Computer Science, Minor

Complete all courses listed below unless otherwise indicated. Also complete any corequisite labs, recitations, clinicals, or tools courses where specified.

**Required Courses**
A grade of C– or higher is required in each course:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 2500</td>
<td>Fundamentals of Computer Science 1</td>
</tr>
<tr>
<td>CS 2501</td>
<td>Lab for CS 2500</td>
</tr>
<tr>
<td>CS 2510</td>
<td>Fundamentals of Computer Science 2</td>
</tr>
<tr>
<td>CS 2511</td>
<td>Lab for CS 2510</td>
</tr>
</tbody>
</table>

**Computer Science Electives**
Complete three courses from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 2000 to CS 4989</td>
<td>Information Retrieval</td>
</tr>
<tr>
<td>IS 4200</td>
<td>Human Computer Interaction</td>
</tr>
<tr>
<td>IS 4300</td>
<td>Software Quality Assurance</td>
</tr>
<tr>
<td>IS 4600</td>
<td>Software Project Management</td>
</tr>
<tr>
<td>IS 4700</td>
<td>Social Information Systems</td>
</tr>
</tbody>
</table>

One Course from CCIS Meaningful Minors list (see below)

**CCIS Meaningful Minors**
The concept of “CCIS Meaningful Minors” allows students the chance to personalize a computer or information science minor to meet individual academic needs and interests. Students may take one elective related to computation or information from a pre-approved list of courses offered across the university rather than from within CCIS. This allows students to integrate the minor with a course in their own major or with a course in another area of interest. Students may of course choose to take all electives in the minor within CCIS if they wish.

Bouve Health Sciences:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>HINF 5101</td>
<td>Introduction to Health Informatics and Health Information Systems</td>
</tr>
<tr>
<td>HINF 5102</td>
<td>Data Management in Healthcare</td>
</tr>
<tr>
<td>HINF 5300</td>
<td>Personal Health Interface Design and Development</td>
</tr>
<tr>
<td>HINF 5301</td>
<td>Personal Health Technologies: Field Deployment and System Evaluation</td>
</tr>
</tbody>
</table>

Arts, Media, and Design:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARTD 2200</td>
<td>Interactive Narrative</td>
</tr>
<tr>
<td>ARTD 2360</td>
<td>Photo Basics</td>
</tr>
<tr>
<td>ARTD 2370</td>
<td>Animation Basics</td>
</tr>
<tr>
<td>ARTD 2380</td>
<td>Video Basics</td>
</tr>
<tr>
<td>ARTG 2260</td>
<td>Programming Basics</td>
</tr>
<tr>
<td>ARTG 2400</td>
<td>Interaction Design 1: Responsive</td>
</tr>
<tr>
<td>ARTG 3250</td>
<td>Physical Computing</td>
</tr>
<tr>
<td>ARTG 3352</td>
<td>Interaction Design Basics</td>
</tr>
<tr>
<td>ARTG 3451</td>
<td>Information Design 1</td>
</tr>
<tr>
<td>ARTG 3700</td>
<td>Interaction Design 2: Mobile</td>
</tr>
<tr>
<td>ARTG 4552</td>
<td>Information Design 2</td>
</tr>
<tr>
<td>ARTG 5100</td>
<td>Information Design Studio 1—Principles</td>
</tr>
<tr>
<td>ARTG 5110</td>
<td>Information Design History</td>
</tr>
</tbody>
</table>

**Computer and Information Science:**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARTG 5120</td>
<td>Information Design Research Methods</td>
</tr>
<tr>
<td>COMM 2105</td>
<td>Social Networks</td>
</tr>
<tr>
<td>GAME 4355</td>
<td>Game Scripting</td>
</tr>
<tr>
<td>JRNJ 3610</td>
<td>Digital Storytelling and Social Media</td>
</tr>
<tr>
<td>JRNJ 3615</td>
<td>Advanced Digital Storytelling</td>
</tr>
<tr>
<td>JRNJ 5214</td>
<td>The Online Newsroom Experience</td>
</tr>
<tr>
<td>MSCR 2500</td>
<td>Digital Media Research</td>
</tr>
<tr>
<td>MUST 1220</td>
<td>Introduction to Music Technology</td>
</tr>
<tr>
<td>MUST 3421</td>
<td>Digital Audio Processing</td>
</tr>
</tbody>
</table>

Engineering:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOE 2365</td>
<td>Bioengineering Measurement, Experimentation, and Statistics</td>
</tr>
<tr>
<td>EECE 2160</td>
<td>Embedded Design Enabling Robotics</td>
</tr>
<tr>
<td>EECE 2322</td>
<td>Fundamentals of Design and Computer Organization</td>
</tr>
<tr>
<td>EECE 3324</td>
<td>Computer Architecture and Organization</td>
</tr>
<tr>
<td>EECE 4542</td>
<td>Advanced Engineering Algorithms</td>
</tr>
<tr>
<td>EECE 5639</td>
<td>Computer Vision</td>
</tr>
<tr>
<td>EECE 5640</td>
<td>High-Performance Computing</td>
</tr>
<tr>
<td>EECE 5644</td>
<td>Introduction to Machine Learning and Pattern Recognition</td>
</tr>
</tbody>
</table>

Science:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 2301</td>
<td>Genetics and Molecular Biology</td>
</tr>
<tr>
<td>BIOL 3405</td>
<td>Neurobiology</td>
</tr>
<tr>
<td>BIOL 5587</td>
<td>Comparative Neurobiology</td>
</tr>
<tr>
<td>BINF 6200</td>
<td>Bioinformatics Programming</td>
</tr>
<tr>
<td>BINF 6308</td>
<td>Bioinformatics Computational Methods 1</td>
</tr>
<tr>
<td>BINF 6309</td>
<td>Bioinformatics Computational Methods 2</td>
</tr>
<tr>
<td>CHEM 5638</td>
<td>Molecular Modeling</td>
</tr>
<tr>
<td>ENVR 3300</td>
<td>Geographic Information Systems</td>
</tr>
<tr>
<td>ENVR 3302</td>
<td>Introduction to Remote Sensing</td>
</tr>
<tr>
<td>ENVR 4553</td>
<td>Advanced Spatial Analysis</td>
</tr>
<tr>
<td>LING 3450</td>
<td>Syntax</td>
</tr>
<tr>
<td>LING 3452</td>
<td>Semantics</td>
</tr>
<tr>
<td>MATH 1260</td>
<td>Math Fundamentals for Games</td>
</tr>
<tr>
<td>MATH 2250</td>
<td>Programming Skills for Mathematics</td>
</tr>
<tr>
<td>MATH 2331</td>
<td>Linear Algebra</td>
</tr>
<tr>
<td>MATH 2341</td>
<td>Differential Equations and Linear Algebra for Engineering</td>
</tr>
<tr>
<td>MATH 3530</td>
<td>Numerical Analysis</td>
</tr>
<tr>
<td>MATH 4535</td>
<td>Mathematical Topics in Computer Vision</td>
</tr>
<tr>
<td>Course Code</td>
<td>Course Title</td>
</tr>
<tr>
<td>-------------</td>
<td>--------------------------------------------------------</td>
</tr>
<tr>
<td>MATH 4606</td>
<td>Mathematical and Computational Methods for Physics</td>
</tr>
<tr>
<td>PHYS 1130</td>
<td>Computing, Data, and Science</td>
</tr>
<tr>
<td>PHYS 4606</td>
<td>Mathematical and Computational Methods for Physics</td>
</tr>
<tr>
<td>PSYC 3452</td>
<td>Sensation and Perception</td>
</tr>
<tr>
<td>PSYC 3458</td>
<td>Biological Psychology</td>
</tr>
<tr>
<td>PSYC 3464</td>
<td>Psychology of Language</td>
</tr>
<tr>
<td>PSYC 3466</td>
<td>Cognition</td>
</tr>
<tr>
<td>ANTH 3418</td>
<td>Wired/Unwired: Cybercultures and Technopolitics</td>
</tr>
<tr>
<td>PPUA 6302</td>
<td>Information Design and Visual Analytics</td>
</tr>
<tr>
<td>ECON 1250</td>
<td>Game Theory in the Social Sciences</td>
</tr>
<tr>
<td>ECON 3560</td>
<td>Applied Econometrics</td>
</tr>
<tr>
<td>ECON 4653</td>
<td>Mathematics for Economics</td>
</tr>
<tr>
<td>ENGL 3340</td>
<td>Technologies of Text</td>
</tr>
<tr>
<td>PHIL 1105</td>
<td>Science and Pseudoscience</td>
</tr>
<tr>
<td>PHIL 1114</td>
<td>Reason, Risk, and Evidence</td>
</tr>
<tr>
<td>PHIL 1115</td>
<td>Introduction to Logic</td>
</tr>
<tr>
<td>PHIL 1145</td>
<td>Technology and Human Values</td>
</tr>
<tr>
<td>PHIL 1215</td>
<td>Symbolic Logic</td>
</tr>
<tr>
<td>PHIL 2001</td>
<td>Ethics and Evolutionary Games</td>
</tr>
<tr>
<td>PHIL 4510</td>
<td>Philosophy of Science</td>
</tr>
<tr>
<td>PHIL 4515</td>
<td>Advanced Logic</td>
</tr>
<tr>
<td>PHIL 4520</td>
<td>Philosophy of Logic</td>
</tr>
<tr>
<td>SOCL 3485</td>
<td>Environment, Technology, and Society</td>
</tr>
<tr>
<td>SOCL 4528</td>
<td>Computers and Society</td>
</tr>
<tr>
<td>ACCT 3403</td>
<td>Accounting Information Systems</td>
</tr>
<tr>
<td>ENTR 3410</td>
<td>Entrepreneurship and Intrapreneurship in Innovation-Driven Markets</td>
</tr>
<tr>
<td>ENTR 4501</td>
<td>Business Planning for Technology Ventures</td>
</tr>
<tr>
<td>FINA 4608</td>
<td>Advanced Financial Strategy</td>
</tr>
<tr>
<td>MISM 2301</td>
<td>Management Information Systems</td>
</tr>
<tr>
<td>MISM 3305</td>
<td>Information Resource Management</td>
</tr>
<tr>
<td>MISM 3404</td>
<td>Data Communications</td>
</tr>
<tr>
<td>MKTG 3401</td>
<td>Marketing Research</td>
</tr>
<tr>
<td>MKTG 3501</td>
<td>Marketing Analytics</td>
</tr>
<tr>
<td>MKTG 4508</td>
<td>Digital Marketing</td>
</tr>
<tr>
<td>CRIM 3700</td>
<td>Criminal Justice Statistics</td>
</tr>
<tr>
<td>ECON 2350</td>
<td>Statistics</td>
</tr>
<tr>
<td>ECON 5105</td>
<td>Math and Statistics for Economists</td>
</tr>
<tr>
<td>ENVR 2500</td>
<td>Biostatistics</td>
</tr>
<tr>
<td>IE 3412</td>
<td>Engineering Probability and Statistics</td>
</tr>
<tr>
<td>INSH 2104</td>
<td>Statistics in the Social and Political World</td>
</tr>
<tr>
<td>MATH 2280</td>
<td>Statistics and Software</td>
</tr>
<tr>
<td>MATH 2285</td>
<td>Introduction to Multisample Statistics</td>
</tr>
<tr>
<td>MATH 3081</td>
<td>Probability and Statistics</td>
</tr>
<tr>
<td>MATH 4581</td>
<td>Statistics and Stochastic Processes</td>
</tr>
<tr>
<td>MATH 5104</td>
<td>Basics and Probability and Statistics</td>
</tr>
<tr>
<td>MATH 5105</td>
<td>Basics of Statistics and Stochastic Processes</td>
</tr>
<tr>
<td>ME 2315</td>
<td>Statistical and Economical Analyses in Engineering</td>
</tr>
<tr>
<td>MGSC 2301</td>
<td>Business Statistics</td>
</tr>
<tr>
<td>PHMD 3450</td>
<td>Research Methodology and Biostatistics</td>
</tr>
<tr>
<td>PHTH 2210</td>
<td>Foundations of Biostatistics</td>
</tr>
<tr>
<td>PPUA 6301</td>
<td>Introduction to Computational Statistics</td>
</tr>
<tr>
<td>POLS 2400</td>
<td>Quantitative Techniques</td>
</tr>
<tr>
<td>PSYC 2320</td>
<td>Statistics in Psychological Research</td>
</tr>
<tr>
<td>SOCL 2320</td>
<td>Statistical Analysis in Sociology</td>
</tr>
</tbody>
</table>

**Credit/GPA Requirement**

20 semester hours required

2.00 GPA required in the minor