SPECIAL REPORT

OF THE

ACADEMIC MATTERS COUNCIL

concerning

REVISION OF THE
BA IN ASTRONOMY
(#4646)

Presented at the
777th Regular Meeting of the Faculty Senate
April 12, 2018

COUNCIL MEMBERSHIP

ACADEMIC MATTERS COUNCIL

The Academic Matters Council recommends approval of this proposal.

Please describe your proposal

We propose to make some minor changes in the requirements for the Astronomy BA degree.

Please describe the existing program requirements, listing all required courses and available electives, as well as any additional requirements, and continuation or admissions policies.

Requirements

ASTRON 191A Freshman Seminar (recommended)
ASTRON 228 Stars and Galaxies
ASTRON 224 Stellar Astronomy or ASTRON 225 Galactic and Extragalactic Astronomy
ASTRON 301 Junior Year Writing or PHYSICS 381
ASTRON 335 Modern Astrophysics
ASTRON 339 Astronomy in a Global Context
Two additional courses (each at least 3 credits) at any level in Astronomy, or in closely-related courses offered in other departments. In astronomy we offer each year at least three 200-level elective (ASTRON 220, ASTRON 223 and ASTRON 226).
One additional course (at least 3 credits) at the 300 level or higher in Astronomy courses or in closely-related courses in other departments. In astronomy we offer at least three 300 level or higher electives each year (ASTRON 330, ASTRON 337, ASTRON 452).
MATH 131 Calculus I
MATH 132 Calculus II
PHYSICS 151 Introductory Physics I (with lab)
PHYSICS 152 Introductory Physics II (with lab)
PHYSICS 281 Computational Physics
PHYSICS 284 Modern Physics, PHYSICS 286 Modern Physics lab

Please describe the requirements that you are proposing, listing course requirements, elective options, as well as any additional requirements, and continuation or admissions policies.

We propose to add the following two courses to the existing course requirements:

MATH 233 Multivariate Calculus
PHYSICS 287 Physics III - Waves and Thermodynamics, PHYSICS 289 Physics III Lab

We propose to remove the following course from the existing course requirements:

ASTRON 224 Stellar Astronomy or ASTRON 225 Galactic and Extragalactic Astronomy

Although this increases the course load for the BA degree by one course, the course load for the BA degree is relatively light, so this will not alter the time to graduation for these students.

Please provide the rationale for these revisions.

The ASTRON 224 and 225 class is only offered off-campus at Smith College. The time of day that it is now offered at Smith makes it nearly impossible for our students to fit it into their schedule. Since much of the content is similar to that covered in ASTRON 228 (a required course), eliminating this course will not impact the student's ability to take more advanced courses in astronomy.

The capstone course for our BA students is ASTRON 335 (Modern Astrophysics), however to be successful in this class, we believe the students need a better math and physics background. In particular, the students need a course in multivariate calculus and thermal physics before taking this course. PHYSICS 287/289 and MATH 233 will provide this background. In addition, the physics undergraduate advising committee recently informed us that although PHYSICS 287/289 is not a prerequisite in SPIRE for the PHYSICS 284/286 (a course required for the BA degree), they strongly urged us to recommend that our students take this course before taking PHYSICS 284/286. Also, feedback from our BA students have indicated that they felt under prepared for both ASTRON 335 and PHYSICS 284/286. We believe the addition of these two courses are important for the success or our students studying for the BA degree.
Academic Requirements Review

Resources

*If this proposal requires no additional resources, say so and briefly explain why. If this proposal requires additional resources, explain how they will be paid for. For proposals involving instruction, indicate how many new enrollments are expected and whether the courses have room to accommodate them.*

No additional resources are needed in astronomy to make these changes. Since most of our students are seeking the BS degree, the number of astronomy sophomore BA students that would be taking the new classes in math and physics is small (between 1-3 students each year), so we do not believe that this will not have a noticeable impact on the instruction in these courses.

**MOTION:** That the Faculty Senate approve the Revision of the BA in Astronomy, as presented in Sen. Doc. No. 18-057.