Department of Physics and Astronomy
2022 Assessment Report

All areas shaded in gray are to be completed by the department/program.
This document will be posted online and must be accessible electronically (including appendices).

MISSION STATEMENT

The Department of Physics and Astronomy of the University of Montana-Missoula sees its mission as having four complementary but distinct parts. First, we provide a sound, complete, and modern education for our undergraduate majors with sufficient preparation for either a career in a technical field or admission to graduate school. Second, we provide quality instruction in physics and in astronomy to undergraduate and graduate non-majors. Third, we provide technical expertise in physics, astronomy, and in computational methods to the University, the community, and the state. Fourth, we contribute to the scientific community at the national and international levels by generating new knowledge through research in physics and astronomy. To achieve each of these missions we rely on a faculty and staff who are dedicated to quality teaching, committed to research and scholarly activity, and engaged in service to the University and the community.

DEPARTMENT ALIGNMENT WITH PRIORITIES FOR ACTION

After listing each departmental objective, indicate which of the five Priorities for Action the objective supports. In this section, you may also briefly describe any innovative or noteworthy programs/initiatives that support the Priorities for Action.

1. Provide a sound, complete, and modern education for our undergraduate majors [Priorities 1 & 2]
2. Provide quality instruction in physics and astronomy to undergraduate and graduate non-majors [Priorities 1 & 2].
3. Provide opportunities for our undergraduate majors to be involved in research, teaching, and outreach [Priorities 1 & 2].
4. Generate new knowledge through research in physics and astronomy [Priority 2].
5. Contribute to the community and state through outreach in physics and astronomy [Priorities 3, 4, & 5].

STUDENT LEARNING OUTCOMES and MEASUREMENT TOOLS

Student Learning Outcomes	Course specific testing	Laboratory Courses	Theory Courses	UG Research Positions	Senior Capstone Seminar
1. Learn the basic principles of physics or astronomy	X	X	X		
2. Develop proficiency in critical thinking and problem solving	X	X	X	X	
3. Become familiar with various scientific instruments,		X		X	

Student Learning Outcomes	Course specific testing	Laboratory Courses	Theory Courses	UG Research Positions	Senior Capstone Seminar
measurement equipment, diagnostic tools, electronic circuits, and computer hardware and software					
4. Develop the necessary mathematical knowledge and skills to pursue the study of physics and astronomy			X	X	
5. Be able to carry out independent research and communicate the results of that research to their peers				X	X

RESULTS and MODIFICATIONS

Student Learning Outcomes results	Modifications made to enhance learning
Our number of majors is currently around 70. This is a decline from our peak of around 90 majors.	We are down to three tenure-track faculty with one being on sabbatical for the 2023 calendar year. We are currently conducting searches for two tenure-track faculty and one lecturer. We will also continue to increase our outreach and recruitment efforts that were hampered by the pandemic. Prior to the pandemic we had over 2000 people attend planetarium shows each year, which is a large number of shows considering the maximum for each show is 25 – 30 people (25 for adults, 30 for small children).
Approximately 60% of our graduates go on to graduate school, including some to top programs in physics and astronomy.	We continue to emphasize undergraduate involvement in research in our program. This includes emphasizing the importance of this during the recruitment phase for ne tenure-track faculty.
Our graduates are successful in graduate school and in their careers.	We will continue to encourage our graduates to participate in LinkedIn, both as a professional tool and to let our department know about their continued careers.
The enrollment in our introductory astronomy course continues to grow, once again surpassing 200 in a single class.	We have placed an increased emphasis in astronomy as part of our program. The two new tenure-track hires are both in astronomy/astrophysics. In both the introductory astronomy and the introductory physics courses, we will continue to use Learning Assistants to encourage a more dynamic learning environment.

FUTURE PLANS FOR CONTINUED ASSESSMENT

Our Freshman Physics Experience course and our Senior Capstone Seminar course allow us to engage our majors at the freshman and senior level. We will continue to assess the success of our efforts to offer opportunities for our majors to be engaged in research and outreach.

APPENDICIES

1. The undergraduate curriculum in Physics and Astronomy: https://www.umt.edu/academics/programs/_archive/physics/default.php