

## Major Requirements: Science Emphasis

updated February 2012

Course Number and Description	Credits
<input type="checkbox"/> <b>CS 1400</b> Introduction to Computer Science—CS 1 (F,Sp,Su)	3
<input type="checkbox"/> <b>CS 1405</b> Introduction to Computer Science—CS 1 Lab (F,Sp,Su)	1
<input type="checkbox"/> <b>CS 1410 (QI)</b> Introduction to Computer Science—CS 2 (F,Sp,Su)	3
<i>One of the following two options:</i>	6
<input type="checkbox"/> <b>CS 2410</b> Introduction to GUIs in Java (F,Sp) (3 cr) <i>and</i>	
<input type="checkbox"/> <b>CS 2610</b> Developing Dynamic, Database-driven Web Applications (F,Sp) (3 cr)	
<i>or</i>	
<input type="checkbox"/> <b>CS 2412</b> Introduction to GUIs in C# (F,Sp) (3 cr) <i>and</i>	
<input type="checkbox"/> <b>CS 2612</b> Web Applications in ASP.NET (F,Sp) (3 cr)	
<input type="checkbox"/> <b>CS 2420 (QI)</b> Algorithms and Data Structures—CS 3 (F,Sp,Su)	3
<input type="checkbox"/> <b>CS 3000</b> Undergraduate Seminar (F,Sp)	1
<input type="checkbox"/> <b>CS 3100</b> Operating Systems and Concurrency (F,Sp)	3
<input type="checkbox"/> <b>CS 3450 (CI)</b> Introduction to Software Engineering (F,Sp)	3
<input type="checkbox"/> <b>CS 3810</b> Computer Systems Organization and Architecture II (Sp)	3
<input type="checkbox"/> <b>CS 4700</b> Programming Languages (F,Sp)	3
<input type="checkbox"/> <b>CS 5050</b> Advanced Algorithms (F,Sp)	3
<input type="checkbox"/> <b>MATH 1210 <math>\Sigma</math> (QL)</b> Calculus I (F,Sp,Su)	4
<input type="checkbox"/> <b>MATH 1220 <math>\Sigma</math> (QL)</b> Calculus II (F,Sp,Su).4	4
<input type="checkbox"/> <b>MATH 2210 <math>\Sigma</math> (QI)</b> Multivariable Calculus (F,Sp,Su) 3	3
<i>One of the following two options:</i>	4-6
<input type="checkbox"/> <b>MATH 2250 <math>\Sigma</math> (QI)</b> Linear Algebra and Differential Equations (F,Sp,Su) (4 cr)	
<i>or</i>	
<input type="checkbox"/> <b>MATH 2270 <math>\Sigma</math> (QI)</b> Linear Algebra (3 cr) <b>and</b>	
<input type="checkbox"/> <b>MATH 2280 (QI)</b> Ordinary Differential Equations (3 cr)	
<input type="checkbox"/> <b>MATH 3310 <math>\Sigma</math></b> Discrete Mathematics (F,Sp)	3
<i>One of the following two courses:</i>	3
<input type="checkbox"/> <b>STAT 3000 <math>\Sigma</math> (QI)</b> Statistics for Scientists (F,Sp,Su) (3 cr) <b>or</b>	
<input type="checkbox"/> <b>MATH 5710 <math>\Sigma</math></b> Introduction to Probability (F,Sp) (3 cr)	
<i>One of the following 4 courses:</i>	3
<input type="checkbox"/> <b>PHIL 1120 (BHU)</b> Social Ethics (F) (3 cr) <b>or</b>	
<input type="checkbox"/> <b>PHIL 2400 (BHU)</b> Ethics (Sp) (3 cr) <b>or</b>	
<input type="checkbox"/> <b>PHIL 3520 (DHA)</b> Business Ethics (Sp) (3 cr) <b>or</b>	
<input type="checkbox"/> <b>PHIL 4540 (DHA)</b> Human Values and Information Technology (Sp) (3 cr)	
<i>One of the following 2 courses:</i>	3
<input type="checkbox"/> <b>SPCH 1020 (CI)</b> Public Speaking (F,Sp) (3 cr) <b>or</b>	
<input type="checkbox"/> <b>ENGL 3080 (CI)</b> Introduction to Technical Communication (F,Sp) (3 cr)	
<i>Select 3 credits from the following courses. Students may also use courses from the list of CS 5000-level electives that are not otherwise used to fill major requirements.</i>	3
<input type="checkbox"/> <b>CS 3200</b> Mobile Application Development (F,Sp) (3 cr)	
<input type="checkbox"/> <b>CS 3430</b> Python and Perl Programming (Sp) (3 cr)	
<input type="checkbox"/> <b>CS 4250</b> Cooperative Work Experience (F,Sp,Su) (1-9 cr)	
<input type="checkbox"/> <b>CS 4720</b> Computer Networking 1 (F,Sp) (3 cr)	
<input type="checkbox"/> <b>CS 4950</b> Undergraduate Research (F,Sp,Su) (3 cr)	
<input type="checkbox"/> Advisor-approved course	

Course Number and Description	Credits
<p>Select 13 credits from the following courses. At least one course must be a 4-credit course. With advisor approval, students may also take CS 6000-level courses to fill this requirement.</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> <b>CS 5000</b> Theory of Computation (Sp) (3 cr)</li> <li><input type="checkbox"/> <b>CS 5100</b> Graphical User &amp; Interfaces (GUIs) (Sp) (4 cr)</li> <li><input type="checkbox"/> <b>CS 5200</b> Distributed &amp; Network Programming (F) (4 cr)</li> <li><input type="checkbox"/> <b>CS 5300</b> Compiler Construction (F) (4 cr)</li> <li><input type="checkbox"/> <b>CS 5400</b> Computer Graphics I (F) (4 cr)</li> <li><input type="checkbox"/> <b>CS 5410</b> Game Development (Sp) (4 cr)</li> <li><input type="checkbox"/> <b>CS 5450</b> Multimedia Systems (Sp) (3)</li> <li><input type="checkbox"/> <b>CS 5460</b> Computer Security I (F) (3 cr)</li> <li><input type="checkbox"/> <b>CS 5500</b> Parallel Algorithms (Sp) (3 cr)</li> <li><input type="checkbox"/> <b>CS 5600</b> AI: Problem Solving &amp; Expert Systems (F) (4 cr)</li> <li><input type="checkbox"/> <b>CS 5650</b> AI: Pattern Analysis &amp; Machine Intelligence (F) (3 cr)</li> <li><input type="checkbox"/> <b>CS 5700</b> O-O Software Development (Sp) (3 cr)</li> <li><input type="checkbox"/> <b>CS 5800</b> Database Systems (F) (3 cr)</li> <li><input type="checkbox"/> <b>CS 5850</b> Systems Analysis (Sp) (3 cr)</li> <li><input type="checkbox"/> <b>CS 5890</b> Topics in Computer Science (F,Sp,Su) (3 cr)</li> <li><input type="checkbox"/> <b>CS 5950</b> Undergraduate Research (F,Sp,Su) (3 cr)</li> <li><input type="checkbox"/> <b>Advisor-approved course</b></li> </ul>	13
<p><b>Two-Semester Science Sequence</b></p> <p>Complete one of the following two-semester sequences:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> <b>BIOL 1610 S-Q</b> Biology I (4 cr) and <b>BIOL 1620 S-Q (BLS)</b> Biology II (4 cr)</li> <li><input type="checkbox"/> <b>CHEM 1210 S-Q</b> Principles of Chemistry I (F,Sp) (4 cr) &amp; <b>CHEM 1215</b> Chemical Principles Laboratory I (F,Sp) (1 cr) and <b>CHEM 1220 S-Q (BPS)</b> Principles of Chemistry II (F,Sp) (4 cr) and <b>CHEM 1225 S-Q</b> Chemical Principles Laboratory II (F,Sp) (1 cr).</li> <li><input type="checkbox"/> <b>GEO 1110 S-Q (BPS)</b> The Dynamic Earth: Physical Geology (4 cr) and <b>GEO 3200 S-Q (DSC)</b> The Earth Through Time (4 cr)</li> <li><input type="checkbox"/> <b>PHYS 2210 S-Q</b> General Physics I (4 cr) &amp; <b>PHYS 2215</b> General Physics Lab I (1) and <b>PHYS 2220 S-Q (BPS)</b> General Physics II (4 cr) &amp; <b>PHYS 2225</b> General Physics Lab II (1 cr)</li> </ul>	8-10
<p><b>Science and Quantitative Requirement</b></p> <p>In their curriculum, students in the science emphasis must have a total of 30 credits of science and quantitative requirements, such that the 30 credits include the following: (1) a two-semester science sequence (see subsection entitled <b>Two-Semester Science Sequence</b> above), and (2) at least 15 credits of quantitative coursework, which are met with courses designated with a sigma <math>\Sigma</math>. The remaining courses can be met with any combination of the following:</p> <ol style="list-style-type: none"> <li>1. Courses designated with a sigma <math>\Sigma</math> that are not otherwise used to fill science emphasis requirements. This includes courses so designated in other emphases.</li> <li>2. Courses designated with an <b>S-Q</b> (for science/quantitative) that are not otherwise used to fill science emphasis requirements. This includes courses so designated in other emphases.</li> <li>3. Any of the following courses: <ul style="list-style-type: none"> <li><input type="checkbox"/> <b>BIOL 2220 S-Q</b> General Ecology (F,Sp) (3 cr)</li> <li><input type="checkbox"/> <b>BIOL 3060 S-Q (QI)</b> Principles of Genetics (F,Sp,Su) (3 cr)</li> <li><input type="checkbox"/> <b>CHEM 2310 S-Q</b> Organic Chemistry I (F) (4 cr)</li> <li><input type="checkbox"/> <b>CHEM 3060 S-Q (QI)</b> Physical Chemistry (F) (3 cr)</li> <li><input type="checkbox"/> <b>GEO 3500 S-Q</b> Minerals and Rocks (Sp) (4 cr)</li> <li><input type="checkbox"/> <b>PHYS 2500 S-Q</b> Introduction to Computer Methods in Physics (2 cr)</li> <li><input type="checkbox"/> <b>PHYS 2710 S-Q</b> Introductory Modern Physics (3 cr)</li> <li><input type="checkbox"/> <b>PHYS 4010 S-Q (DSC/QI)</b> Chaos Under Control (3 cr)</li> <li><input type="checkbox"/> <b>USU 1350 S-Q (BLS)</b> Integrated Life Science (F,Sp,Su) (3 cr)</li> <li><input type="checkbox"/> <b>USU 1360 S-Q (BPS)</b> Integrated Physical Science (3 cr)</li> </ul> </li> <li>4. Other advisor-approved mathematics or science course.</li> </ol>	0-3