<td>Computer Architecture</td>
<td></td>
<td>Software Engr. Meth.</td>
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<tr>
<td>Subtotal</td>
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Second year at AAMU/MSCS:

NonThesis Option

<table>
<thead>
<tr>
<th>Column1</th>
<th>Semester3</th>
<th>Summer</th>
<th>Semester4</th>
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<td>CMP500 Elective</td>
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<td></td>
<td>CMP500 Elective</td>
<td>Comp Exam</td>
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<tr>
<td></td>
<td>CMP500 Elective</td>
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<td></td>
</tr>
<tr>
<td>Subtotal</td>
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<td>3</td>
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</table>

Thesis Option

<table>
<thead>
<tr>
<th>Column1</th>
<th>Semester3</th>
<th>Summer</th>
<th>Semester4</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>CMP500 Elective</td>
<td></td>
<td>Thesis</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Thesis</td>
</tr>
<tr>
<td>Subtotal</td>
<td></td>
<td>6</td>
<td>3</td>
</tr>
</tbody>
</table>

Core Courses | Electives | Comp Exam
---|------------|------------|
Total | 18 | 18 Pass

Core Courses | Electives | Thesis Defense
---|------------|----------------|
Total | 18 | 9 6, Pass
Careers – Graduating

- Software Development
- Software Engineering
- System Analyst
- Robot Programmer
- Database Administration
- Database Programming

- Internet Engineering
- Web Development
- Systems Administration
- Network Administration
- Information Technology
Job Prospects in CS

- Dot-com bust did not reduce the demand
- More jobs are being created
- Job prospects are very bright
  - 2008-2014, 71% of new jobs in science and engineering will be for computer specialists
  - 59% of new jobs plus net replacements
  - US universities will graduate half this amount
Percentage Of New STEM Jobs By Area Through 2018

- Computing: 71%
- Traditional Engineering: 16%
- Mathematics: 2%
- Life Sciences: 4%
- Physical Sciences: 7%
- Computer Support: 7%
- Database Admin.: 2%
- Systems Analysis: 10%
- Software Engineering: 27%
- CS/IS Research: 1%
- Other Computing: 3%
- Computer Networking: 21%

Job Demand & Growth

- Computer Science graduates are in top 5 of demand market (CNN):
  - According to CNN Money Magazine, Software Developer is the #1 job in a fast-growth field for 2011.
- U.S. Department of Labor – Projected to be top 5 fastest growing occupations (46% over next 10 years)
  - The U.S. BLS projects that computer science occupations will add almost 786,000 new jobs from 2008 to 2018, more than twice the average growth of all other occupations.
- CNN Money says “Software Engineer” is best job in US
Degree Production vs. Job Openings

Figure 1: Projected Job Growth for 2010 to 2020
Computer Science, Information Technology, Math & Science
Jobs Requiring a Bachelor’s Degree or Higher


<table>
<thead>
<tr>
<th>Job Category</th>
<th>Increase in Jobs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Computer Science &amp; Information Technology</td>
<td>636.5</td>
</tr>
<tr>
<td>Physicians and Surgeons</td>
<td>168.3</td>
</tr>
<tr>
<td>Engineers</td>
<td>148.3</td>
</tr>
<tr>
<td>Scientists, Mathematicians, Statisticians</td>
<td>87.3</td>
</tr>
</tbody>
</table>
Employment and Salaries

- MSN Careers puts computer science as the #2 best bet for jobs in 2012 and #1 in average salary.
- % alumni in companies such as:
  - Lockheed Martin, Boeing, NASA research center, AT&T, Intergraph, Cisco Systems, Dynetics, Lexis-Nexis, Bell and Howell
- Multinational companies such as IBM, Intel
- National labs:
  - NASA, Oakridge and Lawrence Livermore
- A recent WPI study of Average Salary by Concentration reveals that Computer Science graduates have the highest starting salary of all WPI graduates, with BS recipients earning an average of $69,868 per year and MS and PhD recipients earning an average of $78,771 annually.
- Earning range $60K - $90K

http://www.aamu.edu/Academics/engineering-technology/EE/Pages/MSCS-Program.aspx
10 Most Popular Computer Science Degree Jobs

- Software Engineer / Developer / Programmer
- Programmer Analyst
- Information Technology (IT) Manager
- Software Developer, Web Applications
- Web Developer
- Test / Quality Assurance (QA) Engineer (Computer Software)
- Project Manager, IT
- Database Administrator (DBA)
- Information Technology (IT) Consultant
- Systems Engineer (Computer Networking / IT)

$ $20,000 $40,000 $60,000 $80,000 $100,000 $120,000
Teaching and Advising

- 7 to 10 graduate assistantships available for African-American students
- Interactive classes around 10 - 25 students
- Core courses taught by Professors/Lecturers
- Continuous monitoring and assessment of all courses for better coordination
- Graduate students help with labs/entry level courses
- Evening courses for part-time students
- Opportunity for research experience in various areas
- Professional advisors for all graduate students

http://www.aamu.edu/Academics/engineering-technology/EE/Pages/MSCS-Program.aspx
Faculty Research & Projects

**Image Processing**

**Algorithm Analysis**

**Robotics System**

**Artificial Intelligen.**

**Database Mgt.**

**High Perfm. Comp.**

**Cyber Security**

**Software Eng.**

Computer Science

http://www.aamu.edu/Academics/engineering-technology/EE/Pages/MSCS-Program.aspx
Department and Facilities

- Three instructional labs with 25 ~ 40 computers each
- Class rooms equipped with projectors
- Gigabit network speed
- Faculty offices equipped with computers
- All labs have latest state of art computers

http://www.aamu.edu/Academics/engineering-technology/EE/Pages/MSCS-Program.aspx
Alumni

http://www.aamu.edu/Academics/engineering-technology/EE/Pages/MSCS-Program.aspx
For More Information

- See our web page:
  
  http://www.aamu.edu/Academics/engineering-technology/EE/Pages/MSCS-Program.aspx

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