

Graduate Degree Programs

The Department of Astronomy offers the M.A. and the Ph.D. degrees in astronomy and offers the Ph.D. in astrophysics jointly with the Department of Physics. Students normally spend the first two years taking graduate courses in astronomy and their chosen minor program and doing research with faculty members. During their third and subsequent years, students carry out dissertation research with guidance from a faculty member. Median time to Ph.D. is 5.9 years.

Ph.D. in Astronomy

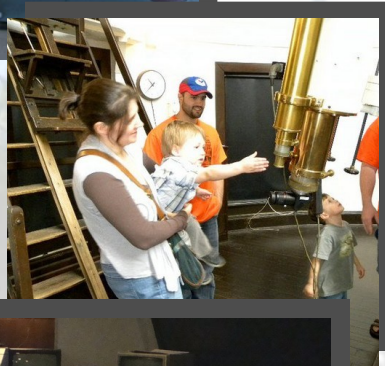
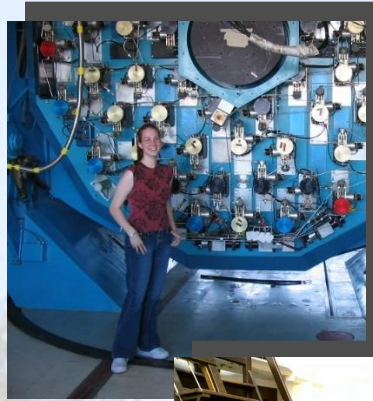
- A minimum of six courses from the astronomy core sequence and sufficient coursework to complete the minor requirements for a related field, e.g., physics, scientific computing, mathematics, chemistry, or geology.
- A written qualifying examination in astronomy.
- A predoctoral candidacy seminar.
- A doctoral dissertation and final oral defense.

Ph.D. in Astrophysics

- Four courses from the astronomy core sequence, four specified courses from the physics core sequence, and one other astronomy or physics course selected in consultation with the graduate advisory committee.
- Half of the written qualifying examination in astronomy and half of the physics qualifying examination, or the full exam in either program.
- A predoctoral candidacy seminar.
- A doctoral dissertation and final oral defense.

M.A. in Astronomy

- Three courses from the astronomy core sequence and other astronomy and physics courses selected in consultation with the graduate advisory committee.
- An oral examination.
- A thesis or other demonstration of research proficiency.



Indiana University Department of Astronomy Graduate Program



WIYN 3.5-m telescope located at Kitt Peak near Tucson, AZ

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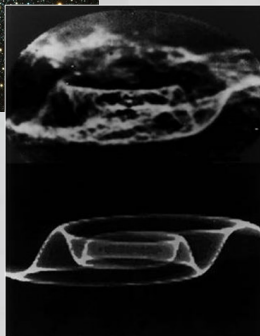


DEPARTMENT OF ASTRONOMY

INDIANA UNIVERSITY
College of Arts and Sciences
Bloomington

Research Opportunities and Facilities

Students and faculty in the Indiana University (IU) Department of Astronomy conduct research on a broad range of observational and theoretical topics, from stellar astrophysics to galactic dynamics and the formation and evolution of galaxies. Students often use guaranteed IU time on the WIYN 3.5m and 0.9m telescopes at Kitt Peak, as well as using a variety of other major ground-based and space-based facilities. Graduate students are each provided with research-grade computer workstations for carrying out data reduction, analysis and numerical simulations. Students also have access to IU's outstanding computing and visualization facilities such as Big Red II (which is ranked among the world's fastest supercomputers), extensive data storage systems like the Scholarly Data Archive and the Data Capacitor, and a number of advanced visualization resources, including ultra-high resolution displays and facilities for 3D and immersive visualization. Graduate students are active in departmental outreach activities and have the opportunity to teach small classes in astronomy throughout their graduate careers.



Haldan N. Cohn (Professor, Ph.D. Princeton University 1979) studies the dynamics of stellar systems, including interacting binary stars and globular clusters, using both theoretical approaches (e.g., N-body simulations of star clusters) and observations with ground- and space-based observatories, especially HST and Chandra.

Catherine Pilachowski (Professor, Daniel Kirkwood Chair, Ph.D. University of Hawaii 1975) investigates the evolution of stars and our Milky Way through the study of the detailed chemical compositions and kinematics of stars and star clusters.



Eileen Friel (Professor and Department Chair, Ph.D. University of California, Santa Cruz 1986) investigates the formation and evolution of the Milky Way galaxy and its stellar populations by using star clusters as chemical and dynamical probes of the Galaxy.



Enrico Vesperini (Assistant Professor, Ph.D. Scuola Normale Superiore di Pisa 1994) carries out theoretical and computational studies of stellar and galactic dynamics, with a focus on different aspects of the formation and dynamical evolution of globular star clusters and globular cluster systems.



Katherine Rhode (Associate Professor and Director of Graduate Studies, Ph.D. Yale University 2003) studies the origin and evolution of external galaxies and their stellar populations. She investigates the formation of massive galaxies by measuring the detailed photometric and kinematic properties of their globular cluster systems, and studies the stellar populations of nearby low-mass galaxies to understand their evolutionary histories.

IU Astronomy Faculty



Constantine P. Deliyannis (Associate Professor, Ph.D. Yale University 1990) explores stellar interiors, stellar evolution, Galactic chemical evolution, and Big Bang nucleosynthesis through the study of the relative abundances of the light elements.

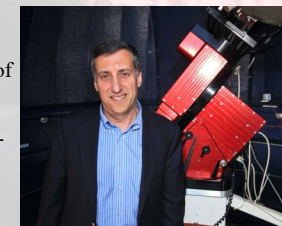
Phyllis Lugger (Professor, Ph.D. Harvard University 1982) studies the dynamics of globular star clusters and interacting binary stars using the Hubble Space Telescope, Chandra X-ray Observatory, and WIYN telescope, as well as N-body computer simulations.



Stuart L. Mufson (Professor, Ph.D. University of Chicago 1974) studies high energy astrophysics, cosmic ray neutrino physics, and dark energy. He also develops astronomical instrumentation, especially large-scale advanced photon detection systems for use in neutrino experiments.



John J. Salzer (Professor, Ph.D. University of Michigan 1987) observes galaxies at a wide range of wavelengths to study their star-formation properties and chemical abundances with the goal of understanding their evolution.



Liese van Zee (Professor, Ph.D. Cornell University 1996) studies the evolution, star formation history, chemical abundances, gas distributions and kinematics of galaxies. She combines multi-wavelength observational data from ground- and space-based facilities with stellar population models to study galaxies over a range of masses, from dwarfs to gas-rich irregular and spiral galaxies.

