

LIFE102-Attributes of Living Systems Syllabus

Section 001

Spring Semester 2024; Section 001; Johnson Hall Room 222; Tu Thr 8:00 a.m. - 9:15 a.m.

Instructor Information

Instructor

Dr. Micky Eubanks

Email

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Office Location

C034 Plant Sciences

LEARNING ASSISTANTS

Laila Paluszek (Lead)	Mia Chavez
Alex Harper	Maggie Vanbuskirk
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Zoe Bierman	Eden Nolan
Katy Brandman	Carson Sherwood

CONTACT INFORMATION

Eubanks office hours 9:30 a.m.-10:30 a.m. TuTh in C034 Plant Sciences.

Please contact me via the CANVAS email tool. Please include your name in your email to me. Please help me to help you by identifying yourselves. Questions regarding labs (attendance, scheduling, and grades) should be directed to Ren Garcia-Hellmuth, the lab coordinator at lauren.hellmuth@colostate.edu or your lab TA.

I will do my best to respond to emails within 24 hours during the week (Monday through Friday). Responses will be delayed over the weekend but I will do my best to respond by the next business day. If I do not respond within 24 hours, please send me a friendly reminder!

Also, please note that the university's spam filter has been known to reject email from sources such as Yahoo! or msn accounts. If I don't respond please speak with me to see if this is what has happened or use your CSU account to send the email.

This syllabus is subject to change by departmental or instructor notification

GENERAL INFORMATION

Description

LIFE102 is an introductory biology course that is intended to provide a basis for more advanced courses in life sciences. The objective of this course is to give an overview of the many features that are common to living organisms. The topics to be covered are listed in the course outline. Some topics (*such as chemistry, cell biology, genetics, and evolution*) will be emphasized more than others. As a result, the specific lecture dates and the time spent on each topic are approximate and are subject to change.

The course meets for two 75 minute lectures per week (TuTh, 8:00-9:15 a.m., Johnson 222) and one laboratory session per week. You should be signed up for a lab. If labs are full, keep trying to register on RamWeb: some spots will open in the first weeks of the semester as others drop. Questions regarding labs (attendance, scheduling, and grades) should be directed to Ren Garcia-Hellmuth, the lab coordinator at lauren.hellmuth@colostate.edu or your lab TA.

Expectations and Goals

Upon completion of LIFE102, students will be able to:

- Recognize the common elements required by living organisms and describe key properties of water and carbon that enable them to function to support life.
- Recognize and describe the functions of major types of cellular macromolecules
- Describe the internal components of plant and animal cells, and their functions
- Describe the composition and functions of biological membranes
- Explain the transformation of molecules and energy during the processes of cellular metabolism, respiration and photosynthesis
- Describe mechanisms of cell communication and cell reproduction (mitosis and meiosis)
- Describe how DNA replicates and how genetic information is transmitted within the cell (transcription and translation)
- Use Mendelian genetics to predict the genetic makeup of offspring given the genetic makeup of the parents
- Explain principles that govern evolution, including descent with modification, evolution of populations, and origin of species

ATTENDANCE AND PARTICIPATION

In-class, face-to-face participation will center around active learning opportunities, review questions, and clarifying muddiest points. As it is important to attend class, we strongly encourage you to attend class and participate in the provided class activities. Students who regularly attend class receive higher scores on exams and are able to master the course material.

All lectures will be posted to Canvas as a pdf and available before class time. Lectures will not be recorded so it is important to come to class.

- A) Your in-class, face-to-face participation will center around lectures, active learning opportunities, review questions, and clarifying muddiest points.
- B) You will complete a weekly homework assignment using the McGraw-Hill Connect tool in Canvas. The Connect Homework will open on Mondays at noon and be available until Sunday night at 11:59 p.m. each week.
- C) You will also complete a weekly quiz that must be completed by Sunday night at 11:59 p.m.
- D) Keep an eye on your Canvas Dashboard to make sure you are aware of all assignment deadlines!

Course Materials

Required Materials

- A) (REQUIRED) CANVAS website. The majority of course materials will be delivered via Canvas. You will need your eID to login in: <http://canvas.colostate.edu> If you are registered for LIFE102, this course will be in your listing. If you are new to CANVAS, please take the time to review the CANVAS tutorials so you can get the most out of this resource! The syllabus, announcements, lecture slides, grades, and additional resources will be posted on CANVAS
- B) (REQUIRED) CONNECT: All-Inclusive Access by McGraw-Hill. Visit [Student Support | McGraw Hill \(mheducation.com\)](https://student.support.mheducation.com) for more info on how to use Connect. This software includes:
- The textbook “Understanding Biology” (4th Edition) by Mason, Losos, and Duncan. When you register for Connect, you have the option to purchase a loose-leaf copy of the textbook. If you would like a hard-back copy, they are available directly from McGrawHill or through other resellers, such as Amazon.com. In addition, there are a few hard copies of the textbook on reserve in the library. You should have received an email from the CSU Bookstore to your CSU email account with instructions on how to access the textbook through Canvas.
 - LearnSmart Adaptive Learning Platform. This includes interactive materials to help explore content and refine your understanding.
 - Note you will not be charged for Connect until the Add/Drop deadline date.
- C) McGraw Hill Connect assignments will provide additional information for the material discussed in class and to check your knowledge of the concepts. Therefore, the reading and the correlated Connect assignments are designed to supplement the lectures, and in-class activities. These are **REQUIRED** and are part of your grade. As these are designed to help you prepare for the class activities and exams there will be no late assignments accepted. All of the Connect assignments will be open from the beginning of the semester, and are due on Sundays of their respective weeks, so you may complete these, along with the reading, early if you choose. Please note that there will be two Connect assignments due Week 8, and Week 9, so please plan accordingly. There are 15 Connect assignments, worth 10 points each, and the **two lowest scores** will be dropped (so 130 points will count towards your grade). The first Connect assignment is due on **Sunday, January 21st**.

Canvas Quizzes:

There will be weekly Canvas quizzes administered online. The quizzes are designed to prepare you for the upcoming lecture concepts (and to review past lecture concepts). These questions will help you determine your knowledge of the topics discussed in the lectures and readings, and the goal is to identify any concepts that are confusing or unclear. These quizzes focus on important concepts, therefore, please ensure you seek help with these topics if needed (from the instructor and/or the learning assistants). The quizzes are due on Sundays at 11:59 PM. As students may take the quizzes as often as needed to receive the full points, there will be no late quizzes accepted unless there is an emergency (and the instructor has been contacted prior to the due date). There will be 14 quizzes, worth 10 points each, and the **two lowest scores** will be dropped (so 120 points will count towards your grade). The first Canvas Quiz is due on **Sunday, January 21, 2024**.

Active Learning:

Class activities are an important part of this course, not only to allow you the opportunity to work in a small group format, but also to provide alternate methods for learning/understanding the material. Active learning activities will occur during every class session throughout the semester. These

activities will provide additional opportunities to work on the course concepts/material and receive help from the learning assistants and the instructor. We encourage questions and student interaction/discussion during these activities and our goal is to help you master all concepts we discuss in this course. The activities will be provided during class (either as handouts or presented on the PowerPoint slides). In-class questions, activities, and answers will NOT be posted on Canvas, however, if students wish to go over any in-class activities, questions, answers, etc., they are encouraged to meet with the instructor and/or the learning assistants (during office hours, group learning sessions or by appointment).

Learning Assistants:

This course is supported by a team of Learning Assistants (LAs). LAs are undergraduate students who have successfully completed the course in a previous semester and became peer educators to help other students master the course content. Every week, LAs meet with the instructor/instructional team to prepare activities and discuss strategies for supporting student learning. LAs also receive training in teaching and learning techniques to apply in their work with students. LAs will assist with learning activities during lecture and will facilitate a variety of additional learning experiences outside of class. You can connect with LAs through: Group Learning Sessions (drop-in support in TILT's Great Hall held Monday, Tuesday, and Wednesday evenings each week, 5-8 PM), Exam Review Sessions (which occur leading up to each exam), and small group tutoring (for students who are interested in additional practice with the course concepts). Find out more about working with our LAs at:

<https://tilt.colostate.edu/learning-assistants/student-resources/life-102/resources/>. The Learning Assistant (LA) model is an evidence-informed, internationally recognized model of peer education proven to positively impact student success. Engaging with LAs can make the learning process more manageable and productive for students, especially in high-enrollment courses (such as Life 102). Data from the CSU Learning Assistant Program indicates that students can more effectively master the course content (earning higher grades) by engaging consistently with LAs outside of class.

Exams:

Exams will be administered in-person during class. There are four exams, with 40 questions, worth two points each (80 points total), and the *lowest exam score* will be dropped. The final exam, administered during finals week, will be cumulative (40 questions, worth two points each, 80 points total), and *cannot* be dropped. Therefore, it is important to learn/master all of the material we discuss in the course. It is advisable to take all exams, even if you have not studied appropriately, as the lowest exam is dropped, and this allows you the opportunity to identify areas that might be unclear or require extra help (as the final is cumulative). The learning assistants will provide review sessions before each exam. The information in this course provides a foundation for future science courses, therefore, the exam questions will require you to evaluate and synthesize the concepts discussed in lecture, rather than simply memorize facts. This is a skill that we will work on during the semester thus, attending class is essential for success in Life 102. Athletes who will miss exam days due to a CSU sanctioned event can arrange to take the exam early, by contacting Dr. Eubanks prior to the exam. There are **NO** make-up exams, unless an emergency situation occurs, and this must be arranged *prior* to the exam (not the day of the exam or after the exam), with Dr. Eubanks and with student case management.

REGISTRATION QUESTIONS:

For any registration questions, changes or other concerns for both lab and lectures sections, please contact your program advisor/advising team/undergraduate success coordinator for help.

CODE OF CONDUCT

By registering for this class, you are entering into an agreement between yourself and the instructor (me) regarding our respective roles in achieving the learning objectives articulated above in Life 102 and earning the grade in the course that you desire. As an instructor, my role is to organize and present course material in a way that guides your progress through the material and helps you to gain practice in the course objectives articulated above. As a student, your role is to attend class, not to engage in disruptive conversations or activities or otherwise engage in disruptive behavior, such as packing up to leave early. If you wish to do well in the course, you should plan on attending class, reviewing all material in a timely manner, participate in class discussions (such as interactions with LAs), review study guides, attend office hours, complete Canvas assessments (quizzes and Connect homeworks) and, form study groups, and study by *practicing* rather than simply reviewing your notes.

ACADEMIC INTEGRITY

Academic integrity lies at the core of our common goal: to create an intellectually honest and rigorous community. Because academic integrity, and the personal and social integrity of which academic integrity is an integral part, is so central to our mission as students, teachers, scholars, and citizens, I will ask that you affirm the CSU Honor Pledge as part of completing your work in

this course. You will be asked to affirm the following statement at the start of your exams: "I have not given, received, or used any unauthorized assistance." Further information about Academic Integrity is available at CSU's Practicing Academic Integrity. This course will adhere to the CSU Academic Integrity Policies and Guiding Principles as found in the General Catalog and the Student Conduct Code. Academic integrity is conceptualized as doing and taking credit for one's own work. Violations of the university's academic integrity standards include, but are not limited to:

- Cheating—includes using unauthorized sources of information and providing or receiving unauthorized assistance on any form of academic work or engaging in any behavior specifically prohibited by the faculty member.
- Plagiarism—includes the copying of language, structure, ideas, or thoughts of another, and representing them as one's own without proper acknowledgment.
- Unauthorized Possession or Disposition of Academic Materials—includes the unauthorized selling or purchasing of examinations or other academic work; stealing another student's work; unauthorized entry to or use of material in a computer file; and using information from or possessing exams that an instructor did not authorize for release to students.
- Falsification—includes any untruth, either verbal or written, in one's academic work.
- Facilitation—includes knowingly assisting another to commit an act of academic misconduct.

At a minimum, violations will result in a grading penalty in this course and a report to the Office of Conflict Resolution and Student Conduct Services.

UNIVERSAL DESIGN FOR LEARNING

I am committed to the principle of universal learning, diversity and inclusion in the classroom, and creating an equitable learning environment. This means that our classroom, our virtual spaces, our practices, and our interactions be as inclusive as possible. Mutual respect, civility, and the ability to listen to others carefully are crucial to universal learning and understanding. My pronouns are she/her/hers and if you wish to share your pronouns, I will use them. Even though

the content of this course is prescribed, I encourage students to engage with each other thoughtfully and with respect. Please remember the [CSU Principles of Community](#).

If you are a student who will need accommodations in this class, please contact me to discuss your individual needs. Any accommodation must be discussed in a timely manner prior to implementation. A verifying memo from Student Disability Center may be required before any accommodation is provided.

EXTRA CREDIT

Extra Credit will not be offered this semester.

Important Notes:

- Please register for McGraw Hill Connect.
- Please note that all lectures will be in-person, there are no recorded lectures.
- All exams will be during class sessions, in-person.
- Students with accommodations will need to arrange their exams at the student disability center.

GRADING:

Lecture Grade

4 Section Exams: **240 points** (4 section exams, worth 80 points each, *lowest score dropped*)

Final Exam: **80 points** (cumulative; cannot be dropped)

Connect Homework: **130 points** (15 assignments; 10 points each; *two lowest scores dropped*)

Quizzes: **120 points** (14 quizzes; 10 points each; *two lowest scores dropped*)

Total Points = 570 points

Final Grade

The lecture portion of the class will comprise 75% of your final grade. The Life 102 Lab will comprise the other 25% of your grade. The Life 102 grades will be calculated as follows:

$(\text{Lecture Grade} \times 0.75) + (\text{Lab Grade} \times 0.25)$.

The grade ranges below are ensured however, grades may be curved at the end of the semester.

A = 90 - 100 %

B = 80 - 89 %

C = 70 - 79 %

D = 60 - 69 %

F < 60 %

Please note that this course meets face-to-face therefore, no lectures will be recorded. The PowerPoint slides will be posted by Fridays for the following week.

***This is a content intensive course**, as the intent is to provide a broad overview of important core biological concepts. However, all students can be successful in Life 102 if they are willing to devote

the needed time and effort to the course. If a student requires any additional help please do not hesitate to ask, we are happy to assist in your Life 102 journey!

Week	Dates	Lectures	Homework/Quizzes	Reading
1	Jan 16	Introduction: Organization & Syllabus		Chapter 2
	Jan 18	1. Atoms & Molecules 2. Bonds & Water	1-21-24 now 1-28-04 Smart Book: Chapter 2 Quiz #1	
2	Jan 23	3. Water Properties & pH		Chapter 3
	Jan 25	4. Carbon Molecules 5. Macromolecules	1-28-24 Smart Book: Chapter 3 Quiz #2	
3	Jan 30	6. Proteins, Sugars, Fats		Chapter 4
	Feb 1	7. Cell Structure 8. Organelles	2-4-24 Smart Book: Chapter 4 Quiz #3	
4	Feb 5	9. Organelle Function		Chapter 5
	Feb 8	Exam 1 (Lectures 1-9)	2-11-24 Smart Book: Chapter 5 Quiz #4	
5	Feb 13	10: Cell Transport 11: Energy & Metabolism		Chapter 6
	Feb 15	12: ATP & Enzyme Function	2-18-24 Smart Book: Chapter 6 Quiz #5	
6	Feb 20	13: Cellular Energy 14: Harvesting Energy		Chapter 7
	Feb 22	15: Cellular Respiration	2-25-24 Smart Book: Chapter 7 Quiz #6	

7	Feb 27	16: Plants & Photosynthesis 17: Photosynthesis Reactions		Chapter 8
	Feb 29	18: Cellular Respiration & Photosynthesis	3-3-24 Smart Book: Chapter 8 Quiz #7	
8	March 5	Exam 2 (Lectures 10-18)		
	March 7	19: Cell Cycle & Cell Division		Chapter 10 & 11
9	March 12	SPRING BREAK	SPRING BREAK	
	March 14	SPRING BREAK	SPRING BREAK	
10	March 19	20: Meiosis 21: Heredity		
	March 21	22: Inheritance	3-24-24 Smart Book: Chapter 10 & 11 Quiz #8	
11	March 26	23: Chromosomes 24: Chromosomal Inheritance		Chapter 12
	March 28	25: DNA	3-31-24 Smart Book: Chapter 12 & 14 Quiz #9	
12	April 2	26: Genes 27: Transcription		Chapter 15
	April 4	28: Translation	4-7-24 Smart Book: Chapter 15 Quiz #10	
13	April 9	Exam 3 (Lectures 19-26)		
	April 11	29: Gene Expression 30 Genetic Regulation	4-14-24 Smart Book: Chapter 16 Quiz #11	Chapter 16

14	April 16	31 Genetics 32 Stem Cells & Cancer		Chapter 20
	April 18	33 Evolution	4-21-24 Smart Book: Chapter 20 Quiz #12	
15	April 23	34 Origin of Species 35 Natural Selection		Chapter 21
	April 25	Exam 4 (Lectures 27-35)	4-28-24 Smart Book: Chapter 21 Quiz #13	
16	April 30	36 Viruses 37 Medicine & Biotechnology		Chapter 23 & Chapter 17
	May 2	38 Biology & Life		
FINAL	May 9 6:20 PM	FINAL EXAM (CUMULATIVE)		

CSU Final Exam Schedule: <https://registrar.colostate.edu/final-exams/>

Study tips:

Time management will be important to the learning of this material. Please do not wait until the last minute to study for the quizzes/exams. How to study for this class depends on the student; these are some suggestions that previous students have found helpful.

- Skim the chapter before coming to class.
- Attend the lectures; take notes.
- Read the chapter in the book for more clarification on any concepts.
- Be able to explain the learning outcomes defined in each chapter. This will help with understanding the material.
- Do the Connect homework.
- Utilize the concepts assignments as a study tool as they will help with the understanding of the material.
- Attend the study sessions offered at TILT and facilitated by Learning Assistants.
- Form a study group. Explain the concepts to each other.

NEED HELP?

CSU is a community that cares for you. If you are struggling with drugs or alcohol and/or experiencing depression, anxiety, overwhelming stress or thoughts of hurting yourself or others please know there is help available. Counseling Services has trained professionals who can help. Contact 970-491-6053 or go to <http://health.colostate.edu>. If you are concerned about a friend or peer, tell someone by calling 970-491-1350 to discuss your concerns with a professional who can discreetly connect the distressed individual with the proper resources (<http://safety.colostate.edu/tell-someone.aspx>). Rams take care of Rams. Reach out and ask for help if you or someone you know is having a difficult time.