Astronomy Major

The program develops the skills necessary to tackle complex and ill defined problems within the physical sciences. The astronomy program prepares students for careers in several broad areas. The B.A. is aimed primarily at students interested in secondary education in the physical sciences, science policy, and science and technical writing. The B.A. can also prepare students to continue their studies in astronomy in graduate school.

Degree Requirements

The astronomy degree has several different tracks depending on the area of specialization the student wishes to pursue. Each of these tracks has the same core math, physics, and astrophysics requirements. In addition to these core courses, each track requires additional credits specific to the area of specialization. These tracks are: secondary education, science writing, science policy, and scientist.

Required Courses

Math 1271-1272 or Math 1371-1372 or Math 1571-1572 (8-10 cr)—Calculus I-II
Math 2243 and 2263 or Math 2373 and 2374 or Math 2573 and 2574 (8 cr)
Phys 1301-1302-2503 or Phys 1401-1402-2403 (12 cr)—Introductory Physics
Ast 1011—Exploring the Universe, Honors is recommended but not required
Ast 2001—Introduction to Astrophysics (4 cr)
Phys 2201—Introductory Thermal and Statistical Physics (2 cr)
Phys 2601—Quantum Physics (4 cr)
Phys 2605—Quantum Physics Laboratory (3 cr)
Phys 4001—Analytical Mechanics (4 cr)
Phys 4002—Electricity and Magnetism (4 cr)
Two 4xxx or 5xxx courses in astronomy (8 cr)
Area of specialization (approximately 12 cr)

Electives

Additional credits in the area of specialization within the degree program may be required. For example, secondary education in the physical sciences requires additional chemistry and history courses to satisfy entrance requirements to the College of Education and Human Development. Consult your adviser.

Final Project

Students complete a senior thesis in Ast 4994—Directed Research (3 cr minimum). This requirement can be met with directed research in astronomy or a project more tailored to the specific track within the degree program. For example, students pursuing a career in secondary education may want to develop a unit on astronomy for junior high school instruction instead of an astronomy research project.

How to declare the Astronomy major:

Contact the Astronomy department in 356 Physics, 612-624-2011, to schedule an appointment to meet with the Astronomy adviser to declare the major.
Resources

The Department of Astronomy’s website: [http://www.astro.umn.edu/](http://www.astro.umn.edu/) contains information about the Undergraduate programs in the Department, including sample course plans for the areas of specialization.

Possible Areas of Employment

- **Science**—observatory and laboratory positions, computer programming, physicists
- **Government**—public information, campaigns, federal offices
- **Museums**—science museums, planetariums
- **Business**—marketing, human resources, sales, consulting, recruiting
- **Education**—teaching, research

Career and Community Learning Center

The Career and Community Learning Center (CCLC), located in 135 Johnston, supports CLA students making career decisions.

Hours

The office’s Resource Library in 135 Johnston is open from 8:00am-4:30pm Monday-Friday, and no appointment is necessary for students who wish to look at the resources listed in this handout. The office’s phone number is (612) 624-7577. For students with additional questions after their initial visit, appointments are available with professional staff members to discuss career planning. The staff in the Resource Library will help you schedule an appointment.

Workshops and Classes

CCLC offers career workshops and credit-bearing courses covering resume writing, job and internship searches, interviewing, and other subjects. A current schedule is available online at [www.cclc.umn.edu](http://www.cclc.umn.edu).

Volunteer Resources

Many science students are interested in gaining volunteer experience. CCLC can help with this too! We actually have two offices. The career office is in 135 Johnston, but a second office is located in 345 Fraser. In 345 Fraser, advisers are available to meet with students who wish to arrange volunteer opportunities or who wish to enroll in classes that involve service-learning. For more information, see [www.cclc.umn.edu](http://www.cclc.umn.edu) or call (612) 624-2044.

Graduate and Professional School Information

CCLC’s Resource Library includes information on graduate and professional schools. Students visiting the office can learn more about potential programs and application procedures. In addition, CCLC staff members are available to review drafts of personal statements for students applying to graduate programs. While we can’t substitute for the Writing Center or others who are experts in grammar and other intricacies of writing essays, we are happy to offer feedback. See a CCLC peer adviser in 135 Johnston to schedule an appointment. Finally, CCLC coordinates an annual Graduate and Professional School Day, attended by representatives from programs across the United States.
Resources Available at the Career and Community Learning Center, 135 Johnston Hall

150 Best Companies for Liberal Arts Graduates by Woodruff and Ptacek
Careers for Geniuses & Other Gifted Types by Jan Goldberg
Careers in High Tech by Nick Basta
Careers in Science by Thomas A Easton
Great Jobs for Liberal Arts Majors by Blythe Camenson
Opportunities in High Tech Careers by Yanuck and Golter
Real People Working in Science by Jan Goldberg

Web Sites of Interest:

University of Minnesota Department of Astronomy
American Astronomical Society
The Astrophysical Journal
NASA/IPAC Intergalactic Database
NASA Home Page
Minnesota Astronomical Society
Minnesota Planetarium
American Institute of Physics
Occupational Outlook Handbook – Physicists and Astronomers
American Institute of Physics – Education and Student Services
Science Careers

http://www.astro.umn.edu/
http://www.aas.org/
http://nedwww.ipac.caltech.edu/
http://www.nasa.gov/NASA_homepage.html/
http://www.mnastro.org/
http://www.mplanetarium.org/planet_home.html
http://www.aip.org/
http://stats.bls.gov/oco/ocos052.htm
http://www.aip.org/education.html
http://recruit.sciencemag.org/