



BIO 100: BioBeyond

I. COURSE OVERVIEW

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.

The course is 4 credits and can be used to satisfy your general studies SQ requirement.

Learning Outcomes and Topics

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. Namely, 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.

We also add a sixth principle of our own designation:

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

Disclaimer

The Center for Education Through eXploration at ASU, in partnership with Smart Sparrow, are excited to bring you BioBeyond, a personalized learning journey at the cutting edge. Given the advanced nature of this project, please note that some lessons, namely the Into the Cell unit (an interactive, virtual, fly-through), is graphically intensive and requires a good internet connection and adequate graphics hardware to perform well. We hope you enjoy it as much as we enjoyed making it.

II. WEEKLY ACTIVITIES AND TIME COMMITMENT

Class preparation means reviewing all material required in a given module and completing all assignments by the deadlines indicated. Attendance in an online course means logging into the platform on a regular basis and participating in all of the activities posted.

As a 4-credit course, BIO 100 requires 180 hours of work. Therefore, expect to spend approximately 24 hours per week preparing for and engaging in this course.

Course Content and Assignments

BioBeyond uses a scoring system that allows you to earn points as you take your lesson. While your professor or instructor may elect to add quiz or test material, BioBeyond lessons are not broken down into a learning portion and a testing portion. You'll interact and answer questions or perform tasks on nearly every screen you see in your course, and those screens each have a score assigned. In general, screens break down as follows:

Instructional Screens (5 points each): These are screens where you learn something new and need to answer a question or perform a task to show that you've understood. If you get it right the first time, you'll earn 5 points. Each time after the first, you'll get specific feedback about what was right or wrong about your answer and have another chance to answer for reduced points. If you reach the maximum number of tries allowed for these screens, a message will appear and you'll usually be shown the correct answer then allowed to proceed, but with 0 points.

Simulation Screens (10 points each): These are screens where you'll interact with a complex, custom simulation to demonstrate what you've learned or to learn something new. You might build DNA, explore the role of carbon in Earth's ecosystems, or see what happens to a population of finches during a drought. Each of these screens is worth 10 points, and you'll earn all 10 when you succeed no matter how many tries it takes. Unlike instructional screens, most simulation screens require you to succeed to proceed, there is no maximum number of tries.

Summative Screens (20 points each): This is as close as BioBeyond gets to a traditional test. After you've been learning about a concept for a while and performing various activities, or perhaps at the end of an experiment, you'll be asked to show just how much you've learned. These screens offer less help and assistance because you've had a lot of practice, and are worth 20 points. Like

Instructional screens, you'll have a limited number of tries and your score will decrease each time.

Formative Screens (1 point each): Sometimes you'll be asked for a hypothesis, or to state what you've learned about a topic before BioBeyond. These screens are called formative screens, and they're worth 1 point. Usually there's no right or wrong answer or maximum number of tries, and you'll get full credit upon inputting your hypothesis, opinion, or what you've learned before. We often use these to compare how much you've learned and to show you later, so be sure to be honest!

Metacognitive Screens (0 points each): We'll often ask you to pause and think about how well you understand certain concepts you've been learning. These screens are titled "Pause and Reflect" and are not worth any points, but they are incredibly valuable. First, they allow your professor to see how the class as a whole is doing on each topic in the lesson. They also summarize key points that can help you study or clarify your notes on a lesson. These screens make an excellent moment to think about what makes sense and what doesn't, to take a break if you need it, and to generate questions to ask for help in class or on these forums.

Review Screens (0 points each): Sometimes you'll need to review material to make sure you're ready for new adventures ahead. For these screens, you're reviewing material you've already been scored on, so the second time around isn't worth points, but it's valuable practice that will help you earn more points in your lesson.

Textbook

There is no textbook for this course. All necessary materials will be provided through the online interface. If you would like additional reading, we recommend the free [OpenStax version of Biology](#) for non majors.

III. COURSE REQUIREMENTS AND COMMUNICATION

Course Requirements

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

Online Course Requirements: LearnSpace is where you find the BioBeyond content. This is where you will learn biology through active learning lessons. Enter through the BioBeyond link in the “BioBeyond - Access here” section of the course.

All course interactions use Internet technologies. It is your responsibility to complete all graded and ungraded assessments. You are encouraged to interact with your peers and course team in the discussion forums, and ask questions there as well.

Course Communication

All communication will take place via the discussion board, course updates, and course home page.

We are here to help you, and we encourage you to help each other as well. You can access the course discussion forum via the “Discussions” tab in the course. The teaching staff and your fellow students will try to help you there. You can also review the discussion forum to see if your question has already been asked (and answered) by someone else.

IV. STUDENT EVALUATION

Your final total grade for the course is determined by your total points at the end of the course. There are a total of 8,000 points possible in the course. Final course grades will be allocated as shown in the table below:

Final Points	Final Grade
7,200 or higher	A
6,400 - 7,199	B
5,600 - 6,399	C

There are no exams in the course. There is no final exam. There is no extra credit available.

The most up-to-date view of your total points score will be in the HabWorlds Learnspace. Your scores shown in the course progress page are only updated periodically (approximately weekly) and may not reflect your most recent activity.

Course Units

Although this course is self paced, we suggest that you complete one unit per 1-2 weeks in order to stay engaged and active in this course. The units and points per unit are provided below.

Unit	Activities	Points
Biology Bootcamp	A Course Like No Other, Scientific Reasoning, Scientific Tools, Graphing Skills, Scientific Skills	752
World Biodiversity Expedition	How to Classify, My Classification, Sonoran Desert, Antarctica, Great Barrier Reef, Ocean Floor, Yellowstone, NYC: Central Park	1000
Journey to the Galapagos	Why You Look the Way You Do, Disease Detectives, Peer Pressure In Nature, The Birds And The Moths, Galapagos Exploration	1055

Time Traveler's Guide to Life on Earth	Written in Stone, End of an Era: Hell Creek, USA, Rise of the Animals: Nilpena, Australia, First Signatures of Life: North Pole, Australia	484
Into the Cell	Into the Animal Cell, Into the Plant Cell, Into the Bacteria Cell	850
Searching for Signatures	Graphing Remediation, Chemical Basis of Life, Gathering Energy, Energy Challenge: Respiration, Energy Challenge: Photosynthesis, Genetic Blueprints, Cellular Replication, Genetic Replication, Making Proteins	1483
Blue Planet	Our Blue Planet, Then and Now, History Repeats Itself, With a Twist, Finding the Cause, Keeping Balance, Designer Planet, Submit Your Report	1422
A Mission Beyond	Getting Started, Making the Dream Team, Unseen Danger: Radiation, The Bare Bones, Lifting Tons and Skeletons, Getting Under Your Skin, Maintaining Peak Performance, Counting Calories, Fueling Your Team, Knocked Out, A Change of Heart, Launch Simulator	954
	Total points possible:	8,000

Final grades are based on the number of points you earn on the course activities listed above, divided by the total of 8,000 points. Final scores will be absolute as follows: 90% or better will receive an A, 80% or better a B, 70% or better a C, below 70% is a failing grade. There will be no + or - added to grades.

Credit Eligibility

You must pass the course with a grade of C (70%) or higher and be on the Credit Eligible Track.

*Note: You have **up to one year to purchase credit** after you become eligible. Please see Section IX, below, “Taking this Course for ASU Credit” for more information.*

V. POLICIES

Assignment Deadlines: This is a self paced, online course. Your instructional team will provide all content and learning activities on your course site. All course interactions will use Internet technologies; it is your responsibility to review all content, fulfill all assignments on time, and ask any questions you have in our designated discussion area.

There are no unit deadlines, but all course work must be completed by the end of the course: August 31, 2021 at 06:59 UTC. For more information on UTC time zone, please see section VI, “UTC Time Zone” below.

Subject to Change Notice: This syllabus is to be used as a guide only. Information contained here, such as assignments, grading scales, deadlines, and other materials are subject to change. It is your responsibility to read the course announcements regularly to be aware of any changes or updates in the course.

Academic Integrity: Academic honesty is expected of all students in all coursework and exams. The possible sanctions include, but are not limited to, appropriate grade penalties, course failure (indicated on the transcript as a grade of E), course failure due to academic dishonesty (indicated on the transcript as a grade of XE), loss of registration privileges, disqualification, and dismissal. For more information, review ASU’s [Academic Integrity Policy](#) and [Terms of Use](#).

Prohibition of Commercial Note Taking Services: In accordance with ACD 304-06 Commercial Note Taking Services, written permission must be secured from the official instructor of the class in order to sell the instructor's oral communication in the form of notes. Notes must have the notetaker's name as well as the instructor's name, the course number, and the date.

Title IX: Title IX is a federal law that provides that no person be excluded on the basis of sex from participation in, be denied benefits of, or be subjected to discrimination under any education program or activity. Both Title IX and university policy make clear that sexual violence and harassment based on sex is prohibited. An individual who believes they have been subjected to sexual violence or harassed on the basis of sex can seek support, including counseling and academic support, from the university. If you or someone you know has been harassed on the basis of sex or sexually assaulted, you can find information and resources at <https://sexualviolenceprevention.asu.edu/faqs>.

As a mandated reporter, I am obligated to report any information I become aware of regarding alleged acts of sexual discrimination, including sexual violence and dating violence. [ASU Counseling Services](#) is available if you wish to discuss any concerns confidentially and privately.

Copyright Materials: This course contains copyrighted materials. Students should not share outside the class, upload, sell or distribute course content without consulting with the instructor.

VI. UTC TIME ZONE

This self paced course has no deadlines except for the last day of the course. All coursework needs to be completed by August 31, 2021 at 06:59 UTC.

To accommodate students from across the globe, any deadlines are posted in UTC time, the global standard. Please see “Deadlines and the UTC Time Zone” section of “Before the Course Begins” section for a detailed explanation.

Remember, it is your responsibility to understand UTC and determine the due dates and times for your time zone. **Deadline extensions will NOT be granted for misunderstanding UTC time.**

VII. GENERAL AND TECHNICAL REQUIREMENTS

This course is best accessed by a reasonably modern browser on a laptop or desktop computer.

- Chrome, Mozilla Firefox or Safari are suggested browsers.
- Adobe Acrobat (free)
- Adobe Flash Player (free)
- Webcam, microphone, headset/earbuds, and speaker

VIII. GENERAL AND TECHNICAL ASSISTANCE

Student Support and Accessibility: Please review the “Student Support” page in the “Before the Course Begins” section for further information.

This course uses the Smart Sparrow platform to provide an interactive experience. The implementation of the course is more complex than many other online courses. While we have done our best to identify and resolve any technical issues before offering the course, like for any complex software, new technical bugs may become apparent with additional use during the semester. The instructors and technical support staff will address these issues as quickly as possible.

We highly recommend you check out the frequently asked questions on the [Bio Beyond webpage](#).

IX. TAKING THIS COURSE FOR ASU CREDIT

ASU Credit: Students wishing to take this course for ASU credit are required to do the following:

- Upgrade your course to the credit eligible track by July 6, 2021 at 06:59 UTC.
- Submit the “Credit Eligibility Question” in the last section of the course
- Pass the course with a C or better (70% or higher)

Purchasing Credit

Important: Provided you have met all requirements for this course, you can purchase credit from ASU for **up to one year** after you become credit eligible.

Your date of eligibility **may differ** from the course end date. Please visit your course progress page, specifically the “Requirements for Course Credit” section, to see the status of your credit eligibility.

Please review the information on credit eligibility in the “Before the Course Begins” section for additional details.

Note: Potential limitations of internet connectivity by some countries may limit the ability of a credit eligible student residing in those countries to complete all the assessments, and therefore potentially impede the eligibility to earn college credit.