**TRANSMITTAL HISTORY FOR REVISION TO THE ASTRONOMY MAJOR**

**Committee on Curriculum and Instruction- Friday, June 12, 2009**
Excerpt from Unapproved Minutes

1. Astronomy Major Revision (Guests: Marc Pinsonneault, Bradley Peterson)

- John Harder & Sciences Subcommittee: The Department is removing Physics 664 from the major, and adding 295 into the major. However, this 4-credit removal and 2-credit addition is a response to an increase in 2 prerequisites from Physics (8 credits total) that are already in the major. Thus, the net total is an increase of 6 credit hours. This seemed reasonable to the committee; the confusion was in the addition of 295, with 2 quarters of 1-credit courses. Students typically take Astronomy courses starting their Junior year, so the function of adding 295 is to introduce students to faculty early on for better retention. The Subcommittee thought a proper clarification was to suggest a decimalization (295.01 and 295.02) or a sequence (295 and 296), and perhaps clarification of the added and removed hours in a table with 3 columns (for current, previous, and proposed) for credit hour comparisons. [Handout brought by Astronomy.]
- Marc Pinsonneault (MP): Astronomy majors tend to also major in Physics, so for them there is no change to the major since they were already taking those classes. These changes are geared towards Astronomy majors who are not Physics majors (those aspiring to be High School teachers for instance); this mechanics class dropped (664) was not seen as essential for that group. Astronomy 295 is a seminar course; 2 courses or meetings are effectively how many sessions needed to expose students to the faculty talking about research interests and the department. Given a seminar structured course, the issue of being 1 number, they could take it in the fall and Spring, or two Springs in a row. As long as they got to the various sessions involved it could be workable. This is a fast-changing field as well- 12 years ago a huge branch of the field was invented. So various topics in the seminar are required.
- Brad Peterson (BP): 295 was designed to be unstructured. It depends on which faculty are around for each session. Additional sessions are added in including career paths, curriculum navigation in Astronomy & Physics (practical info), and Summer REU programs. This is intended to engage the majors in a way that was not done before, coming in their Sophomore year. Otherwise, they might feel neglected or become interested in other things/majors.
- John Harder (JH): When would the 295 2nd session (Au, Win) be taken?
    a. BP: Most Freshmen will take it their first year
    b. Doug Pride: They could hear the same faculty each time?
    c. BP: Will not objet as even hearing the same faculty will be useful as far as engagement is concerned.
    d. Jim Fredal: If they take it 2 fall quarters, what prevents them from getting the same material?
        i. MP: It depends on how the faculty structure their presentations (what they are doing in their research). There will not be a fixed list of people; there probably will be some overlap across years.

ii. BP: So few students will be involved in this, that we could pay attention to this population and give great advising. We might fiddle around with scheduling. Perhaps for a student in marching band, we do a small poll and see if we can change the time of the course offering. The key is this provides individual attention.

- JH: What is the approximate number of majors?
  a. BP: 35 majors; 16 faculty and many joint appointments
- Gene Mumy: If they took exactly the same course, same faculty same topics, that might happen. What is the advantage?
  a. BP: This engages them regardless.
  b. MP: Normal progression is that they take it their Freshman year twice. The only people who might fall into that scenario just described are those with scheduling conflicts, a very small percentage.
  c. Caroline Breitenberger: Also, what about students who don't choose their major their 1st quarter?
- CB: I think it would be helpful to see the prerequisite hours, the major hours, and Physics hours. Perhaps an amended table, showing a change in prerequisites not within the major. Prerequisites increased from 35→43; major from 66→66→64.
  a. MP: Prerequisites for Astronomy are in that column.
  b. CB: We want all prerequisites needed for the major, or a separate column
  c. BP: Some Physics prerequisites are pre-pre-requisites.
  d. MP: Bookkeeping is to have that in total, rather than meted out
  e. CB: For those without knowledge of the structure of the major, it would help to split those up.
  **f. MP: Yes, we can create a distinct column**
- Letter from Subcommittee serves as motion to approve; 2nd- Krissek
- **UNANIMOUSLY APPROVED with contingency to submit a revised table**

**Social, Behavioral, Biological, Mathematical & Physical Sciences CCI Subcommittee-Tuesday, June 9, 2009**
Excerpt from Unapproved Minutes

3. Astronomy Major revision
**Primary reviewers: Caroline & Doug**

- A two-fold change to major; the issues are not related.
- Rationale for withdrawal of Physics 664 from major requirements: CSE 202 and Physics 416 were approved last year to be added as pre-reqs to certain Physics courses. These additions affected Astronomy major, which requires many Physics courses. Astronomy does not wish to eliminate the courses that the pre-requisite changes affected, but wishes to address this increase in credit hours.
- Request to drop one physics course from Astronomy Major requirement (Physics 664) to reduce impact of increase in credit hours. This course has a different focus than the other physics courses that carry the new pre-requisites, but is not as crucial to the major. Besides, many students take 664 anyway as double majors with physics, therefore the impact would be fairly low.

- Rationale for addition of Astron 295: This is a one-credit course required to be taken twice: Why take course two times? Retention? Will help students connect with faculty in Astronomy while they are taking many pre-reqs that are not in Astronomy and will help formalize degree planning process.
- **Please clarify why 295 is a 1-credit course to be taken twice (during recommended quarters) rather than a decimalized course (295.01 and 295.02); or 295 and 296? How can they ensure that the content will not be similar?**
- Explanation of 295 as retention based and advising based course that allows students exposure to many faculty early on
- Department is proposing to drop one 4-credit course, but two 4-credit pre-reqs were added beyond their control to required course. Also, adding two credits in the form of 295 better prepares students and helps with retention. This results in a net decrease in 2 credit hours required within the major, but an actual net 6 credit-hour increase for students if one adds back in the increase in pre-req credits.
- What are hours required in major? Currently 79 not including pre-reqs.
- **Please add to the proposal a table with 3 columns reflecting these credit hour comparisons 1) Before Physics changes to pre-reqs (pre-req hours and hours within major), 2) Current (pre-req hours and hours within major), and 3)proposed changes (pre-req hours and hours within major).** This will be very helpful for committees as proposal moves forward.

Motion- Approved with Contingencies in bold above Soundarajan, 2nd Breitenberger
**UNANIMOUSLY APPROVED**

**Mathematical and Physical Sciences Curriculum Committee- Wednesday, May 27, 2009**
Excerpt from Approved Minutes

5. Astronomy Major Revision

- Physics added 2 requirements last year that are prereqs for classes Astronomy majors had to take, adding 8 more credit hours to their schedules. 416 became a prereq for some upper level courses, making it a requirement. CSE 202 as well.
- Looking at other required Astronomy classes, the Department chose to remove Physics 664, (thus 4 credits from the major) leaving only an addition of 4 credits from these original changes
- About 50% of Astron majors will be affected, since 50% of other majors are also Physics majors and they will have to take 416 anyway.
- Adding Astronomy 295 (2 credit hours) (see last week's minutes)
    a. This can be used for 2nd year students as well who decide to become Astronomy majors- the bulk of the material is research seminar-based. There is some logistical information with scheduling and research opportunities.
- This would allow students with 17 freshmen hours to drop a 5 hour class to maintain themselves at a full-time 12 hours
- Offered late afternoon on Tuesdays to minimize student schedule conflicts
- Total of these 2 changes equals a 2 hour credit reduction

    a. **Because of changes that the Physics program made and the changes in Astronomy to mitigate them, the overall impact is a net increase of 6 credit hours**
- **Add statement that dual majors will not be affected, and it will help Astronomy majors**
- Pinsonneault, Craigmile- **UNANIMOUSLY APPROVED contingent upon the bolded items above**

**Mathematical and Physical Sciences Curriculum Committee- Wednesday, April 22, 2009**
Excerpt from Approved Minutes

3. Astronomy 295
- Previously 294- professors rotate, coming in and talk about their research to freshmen, giving them a sense of Astronomy; take 2 quarters; professors enjoy doing so
- Making this course a required course in the major will trigger a major revision
- A relatively minor change, but could provide a rationale for including this in majors: does not affect time to graduation (by adding hours), and with positive feedback is a great addition to the program; no other changes
- Change repeatable to 2
    - Perhaps keep at 4, but require 2 credits of the course
- Interested in allowing non-majors to take as well
- Like a freshman seminar course; Physics does a 2nd year course similar to this; there is a research day, career things
- Allow them to take Physics first
- Not making it 2 course numbers because it probably won't make a big difference
- Will add this as a group studies form to get through for Autumn 2009 because of OAA deadlines
- Will contact Kate Hallihan in CAO and Dave Andereck to discuss possible major revision
- Provided with a major approval rationale, is the committee otherwise alright with this course? Yes, as a non-required course
- Could it be approved and placed as a prereq and not trigger revision?

Craigmile, Solomon- **UNANIMOUSLY APPROVED as a non-required course (CAO to uncheck the box)**