

# Department of Computer Science and Information Systems

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## **Faculty**

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## **Mission**

The Department of Computer Science and Information Systems' mission is to prepare students for employment or graduate study in computer science or information systems. With a primary focus on teaching, the department emphasizes quality undergraduate and graduate instruction. The educational programs are delivered in an environment that promotes the development of technical skills and encourages a broad understanding of the forces shaping global social, political and economic change. The faculty performs scholarly activities and services consistent with the teaching emphasis of the Department and the mission of the College of Business and Public Affairs.

## **Learning Objectives**

Graduates will have a fundamental grounding in computer science providing the basis for analyzing and developing computer solutions to achieve goals in business, industry, and government or to continue their studies at the graduate level.

Graduates will have an ethical and professional awareness suitable for a career in the workplace while recognizing the impact of computers on society and the need for continued intellectual and professional growth.

Graduates will possess the verbal and spoken skills to communicate effectively in the workplace an society at large.

## **Expected Outcomes**

### **Graduates will:**

- demonstrate their ability to apply fundamental computer science and mathematical knowledge to design and implement software solutions to a variety of problems.
- be able to analyze a problem and determine the computing requirements for its solution working individually or as a member of a team.
- demonstrate their ability to communicate both technical and nontechnical materials in both written and oral form.
- be aware of the impact of computing technology on society and their workplace.
- recognize the need for and the ability to continue professional development and learning either formally or informally.

- have a broad background in the humanities, and social and natural sciences.
- be familiar with a variety of software packages, operating systems, programming languages and computer hardware.

## B.S. Computer Science Major

The general education requirements for the B.S. degree are outlined in the Undergraduate Degrees and Specialized Programs section of the catalog. The Department of Computer Science and Information Systems offers a wide range of computer science courses to support the B.S. degree with a major in computer science. These courses are designed to prepare students for computing careers in business, education, government, and industry. The courses also provide the foundation for graduate study in computer science or information systems. The courses blend theory and practice to prepare the students for careers in a rapidly changing field. Computer Science majors are required to have a grade of C or better in Computer Science 221 and Computer Science 222 and must have an overall 2.00 average in courses offered for the major.

Majors are advised to select physics as one of the laboratory sciences. If a student is not prepared to enter calculus as the first mathematics course, he/she may be required to take college algebra and/or pre-calculus.

<b>Course Requirements for Major</b>	<b>Hours</b>
Computer Science 221-222 Program Concepts and Problem Solving I, II.....	6
Computer Science 302 Foundations of Computer Science II .....	3
Computer Science 301 Foundations of Computer Science I .....	3
Computer Science 320 Assembler Language and Computer System Organization .....	3
Computer Science 325 Data Structures .....	3
Computer Science 360 Introduction to Computer Networks .....	3
Computer Science 470 Organization of Programming Languages.....	3
Computer Science 495 Senior Seminar .....	1
Option Requirements (see below) .....	18-21
Other Requirements .....	3-6
English 325 Technical Communications OR Information Systems 351 Business Communications.....	3
Mathematics 210 Elementary Statistics and Probability .....	3
Mathematics 251 Calculus I.....	4
<b>Total Hours.....</b>	<b>56-62</b>

### Information Systems Option (4412)

<b>Option Requirements</b>	<b>Hours</b>
Computer Science 250 COBOL Programming .....	3
Computer Science 350 Advanced COBOL.....	3
Computer Science 351 Object-Oriented System Analysis and Design..	3
Computer Science 352 Object-Oriented System Development .....	3
Computer Science 410 Data Base Management Systems.....	3
Upper-division computer science electives, not including cooperative education .....	3
The upper-division electives are usually chosen from Computer Science 335, 445, 475, and 485.	

Information Systems 310 Management Information Systems .....	3
Other Requirements	
Accounting 201 Financial Accounting for Decision Making.....	3
Economics 201 Principles of Macroeconomics (may be taken to satisfy part of BS Social Science requirement) .....	3
Additional Electives, including 5 upper-division hours .....	9

### Software and Computer Systems Option (4414)

Option Requirements	Hours
Computer Science 335 Object-Oriented Programming.....	3
Computer Science 420 Computer Organization and Architecture .....	3
Computer Science 445 Computer Graphics <b>OR</b> Computer Science 475 Compilers, Interpreters, and Language Translators .....	3
Computer Science 485 Computer Operating Systems .....	3
Upper-division computer science electives, not including cooperative education .....	6
The upper-division electives are usually chosen from Computer Science 340, 380, 385, 410, 445, and 475.	
Other Requirements	
Mathematics 310 Linear Algebra.....	3
Electives, at least 3 hours at upper-division.....	12

**Double majors:** Mathematics 340/Computer Science 340 can only be allowed in the requirements for a mathematics major or computer science major but not both. Either Mathematics 241 or Computer Science 301 may be used to satisfy the requirements for a discrete course since credit is not given for both.

## B.S.B.A. Information Systems Major

The Information Systems major is designed to prepare the student for careers working with today's and tomorrow's computer-based information systems. Students interested in designing and developing information systems should select the Management Information Systems Concentration, while students interested in applying information systems and/or training others to use those systems should select the Office Information Systems Concentration. Both concentrations build upon a foundation of computer literacy which emphasizes hands-on skills. These skills are practiced and polished in a network environment that encourages the collaborative problem-solving approaches being used in modern organizations.

Course Requirements for Major	Hours
Information Systems 212 Intermediate Spreadsheet Applications.....	1
Information Systems 213 Advanced Spreadsheet Applications.....	1
Information Systems 222 Intermediate Database Applications .....	1
Information Systems 223 Advanced Database Applications .....	1
Information Systems 232 Intermediate Word Processing .....	1
Information Systems 233 Advanced Word Processing .....	1
Information Systems 361 Network Administration .....	3
Option Requirements (see below) .....	21
<b>Total Hours</b> .....	<b>30</b>

### Management Information Systems Concentration (4432)

The Management Information Systems Concentration is designed to prepare the student for organizational roles involving the design, development, and administration of information systems. Typical positions for graduates include systems analyst, programmer, network administrator, computer consultant, and computer applications support specialist.

<b>Concentration Requirements</b>	<b>Hours</b>
Computer Science 221 Programming Concepts and Problem Solving I .....	3
Computer Science 222 Programming Concepts and Problem Solving II .....	3
Computer Science 351 Object-Oriented System Analysis and Design.....	3
Computer Science 410 Database Management Systems .....	3
Information Systems 491 Current Issues in Management Information Systems .....	3
Computer Science or Upper Division Information Systems Electives .....	6
<b>Total Hours</b> .....	<b>21</b>

### Office Information Systems Concentration (4434)

The Office Information Systems concentration stresses the integration of people, procedures and technology to produce information in the office environment. Emphasis is on computer applications, technology management strategies, software selection, and end-user training/support. Interpersonal, written, and oral communications skills are developed. Typical positions for graduates include software support specialist, administrative assistant, records manager, office manager, training specialist, and office systems analyst.

<b>Concentration Requirements</b>	<b>Hours</b>
Information Systems 251 Office Procedures .....	3
Information Systems 331 Professional Word Processing .....	3
Information Systems 461 End-User Technology Solutions .....	3
Information Systems 462 Office Management .....	3
Information Systems 481 Current Issues in Office Information Systems .....	3
Business Electives .....	6
<b>Total Hours</b> .....	<b>21</b>

### Two-Year Certification Program in Office Information Systems

The two-year program in Office Information Systems is designed to prepare students to gain knowledge and skills in modern office technology in the shortest possible time. The major is intended to enable a student to specialize in a chosen field and still obtain college credits which may all be applied toward a degree in information systems.

<b>Courses</b>	<b>Hours</b>
English 100, 110 and 112 or English 111-112 English Composition .....	6-11
Mathematics 140 College Algebra and 210 Elementary Statistics & Probability or 210 Elementary Statistics & Probability, depending on placement score .....	3-6

Computer Science 201 Introduction to Computer Applications.....	3
Communications 230 Public Speaking .....	3
Psychology 110 or 120 General Psychology .....	3
Accounting 201-202 Fundamentals of Accounting I, II.....	6
Economics 201-202 Principles of Macroeconomics, Microeconomics.....	6
Business Law 201 Legal Environment of Business.....	3
Information Systems 211, 212, 213, 221, 222, 223, 231, 232, 233.....	9
Information Systems 251 Office Procedures .....	3
Electives .....	7-15
<b>Total Hours.....</b>	<b>60</b>

## Certificate Program in End-user Computing

The certificate program is designed for individuals who wish to enhance their current fields of study by specialized study in End-User Computing. In order for the credit to count toward the Certificate in End-User Computing, a student must earn at least a "C" in each of the following courses:

<b>Course Requirements for the Certificate</b>	<b>Hours</b>
Computer Science 201 Introduction to Computer Applications.....	3
Information Systems 212 Intermediate Spreadsheet Applications.....	1
Information Systems 213 Advanced Spreadsheet Applications.....	1
Information Systems 222 Intermediate Database Applications .....	1
Information Systems 223 Advanced Database Applications .....	1
Information Systems 232 Intermediate Word Processing .....	1
Information Systems 233 Advanced Word Processing .....	1
Information Systems 310 Management Information Systems.....	3
Information Systems 361 Network Administration .....	3
Information Systems 491 Current Issues in Information Systems .....	3
<b>Total Hours.....</b>	<b>18</b>

## Courses Offered by Department of Computer Science and Information Systems

- Business Administration 444 Practicum in Business (as needed)
- Business Administration 480 Internship in Business Administration (F, Sp, Su)
- Business Administration 495 Executive Seminar (as needed)
- Business Administration 701 Research Methods and Communications (Sp)
- Business Administration 710 International Study (as needed)
- Business Administration 790-798 Special Topics in Business (as needed)
- Business Administration 799 Independent Study in Business Administration (as needed)
- Computer Science 201 Introduction to Computer Applications (F, Sp, Su)
- Computer Science 211 Introduction to Computer Programming (F, Sp)
- Computer Science 221 Programming Concepts and Problem Solving I (F, Sp)
- Computer Science 222 Programming Concepts and Problem Solving II (F, Sp)
- Computer Science 226 Intermediate Programming in a Second Language (as needed)
- Computer Science 250 COBOL Programming (F)
- Computer Science 260 RPG Programming (Sp)

Computer Science 290 Special Topics in Computer Science (as needed)  
 Computer Science 301 Foundations of Computer Science I (F)  
 Computer Science 302 Foundations of Computer Science II (Sp)  
 Computer Science 320 Assembler Language and Computer Science Organization (F)  
 Computer Science 325 Data Structures (Sp)  
 Computer Science 335 Object-Oriented Programming (Sp)  
 Computer Science 340 (540) Numerical Analysis (as needed)  
 Computer Science 350 Advanced COBOL (Sp)  
 Computer Science 351 Object-Oriented System Analysis and Design (F)  
 Computer Science 352 Object-Oriented Systems Development (Sp)  
 Computer Science 360 Introduction to Computer Networks (F)  
 Computer Science 380 Artificial Intelligence (as needed)  
 Computer Science 385 Parallel Computing (as needed)  
 Computer Science 410 (610) Data Base Management Systems (F)  
 Computer Science 420 (620) Computer Organization and Architecture (F)  
 Computer Science 445 (645) Computer Graphics (F-odd)  
 Computer Science 458 Decision Support and Expert Systems (as needed)  
 Computer Science 470 (670) Organization of Programming Languages (Sp)  
 Computer Science 475 Compilers, Interpreters, and Language Translators (F-even)  
 Computer Science 480 Internship in Computer Science (as needed)  
 Computer Science 485 (685) Computer Operating Systems (Sp)  
 Computer Science 490 (690) Special Problems (as needed)  
 Computer Science 495 Senior Seminar Selected Topics: [Title] (F)  
 Information Systems 151 Fundamentals of Business (as needed)  
 Information Systems 211 Introductory Spreadsheet Applications (F, Sp)  
 Information Systems 212 Intermediate Spreadsheet Applications (F, Sp)  
 Information Systems 213 Advanced Spreadsheet Applications (F, Sp)  
 Information Systems 221 Introductory Database Applications (F, Sp)  
 Information Systems 222 Intermediate Database Applications (F, Sp)  
 Information Systems 223 Advanced Database Applications (F, Sp)  
 Information Systems 231 Introductory Word Processing (F, Sp)  
 Information Systems 232 Intermediate Word Processing (F, Sp)  
 Information Systems 233 Advanced Word Processing (F, Sp)  
 Information Systems 241 Current Productivity Tools (F, Sp)  
 Information Systems 251 Office Procedures (Sp)  
 Information Systems 310 Management Information Systems (F, Sp)  
 Information Systems 331 Professional Word Processing (F)  
 Information Systems 351 Business Communications (F, Sp)  
 Information Systems 361 Network Administration (F)  
 Information Systems 461 End-user Information Systems (F)  
 Information Systems 462 Office Management (Sp)  
 Information Systems 480 Internship in Management Information Systems (as needed)  
 Information Systems 481 Current Issues in Office Information Systems (as needed)  
 Information Systems 490 Independent Study in Information Systems (as needed)  
 Information Systems 491 Current Issues in Management Information Systems (Sp)  
 Information Systems 761 Information Systems (Sp)

*Complete course descriptions can be found in the Course Description section of the catalog.*