



## Astronomy

### 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.









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## FROM SKILLS TO CAREER



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   
Navigation equipment  
specialist  
Special effects artist

 = Green Jobs

 = Further Study Required

For more career information, see O\*Net at  
[online.onetcenter.org](http://online.onetcenter.org)

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## 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

### Department of Astronomy

830 Dennison  
734-764-3440  
[astro.lsa.umich.edu](http://astro.lsa.umich.edu)

### Newnan Advising Center

1255 Angell Hall  
734-764-033  
[lsa.umich.edu/advising](http://lsa.umich.edu/advising)

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## 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](http://careercenter.umich.edu/article/getting-started-linkedin)

To identify internships or job opportunities, visit Career Center Connector: [careercenter.umich.edu/article/c3](http://careercenter.umich.edu/article/c3)

Maize Pages list hundreds of organizations for students to get involved in: [maizepages.umich.edu](http://maizepages.umich.edu)

On-campus jobs (work-study and non work-study jobs) are listed at:

[studentemployment.umich.edu/JobX\\_Home.aspx](http://studentemployment.umich.edu/JobX_Home.aspx)

Connect to Community lists volunteer opportunities in local organizations: [connect2community.umich.edu](http://connect2community.umich.edu)

### The Career Center

3200 Student Activities Building  
734-764-7460  
[careercenter.umich.edu](http://careercenter.umich.edu)  
[facebook.com/careercenter.umich](https://facebook.com/careercenter.umich)  
[twitter.com/careercenter](https://twitter.com/careercenter)  
[linkedin.com/company/the-career-center-at-the-university-of-michigan](https://linkedin.com/company/the-career-center-at-the-university-of-michigan)

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