This major is sponsored jointly by the Departments of Statistics and Computer Science. The Statistics and Computer Science major is designed for students who would like a strong foundation in computer science, coupled with significant advanced coursework in statistics. The major prepares students for professional or graduate work in statistics and computer science, and for applications of computing in which knowledge of statistics is particularly important, such as data mining and machine learning. See also Computer Science (http://catalog.illinois.edu/undergraduate/las/comp-science/#majortext), Mathematics (http://catalog.illinois.edu/undergraduate/las/academic-units/math), Mathematics and Computer Science (http://catalog.illinois.edu/undergraduate/las/academic-units/math/mathematics-computer-science-major), and Statistics (http://catalog.illinois.edu/undergraduate/las/academic-units/stats).

For the Degree of Bachelor of Science in Liberal Arts and Sciences

Major in Statistics and Computer Science

E-mail: stat-office@illinois.edu or academic@cs.illinois.edu (academic@cs.uiuc.edu)

Minimum required major and supporting course work normally equates to 68-69 hours

General education: Students must complete the Campus General Education (https://courses.illinois.edu) requirements including the campus general education language requirement.

Twelve hours of 300 and 400-level courses must be taken on this campus.

Minimum hours required for graduation: 120 hours

Departmental distinction: To graduate with distinction requires a specified minimum grade point average in all Computer Science, Statistics, and Mathematics courses listed below. A GPA of 3.25 is required for Distinction, 3.5 for High Distinction, and 3.75 for Highest Distinction.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 100</td>
<td>Freshman Orientation (recommended)</td>
<td>0-1</td>
</tr>
<tr>
<td></td>
<td>Calculus through MATH 241 - Calculus III</td>
<td>11-12</td>
</tr>
<tr>
<td>MATH 415</td>
<td>Applied Linear Algebra</td>
<td>3</td>
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<tr>
<td></td>
<td>Required Computer Science Foundation:</td>
<td>32</td>
</tr>
<tr>
<td>CS 125</td>
<td>Intro to Computer Science</td>
<td></td>
</tr>
<tr>
<td>CS 173</td>
<td>Discrete Structures</td>
<td></td>
</tr>
<tr>
<td>CS 126</td>
<td>Software Design Studio</td>
<td></td>
</tr>
<tr>
<td>CS 225</td>
<td>Data Structures</td>
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</tr>
<tr>
<td>CS 233</td>
<td>Computer Architecture</td>
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<tr>
<td>CS 241</td>
<td>System Programming</td>
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</tr>
<tr>
<td>CS 357</td>
<td>Numerical Methods I</td>
<td></td>
</tr>
<tr>
<td>CS 374</td>
<td>Introduction to Algorithms &amp; Models of Computation</td>
<td></td>
</tr>
</tbody>
</table>

CS 421 Programming Languages & Compilers

Required Probability and Statistics Foundation:

STAT 400 Statistics and Probability I

STAT 410 Statistics and Probability II

STAT 428 Statistical Computing

At least four other statistics, computer science, or mathematics courses, with at least one chosen from each of the following groups:

Group I: Statistical Methods

STAT 200 Statistical Analysis

STAT 212 Biostatistics

CS 361 Probability & Statistics for Computer Science

Group II: Mathematical Analysis and Modeling

MATH 347 Fundamental Mathematics

MATH 441 Differential Equations

MATH 444 Elementary Real Analysis

MATH 447 Real Variables

Group III: Computational Application Areas

STAT 385 Statistics Programming Methods

CS 410 Text Information Systems

CS 411 Database Systems

CS 412 Introduction to Data Mining

CS 446 Machine Learning

CS 481 Advanced Topics in Stochastic Processes & Applications

CS 482 Simulation

Group IV: Statistical Analysis and Modeling

STAT 420 Methods of Applied Statistics

STAT 425 Applied Regression and Design

STAT 426 Sampling and Categorical Data

STAT 448 Advanced Data Analysis

¹ Students should take a course from Group I before taking STAT 400.

Information listed in this catalog is current as of 10/2018