

Biol 22	
Semester: Fall 2021	Reedley College
<b>Instructor: Joseph Lin</b>	<b>Class No. 55019</b>
<b>Lecture/Lab Email:</b> Please contact me through Canvas Inbox Alternate email: <a href="mailto:joseph.lin@reedleycollege.edu">joseph.lin@reedleycollege.edu</a>	<b>Course (Lecture and Lab):</b> Asynchronized supplemented with optional synchronized sessions  *Wednesday Zoom @ 1:00/6:00 pm  Zoom link will be provided on Canvas with a password
<b>Telephone:</b> 559-638-0300 Ext. 3407 (RC Office) 559-795-9175 (Direct cellphone)	<b>Website:</b> To access the course <a href="https://scccd.instructure.com">https://scccd.instructure.com</a> using your SCCCD username and password.
<b>Office Hours</b> on Discord (See Apps page 2) M-Th @ 1:00-2:00 <a href="https://discord.gg/B7UbGUW">https://discord.gg/B7UbGUW</a>	

## Introduction

The field of human physiology is among the most exciting in modern science. The purpose of this course is to help you develop an understanding of fundamental processes that form the basis of biological life. Primarily for students majoring in health-related professions, this course is a prerequisite for students planning a career as a nurse, physician's assistant, nurse practitioner, laboratory technician, radiologist, nuclear medicine technologist, inhalation therapist, medical office assistant, medical record keeper, dental hygienist, physical therapist, surgical assistant, and also students in premedical, pre-dental, physical education, sports medicine, nutrition, and pre-chiropractic programs. It is taught in a traditional lecture and laboratory format in combination with additional online content; lectures will utilize PowerPoint and a variety of multimedia presentations. Laboratory will be largely hands-on and team-based, utilizing a variety of resources including PowerPoint, multimedia, prepared microscope slides, models, and human and animal specimens. The course outcomes are designed to help you *understand and apply* (not just memorize) cell biology concepts, and to help you think in an analytical and critical way about contemporary cellular issues. Due to the rapid rate of new discoveries, it will not be possible to cover the entire field of cell biology during this (or any) course, so we will concentrate on essential areas of study.

## Course Description

Primarily for students majoring in health-related professions, this course is a prerequisite for the Nursing and Physical Therapy programs, satisfies a major requirement for those students majoring in Kinesiology or Public Health, and satisfies other major requirements for Biology majors. Prerequisites: BIOL 20, grade of C or better OR BIOL 1A AND CHEM 1A/1AL (or 3A\*), grade of C or better.

## Textbooks

**There is no traditional textbook; you will need to purchase the access code for McGraw-Hill Connect which includes the eBook.** If you wish to have a traditional textbook you may go to the website for McGraw-Hill with an additional cost purchase a hard copy of the text, but in order to complete this course you must have access to the **McGraw-Hill Connect**.

**You are required to finish assignments and assessments online.** In addition, there will be important lecture and lab materials online. It is **YOUR RESPONSIBILITY** to come review the lecture and lab content when assigned.

## Apps

**McGraw-Hill Smart Book App:** Your access code will allow you to access the textbook and assignments. Although I have the assurance from the publisher that the content in your online assignments works for all electronics, this may not be the case. **It is your responsibility to find out if the content works with your electronic device.**

**Canvas App:** Canvas is fully functional on many types of smartphones and tablets. Compatible devices include platforms such as iPhone/iPad/iPod Touch, and Android. **However, it is recommended that you do not solely rely on one of these devices to complete your online course work. Access to a computer is still needed for many online activities.** Visit the Mobile section of the [Canvas Guides](#) website for more information. Once you have downloaded the Canvas Mobile App and are prompted to Find My School, search for: csuconnect.instructure.com

**LINE and Discord App:** We will use Line app to create a Biol 22 group chat This app is a free instant communication app on smartphones, computers, and tablets. You can get reminders and interact with your peers on a daily basis. My office hours will be primarily hosted on Discord which is another instant messaging and digital distribution platform for hosting communities. This platform will also allow study sessions and a place to collaborative on assignment during the course. (Refer in Canvas for how to install)

## Communication Expectations

- Identify yourself by your real name. Be mindful of your language, and avoid including personal information, such as phone numbers or addresses, in discussion forums. All online communications should be transmitted with the intent to inform, inspire, etc. and not to offend or breach personal privacy.
- Use humor, joking, or sarcasm with caution. We often rely on non-verbal cues such as facial expressions to communicate joking or sarcasm, but these cues are not always clear in an online environment. These cues can be simulated with emoticons to reduce misunderstandings.
- Be Professional, Clear and Respectful. Clear and effective writing translates to clear and effective communication. Writing the way, you would speak is a good rule of thumb, use a positive tone and adhere to the same rules you would follow in face- to-face communications.
- Remember This Course is Online. Your instructor and fellow students may be located around the world or have very different schedules than you do. You may not always receive an immediate response.

## Course Structure

This course is **ASYNCHRONOUS**, which means it is self-paced with readings and videos to be completed each week. Each week you will assign a series of assignments from lecture and lab that you need to complete by the end of each week on Sunday. Optional Zooms sessions will be hosted every week and should content be discussed it will be recorded for you to view.

## Optional Zoom Meetings

The course facilitators will schedule several one-two hours Zoom session per week which will be recorded for you to review. During these sessions, course participants will be introduced to course content to improve understanding of the lecture and lab. If you are a new Zoom user, visit the Getting Started Resources on the Zoom website: <https://support.zoom.us/hc/en-us/categories/200101697>

## Learning Environment

This fully online course is designed using asynchronous activities, assignments, discussions, and assessments. The course will make use of many common LMS (learning management system) tools, e.g., Canvas. Please be sure to read all the lessons and documents in the course so that you have the necessary information to complete the required activities. If your campus uses a different LMS than Canvas, we recommend you watch the *"Navigating this Course"* Video before getting started.

## Learner Expectation

- Ensure you have approximately 10 hours per week to spend on this course
- Review the assignments on the Course Schedule and print it out for easy reference as you complete each task.
- You are expected to plan your study time around the course schedule and recommended completion dates.
- Check your email account regularly for updated information. Use e-mail for private messages to the instructor and other students. The discussion forum is for public messages.
- If you have questions or confusion about an assignment, act promptly! Check the Question Cafe to see if your concern has been addressed already and post your question there if you don't see an answer.
- We are human and sometimes links or other pages need updating or become inactive.
- Read directions carefully.

## Course Objectives

- Assess the results of laboratory experiments and demonstrations.
- Illustrate the cell membrane, its electrical activity and the conduction of action potentials.
- Compare the autonomic system and the endocrine system.
- Analyze the cardiovascular system by performing an EKG and monitoring blood pressure.
- Evaluate lung and kidney function using computer simulations.
- Demonstrate knowledge of metabolic and physiological disorders of the major organ systems

## Course SLOs

- Describe the function of each human organ and organ system
- Explain the cell membrane potential and how it becomes an action potential.
- Describe the cell-to-cell communication.
- Demonstrate the use of the electrocardiograph and identify the components of a normal reading
- Describe the interactions of the respiratory and excretory systems.
- Demonstrate critical thinking in the evaluation of homeostasis.
- Be able to obtain desired information about human structures, functions, or pathology using common references: have the foundation of knowledge needed for further studies in physical therapy, pharmacology, pathology, pathophysiology, and medicine.

## Course Requirements/Assignments

### Total points:

#### Lab:

14 PhiLs Lab Report @ 10 pt. each	140 points
28 VR Lab Assignments @ 5 pt. each	140 points
10 TRAT Quiz @ 10 pt. each	100 points
17 Lab Discussion (DQs) @ 5 pts. Each	85 points

#### Lecture:

19 Learn Smart Assignments @ 5 pt. each	95 points
19 IRAT Quiz @ 10 pt. each	190 points
4 Midterm Exams @ 100 pt. each)	400 points
1 Final Exam	200 points
Clinical Application Video	100 points
<b>Total Points:</b>	1450 points

# Instruction for Significant Assignments

## Lecture Exams:

- Four midterms and one comprehensive final will cover the topics listed in the schedule below. The comprehensive portion of the final will only be 20% of that exam; the other 80% will cover the final topics in the course.

## Lab Exams:

- No lab exams for this course.

## LS (LearnSmart) & IRAT (Individual Readiness Assurance Tests):

- The lecture content in this course will include pre-recorded YouTube lectures and an interactive reading assignment. LearnSmart reading on Connect will be based on participation and completion at a 10-point total and posted in the Canvas gradebook. IRAT quizzes will be a follow-up mini formative assessment based on that lecture material. IRAT (5-10 questions/quiz) are given through Connect website and will have a time limit of 30 minutes. If you miss the due date on your quiz, it will be submitted automatically. Material may include and combination of multiple-choice, true-false, and short answer questions. **IRAT and Learn Smart assignments will be due the Sunday at 11:59PM of each week.**

## VR (Virtual Labs), TRAT (Team Readiness Assurance Tests), and PhiLs (Physiology Labs):

- Simulations of various labs will be conducted on Connect platform through Virtual lab and PhiLs simulations. Each of the VR labs is a simulation that you need to complete to receive full credit and lab material is assessed through quizzes called the TRAT (5-10 questions/quiz) that are based off the VR labs, PhiLs, and key concepts. The PhiLs is an online experiment assignment where you will submit only the data journal as a PDF into Canvas after completion of the lab. **You do need to complete the pre and post lab quiz in PhiLs however it is not graded on accuracy.** The PhiLs can be typed up or handwritten however if you choose to hand write your TRAT DO NOT submit photos of your report. Please download a phone app that you can utilize the camera to create a high-quality scan as a PDF before you upload. Examples of apps: CamScanner **VR labs, TRAT, and PhiLs Report will be due the Sunday at 11:59PM of each week.**

## DQ (Discussion Questions):

- Student-student and student faculty interaction is a requirement for this course as part of the lab the DQ assigned each week is our weekly discussion board on Canvas. You can be fearlessly curious and ask open-ended questions to build on top of what we are covering in class and relate topics to real-world applications. **DQ are due every Sunday 11:59PM of each week.** You must post the following:
  - One open-ended Question per
  - AND
  - Two peer responses per week

## Grading

To calculate your grade, total all points earned and divide that number by the total points available. Course grades are non-negotiable; because extra credit points, exam curves, and low score replacement are offered the grading scale will not be adjusted; **I DO NOT ROUND UP your grades to the next letter grade**. The final course grade is based on:

<i>Percent Range</i>	<i>Grade</i>
90-100	A
80-89.99	B
70-79.99	C
60-69.99	D
Less than 60	F

I **WILL NOT** give an individual student separate extra credit at the end of the course to increase their percentage grade. I do not mind correcting honest mistakes so do not hesitate to contact me regarding them, but do NOT ask for special treatment. **You earn the grade you receive in this course.**

### How to be Successful in this Course:

- This course requires that you become familiar with and understand a great deal of information about the human body. This includes the LearnSmart reading assignments, which are purposely assigned ahead of lecture.
- Listen in lecture and take good notes using my outlines/pdfs from. Organize your notes and redo them if necessary, after lecture. Review your notes frequently, not just before a test.
- Do your reading assignments prior to the lecture on that topic. Read your labs prior to the lab period and partially complete the lab report to verify your answers during the lab.
- Keep a vocabulary list of all terms mentioned in lecture, in bold print in the text, or listed at the end of each chapter. Know the meaning of each of these terms and the correct spelling. Use APR if you have trouble with pronunciation.
- Spend some time studying each day. You are learning a new language; immerse yourself in it! Review notes for 15-30 minutes at one time. The best way to absorb book chapters is to read for one hour at a time. Don't try to complete your study hours all in one sitting or on the same day, as your efficiency will drop dramatically. Review an additional 3-5 hours a day prior to examinations.
- Form study groups to work together. Make your own review sheet or, if you work in a study group, have each person make a review sheet for a chapter and teach each other.
- Remember that homework is due prior to the end of the unit. Don't wait for the last minute to turn it in. This also will help me to see whether the whole class is having trouble understanding a concept before I test you on it. Obviously, it is much better for your grade in the class if I know you are having trouble.

- Use all materials available (text, lab notebook, Connect, interactive PowerPoints, model keys, internet sites, etc.); if one study method does not work try another! Use as many ways to access your memory as possible (auditory, visual, kinetic, etc.)

## College Policies

The college has several policies that you will be expected to adhere to in my course. The Policy on Students with Disabilities, the University Honor Code, the Policy on Cheating and Plagiarism, a statement on copyright, and the university computer requirement, portions of which are below, can all be found in the University Catalog (Policies and Regulations) and Class Schedule.

### ATTENDANCE AND DROP/ADD POLICY

- Your success in this course requires that you be **on time and here** for each lecture and lab. Excuses for absences will be honored at my discretion. Most announcements will be placed on Canvas but find a “buddy” in class to inform you of any announcements that might be made during your absence. I will drop students (both enrolled and waitlisted) based on the following policy:
- Student does not attend the first lecture.
- Student does not attend the first lab.
- Student misses a cumulative 7 hours (lecture or lab) in the first two weeks.
- Student misses 8 hours (lecture or lab) up to drop date without providing an excuse.

### Cheating and Plagiarism:

I DO NOT TOLERATE CHEATING. PERIOD. Most of you are entering into the health care field and could harm or seriously injure other human beings if you do not know the basic information in this course. The University policy reads, "Cheating is the actual or attempted practice of fraudulent or deceptive acts for the purpose of improving one's grade or obtaining course credit; such acts also include assisting another student to do so. Typically, such acts occur in relation to examinations. However, it is the intent of this definition that the term 'cheating' not be limited to examination situations only, but that it includes any and all actions by a student that are intended to gain an unearned academic advantage by fraudulent or deceptive means. Plagiarism is a specific form of cheating which consists of the misuse of the published and/or unpublished works of others by misrepresenting the material (i.e., their intellectual property) so used as one's own.

### Subject to Change Statement:

This syllabus and schedule are subject to change in the event of extenuating circumstances. If you are absent from class, it is **your responsibility** to check on announcements made while you were absent.

### Diversity Statement:

“Respect for Diversity: It is my intent that students from all diverse backgrounds and perspectives be well served by this course, that students’ learning needs be addressed both in and out of class, and that the diversity that students bring to this class be viewed as a resource, strength and benefit. It is my intent to present materials and activities that are respectful of diversity: gender, sexuality, disability, age, socioeconomic status, ethnicity, race, and culture. Your suggestions are encouraged and appreciated. Please let me know ways to improve the effectiveness of the course for you personally or for other students or student groups. In addition, if any of our class meetings conflict with your religious events, please let me know so that we can make arrangements for you.



This syllabus and schedule are subject to change in the event of extenuating circumstances. It is **your responsibility** to check on Canvas announcements during the semester of this course. Weeks with "\*" indicate multiple chapters are due at the end of the week.

### TENTATIVE COURSE SCHEDULE

Week	Dates	Lecture	Lab
1	8/9-8/13	Syllabus Study of Body Function (1) Chapter 1 LS (8/15) IRAT 1 (8/15)	Lab 1: Homeostasis ➤ Lab 1 Virtual Labs Tutorial Pulse Rate ➤ TRAT 1 ➤ NO PhiLs ➤ DQ Lab 1 (8/15)
2	8/16-8/20	Chemical Composition of Body (2) Chapter 2 LS (8/22) IRAT 2 (8/22)	Lab 2: Cells ➤ Lab 2 pH Balance Antacids pH Balance Buffers ➤ TRAT 2 ➤ NO PhiLs ➤ DQ Lab 2 (8/22)
3	8/23-8/27	Cell structure and Genetic Control (3) Chapter 3 LS (8/29) IRAT 3 (8/29)	Lab 3: Cell Movement ➤ Lab 3 Diffusion Across a Selectively Permeable Membrane Tonicity in Red Blood Cells ➤ TRAT 3 ➤ PhiLs Extra Cellular Concentration (8/29) ➤ DQ Lab 3 (8/29)
4	8/30-9/3	Enzymes and Energy (4) Chapter 4 LS (9/5) IRAT 4 (9/5)	Lab 4: Metabolism 1 ➤ Lab 4 Enzyme Activity Enzymes Effect of Concentration ➤ TRAT 4 ➤ PhiLs Basal Metabolic Rate (9/5) ➤ DQ Lab 4 (9/5)
5	9/6-9/10	Cell Respiration and Metabolism (5) Chapter 5 LS (9/12) IRAT 5 (9/12) 9/6: Labor Day	Lab 5: Metabolism 2 ➤ Lab 5 Cellular Respiration 1 Cellular Respiration 2 ➤ TRAT 5 ➤ PhiLs Cyanide and ETC (9/12) ➤ DQ Lab 5 (9/12)
6	9/13-9/17	Cells and Extracellular Environment (6) Endocrine (11) Chapter 6 and 11 LS (9/19) IRAT 6 and 11 (9/19) Exam #1	Lab 6: Endocrine ➤ Lab 6 Endocrine Thyroid Effects of Blood Glucose ➤ TRAT 6 ➤ PhiLs Insulin and Glucose Tolerance (9/19) ➤ DQ Lab 6 (9/19)
7	9/20-9/24	Neurons and Synapses (7) Chapter 7 LS (9/26) IRAT 7 (9/26)	Lab 7: Nervous System Lab ➤ Lab 7 Nervous Tissue ➤ TRAT 7 ➤ PhiLs Compound Action Potential (9/26) ➤ DQ Lab 7 (9/26)
8	9/27-10/1	The Central Nervous System (8) Chapter 8 LS (10/3) IRAT 8 (10/3)	Lab 8: CNS ➤ Lab 8 Nervous Reflex Arc ➤ TRAT 8 ➤ PhiLs Conduction Velocity and Temperature (10/3) ➤ DQ Lab 8 (10/3)
9	10/4-10/8	Autonomic Nervous System (9) Chapter 9 LS (10/10) IRAT 9 (10/10)	Lab 9: ANS ➤ Lab 9 Pupillary Reflex ➤ TRAT 9



			<ul style="list-style-type: none"> <li>➤ <b>PhiLs Refractory Period (10/10)</b></li> <li>➤ <b>DQ Lab 9 (10/10)</b></li> </ul>
10	10/11-10/15	Sensory Physiology (10) <b>Chapter 10 LS (10/17)</b> <b>IRAT 10 (10/17)</b> <b>Exam #2</b>	<b>Lab 10: Sensory</b> <ul style="list-style-type: none"> <li>➤ <b>Lab 10</b></li> <li><b>Accommodation of the Lens</b></li> <li><b>Color Vision</b></li> <li>➤ <b>TRAT 10</b></li> <li>➤ <b>NO PhiLs</b></li> <li>➤ <b>DQ Lab 10 (10/17)</b></li> </ul>
11	10/18-10/22	Muscle (12) <b>Chapter 12 LS (10/24)</b> <b>IRAT 12 (10/24)</b>	<b>Lab 11: Muscles</b> <ul style="list-style-type: none"> <li>➤ <b>Lab 11</b></li> <li><b>Electrical Stimulation</b></li> <li><b>Muscle Fatigue</b></li> <li>➤ <b>TRAT 11</b></li> <li>➤ <b>PhiLs Weight &amp; Contraction (10/24)</b></li> <li>➤ <b>DQ Lab 11 (10/24)</b></li> </ul>
12	10/25-10/29	Blood, Heart, and Circulation (13) <b>Chapter 13 LS (10/31)</b> <b>IRAT 13 (10/31)</b>	<b>Lab 12: Circulatory</b> <ul style="list-style-type: none"> <li>➤ <b>Lab 12</b></li> <li><b>Hematocrit</b></li> <li><b>Heart Auscultation</b></li> <li>➤ <b>TRAT 12</b></li> <li>➤ <b>PhiLs Cooling and Peripheral Blood Flow (10/31)</b></li> <li>➤ <b>DQ Lab 12 (10/31)</b></li> </ul>
13	11/1-11/5	CO, BF, and BP (14) <b>Chapter 14 LS (11/7)</b> <b>IRAT 14 (11/7)</b> <b>Exam #3</b>	<b>Lab 13: Heart</b> <ul style="list-style-type: none"> <li>➤ <b>Lab 13</b></li> <li><b>ECG</b></li> <li><b>Blood Pressure</b></li> <li>➤ <b>TRAT 13</b></li> <li>➤ <b>PhiLs Abnormal ECGs (11/7)</b></li> <li>➤ <b>DQ Lab 13 (11/7)</b></li> </ul>
14	11/8-11/12	Respiratory (16) <b>Chapter 16 LS (11/14)</b> <b>IRAT 16 (11/14)</b> <b>11/11: Veterans Day</b>	<b>Lab 14: Respiratory</b> <ul style="list-style-type: none"> <li>➤ <b>Lab 14</b></li> <li><b>Mechanism of Breathing</b></li> <li><b>Pulmonary Function Tests</b></li> <li>➤ <b>TRAT 14</b></li> <li>➤ <b>PhiLs pH and Hb-Oxygen Binding (11/14)</b></li> <li>➤ <b>DQ Lab 14 (11/14)</b></li> </ul>
15	11/15-11/19	Physiology of Kidney (17) <b>Chapter 17 LS (11/21)</b> <b>IRAT 17 (11/21)</b> <b>Exam #4</b>	<b>Lab 15: Renal</b> <ul style="list-style-type: none"> <li>➤ <b>Lab 15</b></li> <li><b>Urinalysis</b></li> <li>➤ <b>TRAT 15</b></li> <li>➤ <b>PhiLs Antidiuretic Hormone (11/21)</b></li> <li>➤ <b>DQ Lab 15 (11/21)</b></li> </ul>
16	11/22-11/26	Immune System (15) <b>Chapter 15 LS (11/28)</b> <b>IRAT 15 (11/28)</b> <b>11/25-11/26: Thanksgiving Day</b>	<b>Lab 16: Immune</b> <ul style="list-style-type: none"> <li>➤ <b>Lab 16</b></li> <li><b>White Blood Cell Count</b></li> <li>➤ <b>TRAT 16</b></li> <li>➤ <b>PhiLs Blood Typing (11/28)</b></li> <li>➤ <b>DQ Lab 16 (Due 11/28)</b></li> </ul>
17	11/29-12/3	Digestive System (18) Reproduction (20) <b>Chapter 18 and 20 LS (12/5) *</b> <b>IRAT 18 and 20 (12/5) *</b>	<b>Lab 17: GI</b> <ul style="list-style-type: none"> <li>➤ <b>Lab 17</b></li> <li><b>Enzymes and Digestion</b></li> <li>➤ <b>TRAT 17</b></li> <li>➤ <b>PhiLs Glucose Transport (12/5)</b></li> <li>➤ <b>DQ Lab 17 (12/5)</b></li> </ul>
<b>Final</b>	<b>12/6-12/10</b>	<b>Final Exam</b>	