

ESTABLISHMENT OF A BACHELOR OF SCIENCE IN ASTRONOMY

Recommendation

It is recommended that the Board of Governors establish a new degree program, the Bachelor of Science in Astronomy in the College of Liberal Arts & Sciences, effective Fall term, 2022.

Background

The Department of Physics & Astronomy introduced a BA in Astronomy approximately 10 years ago. The initial justification for developing a BA rather than a BS was to be different from other local programs and also allow access to students who might be put off by more rigorous math and physics requirements. However, our experience over the last decade is that many students want the more rigorous Bachelor of Science and so have ended up double-majoring with a BS in Physics and BA in Astronomy, opting for credit-intensive BS in Physics (Astrophysics concentration). In reviewing and restructuring all our departmental programs, we want to replace the BS in Physics (Astrophysics concentration) with a true BS in Astronomy.

Program Description

The Bachelor of Science (BS) degree in Astronomy provides a rigorous physical sciences program for those with an interest in astronomy. The strong math, physics and astronomy background of this program will prepare students wanting to pursue graduate school. Moreover, the problem solving, data analysis, scientific communication, physical reasoning, and computational skills developed during the program provides preparation for careers in a wide range of STEM-related professional fields.

Admission Requirements

This degree program is open to all regularly admitted undergraduate students.

Curriculum Requirements

AST 1010	Discovering the Universe	1
AST 2010	Descriptive Astronomy	4
AST 2011	Descriptive Astronomy Laboratory	1
AST 2030	Life in the Universe	3
AST 4100	Astronomical Techniques	3
AST 4200	Astronomical Laboratory	2
AST 4300	Planetary Astronomy and Space Science	3
AST 5010	Astrophysics and Stellar Astronomy	3
AST 5100	Galaxies and the Universe	3
AST 6080	Survey of Astrophysics	3
PHY 2170	University Physics for Scientists I	4
PHY 2171	University Physics Laboratory	1
PHY 2180	University Physics for Scientists II	4
PHY 2181	University Physics Laboratory II	1
PHY 3300	Introductory Modern Physics	3
PHY 3310	Introductory Modern Physics Laboratory	2
PHY 3750	Introduction to Computational Methods	1
PHY 6750	Applied Computational Methods	2

Or		
PHY 6860	Computational Physics	3
MAT 2010	Calculus I	4
MAT 2020	Calculus II	4
MAT 2030	Calculus III	4
MAT 2150	Differential Equations and Matrix Algebra	4
Two electives in Physics		6
Satisfaction of all University and College group and competency requirements		
Total Credits		69-70

A minimum grade of C- is required in prerequisite courses.

Graduation Requirements

Candidates must complete 120 credits in course work including satisfaction of the University General Education Requirements and the College of Liberal Arts and Sciences Group Requirements, as well as the Departmental major requirements. All course work must be completed in accordance with the regulations of the University and the College governing undergraduate scholarship and degrees. Students must receive a grade of C- or better in all physics and/or astronomy courses. A cumulative grade point average of 2.0 or higher for all course work is required for graduation.

Program Administration

Since the Department of Physics & Astronomy is already running a BA in Astronomy, all the administrative procedures are in place. The current Program Director for the BA in Astronomy will also fulfill this role for the new BS in Astronomy. The current department advisor is highly successful in advising our undergraduate students in all our current programs and will be able to advise the students in the BS in Astronomy program.

Budget and Resource Requirements

No new resources are required for this program. A new hire in Astronomy was previously approved.

Accreditation

No external accreditation. Part of recurring academic program review.

Approvals

The proposal was approved by the faculty of the Department of Physics and Astronomy, the College of Liberal Arts and Sciences faculty council, College of Liberal Arts and Sciences faculty assembly, the Dean of the College of Liberal Arts and Sciences, and the Provost.