## STATISTICS (BS)

Students earning a B.S. in Statistics will acquire knowledge of a broad range of statistical techniques and methods, an understanding of the mathematical underpinnings of these methods and techniques, and the computational skills, such as R and SAS, to apply and implement these methods using real data. Statistics majors are in high demand in industry in a wide array of fields such as medical research, technology companies, pharmaceuticals, insurance, finance, government, genetics, public health, sports, and epidemiology to name a few.

### Curriculum

AP Credit Policies (https://catalog.luc.edu/undergraduate/arts-sciences/mathematics-statistics/#policies-text)

### Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 161</td>
<td>Calculus I</td>
<td>4</td>
</tr>
<tr>
<td>MATH 162</td>
<td>Calculus II</td>
<td>4</td>
</tr>
<tr>
<td>MATH 263</td>
<td>Multivariable Calculus</td>
<td>4</td>
</tr>
<tr>
<td>MATH 212</td>
<td>Linear Algebra</td>
<td>3</td>
</tr>
<tr>
<td>STAT 203</td>
<td>Introduction to Probability &amp; Statistics</td>
<td>3</td>
</tr>
<tr>
<td>or STAT 335</td>
<td>Introduction to Biostatistics</td>
<td></td>
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<tr>
<td>STAT 303</td>
<td>SAS Programming &amp; Applied Statistics</td>
<td>3</td>
</tr>
<tr>
<td>STAT 304</td>
<td>Introduction to Probability</td>
<td>3</td>
</tr>
<tr>
<td>STAT 305</td>
<td>Introduction to Mathematical Statistics</td>
<td>3</td>
</tr>
<tr>
<td>STAT 307</td>
<td>Statistical Design &amp; Analysis of Experiments</td>
<td>3</td>
</tr>
<tr>
<td>(capstone)</td>
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</tr>
<tr>
<td>STAT 308</td>
<td>Applied Regression Analysis</td>
<td>3</td>
</tr>
</tbody>
</table>

### Science Requirement

Select two of the following: 6

- ANTH 101 Human Origins
- BIOL 101 General Biology I
- BIOL 102 General Biology II
- CHEM 160 Chemical Structure and Properties
- CHEM 180 Chemical Reactivity I
- ENVS 101 The Scientific Basis of Environmental Issues
- PHYS 121 College Physics I Lec/Dis
- PHYS 122 College Physics II Lec/Dis

### Electives

Select three of the following: 9

- STAT 306 Intro to Stochastic Processes
- STAT 310 Categorical Data Analysis
- STAT 311 Applied Survival Analysis
- STAT 321 Computational Aspects of Modeling and Simulation
- STAT 336 Advanced Biostatistics
- STAT 337 Quantitative Methods in Bioinformatics
- STAT 338 Predictive Analytics
- STAT 351 Nonparametric Statistical Methods
- STAT 370 Data Science Consulting
- STAT 388 Topics

**Total Hours** 48

**Note:** This degree has waivers for both Quantitative and Scientific core.

### College of Arts and Sciences Graduation Requirements

All Undergraduate students in the College of Arts and Sciences are required to take two Writing Intensive courses (6 credit hours) as well as complete a foreign language requirement at 102-level or higher (3 credit hours) or a language competency test. More information can be found here (https://www.luc.edu/cas/college-requirements/).

### Additional Undergraduate Graduation Requirements

All Undergraduate students are required to complete the University Core, at least one Engaged Learning course, and UNIV 101. SCPS students are not required to take UNIV 101. Nursing students in the Accelerated BSN program are not required to take core or UNIV 101. You can find more information in the University Requirements (https://catalog.luc.edu/undergraduate/university-requirements/) area.

### Learning Outcomes

- After completing STAT 203 and STAT 304, students majoring in statistics will understand the fundamentals of probability theory by applying them properly to statistical methods.
- After completing introductory statistics courses (STAT 203, STAT 303, STAT 308), students majoring in statistics will be able to analyze and interpret descriptive statistics through a report.
- Upon completing the program, students majoring in statistics will be able to properly use statistical reasoning as it applies to inferential methods in a written analysis and/or oral presentation.
- Upon completing the program, students majoring in statistics will be able to create and interpret statistical models including understanding the limitations of the model in a written analysis and/or oral presentation.
- Upon completing the program, students majoring in statistics will be able to use statistical software to generate appropriate output for data analysis.