There are several environmental sciences (ES) classes that are appropriate for first-year students and we have put together some advice regarding these courses. As science faculty, we believe that courses in science and math represent a critical part of the curriculum at COA. We have reserved a lot of spaces for first-year students in a range of classes, and we feel like we will be able to give you some great choices. 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. If you request a course and it is full, you will be put on a wait list for the class and you can still come to the first day of class and see if some room has appeared. 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
- Trees and Shrubs of Mount Desert Island
- Biology: Form and Function

The first three courses are introductory courses that emphasize ecology and organismal diversity, but focus on different 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, local natural history in the intertidal, and small group field projects and an overview of marine biology and policy with class lectures and discussions. The third course, Trees and Shrubs also has a large number of field trips with a focus on identification of local woody plants and local plant habitats. We recommend that students sign up for ONLY ONE of these courses in the same term, any one of them gives a good introduction to some local habitats and the island. If any 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 any of them next year. However, Marine Biology is a unique class in that it gives priority to first-year students for enrollment.

The last course on the list, *Biology: Form and Function*, offered in the fall, and its sister course, *Biology: Cellular Processes of Life*, offered in the winter, 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. Some students take Cellular Processes of Life first, some Form and Function first. 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.

*Introduction to Statistics and Research Design.* This introductory statistics class focuses on the
basics of the design of research in both the scientific and social science arenas, and can form
the basis for students interested in doing both disciplinary and interdisciplinary work with
quantitative data.

**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.

*Chemistry: Chemistry I.* The introductory Chem I/Chem II sequence will be offered in the
Fall/Winter. The course will explore the structure and reactivity of the material around us. This
sequence will be foundational and necessary for more advanced studies in chemistry
(environmental chem, organic chem, green chem, biochem). It will be equally useful in the
pursuit of many other STEM related fields (geology, biology, oceanography). Similar
fundamental chemistry topics will be explored in another course, *The Chemistry and Biology of
Food and Drink.* This course, offered in the Spring, has no prerequisites and dives into chemistry
and biology topics as they play out in the cultivation of crops, the preparation of food, and the brewing of beer and wine. An advanced course, *Environmental Chemistry*, will be offered in the Fall. Typically, it will be offered every other year. Chem J/Chem JI or AP/AB chemistry will be required for Environmental Chemistry. This course will explore the sources, fate and transport of harmful chemicals in the environment. This course will have a field-based laboratory component where we follow the distribution within the environment of a specific class of harmful and ubiquitous chemicals found everywhere from waterproof clothing to sharpies to firefighting foams.

**MATH**

*Calculus I*: Calculus I is a good course for entering students. Those taking Calc I should have had either precalculus or an algebra course with functions. If you have taken Calculus before you should almost surely not take Calc I. Calculus is offered every other year.

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