INTEGSCI 100: Exploring Biology

Wednesday 2:25-4:20, WHITE 3250; 2 Units

Welcome! Exploring Biology is a first-year seminar course designed to introduce you to a wide variety of topics, concepts, and ways of thinking about biology. The instructional team represents a diverse array of expertise from across the university and is excited to work with you! Instructors will guide your exploration of the Core Concepts in biology, which are applicable to any bioscience field. Peer Leaders will help you learn about the many learning opportunities inside and outside the classroom related to the biological sciences at UW-Madison. Throughout the course, you will learn basic principles of biology while engaging in activities that will prepare you for success in college and beyond.

The theme of this course is "change" – how biology and our planet are changing, and how biological change is constantly occurring around us. There are four-unit topics: evolving food systems taught by Jennifer; dynamic microbial communities taught by Elliot; characteristics defining life taught by Emily; and changes in large scale ecological systems taught by Danny. You will frequently have the opportunity to engage actively with the content through problem solving, critical thinking, and both individual, paired, and group engagement with course topics and hands-on assessments. All activities are intended to develop, evaluate, and extend your understanding of the core biology concepts, along with our other course learning goals, such as developing career opportunities and knowledge of resources on campus intended to benefit you.

Instructional Team

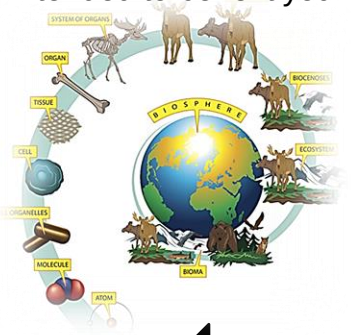
Instructors

Jennifer Riehl
Jennifer.riehl@wisc.edu

Emily Caudill
ercaudill@wisc.edu

Elliot Vaughan
evaughan2@wisc.edu

Danny Minahan
dfminahan@wisc.edu



Peer Leaders

Melina Chavarria – chavarria2@wisc.edu**| Erin Sweeney –** esweeney5@wisc.edu
Izzy Dreischmeier – idreischmeie@wisc.edu**| Christine Brutus –** brutus@wisc.edu

Course Director

Dr. Cara Theisen – chtheisen@wisc.edu

Communication

The instructors will have set office hours as open opportunities to meet: Wednesdays 4:30-5:30pm behind 3250 in College Library (Jennifer & Elliot) & Mondays 2:30-3:30 at BioCommons in Steenbock Library (Danny & Emily). You can also make appointments by email. We prefer that quick assignment specific questions be asked through Canvas. Response time may vary, but we will strive to respond within 24 hours during the week, and 48 hours during weekends.

Materials

Canvas Site: https://canvas.wisc.edu/courses
TopHat subscription
No required textbooks & Laptops are provided (bringing your own is OK)
Bring your own paper, notebooks, binders, pens, pencils, etc.

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Exploring Biology Class Outcomes

Learning Goals

By the end of your Exploring Biology experience, you will be able to:

1. Understand biology in the context of the five core concepts: (1) Evolution, (2) Structure and function, (3) Information flow, exchange, and storage, (4) Pathways and transformations of energy and matter, and (5) Systems.
2. Appreciate the many avenues through which biologists contribute to society and impact our daily life.
3. Explore the diversity of career options in fields related to biology while developing an academic plan that integrates coursework and co-curricular activities.
4. Gain critical thinking skills for interpreting data, determining the validity of scientific information, and articulating your conclusions.
5. Become familiar with resources and develop skills that will help you succeed as a student at UW.

Class Structure

Our time in class will be dedicated to content engagement, and activities that help the instructors and yourself assess your own understanding. Group activities will be facilitated by the Instructors and Peer Leaders. We are here to help you get the most out of this course.

Setup

You will be assigned to a table, an Instructor, & a peer leader. Your table instructor and peer leader should be your first point of content for all course related questions.

Tables	Instructor	Peer Leader
1, 2, 3, 4 & 6	**Elliot Vaughan**	**Izzy Dreischmeier**
5, 7, 8, 10, & 11	**Jennifer Riehl**	**Erin Sweeney**
9, 12, 15, & 18	**Emily Caudill**	**Melina Chavarria**
13, 14, 16, 17, & 19	**Danny Minahan**	**Christine Brutus**

Units

This course is broken into four units to help you learning core biologically concepts, the process of science, and other skills for success through real world examples.

Descriptions

Evolving Food Systems (Unit 1): Students will be introduced to food systems, the challenges they face, and how genetic modification is transforming our interaction with food

Dynamic Microbial Communities (Unit 2): Together we will traverse the relationship between microbes, humans, and plants. You will discovery the truth about scientific clams for yourself.

Defining Life (Unit 3): We will explore the different characteristics that all living things share. You will see how the process of science has shaped what we know about the world that surrounds us and how we interact with our changing planet.

Changes in Large Scale Ecological Systems (Unit 4): We will examine changes in large-scale ecological communities, and specifically the consequences of species extinctions of top predators ("trophic cascades").




Why use the syllabus?

Syllabus Tool

The syllabus is a great place for you to generate an appreciation for the nature of a given course. The syllabus should answer why students are taking a given class, how it relates to the college curriculum, or what is meant by the course requirements. The syllabus is a learning tool for you!

Answers

Your course syllabi should address these questions to aid your learning in your courses.

1. Why should a student want to take this course?
2. What are the learning outcomes of the course?
3. What is the purpose of the assignments? What it will demand of them or what the goal is?
4. What will the tests measure? Memory?
5. Why has the learning tools been chosen (books, TopHat, & canvas)?

When we make explicit such information to our students, they become better learners.

Students' toolkit for Success

How to be Successful

1. Utilize Course Syllabus as a Guide
2. Talk to Peer Leaders & Instructors
3. Take and Review Notes
4. Ask Questions During Class and in Office Hours
5. Manage Your Time
6. Study in a Variety of Ways

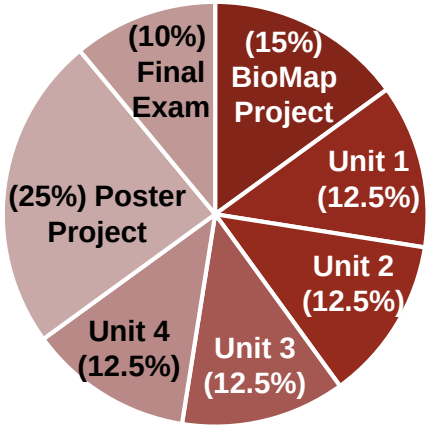
Assignments, Assessments, & Grades

How are you assessed?

The credit standard for this course is met by an expectation of a total of 90 hours of student engagement with the course learning activities (at least 45 hours per credit), which include regularly scheduled instructor: student meeting times [Monday 2:25-4:20, WHITE 3250], reading, writing, problem sets, and other student work as described in the syllabus.

Grading Scale

This course will follow the university standard of A (93-10%), AB (88-92%), B(80-87%), C(67-74%),D (60-66%), and F (0-59%). Class grades will be determined based on the following assignments and activities:



Assignment breakdown

Unit Assessment/Activities (50%): We will explore biology's 5 core concepts through the lens of "Changing Biology." These units are a chance for you to engage the 5 core concepts of biology. To help you learn biological core concepts each unit (1 - 4) will guide you through examples of change in an array of biological scales.

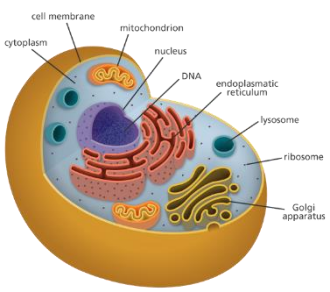
Poster Project (25%): The major goals of the poster presentation are to develop your ability to think critically and communicate like a scientist. Through this project you will gain experience interpreting data, determining the validity of scientific information and articulating your conclusions to your peers. More details in canvas

BioMap Project (15%): The BioMap project is designed to help you i) explore your interests, skills, and values, ii) become familiar with biology resources, co-curricular activities and career options at UW Madison and beyond, and iii) make an academic plan aligned with your interests, skills, and values.

Final Assessment (10%): This exam serves the purpose of allowing you to communicate and reflect on what you've learned. There will be some challenge questions focused on assessing your understanding of core concepts; these questions are supplemental to your own reflection.

Late Work

Better late than never! The goal of the course is learning, and late assignments will still provide an opportunity to learn and receive feedback. Though, there will be a penalty to the assignment grade (10% per day).



Course Schedule Exploring Biology Fall 2018

Tentative Schedule

This schedule is subject to change. We strongly encourage you to check the most current version on Canvas.

Week	Topic	Instructor	Dates	Activities	Homework/ Projects
1	Introduction	Dr. Theisen	5-Sep	Welcome	Pre-Survey
2	Evolving Food Systems	Jennifer Riehl	12-Sep	Unit 1	Part 1 HW
3			19-Sep	Unit 1	BioMap Part 1 Part 2 HW
4			26-Sep	Unit 1 & Careers in Bioscience	Poster Part 1a Part 3 HW
5	Dynamic Microbial Communities	Elliot Vaughan	3-Oct	Unit 2	Part 1 HW
6			10-Oct	Unit 2 & Libraries	Part 2 HW Poster Part 1b
7			17-Oct	Unit 2	BioMap Part 2 Part 3 HW
8	Defining Life	Emily Caudill	24-Oct	Unit 3	Part 1 HW
9			31-Oct	Unit 3	Poster Part 2 Part 2 HW
10			7-Nov	Unit 3	Part 3 HW
11	Changes in Large Scale Ecological Systems	Danny Minahan	14-Nov	Unit 4	Poster Part 3 Part 1 HW
12			21-Nov	No Class	Biomap Part 3 No Class
13			28-Nov	Unit 4	Part 2 HW
14			5-Dec	Unit 4 & Poster Part 5	Poster Part 4 Part 3 HW
15	Poster Presentation	Dr. Theisen	10-Dec	Poster Part 6b Presentation	Poster Part 6a
16	Final Assessment	All Instructors	19-Dec	One Hour WHITE 3250 5:05 - 6:05pm	Post-Survey

Instructor Bios

Meet your Instructors

Jennifer Riehl

Jennifer is fascinated by what genetics can tell us about adaptation in forest trees and how that impacts forest health and ecosystem services (field in biology: ecological genetics and genomics). She also has an intense interest in how science and natural resource management policy interact from how people to choose to manage their forests to how controversial topics in science affect policy decisions. In her downtime she loves to travel and explore new places as well as attend musical events (everything from rock concerts to symphony orchestra performances) or see new films.

Elliot Vaughan

Elliot is most interested in studying how human activities are transforming ecosystem processes such as carbon and nutrient cycling. He is in the Geography department but considers himself a biologist and ecologist as well. In his free time, he enjoys birdwatching, fishing, camping, and finding the best cheese curds in Madison.

Emily Caudill

Emily is entering her last year as a PhD student in Analytical Chemistry. Her passions include both chemistry *and* biology. Her research focuses on how toxins interact with bacterial cells. Outside of work, she enjoys music, yoga, cooking, and being outside in general. She hopes this Fall will be a fun and exciting semester for everyone.

Danny Minahan

Danny is a PhD candidate in Integrative Biology who studies the foraging behavior of honey bees and bumble bees here in Wisconsin. By attaching little backpacks to individual bees he can track their movement to and from the hive to study their foraging activity. These experiments, coupled with the identity of bee collected pollen allows us to better understand how bees use their habitats, and what flowers they prefer, thereby informing bee conservation strategies. In his free time, Danny is an avid trail runner who likes to see how far he can go, and also enjoys paddling and hiking with his dog Rupee.

Greetings! We are excited to take you on a journey through the changing world of biology!

Peer Leaders Bios

Meet Your Peer Leaders

Melina Chavarria

I am a senior from Los Angeles, CA, majoring in Biology with a certificate in Chicano Latino Studies and on a pre-med track. For fun, I enjoy outdoor activities especially kayaking, swimming and hiking.

Erin Sweeney

I am currently a senior studying Microbiology. I plan on pursuing a PhD after undergrad, ideally in Virology. In my free time I love to play basketball, throw pottery, and collect CDs.

Izzy Dreischmeier

I am a sophomore from DeForest, WI, and I am studying biology with plans to apply to PA school. In my free time, I like to play tennis and spend time at my cabin with my family and friends.

Christine Brutus

I am a sophomore from New York City. I'm majoring in Neurobiology and Gender & Women's Studies, and I am on the Pre-Med track. For fun, I enjoy singing, learning other languages, and trying new foods.

About WISCIENCE and the Course Director

Meet your Course Director

Dr. Cara Theisen, *Exploring Biology Course Director*
Dr. Theisen is a Faculty Associate in WISCIENCE and the Director of Professional Development in Teaching and Learning. Connect with Dr. Theisen about getting involved in other WISCIENCE courses and programs

What is WISCIENCE?

We want to make science education more effective for more people. Our courses and programs help you explore and make the most of the incredible resources here at UW–Madison, so you can truly engage in the Wisconsin Experience. In addition to ***Exploring Biology***, we offer courses and programs related to research (Exploring Research in Science, Entering Research), service (Exploring Service in Science, Service with Youth in STEM), and leadership (Discipline-based Leadership and Mentoring, IMPaCT Peer Leaders).

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Learn • Teach • Share

Important Class Policies & Reminders

Respect

This class hinges on group work and discussion; therefore, it is important that we all remain respectful of each other while providing and receiving feedback on each other's work. While you might not agree with the opinions of your classmates (and we don't always expect you to!), it is important to allow others to fully develop their ideas and to provide **constructive rather than destructive criticism**. Constructive criticism is well-reasoned feedback on others' work in a professional manner as opposed to personal attacks.

Diversity

Diversity is a source of strength, creativity, and innovation at UW-Madison. We value the contributions of each person and respect the profound ways their identity, culture, background, experience, status, abilities, and opinion enrich the university community. We commit ourselves to the pursuit of excellence in teaching, research, outreach, and diversity as inextricably linked goals. The University of Wisconsin-Madison fulfills its public mission by creating a welcoming and inclusive community for people from every background— people who as students, faculty, and staff serve Wisconsin and the world. We aim to create an environment where all students feel comfortable learning. All students' ideas have value and should be received respectfully.

Group Work

Knowing how to effectively work in groups will be essential throughout your academic and professional career. This class will help you develop your group work skills through both short-term and long-term projects completed in small groups. **Remember that groups are most effective if they have open communication, trust, and clear expectations**. If you have a group conflict that you feel you cannot resolve on your own, consult an instructor before the problem escalates.

Accessibility

Your success in this class is important to us. If there are circumstances that may affect your performance in this class, please let us know as soon as possible so that we may work together to develop strategies for adapting assignments to meet both your needs and the requirements of the course. The McBurney Disability Resource Center (263-2741) provides resources for students with disabilities. You will need to provide documentation of disability in order to receive official university services and accommodations. For more information, refer to https://mcburney.wisc.edu. Contact course director Dr. Cara Theisen to discuss **accommodations.**

Attendance

Attendance is required for all class sessions. We understand that illnesses and unexpected emergencies can happen, and in these cases, you should contact the instructional team (email) As Soon As Possible. In the case of planned absences, such as university athletics and religious observances, the instructional team must be notified at the start of the Fall term. Assignments that are due must be still turned in, regardless of the reason for absence.

Important Class Policies & Reminders

Hate & Bias Incidents

We value each member of our community. Hate and bias incidents distract from our classroom community and negatively affect your and your classmates' ability to learn, feel welcome, and feel safe. Hate and bias incidents will not be tolerated in this classroom. Please intervene in incidents of hate and bias when you can, and report incidents to the instructors—if you feel comfortable—and/or to the UW-Madison hate and bias reporting system: www.students.wisc.edu/reporthate. The University and the instructors are dedicated to addressing reports of hate and/or bias seriously, promptly, confidentially, and sensitively. Reports can include, but are not limited to, crimes such as vandalism or physical assault; non-academic misconduct such as online or verbal harassment or disruptive behavior; and/or microaggressions such as derogatory or demeaning speech from another student or faculty/staff member. A Hate and Bias Incident Team member will respond to your report and provide you with options that meet your needs. You can also report anonymously. For more information, support, and resources regarding addressing hate and bias on campus, please visit www.students.wisc.edu/reporthate.

Everyone is welcome in Exploring Biology, regardless of age, race, gender identity, background, political affiliation, religion, or sexual orientation. Hate and bias incidents distract from our classroom community and negatively affect your and your classmates' ability to learn, feel welcome, and feel safe. Hate and bias incidents will not be tolerated in this classroom.

Academic Integrity

By enrolling in this course, each student **assumes the responsibilities** of an active participant in UW- Madison's community of scholars in which everyone's academic work and behavior are held to the highest academic integrity standards. This course is designed to help you develop creative and critical thinking skills. Thus, it is imperative that you create your own work. While some assignments will require you to collaborate with your peers, we expect that all submitted work will be of your own creation. Academic misconduct will not be tolerated and includes cheating on exams and plagiarism. Plagiarism is defined as using words or ideas of another person as your own without giving that person credit. The best way to avoid plagiarism is to develop your own ideas. If you find that you need to use words and ideas from another source, then you need to properly incorporate these materials and cite the reference. The UW Writing Center is an excellent campus resource that can help you properly cite your references.

If academic misconduct or plagiarism is thought to have occurred, we will meet with you in person for an explanation. If we conclude that plagiarism or academic misconduct has occurred, you will **receive a score of 0** on that assignment or exam. Occurrences of plagiarism and academic misconduct will be reported to the Dean of Students. Office for additional review. For more information, refer to:
https://www.students.wisc.edu/doso/academic-integrity/

Participation

Without special skills or abilities you can be hardworking, high energy, willing to learn, prepared, and on time. **No aptitude is required to participate.** You were born with a tremendous amount of creative possibilities! We encourage you to be as creative and innovative as you can be in this course, both with your projects and in your course work. Don't be afraid to take risks! Each one of you is unique and this alone brings a lot to class, your project and science. The idea of respect extends to your level of engagement with the course. If you're texting friends, snoozing, Snap chatting, checking out Facebook, online shopping, you're probably not engaged in what's happening around you and that is disrespectful will likely be a source of distraction for your classmates who are trying to use class time to learn.