COMPUTER INFORMATION SYSTEMS MAJOR

REVISED 2013-14
(107–115 CREDITS)

Our Computer Information Systems program provides significant formal training in database and web programming, unique internship opportunities, and team development of information system projects. The program is designed to help prepare you to realize the potential of information systems. You can enjoy a career as a systems analyst, database administrator, web developer or software engineer.

Required Computer Science Courses
CSCD 210 Programming Principles I (5)
CSCD 211 Programming Principles II (5)
CSCD 240 C and Unix Programming (5)
CSCD 300 Data Structures (5)
CSCD 320 Algorithms (4)
CSCD 327 Relational Database Systems (4)
CSCD 330 Computer Networks (4)
CSCD 340 Operating Systems (5)
CSCD 350 Software Engineering (4)
CSCD 370 Graphical User Interface Programming (4)
CSCD 488 Senior Project (5)
CSCD 490 Senior Capstone (5)

Choose one of the following courses
CSCD 370 Graphical User Interface Programming (4)
CSCD 371 .NET Programming (4)
CSCD 372 Android Mobile Development (4)
CSCD 373 iPhone Mobile Development (4)

Choose either CSCD 378 or CSCD 379
CSCD 378 Web Application Development (4)
CSCD 379 .NET Web Application Development (4)

Choose either CSCD 427 or CSCD 429
CSCD 427 Advanced Database Systems (4)
CSCD 429 Data Mining (4)

Required Supporting Courses

| Mathematics          | MATH 301 Discrete Mathematics (5) |
|                     | MATH 380 Elementary Probability and Statistics (5) |
|                     | or both                                         |
|                     | DSCI 245 Data Analysis for Business (4)          |
|                     | and DSCI 346 Advanced Data Analysis for Business (4) |

| Philosophy          | PHIL 212 Introduction to Ethics (5) |

Select one of the following areas of interest

Biochemistry
(students should choose CHEM 151 and CHEM 152 for their Natural Science General Education Requirement)
CHEM 153 General Chemistry III (5)
CHEM 351 Organic Chemistry I (4)
CHEM 352 Organic Chemistry II (4)
CHEM 353 Organic Chemistry III (3)
CHEM 480 Biochemistry (5)

Biology/Genetics
(students should choose BIOL 171, BIOL 172 and BIOL 270 for their Natural Science General Education Requirement)
BIOL 173 Biology III (5)
BIOL 310 Fundamentals of Genetics (5)
CHEM 151 General Chemistry I (5)
CHEM 152 General Chemistry II (5)
CHEM 153 General Chemistry III (5)

Business and Economics
ACCT 251 Principles of Financial Accounting (5)
ACCT 252 Managerial Accounting (4)
ECON 200 Introduction to Microeconomics (5)
or ECON 201 Introduction to Macroeconomics (5)
FINC 335 Financial Management (4)
OPSM 330 Operations Management (4)
### Minimum total required credits

- **above major:**
  - Required elective credits: 10-13 credits
  - Required area of interest credits: 21-25 credits
  - Required philosophy credits: 5 credits
  - Required mathematics credits: 10-13 credits
  - Required computer science: 63 credits

### Geographically Information Systems
- GEOG 323 GIS for Environmental Sciences (3)
- GEOG 328 Geographic Information Systems I (5)
- GEOG 427 Desktop Mapping (3)
- GEOG 428 Geographic Information Systems II (5)
- GEOG 429 Geographic Information Systems III (5)
- GEOG 493 Geographic Information Systems Portfolio (2)

### Health Services Administration
- HSAD 300 Health Care Organization and Administration (4)
- HSAD 310 Health Care Supervision (4)
- HSAD 322 Health Care Technology (4)
- HSAD 410 Health Law, Regulation and Ethics (4)
- HSAD 440 Health Care Research Design and Methods (4)
- HSAD 455 Health Care Billing (2)

### Elective Courses: two additional electives
- CSCD 303 Computer and Information Security (4)
- CSCD 305 C++ Programming (4)
- CSCD 316 Practical Problem Solving (2, 2) ¹
- CSCD 370 Graphical User Interface Programming (4)
- CSCD 371 .NET Programming (4)
- CSCD 372 Android Mobile Development (4)
- CSCD 373 iPhone Mobile Development (4)
- CSCD 378 Web Application Development (4) (if not used as a requirement)
- CSCD 379 .NET Web Application Development (4) (if not used as a requirement)
- CSCD 409 Scientific Programming (4)
- CSCD 416 3D Modeling and Animation II (4)
- CSCD 417 3D Modeling and Animation III (4)
- CSCD 418 3D Modeling and Animation IV (4)
- CSCD 420 Automata (4)
- CSCD 427 Advanced Database Systems (4) (if not used as a requirement)
- CSCD 429 Data Mining (4) (if not used as a requirement)
- CSCD 433 Advanced Network Concepts (4)
- CSCD 434 Network Security (4)
- CSCD 435 Principles of Programming Languages (4)
- CSCD 437 Secure Coding (4)
- CSCD 443 Distributed Multiprocessing Environments (4)
- CSCD 454 Design Patterns (4)
- CSCD 461 Embedded Systems (4)
- CSCD 470 3D Computer Graphics Principles (4)
- CSCD 471 Advanced 3D Computer Graphics Programming (4)
- CSCD 474 Computer Games Development (4)
- CSCD 487 Human Computer Interface (4)

### Required elective credits: 8-10 credits

### Minimum total required credits for above major: 107 credits

¹ CSCD 316 must be taken twice for 4 credits total to be used as an elective

**Note:**
- ECON 200 and ECON 201 together count as one GECR.
- Note: *any course used as a requirement may not also be used as an elective.

### Required computer science

- 63 credits

### Required mathematics credits

- 10-13 credits

### Required philosophy credits

- 5 credits

### Required area of interest credits

- 21-25 credits

### *Business and Economic

- 22 credits

### *Geographic Information Systems

- 23 credits

### *Health Services Administration

- 22 credits

### *Biochemistry

- 21 credits

### *Biology/Genetics

- 25 credits

### *Design

- 22 credits

**Required elective credits:** 8-10 credits

**Minimum total required credits for above major:** 107 credits

Note: Students are encouraged to choose CMST 340 Intercultural Communications or CMST 314 Gender and Communications to fulfill their cultural and gender diversity requirement and/or CMST 440 Global Communications to fulfill their international studies requirement.