Emphasis - Data Science

- B.S.C.S. in Computer Science
- Emphasis - Data Science

B.S.C.S. in Computer Science

Description

The goal of the B.S.C.S. program is to give each student a thorough professional education in contemporary computer science while allowing sufficient flexibility for the student to pursue individual interests in related technical fields.

Minimum Total Credit Hours: 127

Goals/Mission Statement

Mission Statement

The Department of Computer and Information Science at the University of Mississippi seeks to provide high-quality programs of instruction, research, and service and to refine them continuously to meet the evolving needs of its students and society. Toward this end, the Department shall: * enable its undergraduate students to master the fundamental principles of computing and to develop the skills needed to solve practical problems using contemporary computer-based technologies and practices; * empower its graduate students to understand advanced concepts, develop new technologies and methods, and expand the base of fundamental knowledge; * cultivate a community of professionals that encourages scholarship and facilitates both applied and theoretical research; * serve its constituents in government, industry, and the public as a resource on state-of-the-art computing science and information technology.

BSCS Program Educational Objectives

As effective members of the Computer Science profession:

1. Graduates demonstrate the ability to solve computing problems commensurate with their levels of professional experience
2. Graduates demonstrate the ability to contribute effectively to the benefit of teams
3. Graduates continue to update their professional knowledge and skills to adapt to changes in technology and the evolving needs of society and the workplace

BSCS Student Outcomes

In keeping with the accreditation of the BSCS program by Computing Accreditation Commission of ABET, Inc., the Department helps students have the ability to:

1. Analyze a complex computing problem and to apply principles of computing and other relevant disciplines to identify solutions.
2. Design, implement, and evaluate a computing-based solution to meet a given set of computing requirements in the context of the program's discipline.
3. Communicate effectively in a variety of professional contexts.
4. Recognize professional responsibilities and make informed judgments in computing practice based on legal and ethical principles.
5. Function effectively as a member or leader of a team engaged in activities appropriate to the program's discipline.
6. Apply computer science theory and software development fundamentals to produce computing-based solutions.

General Education Requirements

For detailed information see the the General Education Requirements of the School of Engineering.
Candidates for the B.S.C.S. degree must successfully complete the following general education requirements:

- 6 hours from Writ 100, Writ 101, or Hon 101; Writ 102, Liba 102, or Hon 102;
- 3 hours of literature chosen from Eng 220-226;
- 8 hours of laboratory science chosen from Chem 105, 106, 115, 116 or Phys 211, 212, 221, 222 or Bisc 160, 161, 162, 163;
- 6 hours from Math 261 and 262;
- 3 hours from Spch 102 or Spch 105;
- 6 hours of social science chosen from anthropology, economics, political science, psychology, and sociology;
- 3 hours of humanities chosen from classics, English, history, modern languages, philosophy, religion, and African American studies, gender studies, or Southern studies;
- 3 hours of fine arts chosen from courses in the history, appreciation, and criticism of art, dance, music, and theatre arts (Courses emphasizing the enhancement of skills and performance are not acceptable.);
- 3 additional hours of fine arts, languages (modern, Greek, or Latin), or humanities.

Course Requirements

Candidates for the B.S.C.S. degree must successfully complete the following requirements in addition to the general education requirements:

- 12 hours from Math 301, 302 or 401, 375, and either 263 or 319;
- 3 additional hours of science electives chosen from the laboratory science courses listed above or from Astr 103, 104, Chem 221, 222, Geol 101, 102, 103, 104, 105, 107, and 120 (except not both Geol 101 and 104), and biology, chemistry, physics, and geology courses at the 300 level and above (If a science course has a separate, but coordinated laboratory course, the student is strongly encouraged to enroll for the laboratory section as well as the lecture section.);

- 4 hours from El E 235, 236;
- 3 hours from Engr 101 and Engr 111;
- 31 hours from Csci 111, 112, 211, 223, 300, 375, 387, 423, 433, 450, and 487;
- 15 hours of computer science electives chosen from 300 level and above or other approved electives;
- 18 hours of coursework for an approved minor or other technical electives chosen in consultation with the academic adviser.

Emphases:

Students can earn an emphasis in either computer security or data science by completing the 15 hours of required Csci 300+ electives as follows:
Computer Security Emphasis:

- Csci 325-Foundations of Computer Security
- Csci 361-Introduction to Computer Networks
- Csci 426-System Security
- Csci 427-Network Security
- One of: Csci 323-Systems of Programming, Csci 491-Special Topics in Computer Security, Csci 523-Operating Systems, or Csci 561-Computer Networks

Data Science Emphasis:

- Csci 343-Fundamentals of Data Science
- Csci 443-Advanced Data Science
- Three of: Csci 345-Information Storage and Retrieval, Csci 353-Introduction to Numerical Methods, Csci 444-Information Visualization, Csci 492-Special Topics in Data Science, Csci 517-Natural Language Processing, or Csci 543-Data Mining.
- Note that a student may earn at most ONE emphasis on the B.S.C.S. degree.

Emphasis - Data Science

Course Requirements

An emphasis in Data Science includes the following 15 hrs of CSci courses:

- Csci 343-Fundamentals of Data Science
- Csci 443-Advanced Data Science
- Three of: Csci 345-Information Storage and Retrieval, Csci 353-Introduction to Numerical Methods, Csci 444-Information Visualization, Csci 492-Special Topics in Data Science, Csci 517-Natural Language Processing, or Csci 543-Data Mining