

Biology 5 (Biol 5) Human Biology

<i>Semester: Spring 2024</i> <i>Reedley Community College</i>	
Lecture Instructor: Dr. Chris Emerling Email: christopher.emerling@reedleycollege.edu	<i>Class No. 50030</i> Lecture: Mon Wed 12–1:15 pm, SOC 32 Lab: Wed 9–11:50 am LFS 11
Office Hours, Life Sciences (LFS) 13: MW 3:20–4:10 pm, TTh 11–11:50 am Online Office hours: Fri 10–10:50 am Zoom ID: 990 6009 7271 Phone: extension 3134	<i>Class Dates: 1/8/24–5/17/24</i>

Catalog Description:

This course is an introductory human biology course that examines science and societal issues. This course emphasizes the structure of the human body and the functional interrelationships of the body's systems: integument, circulatory, digestive, respiratory, urinary, skeletal, muscular, nervous, endocrine, reproductive, and genetics

Prerequisites:

None, eligibility for ENGL 125, 126, or 153; or ESL 67 and 68 recommended. This is an introductory course using the principles approach to general biology which satisfies the general science requirements focused on students entering health or science careers. It is a prerequisite for all advanced science courses (Human Anatomy, 20; Human Physiology, 22; Human Anatomy and Physiology, 24; Microbiology, 31).

Student Learning Outcomes:

Upon successful completion of this course, students will be able to:

1. demonstrate knowledge regarding the process of science and society, microscopy, and the cell
2. identify human body levels of organization and homeostatic mechanisms
3. demonstrate knowledge of the chemical basis of life
4. evaluate scientific literature and current biological achievements
5. apply the principles of genetics to humans and understand the outcome of normal and abnormal DNA
6. describe the basic cellular, molecular and gross anatomy of tissues, organs and organ systems and explain the basic function of those tissues and organs that relate to the integument, circulation, digestive, respiratory, urinary, skeletal, muscular, nervous, endocrine, reproduction, genetics, and evolution
7. identify and recall fundamental structures from anatomical models and slides using correct nomenclature and language

Course Objectives:

In the process of completing this course, students will:

1. read, analyze, evaluate, and discuss scientific method, the cell, and human levels of organization
2. learn the periodic table of the elements, the chemistry of the carbon atom, and the chemical structure of humans
3. analyze and interpret data on the homeostatic mechanisms within the human body
4. learn the cell's structure, function, and the cell cycle in relation to the multicellular human body
5. observe and document the structure and function of the human body by examining human body systems including: circulatory, digestive, respiratory, urinary, skeletal, muscular, nervous, sensory, endocrine, and reproduction

6. review classical and molecular genetics and learn the processes of replication, transcription, and translation
7. perform experiments, observe, and record data
8. study evolution
9. discuss social issues between humans and science
10. develop a vocabulary to effectively communicate information related to anatomy and physiology.
11. summarize the levels of structural organization important to human anatomy

TENTATIVE SCHEDULE

Week	Lecture	Readings	Assignments
Week 1: 1/8–1/12	Course Intro Unit 1. What is Science? Science limitations	1.2 The Process of Science	Lab 1: Science & Microscopy
Week 2: 1/15–1/19 No class Monday (MLK day)	Unit 1. Science limitations cont'd, First Scientific Experiment Unit 1. How Scientists Minimize Bias		Lab 2: Biological Macromolecules
Week 3: 1/22–1/26	Unit 1. How Scientists Minimize Bias cont'd Unit 1. Scientific Community in Action		Lab 3: Cell Structure & Function
Week 4: 1/29–2/2	Unit 2. Atoms & Molecules	2.1 The Building Blocks of Molecules; 2.2 Water	Lab 4: DNA Structure and Function
Week 5: 2/5–2/9	Unit 2. Organic molecules, Lipids, Carbs Unit 2. Enzymes, Proteins, Nucleic Acids	2.3 Biological Molecules	Lab Exam 1 Lecture Exam 1
Week 6: 2/12–2/16 No class Friday (Lincoln Day)	Unit 2. How DNA encodes traits, Transcription & Translation Unit 2. How DNA encodes traits, Transcription & Translation	9.1 The Structure of DNA; 9.3 Transcription; 9.4 Translation 10.1 Cloning and Genetic Engineering; 10.2 Biotechnology in Medicine and Agriculture; 10.3 Genomics and Proteomics	Lab 5. Mitosis & Meiosis

<p>Week 7: 2/19–2/23</p> <p>No class Monday (Washington Day)</p>	<p>Unit 3. Metabolism</p> <p>Unit 3. How Cells Move Substances, Homeostasis, Response to Stimuli, Reproduction</p>	<p>1.1 Themes and Concepts of Biology</p> <p>4.1 Energy and Metabolism; 4.2 Glycolysis; 4.4 Fermentation</p>	<p>Lab 6. Genetics & Trait Inheritance</p>
<p>Week 8: 2/26–3/1</p>	<p>Unit 3. Adaptation, Viruses</p> <p>Unit 4. Eukaryotic cell structure, Mitochondria & Chloroplasts</p>	<p>3.4 The Cell Membrane; 3.5 Passive Transport; 3.6 Active Transport</p> <p>17.1 Viruses</p>	<p>Lab 7. Histology & Integumentary System</p>
<p>Week 9: 3/4–3/8</p>	<p>Unit 5. Multicellularity, Mitosis</p> <p>Unit 5. Meiosis</p>	<p>3.1 How Cells Are Studied; 3.2 Comparing Prokaryotic and Eukaryotic Cells; 3.3 Eukaryotic Cells; 4.3 Citric Acid Cycle and Oxidative Phosphorylation; 5.1 Overview of Photosynthesis; 13.2 Eukaryotic Origins</p> <p>6.1 The Genome; 6.2 The Cell Cycle; 6.3 Cancer and the Cell Cycle; 6.4 Prokaryotic Cell Division</p>	<p>Lab 8. Skeletal & Muscular Systems</p>
<p>Week 10: 3/11–3/15</p>	<p>Unit 5. Genetics</p> <p>Unit 5. Genetics cont'd</p>	<p>7.1 Sexual Reproduction; 7.2 Meiosis; 7.3 Variations in Meiosis</p> <p>8.1 Mendel's Experiments; 8.2 Laws of Inheritance; 8.3 Extensions of the Laws of Inheritance</p>	<p>Lab Exam 2</p> <p>Lecture Exam 2</p>
<p>Week 11: 3/18–3/22</p>	<p>Unit 6. Intro to Human Organ Systems</p> <p>Unit 6. Human Special Senses</p>		<p>Lab 9. Digestive, Respiratory & Urinary Systems</p>
<p>SPRING BREAK: 3/25–3/29</p>	<p>NO CLASS</p>		<p>NO CLASS</p>
<p>Week 12: 4/1–4/5</p>	<p>Unit 6. Nervous, Muscular, Skeletal & Integumentary Systems</p>	<p>16.6 Nervous System; 16.5 Musculoskeletal System</p>	<p>Lab 10. Nervous System</p>

Week 13: 4/8–4/12	Unit 6. Digestive System Unit 6. Circulatory, Respiratory, Urinary Systems	16.2 Digestive System 16.3 Circulatory and Respiratory Systems; 16.1 Homeostasis and Osmoregulation	Lab 11. Cardiovascular System
Week 14: 4/15–4/19	Unit 6. Immune, Lymphatic & Endocrine Systems Unit 6. Reproductive System	17.2 Innate Immunity; 17.3 Adaptive Immunity; 16.4 Endocrine System 18.1 How Animals Reproduce; 18.2 Development and Organogenesis; 18.3 Human Reproduction	Lab 12. Endocrine & Reproductive Systems
Week 15: 4/22–4/26	Unit 7. Evolution & DNA Unit 7. Evolution & Shared Traits	11.1 Discovering How Populations Change; 11.2 Mechanisms of Evolution; 11.3 Evidence of Evolution 12.2 Determining Evolutionary Relationships; 11.4 Speciation; 11.5 Common Misconceptions about Evolution	Lab Exam 3 Lecture Exam 3
Week 16: 4/29–5/3	Unit 8. Population, Community Ecology	19.1 Population Demographics and Dynamics; 19.2 Population Growth and Regulation 19.3 The Human Population; 19.4 Community Ecology	Lab 13. Dissection
Week 17: 5/6–5/10	Unit 8. Ecosystem & Global Ecology, Conservation Biology	20.1 Waterford's Energy Flow through Ecosystems; 20.2 Biogeochemical Cycles 21.1 Importance of Biodiversity; 21.2 Threats to Biodiversity; 21.3 Preserving Biodiversity	Lab 14. Human Evolution & Case Study Presentation
Week 18: 5/13–5/17	Finals Week		Final Exam

Textbook

- There is a *free* textbook available to read and/or download online at <https://openstax.org/details/books/concepts-biology> Chapter readings listed in the Tentative Schedule above.

Technology Requirements

- All students must have access to a device with internet access to that allows students to retrieve and complete assignments and obtain learning materials through Canvas.
- Check Canvas and your Reedley College email accounts regularly (multiple times per week) for announcements.
- If you need access to technology in order to complete your course, please make sure to contact the [Information Center](#) to check out a laptop or other needed technology.

ATTENDANCE AND DROP/ADD POLICY

Attendance is expected of all students every week in this class. Attendance online is counted by completing the attendance assignment for the week (typically a discussion). In order to avoid being dropped from this class, you must attend the first day of lecture and/or lab, unless you contact me ahead of time to provide a legitimate excuse for your absence.

Beyond this, I reserve the right to drop students (both enrolled and waitlisted) based on the following policy:

1. Student does not attend the second and/or third weeks of class
2. Student does not respond to contact efforts from the professor after missing the second week of class

ASSESSMENTS

Category	Assignment Description	Points
Lecture	Lecture Exams	50% of grade
Lab	Labs Activities	10% of grade
	Lab Practical Exams	35% of grade
	Case Study	5% of grade

The final course grade is based on a non-traditional scale:

Percent Range	Grade
85-100	A
70-84.99	B
50-69.99	C
30-49.99	D
Less than 30	F

Course grades are non-negotiable. Instructor reserves the right to adjust individual tests and/or assignments should it be to the benefit to the entire class. Final grades may be adjusted to the benefit of

the students, should there be a justifiable reason for doing so. I do not round up grades to the next letter grade given that there are multiple opportunities to boost grades during the course.

LECTURE ASSESSMENTS

Lecture exams These may be any combination of multiple-choice, true-false, matching, short-answer and other types of questions based on topics discussed in each lecture, and highlighted in the study guides. Questions may be based on words only or may include images. Please note that I require spelling and grammar to be as close to accurate as reasonably possible; spelling must be at least phonetically approximate, such that it is unambiguous what your answer is. If I can't clearly understand it, I can't give you points for it.

LAB ASSESSMENTS

Lab Activities There will be weekly activities during the lab portion of this course, guided by lab handouts. Your lab instructor will inform you as to whether you will be printing out the labs prior to class or can bring a digital copy. Your lab instructor will also inform you as to whether you will be submitting the lab activities for points, or whether they will simply be learning guides.

Lab Practical Exams There will be exams specifically based on the lab materials, known as lab practicals. These will be based on information covered during the lab activities and in the lab handouts. They frequently will include visual components, and may involve stations in which you will have to answer questions based on models / specimens / items physically placed in front of you.

Case Study The lab will also include a Case Study assignment. The implementation will vary based on your lab instructor, but it will essentially involve applying knowledge gained in class to diagnose diseases / disorders. It will involve a presentation component and may be group-based. Your lab instructor will inform you as to how it will be executed.

LATE ASSIGNMENTS AND EXAM MAKE-UP POLICY

Due dates are generally non-negotiable. Possible exceptions may include if the student falls victim to extreme, **documentable** circumstances on the days leading up to the submission of the assignment. The same applies for lecture exams, but only up to a certain point. If a student misses an exam, they will have finals week to make up a portion of those that are missed. Lab Practical Exams can be difficult to make up, so do not count on being able to do so. Any legitimate excuses for missed lab practicals will be assessed on a case by case basis.

EXTRA CREDIT

I do not provide extra credit opportunities in a traditional sense. My belief is that the goal is for you to learn and complete what we are doing in class, not something beyond the scope of the normal content. However, I do believe strongly in providing the chance to learn from your mistakes and being able to master content on subsequent attempts. As such, during finals week, you will have the opportunity to 'retake' several of the exams that you had previously taken. They will not be identical to the earlier versions of the exams, but rather will include similar content. The grades on any exams you retake will replace your original exam score, whether it is higher or lower.

COMMUNICATION POLICY

The best way to get ahold of me is to send me a direct message through Canvas. Don't know how to send a message in canvas? Check out this quick guide [How to send a message in canvas](#). The second best way is to email me at christopher.emerling@reedleycollege.edu. I regularly check announcements for comments and replies, so this is also a viable option for communicating about specific content.

Please allow a 24hr response time on business days (Mon-Fri). I often reply on weekends as well, but given that I try to give myself breaks from work on the weekends, please do not assume that I will reply on non-business days. I tend to be very prompt with my responses, however, there are times when it may take me up to 24hrs or more to respond. As a rule, I try to prioritize Canvas messages and e-mails that

require an immediate response over those that are less urgent, so please indicate if the message is urgent. If you do not receive a response from me after 24hrs then please double check that you have contacted me correctly (e.g., was it the correct email address?), and then try again with both Canvas messages and e-mail. Emailing and messaging can be used 24/7. If I expect to be away from my computer for any significant length of time, you will be notified in advance.

OFFICE HOURS

Office hours are a great chance to meet one-on-one with your instructors, so you can get extra clarification on concepts that you have found difficult, practical advice on studying, additional context for completing assignments, and otherwise general support in the course. You can stop by my office directly during these hours, but if you cannot make it in person, I can jump onto Zoom and chat with you. If you wish to meet on Zoom, please contact me as soon as possible to schedule it so I can ensure that I'm available. My office hours, office number and my Zoom ID are posted on the first page of this syllabus. Office hours may not be posted in the first week or may be altered given changes in scheduling. However, they will be posted as soon as I have all the information I need to schedule them.

CANVAS

All course content will be located on Canvas. Please turn on e-mail notifications for Announcements in Canvas or check them regularly. You can find them under the tab "Announcements" and see the three most recent announcements at the top of the course page.

STARFISH

I will be using a service called "Starfish" during some points of the semester as a way to provide you with progress reports and to make referrals. Of course, you are able to view your grade any time on Canvas, but this gives me a way to acknowledge your success or encourage you if you're struggling during the class. If you're having a particularly difficult time, enough Starfish alerts from your instructors can trigger your counselor to contact you and help you to figure out the best plan of action for the course (i.e., whether to drop, get tutoring, change majors, etc.). Check your emails periodically in case you receive any Starfish alerts or "kudos" from myself or other instructors.

DROPPING THE COURSE

It is the student's responsibility to drop themselves from the course, not the professor, though the professor may drop you under certain conditions (see above). Here are some important dates:

January 19th: last day to drop for full refund

January 28th: last day to drop to avoid a "W"

March 8th: last day to drop to earn a "W"; letter grades assigned after this date

TUTORING

We may have a tutor embedded in our course this semester. The tutors are former, successful students who understand the material well, know how to study for the class and can help you succeed. I highly recommend that most students receive tutoring, even students who tend to do reasonably well. Students that are getting tutored are not 'less than' others who don't go to tutors. I received tutoring when I was in college (calculus and physics), and it helped me enormously to succeed in those classes.

COLLEGE POLICIES

The college has several policies that you will be expected to adhere to in my course. The policies on Disabled Students Programs and Services, Student Conduct Standards, Academic Dishonesty, and the Computer/Network Equipment Use Policy, portions of which are below, can all be found in the Reedley College Catalog.

Academic Dishonesty: "Students at Reedley College are entitled to the best education that the college can make available to them, and they, their instructors, and their fellow students share the responsibility to ensure that this education is honestly attained. Because cheating, plagiarism, and collusion in dishonest activities erode the integrity of the college, each student is expected to exert an entirely honest effort in

all academic endeavors. Academic dishonesty in any form is a very serious offense and will incur serious consequences.” Reedley College Catalog. In an online classroom, academic dishonesty can manifest in (1) copying other students’ work, (2) sharing answers on exams and much more. When you cheat, not only do you defraud the college, but you devalue your education and the education of others by weakening the integrity of our institution. Furthermore, in my experience, cheaters almost never succeed at their career goals, so don’t ruin your opportunity to learn!

Please see the Student Conduct Standards and Grievance Procedures Handbook available in the Vice-President of Student Services office, or at the links listed below.

Student Conduct Standards: <https://www.reedleycollege.edu/about/about-us/policies-and-procedures/student%20conduct%20standards.html>

Grievance Procedures: <https://www.reedleycollege.edu/about/about-us/policies-and-procedures/grievance-procedures.html>

Academic Accommodations: If you have a verified need for an academic accommodation or materials in alternate media (e.g. Braille, large print, electronic text, etc.) per the Americans with Disabilities Act (ADA) or Section 504 of the Rehabilitation Act, please contact the instructor as soon as possible so he can help determine how to best accommodate you. If you have not already, you should contact Disabled Student Programs & Services (DSP&S) as soon as possible so they can begin to assign your accommodations.

DIVERSITY STATEMENT

Diversity is not only a fact of life but, to me, it is one of life’s most beautiful traits and greatest strengths. My goal is for all students from all backgrounds and perspectives to be able to succeed, thrive and feel valued in my courses. My valuing of diversity encompasses gender, sexual identity, disability and health status, age, socioeconomic status, religion, philosophy, ethnicity, race, and culture. If you believe that my course and/or my instructional techniques are in any way invalidating your group identity or are in some way hampering your ability to succeed, please let me know so that I can address any concerns you have.

FINAL NOTES FOR LECTURE PORTION OF SYLLABUS

Every syllabus represents the intended roadmap and structure of the course, but due to unforeseen events and/or feedback during the semester, adjustments may be necessary. This is a reminder that some details described in this syllabus are potentially subject to change at the discretion of the instructor, but I will inform you as promptly and clearly as possible as to the reasoning for any changes.

Student Learning Outcomes are statements about what the discipline faculty hope you will be able to do at the end of the course. This is NOT a guarantee: the ultimate responsibility for whether you will be able to do these things lies with you, the student. In addition, the assessment of Student Learning Outcomes is done by the department in order to evaluate the program as a whole, and not to evaluate individual faculty performance.

Lab Component

This course, being a 4-unit course, has a required laboratory component attached. Please make note that the lab portion of the class is NOT taught by the same person teaching the lecture component. When it comes to communication with your instructors, please make sure to communicate with the instructor best suited for your question or concern. Any questions about the labs, lab exams, and case study should be sent to the lab instructor (information below) and any questions regarding the add/drops, lectures, lecture exams, other projects, and final grades should be sent to lecture instructor. Either instructor will respond to you to the best of their ability, but for the fastest solution to a concern, please use these communication instructions.

Contact Information:

Lab Instructor: Therese Gulesserian therese.gulesserian@reedleycollege.edu

Lab Times and Rooms

Time:

9-11:50 am W Life Science 11

When contacting your Lab Instructor: The easiest way to reach me is by email! Please allow 24 hours as a response time. On the rare occasion, you don't hear from me, please kindly message again. Also, I am available during office hours 8-9am Wednesdays LFS 11 or at a scheduled zoom or possibly after lab as needed.

Required Materials:

You must have an electronic device such as a laptop or tablet, if you don't, a laptop will be provided to you during class time*

All necessary lab handouts will be available for free online in a PDF format or are available for purchase at the campus bookstore. Students may either electronically write on their handouts or print and handwrite their lab assignments, they MUST follow the below instructions:

- Handwriting must be neat (If we can't read it, we can't grade it!)
- Assignments must be properly scanned (no cell phone photos!)

For scanning assignments, either use a full scanner connected to a computer OR you may use one of the many scanning apps made for phone and tablet devices, such as Genius Scan and Cam Scanner. These apps use your phone's camera to create a better, clearer image without background noise.

Lab-Specific Policies:

1.) All lab assignments will be due the following day after we meet. Example: If we meet on Wednesday at 9am your lab will be due on Thursday at 11:59pm, via electronic turn in. This is so that you may perform your lab and go home to thoughtfully fill out your lab assignments without being rushed. Please make sure you are able to scan in your homework by the first week of class. If you are unable to scan your homework and turn it in electronically, you may need to call IT Student Services.

2.) Safe lab practices must always be followed. Failure to adhere to established safety procedures will result in a polite, yet prompt dismissal.

Exams:

The Lab Practicals are different from lecture exams, and will require you to identify anatomical structures from images and models, remember procedures, and draw conclusions based on lab data. These Practicals are derived from the lab activities, Study Guides and my PowerPoints/Google Slides.

Late Assignments/Absence Policy:

Lab Practicals MUST be taken on the day they are scheduled unless there is an extreme, documented reason why a student cannot complete the practical on the given day. If there is an extreme documented reason for missing a practical, you **must make it up during the scheduled make-up exam times. Scheduled make up exam times are either the next Lab Practical Exam, or another agreed upon time between myself and the student.**

Attendance: Although attendance is not considered mandatory, attending lab is an essential part of doing well in this class. I take attendance to reward those who attend regularly and to keep the integrity of the class. Students learn by doing; these labs have been meticulously designed for tactile and discovery learning, for your current and future benefit.

It is also taxing on your instructor to recreate lab scenarios that you missed. For this reason, you may miss **two** labs without question, and you will be allowed a make-up lab at 100% credit. To uphold the integrity of BIOL 5, Pre-Lab Quizzes are not allowed to be made up. I do give you an opportunity to drop your lowest Pre-Lab Quiz Score, by submitting corrections the last week of class. Please Note: On the third absence, and subsequent absences, the lab activity missed will be graded at a 50% deduction.

Case Study:

As a major research component of this course, students will complete a case study group project. Students will work in teams of 3-4 people. This is a major project and is required to pass the class. You will be given a medical scenario in which your team must strategize how you would **assess and treat the patient, educate the patient, and deliver a plan of action for continued patient care.** You will create a powerpoint presentation with background information on the topic you are given that **must** be 10 minutes minimum! Be prepared to answer questions from myself and the class.

**Tentative Schedule (attached) We reserve all rights to change and update this syllabus as needed; all changes will be announced immediately during class hours and/or Canvas Communication.*