

College of Science and Mathematics Senate Meeting

Monday, December 12, 2022

2:30 PM – 4:00 PM

Virtual Meeting Using Zoom

<https://umassboston.zoom.us/j/91629530381>

Meeting ID: 916 2953 0381

Passcode: CSMSenate

Agenda:

1. Approval of the November 14, 2022, meetings minutes
2. Announcements
3. New business

a ***Motion to approve new undergraduate course BIOL - 357 - Comparative and Ecological Immunology***

Catalog description: Comparative and Ecological Immunology is an advanced undergraduate-level course that explores the philosophy of immunology, the evolution of immune systems, and the integration of ecological and evolutionary concepts important for biomedicine. By comparing different systems from viruses, bacteria, plants, nematodes, insects, and vertebrates, students will gain perspective on the development and function of immune systems. The course will cover the emerging concepts of biological individuality (self and the microbiome) and models of immune development and response. Intended to complement, but not to replace, a course in human immunology, students will learn about trade-offs with immune function, and how immunological responses of individuals scale up to the population and ecosystem levels by exerting influence on pathogen transmission. In particular, comparative sickness behaviors, social distancing, and pathogen avoidance behaviors will be one focal topic. Traditional components of immunological study will be contextualized within model systems forming the core of the course (taxonomic and anatomical comparative immunology) and include mucosal immunity, neuroimmunology, innate immune priming, and adaptive immunity.

Originator description: I met with the Biol Dept Chair and the Biol Curriculum Committee Chair to discuss this course proposal. They wanted to be sure that this course would not overlap with the current Immunology course. I met with the instructor of that course to discuss that content and designed this course so that it complemented but did not overlap with Immunology.

Rationale: The new course, Comparative Immunology, will fill a gap in the curriculum at the intersection between ecology, evolution and molecular biology. By taking a comparative and ecological approach to teaching immunology, students will:

- Develop an evolutionary understanding of immune system functions.

- Develop a philosophy of immunity that extends to social dimensions and incorporates emerging concepts of the microbiome, organism development, and ecological interactions.
- Compare immune systems across all forms of life and among vertebrate organs.
- Contrast methodologies used to evaluate the immune system of various animal species.
- Improve at leading scientific discussion and presentation among peers.
- Analyze and evaluate current immunology literature and offer potential alternative approaches based on the data.
- Synthesize relationships among defense systems and determine areas for further investigation.

b *Motion to approve Computer Science Major (BS) Program Change*

In order to comply with ABET requirements, we will make two courses cybersecurity (CS 449) and networking/distributed computing (CS 446) required. They are currently electives. To keep the number of credits the same and allow the students to select two additional CS electives, we plan to no longer require CS 450 (can be counted as CS elective) and the science elective course.

Originator description: As agreed upon by the Department and the CSM Dean, we plan to make CS446 and CS449 required and drop the Physics II and lab (114+182) to comply with ABET requirements for accreditation. We hope to get it approved this academic year and start implementing next academic year.

Rationale: Please see the attachment.

c *Motion to approve Chemistry Major (BS) Program Change*

Biochemistry (Chem 354) will be added as a primary recommendation to meet the biochemistry requirement, in favor of Biochem 383, however, Biochem 383 will still be accepted, as an alternative to Chem 354.

Catalog description: Biochemistry is a component subject in our major that is required to earn accreditation from the American Chemical Society. There is room in the chemistry major for only required course that focuses on biochemistry. Chemistry majors have been taking Biochem 383 to fulfill this requirement. However, because Biochem 383 is part of a series of biochemistry course designed for the biochemistry major, this course focuses on a relatively narrow part of biochemistry. Chem 354 is a survey course that more broadly covers all of the major topics in biochemistry and therefore better meets the needs of our chemistry majors. As a result, we are making this course the preferred course that will meet the biochemistry requirement.

Rationale: Please see the attachment.

d ***Motion to approve Physics Major (BS) Program Change***

As a computer science requirement for the BS Physics degree, we are adding CS 109 as an alternative course to the existing CS 110. The requested change is to meet the current demand of knowledge of programming more inclined to physics/engineering majors. This addition will not change the number of courses that students have to take to complete the degree.

Rationale: Please see the attachment.

4. Dean's office
5. Other Business
 - By-laws
 - CSM Strategic Planning Steering Committee updates
6. Adjourn