



University Council

March 15, 2019

UNIVERSITY CURRICULUM COMMITTEE – 2018-2019

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Graduate School – Amy E. Medlock

Ex-Officio – Interim Provost Libby V. Morris

Undergraduate Student Representative – Ali Elyaman

Graduate Student Representative – Chasity Tompkins

Dear Colleagues:

The attached proposal to make the following program changes in the Franklin College of Arts and Sciences will be an agenda item for the March 22, 2019, Full University Curriculum Committee meeting:

Major Name Change

From: Physics and Astronomy (B.S.)

To: Astrophysics (B.S.)

Minor Name Change

From: Physics and Astronomy

To: Astrophysics

Sincerely,

John Maerz, Chair

University Curriculum Committee

cc: Interim Provost Libby V. Morris  
Dr. Rahul Shrivastav

## NAME CHANGE JUSTIFICATION FORM

**School/College:** Franklin College of Arts and Sciences

**Department:** Physics and Astronomy

**Major Name Change:**

**From:** Physics and Astronomy (B.S.)

**To:** Astrophysics (B.S.)

**Minor Name Change:**

**From:** Physics and Astronomy

**To:** Astrophysics

### JUSTIFICATION:

Over the past few decades, the term "Astronomy" in academia has come to denote primarily *observational* astronomy. This term no longer encompasses the wide range of theoretical, computational, and experimental techniques that researchers use to explain celestial phenomena, nor does it acknowledge the physics background that today's students need to understand the discipline.

Classifying these programs as "Astrophysics" more accurately reflects the courses that students take for the major and the minor. The upper-level sequence of required ASTR courses comprises ASTR 4010/6010, Astrophysics I (stellar astrophysics), ASTR 4020/6020, Astrophysics II (galactic structure and dynamics), and ASTR 4030/6030, Astrophysics III (physical cosmology). In addition to these courses, students pursuing the B.S. degree are required to take many of the same upper-level PHYS courses that Physics majors need (such as Theoretical Classical Mechanics, Electrodynamics, and Quantum Mechanics). Students also learn practical observational astronomy, but this is a comparatively small portion of the overall degree program.

There is a considerable amount of confusion generated with statements like, "Our department offers degrees in Physics and Physics and Astronomy." While this is a relatively small concern, we believe that the name changes will aid in clarity of message both when recruiting students and when promoting them to potential employers and graduate programs.

These proposed name changes received the unanimous support of the Department faculty. We would like the name change to become effective in the semester following final approval.

### **Physics and Astronomy (B.S.)**

#### ***Required Courses (28 hours)***

- ASTR 3010, Astronomical Observations and Techniques I (3 hours)
- ASTR 4010/6010, Astrophysics I (3 hours)
- ASTR 4020/6020, Astrophysics II: Galaxies (3 hours)
- ASTR 4030/6030, Astrophysics III: Cosmology (3 hours)
- ASTR 4330/6330, Astronomy Seminar (1 hour)
- PHYS 3700, Modern Physics (3 hours)
- PHYS 3900, Mathematical Methods in Physics (3 hours)
- PHYS 4101/6101, Theoretical Mechanics I (3 hours)
- PHYS 4201/6201, Electricity and Magnetism I (3 hours)
- PHYS 4701/6701, Introductory Quantum Mechanics I (3 hours)

***General Electives (32 hours)***

(Refer to College-wide requirements when selecting general electives.)

Upper division (14 hours)

Any level (18 hours)

Recommended Electives for students interested in graduate work:

- PHYS 4102/6102, Theoretical Mechanics II (3 hours)
- PHYS 4202/6202, Electricity and Magnetism II (3 hours)
- PHYS 4702/6702, Introductory Quantum Mechanics II (3 hours)

**Minor - Physics and Astronomy**

***Required Courses (16 hours):***

- PHYS 1212-1212L, Principles of Physics for Scientists and Engineers-Electricity and Magnetism, Optics, Modern Physics (4 hours) OR PHYS 1112-1112L, Introductory Physics-Electricity and Magnetism, Optics, Modern Physics (4 hours)
- PHYS 3700, Modern Physics (3 hours)

Plus nine hours of additional ASTR courses at 3000-level or above, for a total of sixteen semester hours.

No more than a total of three of these nine hours may be from:

- ASTR 4330/6330, Astronomy Seminar (1 hour)
- ASTR 4660, Astronomical Research (1-4 hours)
- ASTR 4960H, Directed Research in Astronomy (Honors) (2-4 hours),
- ASTR 4970H, Directed Research in Astronomy (Honors) (2-4 hours)
- ASTR 4990H, Honors Thesis (2-4 hours)

## Approvals on File

**Proposal:** Proposal for the following program changes in the Franklin College of Arts and Sciences:

Major Name Change

From: Physics and Astronomy (B.S.)

To: Astrophysics (B.S.)

Minor Name Change

From: Physics and Astronomy

To: Astrophysics

**College:** Franklin College of Arts and Sciences

**Department:** Physics and Astronomy

**Proposed Effective Term:** Fall 2019

School/College:

- Department of Physics and Astronomy Department Head, Dr. Phillip Stancil, 2/1/2019
- Franklin College of Arts and Sciences Associate Dean, Dr. Jean Martin-Williams, 2/8/2019