

ASTRONOMY AND ASTROPHYSICS

Learning Outcomes

Master of Science (M.S.)

1. Know/Think/Apply: Graduates will have demonstrated command of basic observational astronomy and astrophysics, including observing techniques, methods of data analysis, and common theoretical frameworks and techniques. This will include the ability to apply physics and mathematics knowledge to standard problems in astrophysics, as well as application of statistical principles to data analysis.
2. Communicate: Graduates will be able to clearly and cogently describe the background and motivation of their work, describe their methodology, and present and defend their arguments and conclusions in oral presentations, written papers and reports.
3. Ethical Professional Conduct: Graduates will demonstrate working knowledge of the standards for ethical conduct in research through their professional behavior and work.

Doctor of Philosophy (Ph.D.)

1. Know/Think: Graduates will have demonstrated command of basic observational astronomy and astrophysics, including observing techniques, methods of data analysis, and common theoretical frameworks and techniques. This will include the ability to apply physics and mathematics knowledge to standard problems in astrophysics, as well as application of statistical principles to data analysis.
2. Apply/Think/Create: Graduates will be able to carry out original research in theoretical astrophysics, observational astronomy, or laboratory astrophysics (including but not limited to instrumentation development). This entails identifying and evaluating the status of outstanding questions, developing strategies to answer them, and formulating hypotheses and testing them through one or more of the following means: calculations or simulations, model development, analysis of existing data, acquisition and analysis of new data, and design and/or construction of new instruments.
3. Communicate: Graduates will be able to clearly and cogently describe the background and motivation of their research, describe their research methodology, and present and defend their arguments and conclusions in oral presentations, written papers and reports, and, where applicable, proposals.
4. Ethical Professional Conduct: Graduates will demonstrate working knowledge of the standards for ethical conduct in research through their professional behavior and work.