Computing (CSI)

Division of Computing

Mission: The mission of the Division of Computing is to provide students with an opportunity to obtain the knowledge of computing necessary to succeed in today’s increasingly technical world. The division’s curriculum focuses on both theoretical knowledge and practical applications that enrich analytic, creative and research capabilities essential to success in various computing fields. Our curriculum provides students the opportunities to pursue individual interests through special topic courses, internships and projects that further enhance their learning experience outside the traditional classroom setting. Introductory courses in various computer related topics are offered for non-major students.

Student Learning Outcomes

Students will:

• Understand and be able to demonstrate analytic and critical reasoning ability through algorithmic development and software implementation.

• Communicate effectively utilizing current technology in information systems. This includes the acquisition, summarization and presentation of existing and synthesized knowledge.

• Demonstrate an understanding of computer and communication systems and hardware and software systems, including the design, development, implementation and integration into an organization.

Students may obtain a Bachelor of Science degree with a major in computer science, computer information systems, computational science, cybersecurity, or management information systems. These majors focus on the scientific and business views of computing. Students in these majors develop the skills essential to become quality programmers. In addition, the upper-division requirements available to each
of the majors provide the necessary specialized knowledge and skills. Students within all majors experience a variety of programming environments including many microcomputer systems as well as multi-user environments. Students are exposed to a number of modern programming languages appropriate to their selected majors and gain valuable experience with a wide-selection of computer hardware and resources. This variety of resources coupled with elective courses allows students to personalize the specialized knowledge they wish to obtain.

Students with majors in computer science, computer information systems, computational science, cybersecurity, or management information systems must complete all courses required for the major with a minimum of a 2.25 cumulative grade-point average. All courses must have a grade of C- or better to fulfill the prerequisite requirement. In addition, all courses for the major and minor must be completed with a grade of C- or better.

The division also offers minors in both computer science and computer information systems. Students who complete the required courses for the minor can expect to obtain programming skills and general computing knowledge.

**COMPUTER SCIENCE**

- Major: 59 credit hours
- Minor: 20 credit hours

**PROGRAM REQUIREMENTS:**

- Major/Minor GPA required for graduation: 2.25.
- Must take any two science courses with a laboratory requirement.
- All courses for the major and minor must be completed with a grade of C- or better.

**Description of Major:** Computer science majors are provided with the systems
programming and problem solving skills commonly expected in technical positions at employers that require strong analytical and interpersonal skills. In addition, they obtain the necessary theoretical background required to pursue further education and advanced degrees. Majors in computer science should expect employment in both the industrial sector and scientific lab environments.

**COMPUTER SCIENCE MAJOR REQUIREMENTS 59 crs.**

**REQUIRED COURSES 50 crs.**

- CSI 130 INTRODUCTION TO COMPUTING I (4)
- CSI 230 INTRODUCTION TO COMPUTING II (4)
- CSI 235 MATHEMATICS OF COMPUTING (3)
- CSI 300 COMPUTER ORGANIZATION AND ARCHITECTURE (3)
- CSI 330 DATA STRUCTURES AND ALGORITHMS (3)
- CSI 335 ANALYSIS OF ALGORITHMS (3)
- CSI 345 THE STRUCTURE OF OPERATING SYSTEMS (3)
- CSI 410 SOFTWARE ENGINEERING (3)
- CSI 450 COMPUTER NETWORKING AND COMMUNICATIONS (3)
- CSI 465 COMPILER DESIGN (3)
- CSI 497 SENIOR SEMINAR I (1)
- CSI 498 SENIOR SEMINAR II (2)
- MTH 210 CALCULUS I (4)
- MTH 211 CALCULUS II (4)
- MTH 170 STATISTICS (4)
- PWR 360 INTERDISCIPLINARY PROFESSIONAL AND TECHNICAL WRITING (W) (3)

**THREE COURSES FROM THE FOLLOWING 9 crs.**

- CSI 366 NUMERICAL ANALYSIS (3)
- CSI 369 SOCIAL, LEGAL, AND ETHICAL ISSUES OF COMPUTING (W) (3)
CSI

380-389 SPECIAL TOPICS IN COMPUTING AND INFORMATION SYSTEMS (3)
CSI 415 DATABASE MANAGEMENT SYSTEMS (3)
CSI 420 THEORY OF PROGRAMMING LANGUAGES (3)
CSI 430 COMPUTER GRAPHICS AND USER INTERFACE DESIGN (3)
CSI 435 FORMAL LANGUAGES AND AUTOMATA (W) (3)
CSI 440 ARTIFICIAL INTELLIGENCE (3)
CSI 470 INTERNSHIP IN COMPUTING AND INFORMATION SCIENCE (3)
CSI 480 INDEPENDENT STUDY IN COMPUTING AND INFORMATION SCIENCE (3)
CSI 337 INFORMATION SECURITY (3)
CSI 445 DATA MINING (3)

COMPUTER SCIENCE MINOR REQUIREMENTS 20 crs.

CSI 130 INTRODUCTION TO COMPUTING I (4)
CSI 230 INTRODUCTION TO COMPUTING II (4)
CSI 300 COMPUTER ORGANIZATION AND ARCHITECTURE (3)
CSI 330 DATA STRUCTURES AND ALGORITHMS (3)
TWO UPPER LEVEL CSI ELECTIVES (6)

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