The science faculty have put together some advice regarding science courses appropriate for incoming students for Fall 2017. As science faculty, we believe that courses in science and math represent a critical part of the curriculum at COA. We also feel that it is important to develop interdisciplinary interests and sample broadly within our curriculum. Below are some suggestions for fall classes in science and math for incoming students. During your first term you will develop a stronger sense of our curriculum and talk to several faculty including your advisor as you choose your courses for the rest of the year. We would be happy to see you in a science class this fall, but do not worry if you feel more comfortable waiting a term or more before enrolling in a science class. In addition to the information given below, be sure to also read the full descriptions for these courses, which can be found on the COA website https://www.coa.edu/course-listings.htm.

**BIOLOGICAL SCIENCES**

The biology courses that are most appropriate for incoming students include:

- Marine Biology
- Ecology: Natural History
- Weed Ecology

The first two courses are introductory courses that emphasize the ecology and organismal diversity of local habitats on Mount Desert Island. *Ecology: Natural History* emphasizes time in the field, with no traditional lecture block but two three-hour sessions twice a week. *Marine Biology* combines field trips with small group field projects and an overview of marine biology and policy. We recommend that students sign up for ONLY ONE of these courses in the same term, as taking two biology courses does not allow for a schedule with diverse classes, which is especially important during your first term. If either of these courses fills and you do not get in, you will have a chance for enrollment as a second-year student, and could take either of them next year. However, Marine Biology is a unique class in that it gives priority to first-year students for enrollment. In addition, there are other courses offered in other terms that provide an entry into this part of the curriculum. However, if you are interested in a course and it is full, get yourself on the waiting list, and definitely come to the first day of class. Often, people who have registered for a class change their plans and do not show up the first day, leaving space for others.

The third biology course, *Weed Ecology*, uses weeds as a lens to understand the ecology of natural and managed landscapes and explores what it means to be “natural” and what the potential roles the “plants out of place” may play in our future. Students will develop skills in plant identification, natural history, and experimental approaches in ecology. The class also will meet with different land managers and researchers as a way to learn about approaches to weeds in different landscapes including national parks, managed forests, arable land, pastures, stream-sides, roadsides, lawns, and more.
Two additional courses, Biology: Form and Function, and its sister course, Biology: Cellular Processes of Life, make up a foundational sequence in biology and they, or their equivalent, are prerequisites for many upper-level courses in the life sciences. Form and Function focuses on the biology, ecology and evolution of organisms at the macro level (bodies, organs, tissues) while Cellular Processes of Life examines organisms at the cellular and subcellular level with an emphasis on genetics and cellular physiology. Cellular Processes of Life will be taught to single sections in WI-18 and SP-18, while Form and Function will be taught only in SP-18, which provides students with the option of proceeding through the Introductory Biology sequence in multiple ways. Some students take Cellular Processes of Life first, some Form and Function first, and this year there is the possibility of taking both concurrently in spring term. There are times that after talking with students that we jointly decide that the student has had adequate training and can skip one of these classes and start with more intermediate courses, we typically do that in the first term that a student is on campus. Although these two courses are largely designed to prepare students planning on pursuing work in the Life Sciences, we also find that students interested in topics within these broad areas also find these classes productive places to build on perspectives in areas as diverse as education, policy, psychology, and design.

We strongly recommend that you carefully read the course descriptions and contact your advisor if you have questions about how best to proceed with your choice of biology courses fall term. You can also contact any of the biology faculty with additional questions.

**PHYSICAL SCIENCES**

*Geology of Mt Desert Island (MDI)* is an introductory geoscience course with a strong field component. If you are interested in a field-based geoscience course, fall is a great term to take a course as the winter and spring geology courses are either not as field focused or are intermediate-level courses. The Geology of MDI course will focus on the various geological processes shaping the island from a deep time perspective resulting in the modern landforms, rock types, and watersheds we observe in this iconic setting today. We will also explore the connections between geological processes and the local human history (e.g. granite quarrying, water sources, cruise ships...). We will be in the field every week visiting sites in and around Acadia National Park. This class has several slots open for first-year students. If you do not get into this class, do not worry. There will be future opportunities for geology at COA.

*Physics and Mathematics of Sustainable Energy* is a fast-paced introductory course designed to help students learn to do mathematical calculations and understand enough basic physics so that they can participate effectively and responsibly in discussions of sustainable energy and efforts to reduce greenhouse gas emissions. Taking this course is strongly recommended for students wishing to participate in project-based renewable energy courses. This class makes use of algebra and some basic ideas from physics and chemistry, but there are no prerequisites. This class is offered every year. Currently the class is close to full with returning students, but there are still some slots left.
**Chemistry:** There are no introductory chemistry classes in the fall, but there will be multiple options for the winter and spring terms.

**MATH**

*Calculus III* is calculus of multi-variable functions and vector fields. To take this class you should have had IB math at the standard or higher levels, or AP calculus (either AB or BC), or the equivalent. In Calculus III we re-do calculus first for multi-variable functions---f(x,y) instead of f(x)---and then for vector fields. Examples of vector fields include electric fields and the velocity field of an ocean current. In the class we review Calc I and II topics along the way. So this is a good course for entering students—or anyone—to review and solidify the calculus knowledge they gained in other classes while extending calculus to apply to more interesting and realistic situations. Most students find Calc III is no more difficult than Calc I and II. Calculus III is offered every other year. If you enjoy math, you might want to consider taking Calc III now, since there likely won’t be a similarly advanced math class offered in 2017-18.

Additional information about math and physics at COA can be found on Dave Feldman’s webpage, and we encourage you to read more there if you are interested:
http://hornacek.coa.edu/dave/Teaching/faq.html