

Overview

BioBeyond is an introductory biology course centered on the authentic, compelling question of how to find life in the universe. As students investigate the possibilities, they learn everything included in a standard first year biology curricula.

About this course

Can we find life elsewhere in the Universe? This is one of the big questions at the forefront of scientific endeavor. Nations and companies alike are exploring our celestial neighborhood, searching for signs of life in our solar system and Earthlike planets in nearby systems. BioBeyond uses the search for life to explore concepts in general biology, including biodiversity, evolution, cellular biology, molecular biology, ecology, and human anatomy and physiology.

Required prior knowledge and skills

To be successful in this course, we recommend English language fluency and computer literacy.

Learning Outcomes

The learning objectives for this course are organized around the five core principles identified in the 2009 AAAS document Vision and Change in Undergraduate Biology Education. Those five principles are:

1. **Evolution:** The diversity of life changed and diversified over time by processes of mutation, selection, and isolation.
2. **Structure and Function:** Basic units of structure establish the function of all living things.
3. **Information Flow, Exchange, and Storage:** The macro and microscopic features of organisms result from the expression of genetic information in context.
4. **Pathways of Energy and Matter:** Biological systems are built and maintained by chemical transformation pathways that are governed by the laws of thermodynamics.
5. **Biological Systems:** Living systems are interconnected and interacting.

In addition, we've added a sixth principle of our designation:

6. **Nature of Science:** Science proceeds by developing and testing explanations for patterns observed in nature.

Additional Info

Course format

BioBeyond is an innovative course with a format different from most online courses. It is built around interactive activities with rich adaptive feedback. These are not videos or simple readings and quizzes. Usually they are problem-solving activities through which you will be introduced to key concepts, and master them, in a question-driven "learn-by-doing" approach. Often they will be designed around game-like simulations that you can manipulate, or virtual field trips that you can explore. In some ways, these activities and the Project can feel like a serious game! That's not an accident: That's in fact how the pursuit of science feels to professional scientists.

This course is offered in a self-paced format. In this course, students will complete course assignments at their own pace, as long as the course is completed within one year. Self-paced courses are great for:

- Students who want to start right away
- Students who are self-directed and can set and stick to a plan for completing the course
- Students who may want to either go faster or slower than the instructor-paced version

Credit Designation

This course satisfies 4 credit hours toward the Natural Sciences (SQ) General Studies requirement at Arizona State University. It is strongly encouraged that you consult with your institution of choice to determine how these credits will be applied to their degree requirements prior to transferring the credit.