

## BIOL 5

*Semester: Spring 2021 Reedley College*

**Instructor:** Joseph Lin & Valeria Hochman Adler

**Class No.** 55091

**Lecture Email:**

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**Course (Lecture and Lab):**

Asynchronized supplemented with optional synchronized weekly sessions

**\*Required Zoom attendance for the first week**

Tuesday 3 pm 1/12  
(Zoom link on Canvas)

**Lecture:**

Tuesday 3 pm

**Lab**

(Zoom link posted on Canvas)  
Friday 3 pm

**Telephone:**

559-638-0300 Ext. 3407 (RC Office)

559-795-9175 (Direct cellphone)

**Website:** To access the course

<https://sccd.instructure.com>

using your SCCCD username and password.

**Office Hours**

Joseph Lin

Discord M-Th @ 1:00-2:00

<https://discord.gg/B7UbGUW>

Valera Hochman Adler

Upon request

## Introduction

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 the Biol 20 (Human Anatomy) and Biol 22 (Human Physiology). It is taught in a traditional lecture and laboratory format in combination with additional online content; however, due to the current pandemic, this summer will be taught fully online with both synchronized (ZOOM) and asynchronized (Recorded) content. Lectures will utilize PowerPoint and a variety of multimedia presentations which will be uploaded when needed. Laboratory will be largely visual 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.

## 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 to include the eBook.** If you wish to have a traditional textbook you may contact McGraw-Hill and you will receive a discount on a hard copy of the text, but in order to complete this course you must have access to the eBook.

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

Purchase URL for Connect online

<https://connect.mheducation.com/class/j-lin-rc-biol-5-sp21-55091>

## Apps

**McGraw-Hill Connect:** 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:** 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

## 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 MOSTLY ASYNCHRONOUS, which means it is self-paced with readings and videos to be completed each week. Between classroom sessions you will be required to do the assigned readings, view the online videos, complete your outlines, and post questions during the week.

## 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 users, 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

- This is a fast-paced course that requires regular engagement throughout all two weeks.
- 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.
- While the due dates for the course are just suggestions, it is expected that **all assignments will be submitted based on due dates located on McGraw-Hill Connect website.**
- 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

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 the human anatomy

## Course Student Learning Objectives

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 requirements/assignments

**Total points:**

| Assignment Description                | Points              |
|---------------------------------------|---------------------|
| LearnSmart (20@5pt)                   | 100 points          |
| IRAT Quizzes (20@10pt)                | 200 points          |
| Final Exam via Connect                | 150 points          |
| Lecture Exams (4@75pt) via Connect    | 300 points          |
| Writing Assignment                    | 50 points           |
| Lab Exams (1@25pt, 2@50pt) via Canvas | 125 points          |
| Lab Reports (14@15pt)                 | 210 points          |
| Case Study Presentations              | 50 points           |
| VR Labs (20@2pt)                      | 40 points           |
| Discussions (11@ 8pt)                 | 88 points           |
| <b>Total</b>                          | <b>1,233 points</b> |

To calculate your grade, total all points earned and divide that number by the total points available (1,225). **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**

## 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:

Lab exams must be taken on the day that they are scheduled. There will be 3 lab exams (see the Tentative Schedule for exam dates). These exams will be given online via Canvas and utilize images of models, slides, diagrams, and experimental set up. Questions will be a variety of fill-in, multiple choice, and matching questions.

### LearnSmart & IRAT:

What you learn in Physiology 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 participation and completion at a 10-point total and posted in the Canvas gradebook. IRAT quizzes will occur on dates specified on the course schedule in class. IRAT quizzes are given through Connect website and will only be open for a set period. 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. **IRAT and Learn Smart assignments will be due the Sunday 11:59PM of each week.**

### VR Labs and Lab Reports

Simulations of various labs will be conducted on Connect platform through Virtual lab simulations. Each of the VR labs is a simulation that you need to complete to receive full credit and some labs are paired with a worksheet called the Lab Reports that come from your lab manual that you will submit as a PDF into Canvas after completion of the lab. The Lab Reports can be typed up or handwritten however if you choose to hand write your Lab Reports 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 and Lab Reports will be due based on your lab section.**

### Case Study Presentation

Each student will be responsible for working with a group of students (3-4) in this course to complete a case study presentation or project. Each group of students will be assigned a patient with a disease. At the conclusion of the semester, each group will submit a written outline or visual infographic describe in their patient's disease. And the appropriate course of diagnosis, treatment, and prognosis. Detailed instruction will be on Canvas.

### Writing Assignment

You will select field of educational research in STEM fields and create a 4-5 page paper discussion the research design. It needs to address research question, methodology, data collection, results, site selection, sampling criteria's, data analysis, and conclusions. Your goal is to provide information which has the potential of benefitting you and your classmates in the understanding of STEM education in the form of a concept paper.

## 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. Do not contact me to request that I “give” you a higher grade: **you earn the grade you receive in this course**.

### How to be Successful in this Course:

- If you should have trouble understanding the material presented in the course, it is your responsibility to see either your lab TA or me at the earliest possible time. Do not wait until the final weeks of the 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 include 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.

### Tentative Connect Schedules

| Week | Dates     | Lecture (Book Chapter)  | Lab (Manual Topic)   |
|------|-----------|---|--|
| 1    | 1/11-1/15 | Introduction, and Exploring Life and Science (1)<br>IRAT & LearnSmart Ch.1 (1/17)                       | <b>Laboratory Safety</b><br><b>Lab 1: Introduction</b><br>Microscopy (1/24)<br>Metric Measurement (1/24)                         |
|      |           | Chemistry of Life (2)<br>IRAT & LearnSmart Ch.2 (1/17)  | <b>Lab 2: Biological Macromolecule</b><br>Chemical Composition Starch (1/24)<br>Chemical Composition Sugars (1/24)               |
| 2    | 1/18-1/22 | Cell Structure and Function (3)<br>IRAT & LearnSmart Ch.3 (1/24)<br>1/18: Martin Luther King Jr Day     | <b>Lab 3: Cell Structure and Function</b><br>Diffusion (1/31)<br>Osmosis (1/31)  |
|      |           | DNA Biology and Technology (22)<br>IRAT & LearnSmart Ch.22 (1/24)                                       | <b>Lab 4: DNA: Transcription and Translation</b><br>DNA Biology and Technology (1/31)  |
| 3    | 1/25-1/29 | Chromosome Inheritance (19)<br>IRAT & LearnSmart Ch.19 (1/31)   | <b>Lab Practical 1</b> (2/5-6-7)   |
|      |           | Organization and Regulation of Body System Organ Systems (4)<br>IRAT & LearnSmart Ch.4 (1/31)<br>EXAM 1 | <b>Lab 5: Mitosis and Meiosis</b><br>Human Genetics (2/7)  |
| 4    | 2/1-2/5   | Cardiovascular: Heart and Blood Vessel (5)<br>IRAT & LearnSmart Ch.5 (2/7)                              | <b>Lab 6: Genetics and Inheritance</b><br>Mendelian Genetics (2/14)  |
| 5    | 2/8-2/12  | Lymphatic System and Immunity (7)<br>IRAT & LearnSmart Ch.7 (2/14)<br>2/12: Lincoln Day                 | <b>Lab 7: Histology</b> (2/21)   |
| 6    | 2/15-2/19 | Digestive System (9)<br>IRAT & LearnSmart Ch.9 (2/21)<br>2/15: Washington Day                           | <b>Lab 8: Cardiovascular System</b><br>Blood (2/28)<br>Cardiovascular Physiology (2/28)  |
| 7    | 2/22-2/26 | Respiratory System (10)<br>IRAT & LearnSmart Ch.10 (2/28)<br>EXAM 2                                     | <b>Lab 9: Homeostasis: Digestion, Respiration and Urinary Systems</b><br>Enzymes and Digestion (3/7)<br>Respiratory System (3/7) |
| 8    | 3/1-3/5   | Urinary System (11)<br>IRAT & LearnSmart Ch.11 (3/7)  | <b>Lab Practical 2</b> (3/12-13-14)  |
| 9    | 3/8-3/12  | Skeletal System (12)<br>IRAT & LearnSmart Ch.12 (3/14)  | <b>Lab 10: Musculoskeletal System</b> (3/21)<br>Skeletal Muscle Stimulation (3/21)<br>Skeletal Muscle Shoulder/Elbow (3/21)      |
| 10   | 3/15-3/19 | Muscular System (13)<br>IRAT & LearnSmart Ch.13 (3/21)  | <b>Lab 11: Nervous System and Senses</b><br>Eye and Vision Acuity (3/28)<br>Eye and Vision Blind Spot (3/28)                     |
| 11   | 3/22-3/26 | Nervous System (14)<br>IRAT & LearnSmart Ch.14 (3/28)<br>EXAM 3<br>3/29-4/2: Spring Recess              | <b>Lab 12: Reproduction and Development</b><br>Human Evolution (4/11)  |
| 12   | 4/5-4/9   | Senses (15)<br>IRAT & LearnSmart Ch.15 (4/11)   | <b>Lab 13: Digital Dissection Activity</b><br>Endocrine System Thyroid Hormone (4/18)  |
|      |           | Endocrine System (16)<br>IRAT & LearnSmart Ch.16 (4/11)   | Endocrine System Effects of Blood Glucose (4/18)   |



|               |                  |  |                                      |
|---------------|------------------|--|--------------------------------------|
| 13            | 4/12-4/16        | Reproductive System (17)<br><b>IRAT &amp; LearnSmart Ch.17 (4/18)</b>                    | Review / Catch up                    |
| 14            | 4/19-4/23        | Development and Aging (18)<br><b>IRAT &amp; LearnSmart Ch.18 (4/25)</b><br><b>EXAM 4</b> | <b>Lab Practical 3 (4/23-24-25)</b>  |
| 15            | 4/26-4/30        | Biology of Infectious Disease (8)<br><b>IRAT &amp; LearnSmart Ch.8 (5/2)</b>             | <b>Lab 14: Human Evolution (5/2)</b> |
| 16            | 5/3-5/7          | Ecology and Nature of Ecosystems (24)<br><b>IRAT &amp; LearnSmart Ch.24 (5/9)</b>        | <b>Case Study Presentations(5/9)</b> |
| 17            | 5/10-5/14        | Review / Catch up  | <b>NO Lab</b>                        |
| <b>Finals</b> | <b>5/17-5/21</b> | <b>FINAL EXAM</b>  | <b>NO Lab</b>                        |