

**Course Description**

The field of human biology 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.

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| <b>SYLLABUS FOR BIOLOGY 22, HUMAN PHYSIOLOGY</b>  |  |
| <b>(55180)</b>  |  |
| Fall 2018   | Reedley College  |
| <b>Office Number:</b> LFS Room 13   | <b>Instructor Name:</b> Joseph Lin, M.S.   |
| <b>Course Number:</b> 55180; 5 Units 4 Lecture hours, 3 Lab hours   | <b>E-Mail:</b> <a href="mailto:joseph.lin@reedleycollege.edu">joseph.lin@reedleycollege.edu</a>  |
| <b>Lecture:</b> Tuesday/Thursday 1:00-2:50PM, SOC 32<br><b>Lab:</b> Friday 01:30 - 4:20 PM, Life Science, Room 11   | <b>Telephone:</b> 559-638-0300 Ext. 3407   |
| <b>Website:</b> To access the course login to <a href="https://sccd.instructure.com/courses/5237">https://sccd.instructure.com/courses/5237</a> using your SCCCD username and password. | <b>Office Hours:</b><br>Monday Online and upon request<br>Tuesday/Thursday 4:00-5:00 PM<br>Wednesday 2:00-3:00 PM<br>Friday 4:30-5:30 PM |

**Learning with Canvas**

Additional course resources including all lecture notes and assignments are available and accessible through the Canvas Learning System. All course announcements, assignments, rubrics, etc. will be available so there should be no confusion on what is expected or how your performance will be evaluated. Check the Canvas site **daily** so that you are aware of any course changes. Accessing online class lecture notes in place of lecture attendance is unacceptable and will be suitably dealt with on an individual basis.

**Prerequisites:** BIOL 20 and CHEM 3A or CHEM 1A, taken in the last five years. Eligibility for ENGL 125, 126, or 153; or ESL 67 and 68 recommended

**ADVISORY:** Eligibility for English 125 and 126 or English 153 or ESL 67 and 68 and Math 103 recommended. Required Textbooks and Materials

**Objectives:** To expose the student to the field of Biology and the general principles of scientific study as they relate to humans. Students completing the course will In the process of completing this course, students will:

- A. Assess the basic structure and function of each system in the human body.
- B. Assess the results of laboratory experiments and demonstrations.
- C. Illustrate the cell membrane, its electrical activity and the conduction of action potentials.
- D. Compare the autonomic system and the endocrine system.
- E. Analyze the cardiovascular system by performing an EKG and monitoring blood pressure.
- F. Evaluate lung and kidney function using computer simulations.

**Internet Access:** extremely important (see Materials on Canvas and Connect below)

**Textbooks: Text:**

- **Human Physiology by Stewart Ira Fox, 14<sup>th</sup> Edition. ISBN: 978-0077836375 or**
- **Connect Human Physiology by Stuart Ira Fox Online (includes eBook: Required)**
- **Laboratory Manual Stewart Ira Fox ISBN-13: 978-0077427320 / ISBN-10: 0077427327**
- Scantron #882-E for lecture tests (x6)
- **Optional (but recommended) materials:**
- Rubber gloves, protective clothing (for dissection labs)

**Materials on Canvas:** Several **critical** items are available on Canvas for this course. Within “Syllabus” you will find this syllabus and a one-page schedule. Within “**Biol 22 Course Material**” you will find announcements, **lecture outlines**, and (possibly) Lecture Exam Reviews. (Study guides).

**Internet: Connect Online is required:**

55178 - <http://connect.mheducation.com/class/j-lin-fall-2018-55178>

55179 - <http://connect.mheducation.com/class/j-lin-fall-2018-55179>

55180 - <http://connect.mheducation.com/class/j-lin-fall-2018-55180>

Contains **homework**, available only at certain times of the course, which is required. If you bought a used book or did not buy the bundle through the bookstore there may be an additional cost to access Connect.

You are required to use your student ID code to register for Connect in case there are other students with your same name. This “homework” IS **T REQUIRED** for the course but is available for increased understanding of the material and for extra credit that can be used to increase your total grade percentage. **It is YOUR RESPONSIBILITY to check online to see when the “homework” is due and TURN IT IN ON TIME.** I WILL NOT CHANGE THE DUE DATES or give individual student’s work special consideration. **At the end of the course I will take your overall percentage for all of the homework and apply it to the total credit points.**

**Examinations and Major Assignments**

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| Description                | Possible Points |
|----------------------------|-----------------|
| 4 Lecture Exams            | 400 points      |
| 13 Lab Reports             | 104 points      |
| 15 Lab Discussion          | 75 points       |
| 15 Learn Smart Assignments | 150 points      |
| 8 Connect Quizzes          | 160 points      |
| Case Study Presentation    | 100 points      |
| Lecture Final              | 200 points      |
| Lecture Summaries          | 20 points       |
| Active activities          | 20 points       |
| <b>Total points</b>        | <b>1,229</b>    |

To calculate your grade, total all points earned and divide that number by the total points available (1,229). **Course grades are non-negotiable; Instructor reserves the right to curve individual tests and/or assignments. FINAL GRADES WILL NOT BE CURVED... ALSO, I DO NOT round up your grades to the next letter grade.**

The final course grade is based on:

### Lecture Exams:

Four midterms and one comprehensive final will cover the topics listed in the schedule below. The questions are multiple-choice, true/false, or matching with some essay questions. The comprehensive portion of the final will only be 20% of that exam; the other 80% will cover the final topics in last unit. Study guides will be posted (or not) at my discretion and should **ONLY** be used as a study guide, not as an indication of the exact questions on the tests. The stations will have several questions (2 to 4, depending on the exam) and you will be allowed 30 seconds per question; the exam dates are listed on the schedule below. You will be asked to identify structures or answer questions based on laboratory exercises; you will pick the answer from a given list and fill in the ovals on your scantron.

### Lab Reports (LR):

Study questions are given at the close of most exercises in your lab manual. The following Schedule lists the questions that you are responsible to answer for lab reports (see column on the right). Lab reports are **due at the end of the lab week or lab hour**. Only a portion of the Lab Reports will be graded, but **there will be a 50% penalty if the entire assignment (see Schedule) is not complete**

### LearnSmart and Connect Quizzes:

What you already know about cell biology will be assessed prior to the lecture. Scores for these How much content and critical thinking you learn from lecture will be formatively assessed using McGraw-Hill Connect, accessed through Canvas. MH Connect scores will be based on performance, converted to a common scale, and posted in the Canvas gradebook. Quizzes will occur on dates specified on the course schedule. Quizzes are given through Connect website and will only be open for a set period of time. If you are late your quiz will still be collected automatically when the time is up. Material may include and combination of multiple-choice, true-false, matching, fill in the blank, and short answer questions. **Learn Smart assignments will be due based on DUE DATES.**

**Case Study:**

During the course, a Case Study booklet will be uploaded to Blackboard with eight physiological case studies. You will be sitting in the lab in eight groups of three people each; I will assign each group one of the eight case studies and you will use the prompts below to create an oral presentation.

- Presentations will take place during the final lab sessions.
- Use a minimum of **three** sources, preferably using scientific or medical journals, to research the questions in the Case Study. The sources must be written within the last four years and must have a minimum of four pages of text. Your book may not be used as a reference.
- The presentation should be approximately 10 minutes in length and each member of the group must participate. Although a PowerPoint or other video presentation is preferred, you may use other methods; however, you will be graded on the professionalism of your presentation.

**Lecture Summaries:**

The purpose of a summary is to give you a condense review of the concepts learning in class. It should be about 1/5 of the original length of an article/lecture, a clear, objective picture of the original lecture. Most importantly, **the summary restates only the main points of a text or a lecture with examples or details**, such as pathways, flowcharts, or descriptions A lecture summary will encourage you to attend lecture, pay attention, and take notes. It will be graded after students post onto Canvas discussion board and orally present it during class time.

**Extra Credit:**

Extra credit will be assigned during lab times and may be through additional drawings or worksheets. Also participation in lecture responses will also count for extra credit.

**Grading**

**To calculate your grade, total all points earned and divide that number by the total points available (1,229).** 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            |

**Professional Behavior is expected at ALL TIMES**

Please respect other student, the laboratory materials, and me. No food, cellular phones, pagers, or profanity at any time! I am aware that emergencies arise but place your electronics on silent or “manner” mode.

You will be given a Safety Rules sheet to sign in the lab, which delineates further safety procedures that you **MUST** follow. **OTHER COURSES USE THE MODELS AND THE LAB. PLEASE BE RESPONSIBLE.** Do not use pencils to point out structures on the models. Please remember to clean up the lab after every exercise, as areas left dirty or messy at the end of the period will result in those student groups being **docked 5 points** for every offense.

No food or beverages allowed. Cell phone use will not be tolerated in this class; turn off your cell phones prior to class. Students are allowed to do audio recordings of lectures but not video. Web or internet posting of recorded lecture materials are not allowed. Laptops may be used in this class; laptop users should sit in the back row to avoid distracting others.

### **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 Blackboard, 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.

HOWEVER, you are responsible for dropping yourself from the class if you wish to do so. Do not rely on my paperwork skills should you decide to no longer attend the course, and I will be forced to give you a grade (usually an “F”) if you stop attending after the 9 week drop date.

**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.

Any student caught cheating or plagiarizing will be subject to the Reedley College disciplinary procedures (review the Reedley College catalog section on academic dishonesty). Electronics of any kind are not permitted during exams and will result in an automatic zero for that exam.

Students with diagnosed disabilities should contact the Disabled Students Programs and Services' (DSP&S). Please give me a copy of the letter you receive from DSP&S detailing class accommodations you may need. If you require accommodation for test-taking, please make sure I have the letter no less than three days before the test. If you have a need for an academic accommodation or materials in alternate media (i.e., Braille, large print, electronic text, etc.) per the Americans with Disabilities Act (ADA) or Section 504 of the Rehabilitation Act, please contact me as soon as possible.

**Teaching Philosophy and Course Expectations**

Learning new concepts occurs most effectively when it is built on what students *already know*, when students actually *work* and *think* like a real scientist, and when they become self-aware of *how* they learn, not just *what* they learn (Donovan, 2005). Learning is a deliberate and conscious decision, one that involves breaking established neural patterns and creating new ones. This can be a frustrating and emotionally draining process for those unused to authentic learning. To best facilitate your growth, my expectations are for you to:

- **Think critically.** This course will develop your critical thinking abilities. People that analyze, infer, evaluate, and make reasoned judgments perform better in college, make better daily decisions, and have greater professional success. Developing critical thinking skill should be a goal of every student in this course.
- **Apply yourself.** Success in this course will require a lot of your time and energy. If you have high learning expectations, that is what you will achieve. Expect to invest significant effort (several hours of study time for each hour of class). Depending on your science background, you may need to spend more or less study time. Attend class regularly, be on time, and budget the time and energy needed to accommodate the workload.
- **Ask questions.** Cell biology is fascinating, and new discoveries are made every day. Ask questions. If you aren't clear on something, there are likely others who are equally unclear on the topic. I expect interactive dialogue during all course meetings.
- **Be informed.** People sometimes use scientific information to manipulate others' behaviors and decision-making in ways not always to your benefit. If you don't understand the scientific basis of an issue, you can't make an informed decision about it. Be curious; try and find out all you can about a topic before you make a choice that may profoundly affect your life.
- **Be respectful.** We will discuss controversial issues in this course. Everyone will respect others' right to express their opinions even if you disagree. Respectful discourse is simple good manners, and is a minimal expectation of every student.
- **Take responsibility.** The level of effort you put in is directly related to your academic and eventual professional success. Whether you choose to do excellent or shoddy work is up to you. I will not disrespect you by giving a grade you did not earn. If you mess up, take responsibility, grow from it, and move on. The best learning comes from making mistakes. This course is designed to help you evaluate and revise poor learning habits.
- **Communicate clearly.** Effective written and oral communication is a sign of an intelligent mind. Clarity, proper format, spelling, and grammar are expected of every student. Don't expect me to evaluate what I can't read or understand.
- **Use common sense.** Don't cheat on assignments or exams, and don't plagiarize others' work – either will result in a zero and the possibility of disciplinary action by the university). Don't bother turning in late assignments, since I won't accept *anything* late unless you have written documentation from an appropriate source or have made prior arrangements with me. If you have a problem that prohibits you from turning something in on time, let me know ahead of time. In all instances, good communication with me will prevent the vast majority of problems.

**Students with Disabilities/Special Accommodations:** Any student in need of an accommodation due to a disability is encouraged to provide the instructor with their notification of authorized services form from DSP&S and consult with the instructor immediately so that arrangements can be made.

**X. TENTATIVE SCHEDULE**

Please bring your textbook to lecture and your textbook and lab manual to every lab. Required assignments or tests are in bold. Additions or changes will be announced in class and posted on Canvas. Quizzes \*\*\* will be open for one day only “24 hours” to have it finished.

| Week | Dates       | Lecture (Book Chapter)   | Lab (Manual Chapter)  |
|------|-------------|--|---|
| 1    | 8/13-8/17   | Syllabus<br>Study of Body Function (1)<br>Chemical Composition of Body (2)<br><b>Chapter 1 (Due 8/19)</b>                    | <b>Lab 1:</b> Introduction to Anatomy & Physiology and Microscopes<br><b>Lab Report: Homeostasis Worksheet (Due)</b><br>➤ <b>Vernier Systems Intro &amp; Heart Rate</b> |
| 2    | 8/20-8/24   | Cell structure and Genetic Control (3)<br><b>Chapter 2 (Due 8/26)</b>  | <b>Lab 2:</b> Examination of Tissue and Organs<br><b>Lab Report: 1.2 Q:1-10 (Due)</b><br><b>Quiz #1 Macros (8/24)</b>   |
| 3    | 8/27-8/31   | Enzymes and Energy (4)<br><b>Chapter 3 (Due 9/2)</b>   | <b>Lab 3:</b> Diffusion, Tonicity, and Osmosis<br><b>Lab Report: 2.6 PG 83 Q: 1-9 (Due)</b>   |
| 4    | 9/3-9/7     | <b>Labor Day- No classes (9/3/2018)</b><br>Cell Respiration and Metabolism (5)<br><b>Chapter 4 (Due 9/9)</b>                 | <b>Lab 3:</b> “Endocrine”<br><b>Physio-Ex Worksheet (Due next lab)</b><br><b>Lab Report 4.1 Q 1-20 (Due)</b>  |
| 5    | 9/10-9/14   | <b>Exam #1 (1-5) September 6</b><br>Cells and Extracellular Environment (6)<br>Endocrine (11)<br><b>Chapter 5 (Due 9/16)</b> | <b>Lab 4:</b> Endocrine Glands<br>Physio-Ex “Endocrine”   |
| 6    | 9/17-9/21   | Neurons and Synapses (7)<br><b>Chapter 6 and 11 (Due 9/23)</b>   | <b>Lab 4:</b> Reflex Arc & Hearing<br><b>Lab Report: 3.2 Q: All (Due)</b><br><b>Vernier Systems Reflexes (EEG)</b><br><b>Quiz #2 Transport (9/21)</b>                   |
| 7    | 9/24-9/28   | The Central Nervous System (8)<br>Autonomic Nervous System (9)<br><b>Chapter 7 and 8 (Due 9/30)</b>                          | <b>Lab 5:</b> Cutaneous Receptors and Referred Pain<br><b>Lab Report: 3.3 Q:1-17 (Due)</b><br><b>Lab Report 3.4 Q: 1-17 (Due)</b>                                       |
| 8    | 10/1-10/5   | Sensory Physiology (10)<br><b>Chapter 10 (Due 10/7)</b>  | <b>Lab 6:</b> Physio-Ex “Nervous”<br><b>Physio-Ex Worksheet (Due next lab)</b><br><b>Quiz #3 Neurons (10/5)</b>   |
| 9    | 10/8-10/12  | <b>Exam #2 (6,11) October 4</b><br>Muscle (12)<br><b>Chapter 12 (Due 10/14)</b>  | <b>Eyeball Dissection</b><br><b>No Lab Report Due</b>   |
| 10   | 10/15-10/19 | Blood, Heart, and Circulation (13)<br><b>Chapter 13 (Due 10/21)</b>  | <b>Lab 7:</b> Physio-Ex “Muscle”<br><b>Physio-Ex Worksheet (Due next lab)</b><br><b>Vernier Systems EMG &amp; Muscle Fatigue</b>  |
| 11   | 10/22-10/26 | CO, BF, and BP (14)<br><b>Chapter 14 (Due 10/28)</b>   | <b>Lab 8:</b> Electrocardiogram ECG & Activity 7.5<br><b>Lab Report 7.2 Q: 1-17 (Due)</b>   |

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|               |              |   | <p>➤ Vernier Systems ECG</p> <p><b>Quiz #4 Muscle (10/26)</b></p>   |
| 12            | 10/29-11/2   | Respiratory (16)<br><b>Chapter 16 (Due 11/4)</b>  | <p><b>Lab 9:</b> Effects of Exercise on Daphnia Necklace kit</p> <p><b>Lab Report 7.3 Q:1-12 (Due)</b></p>  |
| 13            | 11/5-11/9    | <p><b>Exam #3 (7,8,9,10) November 1</b></p> <p><b>Veterans Day (Observed)- No classes (11/12/2018)</b></p> <p>Physiology of Kidney (17)<br/><b>Chapter 17 (Due 11/11)</b></p> | <p><b>Lab 10:</b> Measurement of Pulmonary Function</p> <p><b>Lab Report 8.1 Q: 1-8 (Due)</b></p> <p><b>Lab Report 8.4 Q: 1-11 (Due)</b></p> <p><b>Quiz #5 Cardio (11/9)</b></p> <p>➤ Vernier Systems Lung Volumes / Respiratory Response</p> |
| 14            | 11/12-11/16  | Immune System (15)<br><b>Chapter 18 (Due 11/18)</b>   | <p><b>Kidney Dissection</b></p> <p><b>Quiz #6 Respiratory (11/16)</b></p> <p><b>Blood lab: Lab Report 6.3 Q: 1-11 (Due)</b></p>   |
| 15            | 11/19-11/23  | <p>Digestive System (18)</p> <p>Metabolism (19)</p> <p><b>Thanksgiving Break- No classes (11/22/2018-11/23/2018)</b></p>  | <p><b>Lab 11:</b> Renal Regulation</p> <p><b>Lab Report 9.1 Q: 1-12 (Due)</b></p> <p><b>Quiz #7 Renal (11/21)</b></p>   |
| 16            | 11/26-11/30  | <p><b>Exam #4 (12,13,14) November 15</b></p> <p>Reproduction (20)</p>   | <p><b>Lab 12:</b> Digestion of Carb, Protein, and Fat</p> <p><b>Lab Report: 10.2 Q:1-13 (Due)</b></p>   |
| 17            | 12/3-12/7    | <p><b>"Connect Assignments DUE"</b></p> <p>Case Study Presentation</p>  | <p><b>Case Study Presentation</b></p> <p><b>Quiz #8 GI (12/7)</b></p>   |
| <b>Finals</b> | <b>12/12</b> | <b>Final Exam: (Focus: 15,16,17,18 + Cumulative)</b>  |   |