COMPUTER SCIENCE + ASTRONOMY, BSLAS

for the degree of Bachelor of Science in Liberal Arts & Sciences Major in Computer Science + Astronomy

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A Major Plan of Study Form must be completed and submitted to the LAS Student Affairs Office by the beginning of the fifth semester (60-75 hours). Please see the computer science advisor as well as the astronomy advisor.

General education: Students must complete the Campus General Education (https://courses.illinois.edu/) requirements including the campus general education language requirement. Minimum required major and supporting course work: Normally equates to 68-71 hours. Twelve hours of 300- and 400-level in the major must be taken on this campus.

A Major Plan of Study form must be completed and submitted to the LAS Student Affairs office by the beginning of the fifth semester (60-75 hours). Please see the Computer Science advisor as well as the Astronomy advisor.

Minimum hours required for graduation: 120 hours.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
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<tbody>
<tr>
<td>MATH 221</td>
<td>Calculus I</td>
<td>4-5</td>
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<tr>
<td>or MATH 220</td>
<td>Calculus</td>
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<tr>
<td>MATH 225</td>
<td>Introductory Matrix Theory</td>
<td>2 or 3</td>
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<td>or MATH 257</td>
<td>Linear Algebra with Computational Applications</td>
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<tr>
<td>MATH 231</td>
<td>Calculus II</td>
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Required Astronomy Coursework - Minimum of 27 Hours

Physics, Mathematics, and Astronomy Foundations | 15 |
PHYS 211 | University Physics: Mechanics                | 4   |
PHYS 212 | University Physics: Elec & Mag               | 4   |
MATH 241 | Calculus III                                | 4   |
ASTR 210 | Introduction to Astrophysics                 | 3   |

Advanced Astronomy Courses (Minimum 12 total advanced ASTR 12-13 hours required)

ASTR 310 | Computing in Astronomy                      | 3   |
Select 2 courses from the following list: | 6-7 |
ASTR 404 | Stellar Astrophysics                        |     |
ASTR 405 | Planetary Systems                           |     |
ASTR 406 | Galaxies and the Universe                   |     |
ASTR 414 | Astronomical Techniques                     |     |

Additional ASTR course(s) at the 300 level or higher | 2-3 |

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Undergraduate Computer Science & Astronomy majors will graduate with a demonstrated ability to:

LO1. Understand the hierarchical architecture of the cosmos, increasing in scale from the Solar System to the Galaxy to the Universe, and decreasing in scale to atoms and their nuclei. Understand the interplay among these scales.

LO2. Define and use fundamental principles and techniques of astronomy and astrophysics.

• Identify which principles should be applied to a specified situation
• Show familiarity with astronomical observables and their physical origin.
• Understand and apply basic physics and computational techniques to solve problems in astrophysics, and interpret the results.

LO3. Analyze astronomical data, and quantitative data generally.

• Demonstrate the ability to link observation and theory.
• Demonstrate the ability to draw qualitative conclusions from quantitative information, and vice versa.
• Demonstrate the ability to plan observational programs, use astronomical telescopes and instrumentation, and to analyze and present astronomical data.

LO4. Plan and perform guided research, or attain an advanced-level understanding of a topic of contemporary interest in astronomy and astrophysics.

LO5. Demonstrate the ability to communicate effectively both verbally and in writing.

Information listed in this catalog is current as of 06/2023
for the degree of Bachelor of Science in Liberal Arts & Sciences Major in Computer Science + Astronomy

computer science website: CS + X Degrees (https://cs.illinois.edu/academics/undergraduate/degree-program-options/cs-x-degree-programs/#requirements)
astronomy website: CS + Astronomy (https://astro.illinois.edu/academics/undergraduate-program/computer-science-astronomy-major/)
department page: https://astro.illinois.edu/
overview of college admissions & requirements: Liberal Arts & Sciences (http://catalog.illinois.edu/schools/las/academic-units/)
college websites: https://las.illinois.edu/ and https://grainger.illinois.edu
astronomy email: astronomy@illinois.edu
computer science email: undergrad@cs.illinois.edu (academic@cs.illinois.edu)