



Biology/Botany/Zoology 151 – Introductory Biology

Course syllabus

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GENERAL COURSE INFORMATION

Course Subject, Number, and Title

Biology/Botany/Zoology 151 – Introductory Biology

Credits 5

Canvas Course URL

<https://canvas.wisc.edu/courses/473035>

Course Designations and Attributes

General education; Honors available.

Course Description

This course is the first semester of a two-semester sequence designed for majors in biological sciences. Topics include: cell structure and function, cellular metabolism (enzymes, respiration, and photosynthesis), information flow (DNA, RNA, protein), principles of genetics, and selected topics in animal physiology.

Requisites

Not open to students with credit for BIOLOGY/ZOOLOGY 101, 102 or BIOLOGY/BOTANY 130.

Meeting Time and Location

- **Lecture 1:** 11:00-11:50 a.m., MWF – 125 Agricultural Hall
- **Lecture 2:** 12:05-12:55 p.m., MWF – 125 Agricultural Hall

Discussion and Lab meeting times and locations depend on section enrollment and are posted on My UW as well as on the course Canvas site.

Instructional Mode

In-person

Credit Hours are met by the Course

This 5-credit class meets three times weekly for 50 minutes for lecture, once weekly for three hours for lab, and once weekly for 75 minutes for discussion. Over the course of the semester, students are expected to do a total of at least 225 hours of learning activities, which include class attendance (lecture, lab, and discussion), reading, studying, preparation, problem sets, writing, and other learning activities.

Regular and Substantive Student-Instructor Interaction

This course meets the regular and substantive student-instructor interaction requirement through feedback on student work, providing information about course content, facilitating discussion of course content, and through predictable and scheduled interactions with the student.

Course Website, Learning Management System, and Instructional Tools

Course materials will be available on the [course Canvas site](#), which is organized into weekly modules. Each weekly module is divided into different pages: one page for lecture, lab, and discussion. Each page contains all the information needed for that week. For example, the weekly lecture page will contain the slides and learning objectives from lecture for that week of class.

INSTRUCTORS, TEACHING FACULTY, AND TEACHING ASSISTANTS

Instructors - Titles and Names

Dr. Simon Gilroy
sgilroy@wisc.edu

Dr. Seth Blair
ssblair@wisc.edu

Dr. Jeremiah Yahn
jyahn@wisc.edu

Teaching Faculty

Kerry Martin
232 Noland Hall
(608) 262-3599 (office)
151lec1@zoology.wisc.edu

Dr. Jeremiah Yahn
229 Noland Hall
(608) 265-5336 (office)
151lec1@zoology.wisc.edu

Teaching Assistants

A list of all TA names, office hours, and contact information will be provided on the course Canvas site.

Instructor Availability

Instructor and Teaching Faculty office hours will be announced in lecture. All teaching staff office hours will be posted on the [course Canvas site](#).

LEARNING OUTCOMES

Course Learning Outcomes

Introductory Biology 151/152 is a two-semester introductory sequence for majors in the biological sciences. Emphasis will be placed on learning, understanding, and applying key biological concepts and the scientific method.

The study of modern biology is not only a matter of assimilating information. Learning how to use that information for problem-solving, posing hypotheses, and interpreting experimental results is also critical to understanding biology as a science. The lectures examine key concepts. Discussions allow you to investigate these more fully. In the laboratory, you will need to use the scientific method and apply concepts from lecture to carry out the various activities. In addition, labs stress teamwork and the development of written and oral presentation skills. These are required to investigate scientific concepts successfully and communicate research findings to others.

General Learning Outcomes

1. Relate the structures of cellular components, such as water, ions, organic chemicals, macromolecules, membranes, and prokaryotic and eukaryotic organelles, to their functions.
2. Outline processes and transformations that cells use to store and release energy via chemical reactions, enzymes, membranes, and the pathways of respiration, fermentation, and photosynthesis.
3. Demonstrate how chromosomal DNA stores and replicates information and uses it to direct the synthesis of RNA and proteins.
4. Model the relationships between chromosomal behavior, genetic information, and physical traits, and predict how information is transmitted during prokaryotic and eukaryotic reproduction.
5. Relate cellular, tissue, and organ structures and processes to their functions in animal physiology and homeostasis, including nervous and endocrine systems, respiration and circulation, digestion and nutrition, and osmoregulation.

6. Identify and investigate scientific problems by interpreting the results of prior research, developing hypotheses, designing and conducting experiments, analyzing data, and planning future experiments.
7. Demonstrate skills necessary for biological research, including effective teamwork, data collection methods, and scientific communication.
8. Integrate concepts and content from biology and other scientific disciplines to explore current global and societal issues.

GRADING

Grade Distribution

This is a 5-credit course. Attendance in lecture, lab, and discussion is mandatory.

- The lecture portion of the course will comprise 50% of the final grade.
 - 48% will come from three equally weighted exams.
 - 2% will come from lecture attendance, recorded through Top Hat. During each lecture, you must submit a code to Top Hat when prompted. You must be present in the lecture hall in order for your presence to be recorded, and so you need to have location services enabled for the Top Hat app on your device. If this is a problem for you, contact one of the teaching faculty, and we can work out an alternate solution. However, to accommodate absences from lecture due to technical issues with the app or your device, illness, emergency, or other unforeseen situations, we will drop the lowest 25% of your daily scores. For more details on how we calculate your final score, see the course Canvas site.
- The lab will comprise 40% of the final grade. The specific breakdown of points for the lab portion of the course is detailed on our course Canvas site.
- The discussion will comprise 10% of the final grade, broken down as follows:
 - Discussion quizzes are 6% of the final course grade. Each lecturer will give three quizzes for their lecture content, and each student's lowest quiz score will be dropped for each third.
 - Weekly discussion homework is 2% of the final course grade. Discussion attendance is required to receive credit on submitted homework assignments.
 - Two lecture-based essays are each 1% of the final course grade, for a total of 2%.

Grading Scale

The course is graded on a standard scale as noted below.

90-100% = A
88-89.99% = AB
80-87.99% = B
78-79.99% = BC
70-77.99% = C
60-69.99% = D

Canvas calculates your grade in the course using ONLY assignments that you have completed. This means that as more assignments are completed, the numerator and denominator for your grade continue to grow and become more reflective of your final score. Please consider that assignment groups in this course are weighted differently and that there can be large fluctuations in your ongoing calculated final score as new scores are entered into the respective groups. This course is not graded on a curve.

Credit for late work

There is no deduction for late lab and discussion work if the late submission is excused and arranged in advance or, in case of illness or emergency, as soon as possible thereafter. Contact your TA as soon as possible to set up an alternate submission time.

For unexcused late work (i.e., for unexcused absences or late submissions):

- Lab
 - There will be no credit for late pre-lab assignments.
 - For other lab assignments:
 - 10% off per day, up to 50% off.
 - For assignments over five days late, you may still submit them for 50% credit at any point during the semester, until December 11th. After that, there will be no credit for submission.
- Discussion
 - There will be no credit for late homework or quizzes.
 - However, the lowest quiz and homework scores will be dropped to account for unforeseen absences.

Questions Regarding Graded Work

Any questions regarding the grading of any exams, quizzes, or assignments must be addressed **within one week** following the return of the graded work. The grader reserves the right to address only the graded item in question or the entire exam, quiz, or assignment. Absolutely no reconsideration of graded work will be permitted following the submission of final letter grades in this course unless it concerns a technical issue regarding grade recording. Expect all assignments to be graded within two weeks of submission, unless unforeseen circumstances delay the grading temporarily.

REQUIRED TEXTBOOK, SOFTWARE, and OTHER COURSE MATERIALS

Textbooks & Other Required Materials

1. **Biology – How Life Works 4th edition**, by Morris, Hartl, Knoll, Lue, & Michael.
The textbook is available through the [University Book Store](#), and you can select to purchase a digital version only, or a physical copy which comes with digital access. For more information on these options, please visit the course Canvas site.
2. **Top Hat**: You must have a device (phone, tablet, or laptop) that can access the internet and run Top Hat. If you do not have such a device, please contact us. We will work with you to find a solution.
3. You do not need to purchase a lab manual. All lab materials will be provided through Canvas.

COURSE COMMUNICATION

Canvas & Emails - Friday Announcement Each Week

An announcement is posted every Friday by 5 pm to Canvas. These announcements will include essential information regarding homework, course policies, exam scheduling, and other matters. Other notifications about the course will be sent via email. All students are responsible for the information contained in these communications and must check them regularly.

EXAMS

Exam schedule

Exam 1: Thursday, October 9th, 8:15 - 9:45 pm; location to be determined (TBD)

Exam 2: Thursday, November 13th, 8:15 - 9:45 pm; location TBD

Exam 3: Saturday, December 13th, 12:25 - 1:55 pm; location TBD (note this is the time given to us by the registrar; no student will be allowed to miss the exam due to travel)

Exam Review Schedule

Exam 1: Sunday, October 5th, 6-8 pm; room 145 Birge Hall

Exam 2: Sunday, November 2nd, 6-8 pm; room 132 Noland Hall

Exam 3: Thursday, December 11th, 6-8pm; room 132 Noland Hall

Locations for the exams will be provided on the course Canvas site. The final exam for the course is not cumulative.

Exam Policies

- Conflicts between our course and other courses' exams: University policy specifies that exams cannot disrupt classes held during regularly scheduled times (<https://policy.wisc.edu/library/UW-879>). If you have an exam for another course that conflicts with your lab or discussion in Intro Bio 151, you must request an alternate exam time from your professor. Likewise, we will provide alternate exam times for students with legitimate course conflicts of this nature.
- Alternate exams will be given prior to scheduled exam times for those students with documented conflicts. An online survey will be available at least ten days before each exam for students to inform staff about conflicts. Instructors will approve or deny alternate-time requests on a case-by-case basis.
- There will be no late make-up exams except for extreme cases, such as a death in the family, serious illness, legal, or University-related conflicts. The format of the make-up exam will be at the professor's discretion. Contact the teaching faculty for scheduling at 151lec1@zoology.wisc.edu. This policy also applies to any other graded instrument of the course.
- No Electronic Devices (including phones or calculators) will be permitted in the exam rooms. Any math required will involve simple calculations performed by hand.
- Note Cards will be permitted in the last half of the exam sessions. Blank cards will be provided approximately one week before the exam. All information on the card **MUST** be handwritten.

HONORS

Intro bio is an "honors optional" course that may meet students' honors degree track requirements. For more information about Letters & Science honors requirements, [click here](#); for CALS honors program information, [click here](#). The honors option in Intro Bio is a science communication project. Students will participate in an adapted version of the Flame Challenge – an international contest that challenges scientists at every level to communicate familiar yet complex concepts in ways that are understandable to a child.

Through this project, students will improve their mastery of complex biological information and communication skills by translating a topic from this course for a younger audience. They will choose a challenge question, drawn from the course lecture content, and create a graphic or video submission. The goal is to create something informative, creative, and engaging. To support students along the way, teaching faculty review and give feedback on projects. Details and relevant dates are on the course Canvas site.

If interested in the Honors option, students must fill out the Google form linked on the course Canvas site.

PRIVACY OF STUDENT RECORDS & THE USE OF AUDIO RECORDED LECTURES STATEMENT

Lecture materials and recordings for this course are protected intellectual property at UW-Madison. Students in this course may use the materials and recordings for their personal use related to participation in this class. Students may also take notes solely for their personal use. If a lecture is not already recorded, you are not authorized to record the lectures without the instructor's permission unless you are considered by the university to be a qualified student with a disability requiring accommodation. [Regent Policy Document 4-1] Students may not copy or have lecture materials and recordings outside of class, including posting on internet sites or selling to commercial entities. Students are also prohibited from providing or selling their personal

notes to anyone else or being paid for taking notes by any person or commercial firm without the instructor's express written permission. Unauthorized use of these copyrighted lecture materials and recordings constitutes copyright infringement and may be addressed under the university's policies, UWS Chapters 14 and 17, governing student academic and non-academic misconduct.

COURSE EVALUATIONS

Students will be provided with an opportunity to evaluate this course and their learning experience. Student participation is integral to this course, and your confidential feedback is important. You are strongly encouraged to participate in the course evaluation.

STUDENTS' RULES, RIGHTS & RESPONSIBILITIES

See the Guide to [Rules, Rights, and Responsibilities](#)

DIVERSITY & INCLUSION

[Diversity](#) is a source of strength, creativity, and innovation for UW-Madison. We value the contributions of each person and respect the profound ways their identity, culture, background, experience, status, abilities, and opinions 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.

ACADEMIC INTEGRITY

By virtue of enrollment, each student agrees to uphold the high academic standards of the University of Wisconsin-Madison; academic misconduct is behavior that negatively impacts the integrity of the institution. Cheating, fabrication, plagiarism, unauthorized collaboration, and helping others commit these previously listed acts are examples of misconduct that may result in disciplinary action. Examples of disciplinary action include, but are not limited to, failure on the assignment/course, written reprimand, academic probation, suspension, or expulsion.

ARTIFICIAL INTELLIGENCE USE STATEMENT

We are excited about the use of AI within the fields of education and biology, and recognize the benefits and challenges associated with its use. To ensure that AI is used **to** support and promote genuine learning, we will explain how it can and cannot be used within the instructions of those assignments that allow it. Any use of these tools other than what is indicated in the assignment constitutes a violation of this course's expectations and will be addressed through UW–Madison's [academic misconduct policy](#), specifically UWS 14.03(1)b (b) Uses unauthorized materials or fabricated data in any academic exercise. **If the description of an assignment does not include language regarding the use of AI, its use is prohibited.**

ACCOMMODATIONS FOR STUDENTS WITH DISABILITIES STATEMENT

The University of Wisconsin-Madison supports the right of all enrolled students to a full and equal educational opportunity. The Americans with Disabilities Act (ADA), Wisconsin State Statute (36.12), and UW-Madison policy ([UW-855](#)) require the university to provide reasonable accommodations to students with disabilities to access and participate in its academic programs and educational services. Faculty and students share responsibility in the accommodation process. Students are expected to inform faculty [me] of their need for instructional accommodations at the beginning of the semester, or as soon as possible after being approved for accommodations. Faculty [I] will work either directly with the student [you] or in coordination with the McBurney Center to provide reasonable instructional and course-related accommodations. Disability

information, including instructional accommodations as part of a student's educational record, is confidential and protected under FERPA. (See: [McBurney Disability Resource Center](#))

ACADEMIC CALENDAR & RELIGIOUS OBSERVANCES

Please visit the University website for further information regarding the [Academic Calendar & Religious Observances](#).

ABOUT THE INSTRUCTORS

Dr. Simon Gilroy, Professor, Botany Department

Research areas: Cell Biology, Plant Biology, Bioinformatics, Space Biology

I grew up in the UK, doing my undergraduate degree at Cambridge University and then moving to Edinburgh, Scotland, to do my Ph.D. I then did postdoctoral work in Berkeley, got a faculty position at Penn State, and in 2007, moved behind the cheddar curtain to Madison. I'm a plant biologist, and the kinds of questions that I like to think about are at the cellular level – how do the genes and proteins in a cell make the amazing biology that we see around us happen? In my lab, we work on how stresses like being eaten or subjected to a Wisconsin winter are sensed by plants. We also do research outside the lab. Our "field site" for this work is 250 miles straight up on the International Space Station, where we are working with NASA on engineering plants to grow in space. I teach the cell and molecular biology section of Bio 151/153. Cells are the fundamental unit of life, and so through their study, we can answer one of the most basic questions in biology: what does it really mean to be alive?

Dr. Seth Blair, Professor, Integrative Biology Department

Research areas: Cell Biology, Developmental Biology, Genetics/Genomics, Neuroscience

I grew up in Seattle, but my dad was from Madison, and his folks lived over on Sheldon Street near Michael's Frozen Custard, so I've been in and out of town for years now. I was an undergrad at Yale and got my PhD at the University of California in Berkeley in 1982. My grad school mentor was Gunther Stent, who had been an important figure in the early days of molecular genetics but had since gotten interested in the developmental biology of nervous systems. At the time, we were figuring out how cells make the nervous system of the leech (simple nervous systems, lovely embryos, slightly obnoxious feeding habits). After that, I did a postdoc at the University of Washington in Seattle, working on the nervous system of the fruit-fly *Drosophila*. I did a brief postdoc at Harvard Medical School working on leeches again, and then I came here in 1989. These days, I stick with *Drosophila* (wonderful genetics, easier to feed), examining the development of neuronal and non-neuronal tissues and how signaling between cells determines the developmental fate of cells. I used to keep a tank of leeches around, but they died of sucker rot a few years back.

Dr. Jeremiah Yahn, Teaching Faculty, Integrative Biology Department

I am a Wisconsin native from the Driftless Area in general, but mostly, I grew up in Viroqua. I have always had an affinity for animals and nature; spending most of my childhood outdoors fishing, hunting, foraging, and hiking. I attended Viterbo University in La Crosse, WI, for my bachelor's and attempted to take every class I could. I quickly realized that I should narrow my focus. I settled on a degree in biology (with several minors and emphases), and it has served me well ever since. After a short stint in AmeriCorps as a lumberjack in the greater Southwest (shout out to Flagstaff), I returned to Wisconsin and started graduate school. I worked with Dr. Steven Ventura on my Master's degree, focusing on spatial sciences and environmental monitoring. Subsequently, I got my PhD from the University of Wisconsin, Madison, in 2016, working in Dr. Bill Karasov's lab group. The focus of my PhD was on animal energetics (how animals pay their bills) and how one can model

energy budgets to understand questions in ecotoxicology. Mostly, I worked with amphibians, specifically frogs, but I used several vertebrates to answer these questions.

I do not lecture directly from the text, but I encourage you to complete the readings before each lecture. Please do not read the text exhaustively, but rather familiarize yourself with the content before you come to lecture. If you do this, you will find it much easier to pay attention and retain more of the lecture. Then, if you still do not understand something after a lecture, research it more thoroughly at that point. Take good notes (by hand, it helps) during lecture and revisit them at the end of the day and once again at the end of each week. By continually interacting with the material and your notes, you will find it easier to be successful in the course (and probably other courses as well). I hope you enjoy learning about animal physiology - I certainly do!

I wish that I were metal enough to say that I used to have a tank of leeches that later succumbed to sucker rot, but alas, I am not that metal...