

## Biology 5 (Biol 5) Human Biology

<i>Semester: Fall 2022</i>		<i>Reedley Community College</i>
Lecture Instructor: Dr. Christopher Emerling Email: christopher.emerling@reedleycollege.edu		<i>Class No. 50038</i> Lecture: Online Asynchronous Lab: W 6:00–8:50 pm LFS 11
In-person Office Hours: MTWTh 1:00–1:50 pm, LFS 13 Online Office hours: Th 10–10:50 am Zoom ID: 990 6009 7271 Phone: extension 3134 Can request appointments <i>Class Dates: 8/8/22–12/9/22</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 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: 8/8–8/12	Course Intro Unit 1. What is Science? Science limitations	Ch. 1.3 Science as a Process	
Week 2: 8/15–8/19	Unit 1. Science limitations cont'd, First Scientific Experiment Unit 1. How Scientists Minimize Bias	Ch. 1.4 1.4 Challenges Facing Science	
Week 3: 8/22–8/26	Unit 1. How Scientists Minimize Bias cont'd Unit 1. Scientific Community in Action		
Week 4: 8/29–9/2	Exam day Unit 2. Atoms & Molecules	Ch. 2.1 From Atoms to Molecules, 2.2 Water & Life	
Week 5: 9/5–9/9	Unit 2. Organic molecules, Lipids, Carbs Unit 2. Enzymes, Proteins, Nucleic Acids	Ch. 3.1 What is a Cell?, 2.3 Molecules of Life, 2.4 Carbohydrates, 2.5 Lipids Ch. 2.6 Proteins, 2.7 Nucleic Acids	Choose Paper Topic
Week 6: 9/12–9/16	Unit 2. How DNA encodes traits, Transcription & Translation Unit 2. How DNA encodes traits, Transcription & Translation	Ch. 22 DNA Biology & Technology	
Week 7: 9/19–9/23	Unit 3. Metabolism Unit 3. How Cells Move Substances, Homeostasis, Response to Stimuli, Reproduction	Ch. 3.6 Metabolism & the Energy Reactions Ch. 1.1 The Characteristics of Life, 3.3 The Plasma Membrane & How Substances Cross It, 4.8 Homeostasis	
Week 8: 9/26–9/30	Unit 3. Adaptation, Viruses Exam day	Ch. 8.1 Bacteria & Viruses, 8.4 Antibiotic Resistance	
Week 9: 10/3–10/7	Unit 4. Eukaryotic cell structure, Mitochondria & Chloroplasts Unit 5. Multicellularity, Mitosis	Ch. 3.2 How Cells Are Organized, 3.4 Nucleus & Endomembrane System, 3.5 The Cytoskeleton, Cell Movement & Cell Junctions, 3.6 Metabolism & the Energy Reactions Ch. 4.1 Types of Tissues, 4.7 Organ Systems, Body Cavities & Body Membranes, 19.2 The Cell Cycle, 19.3 Mitosis, 20 Cancer	Choose Research Sources

Week 10: 10/10–10/14	Unit 5. Meiosis  Unit 5. Genetics	Ch. 19.4 Meiosis, 19.5 Comparison of Meiosis & Mitosis, 19.6 Chromosome Inheritance Ch 19.1 Chromosomes, 21 Genetic Inheritance	
Week 11: 10/17–10/21	Unit 5. Genetics cont'd  Unit 6. Evolution & DNA	Ch. 6.5 Human Blood Types  Ch. 23 Human Evolution	Paper Outline Due
Week 12: 10/24–10/28	Unit 6. Evolution & Shared Traits  Exam day		
Week 13: 10/31–11/4	Unit 7. Human Special Senses  Unit 7. Nervous, Muscular, Skeletal & Integumentary Systems	Ch. 15 Senses  Ch. 14 Nervous System, 13 Muscular System, 12 Skeletal System, 4.6 Integumentary System	
Week 14: 11/7–11/11	Unit 7. Digestive System  Unit 7. Circulatory, Respiratory, Urinary Systems	Ch. 9 Digestive System  Ch. 5 The Cardiovascular System, 6.2 Red Blood Cells & the Transport of Gases, Ch. 10 Respiratory System, Ch. 11 Urinary System	Rough Draft Due
Week 15: 11/14–11/18	Unit 7. Immune, Lymphatic & Endocrine Systems  Unit 7. Reproductive System	Ch. 7 The Lymphatic & Immune Systems, 6.3 White Blood Cells & Defense Against Disease, 16 Endocrine System  Ch. 17 Reproductive System, 18 Development & Aging	Peer Review
Week 16: 11/21–11/25	Unit 8. Population, Community Ecology	Ch 24. Ecology & the Nature of ecosystems	
Week 17: 11/28–12/2	Unit 8. Ecosystem & Global Ecology  Exam day	Ch. 25 Human Interactions with the Biosphere	Final Paper Due
Week 18: 12/5–12/9	Final Week		

## Textbook

- There is an *optional* textbook available for purchase: McGraw-Hill's Human Biology 16th Edition by Sylvia Mader and Michael Windelspecht (ISBN10: 1260233030 ; ISBN13: 9781260233032). 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 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. 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 remainder of the first week
2. Student does not attend the second week assignment and does not respond to contact efforts from the professor during the third week

## ASSESSMENTS

Category	Assignment Description	Points
Lecture	Lecture Exams	50% of grade
	Term Paper	10% of grade
Lab	Labs Activities	10% of grade
	Lab Practical Exams	25% 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 essay questions based on the main objectives of each lecture and may be based on words only or may include images. Please note that I require spelling and grammar 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.

**Term Paper** You will be writing a paper on human disease / disorder of your choice, and your grade will depend on the final product of your paper. However, we will be gradually working on this throughout the semester by coming up with a topic, finding sources, writing an outline, completing a rough draft, and giving feedback to your peers on their drafts, culminating in a final version of the paper.

## 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.

## EXTRA CREDIT

I do not provide extra credit opportunities in a traditional sense. My belief is that you need 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' any of the exams that you had previously taken. They will not be identical to the earlier versions of the exams, but rather include highly similar content. The grades on any exams you retake will replace your original exam score, whether higher or lower.

## LATE ASSIGNMENTS AND EXAM MAKE-UP POLICY

The only assignment for the lecture portion of the course with a due date is the final paper. This will be due in week 17, and given that you have 17 weeks to complete it, you likely will not receive an opportunity to submit it late. Possible exceptions may include if the student falls victim to extreme, **documentable** circumstances. 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 any missed. For lab practicals, this will be up to the discretion of your lab instructor given the usual difficulty associated with setting up lab practicals.

## COMMUNICATION POLICY

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

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 a mental break from work on Saturdays and earlier on Sundays, please do

not assume that I will reply at those times. I tend to be very prompt with my email responses, however, there are times when it may take me up to 24hrs 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 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 instructor, 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. My office hours office number, the Zoom ID and are posted on the first page of this syllabus. Office hours likely will not be posted in the first week but will be posted as soon as I have all the information I need to schedule them.

## CANVAS

All lecture slides will be located on Canvas, which you can access here:

<https://scccd.instructure.com/login/ldap>. 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” throughout the semester as a way to provide you with progress reports. 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. Here are some important dates, derived from the [Reedley College Academic Calendar](#):

**August 19<sup>th</sup>**: last day to drop for full refund

**August 26<sup>th</sup>**: last day to drop to avoid a “W”; last day to Add in person

**October 7<sup>th</sup>**: last day to drop (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 most students to 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 this tutoring helped me enormously to succeed in those classes.

## COLLEGE POLICIES

The university 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.

### **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 DETAILS

**Instructor:** Sara Blake

**Email:** sara.blake@reedleycollege.edu

**Office Hours:** Wednesday 9:00-11:00

**Office Location:** <https://cccconfer.zoom.us/j/94744652711>

## TENTATIVE SCHEDULE

Week	Lab
Week 1: 8/8–8/12	Lab 1: Microscopy
Week 2: 8/15–8/19	Lab 2: Biological Macromolecules
Week 3: 8/22–8/26	Lab 3: Cell Structure & Function
Week 4: 8/29–9/2	Lab Practical 1
Week 5: 9/5–9/9	Introduce Case Studies, Lab 4: DNA Structure and Function
Week 6: 9/12–9/16	Lab 5. Mitosis & Meiosis
Week 7: 9/19–9/23	Lab 6. Genetics
Week 8: 9/26–9/30	Lab 7. Histology
Week 9: 10/3–10/7	Lab 8. Cardiovascular System
Week 10: 10/10– 10/14	Lab 9. Homeostasis & Maintenance Systems
Week 11: 10/17– 10/21	Lab Practical 2
Week 12: 10/24– 10/28	Lab 10. Skeletal & Muscular Systems
Week 13: 10/31– 11/4	Lab 11. Nervous System
Week 14: 11/7– 11/11	Lab 12. Endocrine & Reproductive Systems
Week 15: 11/14– 11/18	Lab 13. Dissection
Week 16: 11/21– 11/25	Lab 14. Human Evolution
Week 17: 11/28– 12/2	Lab Practical 3, Case Study Presentation
Week 18: 12/5– 12/9	No class

## **Course Structure**

Biol 5 labs are being held entirely in person this semester. Our Wednesday Labs will be in the same place and at the same time so we will get comfortable in the LFS 11 room. Labs will be more hands-on and experiment based. This means that as you work through the activities in the lab manual, some people may take longer than others. This is ok! Take the time that you need to learn the material and remember I am always around to help.

The Lab Reports (the downloads that you followed and filled in on Lab days) will be due as Canvas uploads on Fridays at midnight. This gives you a little extra time if you did not quite finish up the concept questions at the end of the lab.

## **Lab Handouts**

The lab handouts are available in our Modules, as a weekly pdf download. I highly encourage you bring a laptop or tablet to our lab meetings if you do not plan to print out the materials beforehand. It is YOUR RESPONSIBILITY to come to both lecture and lab prepared with the content assigned.

## **Lab Assessments**

**Lab Reports:** These are the grade parts of the Labs, where you write up your results or conclusions and illustrations of the important cells and structures that we cover that day. Since we are in an age of pocket technology, if you are uncomfortable hand-illustrating our microscope findings you are welcome to take photos with a phone and embed them in your reports.

**Case Study Presentation:** Details will be provided **on Canvas** during the week of the first Exam. Small groups (3-4 students each) will be responsible for a presentation or project on a case study. Each group of students will be assigned a patient with a disease and will submit an essay on the disease, diagnosis, treatment, and prognosis. The final Lab will be dedicated to a presentation of this material to your classmates.

**Lab Practicals:** The 3 lab exams will be held **in class** and use photos and illustrations of models, slides, diagrams, and experimental setups. Questions will be a combination of multiple choice, short answer, and matching questions. These exams must be taken on the scheduled day (see the Tentative Schedule at the end of the syllabus).