

## Astronomy

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| <b>Courses required for the first year:</b> None  |
| <b>Courses recommended for the first year:</b><br>Fall – Math 160* or Math 140, according to placement<br>Spring - Phys 211, Math 160* if not taken in fall |
| <b>Contact:</b><br>Dr. Lee Carkner (leecarkner@augustana.edu) or Dr. William Peterson (williampeterson@augustana.edu)                                       |

### The Minor in Astronomy

#### Required Courses

| Course Number | Course Name             | Learning Perspective/<br>Suffix | Prerequisites                            | Usually offered:<br>F, J, SP, SU* | Credits |
|---------------|-------------------------|---------------------------------|--|-----------------------------------|---------|
| Astr 135      | Planets                 | PN                              |  | F                                 | 4       |
| Astr 145      | Stars and Galaxies      | PN                              |  | SP                                | 4       |
| Astr 305      | Advanced Astronomy      |                                 | Phys 151 or<br>Phys 211, and<br>Astr 145 | F                                 | 4       |
| Astr 367      | Astronomical Laboratory |                                 | Phys 151 or<br>Phys 211                  | SP                                | 2       |

#### Additional Courses (\* Required Supporting Courses)

| Course Number                | Course Name             | Learning Perspective/<br>Suffix | Prerequisites                 | Usually offered:<br>F, J, SP, SU* | Credits |
|------------------------------|-------------------------|---------------------------------|-------------------------------|-----------------------------------|---------|
| Math 160<br>(see Note below) | Calculus                |                                 |                               | F/SP                              | 4       |
| Phys 211**                   | Foundational Physics I  | PN                              | Math 160 (or<br>co-requisite) | SP                                | 4       |
| Phys 151**                   | Principles of Physics I | PN                              |                               | F                                 | 4       |

Note: Math 160 is only necessary for taking Phys 211

\*\*Phys 211 or Phys 151 is required

#### Minor Overview

- ASTR-135 and ASTR-145 are taught in the John Deere Planetarium and include full-dome content on constellations, visual astronomy, and navigation using the digital projector and starfield. Students will also have opportunities to help with open houses by giving planetarium shows and operating telescopes.

- Students will use the remotely operated Robert L. Mutel Telescope, provided by the MACRO consortium, to collect astronomical images and data for assignments and lab activities in the courses related to this minor.
- Interested students will have the opportunity to do research with the telescope and/or related engineering projects, possibly in collaboration with students and faculty at other schools in the MACRO consortium, and join faculty on yearly visits to the observatory site for maintenance, upgrades, and experiments.

\*Fall, J term, Spring, Summer; see [Academic Calendar](#) for specific dates

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