# Computer Science

**Department of Computer Science and Information Systems**

**Department Chair:** Lisa Bain

**Computer Science Program Faculty: Associate Professors** El Fouly, Ravenscroft Jr., Sarawagi; **Assistant Professors** Hamouda, Liu, Mello-Stark

Students **must** consult with their assigned advisor before they will be able to register for courses. *Note:* Students may not count toward the major more than two courses with grades below C-.

Computer Science B.A.

Course Requirements

Courses

|  |  |  |  |
| --- | --- | --- | --- |
| CSCI 209 | Discrete Structures Using Python | 4 | F, Sp |
| CSCI 211 | Computer Programming and Design | 4 | F, Sp |
| CSCI 212W | Data Structures | 4 | F, Sp |
| CSCI 309 | Object-Oriented Design | 4 | F, Sp |
| CSCI 313 | Computer Organization and Architecture | 4 | F, Sp |
| CSCI 325 | Organization of Programming Language | 3 | F (even years), Sp |
| CSCI 401W | Software Engineering | 3 | F (even years), Sp |
| CSCI 423 | Analysis of Algorithms | 4 | F (odd years), Sp |
| CSCI 435 | Operating Systems | 4 | F, Sp (even years) |

THREE COURSES from

|  |  |  |  |
| --- | --- | --- | --- |
| CSCI 305 | Functional Programming | 4 | F |
| CSCI 402 | Cyber Security Principles | 4 | F, Sp |
| CSCI 415 | Software Testing | 4 | Sp |
| CSCI 416 | Human-Computer Interaction Design | 4 | As needed |
| CSCI 422 | Introduction to Computation Theory | 4 | Sp (As needed) |
| CSCI 427 | Introduction to Artificial Intelligence | 3 | As needed |
| CSCI 428 | Machine Learning | 4 | Sp |
| CSCI 437 | Network Architectures and Programming | 4 | As needed |
| CSCI 455 | Introduction to Database Systems | 4 | F |
| CSCI 467 | Computer Science Internship | 4 | As needed |
| CSCI 476 | Advanced Topics in Computer Science | 4 | Sp |
| Note: Students cannot receive credit for both CSCI 305 and CSCI 402  to satisfy this elective requirement. | | | |

Cognates

|  |  |  |  |
| --- | --- | --- | --- |
| MATH 212 | Calculus I | 4 | F, Sp, Su |

IT IS RECOMMENDED that students also take:

|  |  |  |  |
| --- | --- | --- | --- |
| COMM 208 | Public Speaking | 4 | F, Sp |
| ENGL 230 | Writing for Professional Settings | 4 | F, Sp, Su |
| MATH 209 | Precalculus Mathematics | 4 | F, Sp, Su |

Total Credit Hours: 49-51

Computer Science B.S.

Course Requirements

Courses

|  |  |  |  |
| --- | --- | --- | --- |
| CSCI 209 | Discrete Structures Using Python | 4 | F, Sp |
| CSCI 211 | Computer Programming and Design | 4 | F, Sp |
| CSCI 212W | Data Structures | 4 | F, Sp |
| CSCI 309 | Object-Oriented Design | 4 | F, Sp |
| CSCI 313 | Computer Organization and Architecture | 4 | F, Sp |
| CSCI 325 | Organization of Programming Language | 3 | F (even years), Sp |
| CSCI 401W | Software Engineering | 3 | F (even years), Sp |
| CSCI 423 | Analysis of Algorithms | 4 | F (odd years), Sp |
| CSCI 435 | Operating Systems | 4 | F, Sp (even years) |

THREE COURSES from

|  |  |  |  |
| --- | --- | --- | --- |
| CSCI 305 | Functional Programming | 4 | F |
| CSCI 402 | Cyber Security Principles | 4 | F, Sp |
| CSCI 415 | Software Testing | 4 | Sp |
| CSCI 416 | Human-Computer Interaction Design | 4 | As needed |
| CSCI 422 | Introduction to Computation Theory | 4 | Sp (As needed) |
| CSCI 427 | Introduction to Artificial Intelligence | 3 | As needed |
| CSCI 428 | Machine Learning | 4 | Sp |
| CSCI 437 | Network Architectures and Programming | 4 | As needed |
| CSCI 455 | Introduction to Database Systems | 4 | F |
| CSCI 467 | Computer Science Internship | 4 | As needed |
| CSCI 476 | Advanced Topics in Computer Science | 4 | Sp |
| Note: Students cannot receive credit for both CSCI 305 and CSCI 402  to satisfy this elective requirement. | | | |

Cognates

|  |  |  |  |
| --- | --- | --- | --- |
| ENGL 230 | Writing for Professional Settings | 4 | F, Sp, Su |
|  | -Or- |  |  |
| ENGL 231W | Writing for Digital and Multimedia Environments | 4 | As needed |
|  |  |  |  |
| MATH 212 | Calculus I | 4 | F, Sp, Su |
| MATH 213 | Calculus II | 4 | F, Sp, Su |
|  |  |  |  |
|  |  |  |  |
| PHIL 206 | Ethics | 3 | F, Sp, Su |
|  |  |  |  |

TWO COURSES from

|  |  |  |  |
| --- | --- | --- | --- |
| MATH 240 | Statistical Methods I | 4 | F, Sp, Su |
| MATH 300W | Bridge to Advanced Mathematics | 4 | Sp |
| MATH 314 | Calculus III | 4 | F, Sp |
| MATH 324 | College Geometry | 4 | F, Sp |
| MATH 417 | Introduction to Numerical Analysis | 4 | Sp (as needed) |
| MATH 418 | Introduction to Operations Research | 3 | Sp (even years) |
| MATH 431 | Number Theory | 3 | F, Sp |
| MATH 436 | Discrete Mathematics | 3 | F, Sp |
| MATH 445 | Advanced Statistical Methods | 4 | Sp |

ONE OF THE FOLLOWING TWO-COURSE SEQUENCES

|  |  |  |  |
| --- | --- | --- | --- |
| BIOL 111 | Introductory Biology I | 4 | F, Sp, Su |
|  | -And- |  |  |
| BIOL 112 | Introductory Biology II | 4 | F, Sp, Su |
|  |  |  |  |
|  | -Or- |  |  |
|  |  |  |  |
| CHEM 103 | General Chemistry I | 4 | F, Sp, Su |
|  | -And- |  |  |
| CHEM 104 | General Chemistry II | 4 | F, Sp, Su |
|  |  |  |  |
|  | -Or- |  |  |
|  |  |  |  |
| PHYS 101 | Physics for Science and Mathematics I | 4 | F, Sp, Su |
|  | -And- |  |  |
| PHYS 102 | Physics for Science and Mathematics II | 4 | F, Sp, Su |

Note: Connections courses cannot be used to satisfy these requirements.

Note: Eight credit hours from BIOL 111; CHEM 103; MATH 212, MATH 240; or PHYS 101 may be counted toward the Natural Science and Mathematics categories of General Education.

Total Credit Hours: 75-78

Computer Science Minor

Course Requirements

The minor in computer science consists of a minimum of 21 credit hours (six courses), as follows:

Courses

|  |  |  |  |
| --- | --- | --- | --- |
| CSCI 157 | Introduction to Algorithmic Thinking in Python | 4 | F, Sp |
| CSCI 211 | Computer Programming and Design | 4 | F, Sp |
| CSCI 212W | Data Structures | 4 | F, Sp |

and three additional computer science courses (9-12 credits) at 200 level or above..

Total Credit Hours: 21-24

Cyber Security Minor

Course Requirements

The minor in cyber security consists of 20 credit hours (five courses), as follows:

Courses

|  |  |  |  |
| --- | --- | --- | --- |
| CSCI 102 | Computer Fundamentals for Cyber Security | 4 | F, Sp |
| CSCI 157 | Introduction to Algorithmic Thinking in Python | 4 | F, Sp |
| CSCI 402 | Cyber Security Principles | 4 | F, Sp |
| CSCI 410 | Digital Forensics | 4 | F |
| CSCI 432 | Network and Systems Security | 4 | Sp |

Total Credit Hours: 20

# Health Sciences

**Director**: Eric Hall

Students **must** consult with their assigned advisor before they will be able to register for courses.

Health Sciences B.S.

Course Requirements

Choose concentration A, B, C, D, or E below

A.

|  |  |  |  |
| --- | --- | --- | --- |
| ANTH 103 | Introduction to Biological Anthropology | 4 | Sp |
| BIOL 108 | Basic Principles of Biology | 4 | F, Sp, Su |
| BIOL 231 | Human Anatomy | 4 | F, Sp, Su |
| BIOL 335 | Human Physiology | 4 | F, Sp, Su |
| BIOL 348 | Microbiology | 4 | F, Sp, Su |
| CHEM 105 | General, Organic and Biological Chemistry I | 4 | F, Sp, Su |
| CHEM 106 | General, Organic, and Biological Chemistry II | 4 | F, Sp, Su |
| HPE 102 | Human Health and Disease | 3 | F, Sp, Su |
| HSCI 105 | Medical Terminology | 2 | F, Sp |
| HSCI 232 | Human Genetics | 4 | F |
| MATH 240 | Statistical Methods I | 4 | F, Sp, Su |

Choose TWO from:

|  |  |  |  |
| --- | --- | --- | --- |
| ANTH 309 | Medical Anthropology | 4 | Alternate years |
| COMM 338 | Communication for Health Professionals | 4 | F |
| GRTL 314/NURS 314 | Health and Aging | 4 | F, Sp, Su |
| HPE 303W | Research in Community and Public Health | 3 | F, Sp |
| HPE 307 | Introduction to Epidemiology | 3 | F, Sp |
| SOC 314 | The Sociology of Health and Illness | 4 | Annually |

Subtotal: 47-49

Note: SOC 314 has a prerequisite of any 200-level sociology course or consent of the department chair.

B. Dental Hygiene Completion

Note: Prior dental hygienist licensure required for admission.

|  |  |  |  |
| --- | --- | --- | --- |
| BIOL 231 | Human Anatomy | 4 | F, Sp, Su |
| BIOL 335 | Human Physiology | 4 | F, Sp, Su |
| CHEM 105 | General, Organic and Biological Chemistry I | 4 | F, Sp, Su |
| CSCI 102 | Computer Fundamentals for Cyber Security | 4 | F, Sp, Su |
| HPE 233 | Social and Global Perspectives on Health | 3 | F, Sp, Su |
| HPE 307 | Introduction to Epidemiology | 3 | F, Sp |
| HSCI 402 | Current Topics in Dental Hygiene | 4 | As needed |
| HSCI 466 | Evidence-Based Decision Making for Dental Hygiene | 4 | As needed |
| HSCI 494W | Independent Study in Health Sciences | 4 | As needed |
| MATH 240 | Statistical Methods I | 4 | F, Sp, Su |
| PSYC 110 | Introduction to Psychology | 4 | F, Sp, Su |
| SOC 200 | Introduction to Sociology | 4 | F, Sp |
|  | Dental Hygiene Licensure Transfer Credits | 48 |  |

Subtotal: 94

C. Human Services

|  |  |  |  |
| --- | --- | --- | --- |
| BIOL 108 | Basic Principles of Biology | 4 | F, Sp, Su |
|  |  |  |  |
|  | -Or- |  |  |
|  |  |  |  |
| BIOL 111 | Introductory Biology I | 4 | F, Sp, Su |
|  | -And- |  |  |
| BIOL 112 | Introductory Biology II | 4 | F, Sp, Su |
|  |  |  |  |
| BIOL 231 | Human Anatomy | 4 | F, Sp, Su |
| BIOL 335 | Human Physiology | 4 | F, Sp, Su |

Either

|  |  |  |  |
| --- | --- | --- | --- |
| CHEM 103 | General Chemistry I | 4 | F, Sp, Su |
|  | -And- |  |  |
| CHEM 104 | General Chemistry II | 4 | F, Sp, Su |
|  |  |  |  |
|  | -Or- |  |  |
|  |  |  |  |
| CHEM 105 | General, Organic and Biological Chemistry I | 4 | F, Sp, Su |
|  | -And- |  |  |
| CHEM 106 | General, Organic, and Biological Chemistry II | 4 | F, Sp, Su |
|  |  |  |  |
| COMM 338 | Communication for Health Professionals | 4 | F |
| CSCI 102 | Computer Fundamentals for Cyber Security | 4 | F, Sp, Su |
| HCA 201W | Introduction to Health Care Systems | 3 | F, Sp, Su |
| HCA 303W | Health Policy and Contemporary Issues | 3 | F, Sp |
| HPE 102 | Human Health and Disease | 3 | F, Sp, Su |
| HPE 233 | Social and Global Perspectives on Health | 3 | F, Sp, Su |
| HPE 307 | Introduction to Epidemiology | 3 | F, Sp |
| HSCI 105 | Medical Terminology | 2 | F, Sp |
| HSCI 232 | Human Genetics | 4 | F |
| HSCI 494W | Independent Study in Health Sciences | 4 | As needed |
| MGT 201W | Foundations of Management | 4 | F, Sp, Su |
| MATH 240 | Statistical Methods I | 4 | F, Sp, Su |
| PHIL 206 | Ethics | 3 | F, Sp, Su |
| PSYC 110 | Introduction to Psychology | 4 | F, Sp, Su |
| PSYC 230 | Human Development | 4 | F, Sp, Su |

FOUR COURSES from:

|  |  |  |  |
| --- | --- | --- | --- |
| BIOL 213W | Plant and Animal Form and Function | 4 | F, Sp |
| BIOL 348 | Microbiology | 4 | F, Sp, Su |
| GRTL 314/NURS 314 | Health and Aging | 4 | F, Sp, Su |
| HCA 302 | Health Care Organizations | 3 | F, Sp |
| HCA 401W/HCA 501 | Ethical and Legal Issues in Health Care Management | 3 | F, Sp, Su |
| HPE 303W | Research in Community and Public Health | 3 | F, Sp |
| HPE 420 | Physiological Aspects of Exercise | 3 | F, Sp |
| MGT 320 | Human Resource Management | 4 | F, Sp, Su |
| MGT 322W | Organizational Behavior | 4 | F, Sp, Su |
| MATH 209 | Precalculus Mathematics | 4 | F, Sp, Su |
| PHYS 101 | Physics for Science and Mathematics I | 4 | F, Sp, Su |
| PHYS 102 | Physics for Science and Mathematics II | 4 | F, Sp, Su |
| PSYC 221W | Research Methods I: Foundations | 4 | F, Sp, Su |
| PSYC 335 | Family Psychology | 4 | Annually |
| PSYC 339 | Psychology of Aging | 4 | Annually |
| PSYC 345 | Physiological Psychology | 4 | F, Sp |
| PSYC 424 | Health Psychology | 4 | Annually |
| PSYC 445 | Behavioral Neuroscience | 4 | Annually |
| SOC 217 | Sociology of Aging | 4 | F, Sp, Su |
| SOC 314 | The Sociology of Health and Illness | 4 | Annually |

Subtotal: 84-92

D. Medical Laboratory Sciences

|  |  |  |  |
| --- | --- | --- | --- |
| BIOL 108 | Basic Principles of Biology | 4 | F, Sp, Su |
| BIOL 231 | Human Anatomy | 4 | F, Sp, Su |
| BIOL 335 | Human Physiology | 4 | F, Sp, Su |
| BIOL 348 | Microbiology | 4 | F, Sp, Su |
| BIOL 429 | Medical Microbiology | 4 | As needed |
| CHEM 103 | General Chemistry I | 4 | F, Sp, Su |
| CHEM 104 | General Chemistry II | 4 | F, Sp, Su |
| CHEM 205 | Organic Chemistry I | 4 | F, Su |
| CHEM 206 | Organic Chemistry II | 4 | Sp, Su |
| CHEM 310 | Biochemistry | 4 | F |
| CSCI 102 | Computer Fundamentals for Cyber Security | 4 | F, Sp, Su |
| MATH 209 | Precalculus Mathematics | 4 | F, Sp, Su |
| MATH 240 | Statistical Methods I | 4 | F, Sp, Su |
| MEDT 301 | Clinical Microbiology | 8 | F |
| MEDT 302 | Clinical Chemistry | 8 | Sp |
| MEDT 303 | Immunohematology | 4 | F |
| MEDT 304 | Hematology | 6 | Sp |
| MEDT 305 | Pathophysiology | 2 | F |
| MEDT 306 | Clinical Immunology | 2 | Sp |
| MEDT 307 | Clinical Microscopy | 2 | F |
| PHYS 101 | Physics for Science and Mathematics I | 4 | F, Sp, Su |
| PSYC 110 | Introduction to Psychology | 4 | F, Sp, Su |
| SOC 200 | Introduction to Sociology | 4 | F, Sp |

Subtotal: 96

E. Respiratory Therapy Completion

Note: Prior respiratory therapist licensure required for admission.

|  |  |  |  |
| --- | --- | --- | --- |
| BIOL 231 | Human Anatomy | 4 | F, Sp, Su |
| BIOL 335 | Human Physiology | 4 | F, Sp, Su |
| CHEM 105 | General, Organic and Biological Chemistry I | 4 | F, Sp, Su |
| CSCI 102 | Computer Fundamentals for Cyber Security | 4 | F, Sp, Su |
| HPE 233 | Social and Global Perspectives on Health | 3 | F, Sp, Su |
| HPE 307 | Introduction to Epidemiology | 3 | F, Sp |
| HSCI 232 | Human Genetics | 4 | F |
| HSCI 401 | Topics in Respiratory Therapy | 4 | Sp |
| HSCI 465 | Seminar in Respiratory Therapy | 4 | F |
| HSCI 494W | Independent Study in Health Sciences | 4 | As needed |
| MATH 240 | Statistical Methods I | 4 | F, Sp, Su |
| PSYC 110 | Introduction to Psychology | 4 | F, Sp, Su |
| SOC 200 | Introduction to Sociology | 4 | F, Sp |
|  | Respiratory Therapist Licensure Transfer Credits | 42 |  |

Subtotal: 92

Health Sciences Minor

The minor in health sciences consists of a minimum of 22 credits, as follow:

Course Requirements

Courses

|  |  |  |  |
| --- | --- | --- | --- |
| BIOL 108 | Basic Principles of Biology | 4 | F, Sp, Su |
| BIOL 231 | Human Anatomy | 4 | F, Sp, Su |
| BIOL 335 | Human Physiology | 4 | F, Sp, Su |
| HPE 102 | Human Health and Disease | 3 | F, Sp, Su |
| HSCI 105 | Medical Terminology | 2 | F, Sp |
| HSCI 232 | Human Genetics | 4 | F |

Total Credit Hours: 22