BIOL2103H: Concepts in Biology

A Basic Framework

This course is designed to include active learning beyond lectures through interactive activities, field trips, computers, and the UGA campus as an outdoor laboratory. It is obvious that in this rapidly advancing technological world, we all need to build skills in evaluating both new scientific findings and how the Internet, media, and businesses may dramatize and misrepresent those findings. Moreover, we have a responsibility, as citizens. We can influence personal and public opinion and policies with our strong commitment and knowledge base. While we won't solve all problems, we can at least have a positive influence on some. We can spread goodwill and information through our actions to make this a better world.

COURSE TOPICS

Sustainable Food Choices, Habitat Change, and Adaptation

Students will learn about making smart food choices with consideration for personal and planet health; use scientific resources to support an argument or decision; and consider the ethical, personal, and societal implications of consuming GMO foods

- Evolution and Adaptation
- Natural and Artificial Selection
- Genetically Modified Organisms
- Biology of Habitat Change
- Ecosystems, habitat loss and its impact on biodiversity
- Nutrition, Macromolecules, and Food Label

Vaccines, Immunity, Viruses, and Apocalyptic pandemics

Through video and reading assignments, students will meet current real-life scientists who study viruses and the immune system. In response to case study scenarios, students will develop models to educate the general public and support intelligent societal action for future pandemics.

- Biology of viruses and viral evolution
- Biology of COVID-19
- History, culture, and timeline of vaccine development
- Historical pandemic events
- How the immune systems respond to disease
- Herd immunity and vaccination

Ocean Ecosystems, the Food Chain, and Plastics

Students will be introduced to the history behind why plastic became ubiquitous in our society and consider the advantages and potential implications of the many uses of plastics in our daily lives, while examining the impact of consumerism on our environment. Through video and reading assignments, students will meet current real-life scientists who study microplastics in our food chains. Via case study scenarios, students will consider how plastics do harm to human health and our natural ecosystems and evaluate the viability of potential plastic alternatives for different uses. Students will learn how plastic is impacting ocean life and

drinkable water; use scientific resources to support an argument or decision; and consider the ethical, personal, and societal implications of using plastics in our everyday lives

- Ecosystems and aquatic biomes
- Biogeochemical cycles (water and carbon)
- Energy flow through ecosystems
- Animal digestion
- What is plastic, how is it made, and a brief history of the plastics industry
- How recycling works (and how it doesn't work)

Biodiversity, Culture, and the Tree-to-toilet pipeline

In this unit, students will examine the impact of the tree-to-toilet pipeline of toilet paper and its role in declining biodiversity, and on Native peoples' traditional ways of lives. Students will be introduced to historical perspectives about similar environmental conundrums, for example, whaling for important oil in the Industrial Revolution. Through video and reading assignments, students will meet current real-life scientists who study biodiversity and boreal forests. Students will weight options for the most eco-friendly potty solution to reduce our carbon "buttprint."

- Biogeochemical cycles
- Ecosystems and terrestrial biomes
- The biology of boreal forests
- Climate change
- Biodiversity and habitat loss
- Historical conflicts over environmental resources and impacts on cultures and environmental health

Estimated Schedule

Module	When to Work on It
1: Sustainable Food Choices	August 20-September 15
2: Vaccines, Immunity, Viruses, and Pandemics	September 17- October 8
3: Ocean Ecosystems, Food Chain, and Plastics	October 13 - November 10
4: Biodiversity, Climate Change, Tree-to Toilet	November, 12 - December, 11

Through service learning and partnerships with the UGA Office of Sustainability, GA Great Pollinator Census and Campus Kitchens, you will become a community workforce helping with sampling, outreach, and applying Biology to the real world. Time will be spent developing communication methods to increase your awareness of the utility and need of science for public citizens.

EVALUATION

The course is structured with a series of online quizzes, case studies, tests, and reflective blogging assignments plus one outreach opportunity. Grades will be assigned based on the University's plus-minus system.

Course Assessments

Item	Description
15% Online Quizzes	eLC quizzes will be used to assess comprehension of readings a lectures and content. These are meant to be a practice test of yo have practice self-assessments to take prior to the quiz to test yo

Course Assessments

Item	Description
10% Reflective Discussion Posts	Reflections of work conducted to describe, examine, and articula how it fits into the bigger picture. There will be unique activities to multimedia and traditional forms of reflection.
35% Case Study Assignments	Each unit will include multiple case studies that examine real wo content. Students can collaborative on these in class, with some others submitted individually if you are participating via zoom.
35% Tests	Each unit will include a test to provide frequent feedback regardi synthesize material, and progress in making connections both ar between science and civic issues. These tests are open notes w on computers including the Internet. You may use copies of your preparation for many of the test questions, but you cannot use ot as resources during the tests
5% Service-Learning Outreach	Students will have opportunities to provide assistance to the Athe either through watershed cleanup or food pantry assistance

UGA Official Information

University Honor Code and Academic Honesty Policy

As a University of Georgia student, you have agreed to abide by the University's academic honesty policy, "A Culture of Honesty," and the Student Honor Code: "*I will be academically honest in all of my academic work and will not tolerate academic dishonesty of others*." All academic work must meet the standards described in "A Culture of Honesty" found at: https://ovpi.uga.edu/academic-honesty/academic-honesty-policy. Lack of knowledge of the academic honesty policy is not a reasonable explanation for a violation. Questions related to course assignments and the academic honesty policy should be directed to the instructor. The University's policy and procedures for handling cases of suspected dishonesty, can be found at www.uga.edu/ovpi.

Students with Disabilities

Students with disabilities who require reasonable accommodations to participate in course activities or meet course requirements should contact the instructor during regular office hours or by appointment. If you plan to request accommodations for a disability, please register with the Disability Resource Center. They can be reached by visiting Clark Howell Hall, calling 706-542-8719 (voice) or 706-542-8778 (TTY), or by visiting http://drc.uga.edu.

Mental Health and Wellness Resources:

- *If you or someone you know needs assistance, you are encouraged to contact Student Care and Outreach in the Division of Student Affairs at 706-542-7774 or visit https://sco.uga.edu. They will help you navigate any difficult circumstances you may be facing by connecting you with the appropriate resources or services.*
- *UGA has several resources for a student seeking mental health services (https://www.uhs.uga.edu/bewelluga/bewelluga) or crisis support (https://www.uhs.uga.edu/info/emergencies).*
- *If you need help managing stress anxiety, relationships, etc., please visit BeWellUGA (https://www.uhs.uga.edu/bewelluga/bewelluga) for a list of FREE workshops, classes, mentoring, and health coaching led by licensed clinicians and health educators in the University Health Center.*
- *Additional resources can be accessed through the UGA App.*

General Disclaimer

The course syllabus is a general plan for the course, deviations announced to the class by the instructor may be necessary.