FROM STUDY TO SKILLS

All academic programs offered at the UM help students develop valuable transferable skills. Astronomy is a research field oriented towards the study of the fundamental nature of the universe, its origin and evolution, and the physical processes that take place in it.

As an astronomy student you will develop a wide range of skills — from research skills specific to astrophysical investigation to technical and communication skills.

Related fields include Physics, Mathematics, Statistics, and Informatics.

SKILLS AND ABILITIES

Investigative Skills
- Defining a research problem
- Developing a research model
- Establishing hypotheses
- Gathering/analyzing data
- Evaluating ideas
- Seeing relationships among factors
- Drawing meaningful conclusions

Communication Skills
- Developing and writing research proposals
- Reviewing astronomy literature
- Summarizing research findings
- Informing/explaining/instructing
- Preparing technical reports

Computational/Mathematical Skills
- Measuring distances/sizes/relationships
- Performing calculations
- Mathematical modeling
- Maintaining records
- Utilizing mathematical formulas

Technical Skills
- Designing and using specialized equipment
- Identifying and classifying materials/specimens
- Observing and interpreting results
- Recording and analyzing data
- Establishing and controlling experimental designs
- Designing and using computer simulations
- Using scientific instruments

BUILDING YOUR SKILLS OUTSIDE THE CLASSROOM

Employers seek out individuals who can demonstrate excellent verbal and written communication skills, teamwork and interpersonal skills, initiative, and a strong work ethic. Student organizations and campus employment offer valuable opportunities to add to the skills you are developing in your classes. Most concentrations sponsor specific student groups like an undergraduate organization or an honor society. Other options include study abroad, off-campus employment, or volunteering in the community. Finally, a summer internship may be the best way of all to test out a career field and develop marketable skills.
The skills you will gain as an Astronomy concentrator will prepare you to succeed in a number of fields. In addition to preparing for a research career, Astronomy concentrators have discovered opportunities in a wide range of occupations; the list below was compiled from UM graduates and from national data. In addition, Astronomy concentrators may choose to continue their education in graduate or professional school.

Investigative Skills
- Research scientist
- Optical design specialist
- Particle physicist
- Information specialist
- Flight management analysts
- Atmospheric space scientist
- Biochemist
- Biophysicist

Communication Skills
- Educational TV advisor
- K-12/college teacher
- Planetarium guide/lecturer
- Special librarian
- Museum exhibit planner
- Technical writer
- Webpage writer
- Science journalist
- Sales, technical equipment

Computational/Mathematical Skills
- Computer programmer
- Mathematical technician
- Cartographer
- Website designer/administrator
- Community manager
- System support representative
- Database analyst

Technical Skills
- Telescope operator
- Instrument maker
- Photographer
- Military officer/intelligence specialist
- Navigation equipment specialist
- Special effects artist

= Green Jobs
= Further Study Required

For more career information, see O*Net at online.onetcenter.org

CONCENTRATION REQUIREMENTS

Prerequisites:
Mathematics 115, 116, 215, 216
Physics 140/141, 240/241, 340/341
Astronomy 160 or other 100 level survey class

General Requirements:
ASTRO 361, 399, 402, 404, 429, plus a 400 level elective
Mathematics 450 or 451
Physics 390, 401, 405, 453
One of MATH 404, 450, 556, or Physics 451

NEXT STEPS/RESOURCES

To begin connecting to professionals in fields that interest you, create your own LinkedIn account:
careercenter.umich.edu/article/getting-started-linkedin

To identify internships or job opportunities, visit Career Center Connector: careercenter.umich.edu/article/c3

Maize Pages list hundreds of organizations for students to get involved in: maizepages.umich.edu

On-campus jobs (work-study and non work-study jobs) are listed at:
studentemployment.umich.edu/JobX_Home.aspx

Connect to Community lists volunteer opportunities in local organizations: connect2community.umich.edu

The Career Center
3200 Student Activities Building
734-764-7460
careercenter.umich.edu
facebook.com/careercenter.umich
twitter.com/careercenter
linkedin.com/company/the-career-center-at-the-university-of-michigan