



**Biology 2420-70 Human Physiology**  
**Fall 2022**  
**M and W 6:00-8:00**  
**Sandy, UT site Rm 201**

**Instructor:** Robert McKnight  
**Email:** robert.mcknight@utah.edu

**Class materials**

Text recommended but optional: Cindy L. Stanfield, Principles of Human Physiology, 6<sup>th</sup> ed. Benjamin Cummings  
TurningPoint license. Use the registration information in Modules under Course Information.

**Course Description**

Principles of human function.

**Course Outcomes**

The objective of this course is to learn how the human body works. To this end we will cover how the body maintains homeostasis, how it responds to stimuli, and how various diseases disrupt these processes. To reach these expected learning outcomes this course will:

- Describe how cells take in nutrients and generate and store energy
- Describe how cells communicate
- Describe the basics of hormonal control
- Describe how the brain perceives and sends information
- Describe how the senses of sight, hearing, smell and touch work
- Describe how the circulatory system delivers nutrients and oxygen to tissues
- Describe how the respiratory system takes in oxygen and removes carbon dioxide
- Describe how the renal system works to maintain fluid and salt balance

**Teaching and Learning Methods**

We will be meeting in-person on Tuesdays and Thursdays from 6-8 PM. I will go over how the course will run on the first day. **It is strongly recommended that you attend class as often as possible.** In an effort to help you structure your time for this course, the format will be as follows. There will be an assigned lecture on each day we meet except on test days. **All lectures will be recorded and posted in advance on Canvas. Most of the lectures are broken up into 30 to less than 60-minute blocks. Please be aware that some lectures are broken into two parts. Be sure to watch both parts.** Study questions for each lecture will be posted on Canvas. For example, the lectures for an introduction to human physiology and biomolecules will be available by the first day we meet. You should watch the two parts before we meet on the next class day. We will go over the first day lecture main points and study questions. This format will be followed for the entire semester. We will always be

reviewing the main points and going over the study questions for the previous lecture. **All discussion/review sessions will be recorded and posted to Canvas.** This format gives you the opportunity to hear the major points twice. The first is by listening to the recorded lectures and the second is live in-class. I will go over the study questions each time we meet. **Students typically do better on tests when they prepare and respond to questions during the discussion time rather than just wait for someone else to give the answer.** Trying to answer a question is a good way to stay engaged. **Many students prefer not to respond in class. Give it a try. Don't worry about not knowing the answer.** That is what the discussion/review session is for. I will often pose additional questions in class. Running the course this way should help you focus and reduce your study time.

## **Grading**

The dates for all quizzes and exams are listed in the syllabus. It is the objective of the course to keep these dates. However, it is possible that an unexpected event(s) may make it necessary to change a date. **Therefore, if you intend to be absent from class, you need to confirm all test dates and the lectures that each test will cover.**

**95% of your grade will come from 3 midterms, 100 pts each and 1 final, 100 pts. All exams and quizzes must be taken in person in class. Room 201 and Room 109 will be available for testing. If COVID-19 conditions necessitate, the in person testing requirement will be modified. If you are required to self-isolate due to COVID-19, you will be allowed to take an alternative makeup test when you are cleared from quarantine.** Each exam will cover about 1/4 of the course material. The final exam is not comprehensive. Each exam will count towards your final grade. You cannot drop any of the exams. There will be no make-up exams, except in rare pre-approved situations and last-minute emergencies. If you have a pre-existing conflict with one of the exams, you must receive approval prior to the exam time to schedule a make-up exam.

**5% of your grade will come from quizzes. There will be 8 quizzes** that must be taken using an active TurningPoint account. Each quiz is worth 4 points. **I will throw out the 3 lowest at the end of the semester,** therefore there is a possible of 20 total points from quizzes. **If you miss a quiz, there is no way to make it up, it will count as one of your lowest quiz scores.**

**It is possible to earn up to 8 additional extra credit points by responding to questions during class time using your TurningPoint account in class.** One, two or three questions will be presented during most class periods. You can discuss the Clicker questions with other students. The percentage of correct answers you have will be multiplied by 8 to determine the total amount of additional points you have earned. For example, if you answer 50% of the Clicker questions correctly, you will receive 4 extra points towards your final grade. Answering Clicker questions are not required. The objective is to give an incentive to come to class and stay engaged on a regular basis. **Trying to cram the night before a test does not work for most students.**

**In the event your final total score includes a fraction of a percent, standard rounding rules will apply.** For example, if you have 84.4%, your final score will be 84. If you have 84.5%,

your final score will be 85%. Please do not ask that 84.4 should also be rounded up. To ensure you are not a fraction of a percent below the grade you want/need, be sure to attend class regularly, take all quizzes so that you can keep the 5 best quiz scores and accurately respond to as many in-class questions as possible.

You can calculate your grade at any time in this class by determining the percentage of the points that you have earned on each exam and top 5 quizzes plus any extra credit points earned and looking at the grading scale below.

<u>Grade</u>	<u>percent of points out of a possible 424 points</u>
A	91% and above
A-	88-90%
B+	80-87%
B	75-79%
B-	70-74%
C+	65-69%
C	60-64%
C-	55-59%
D	50-54%
E	less than 50%

All of your scores on the exams and quizzes will be posted to the Canvas site. It is your responsibility to periodically login to Canvas and verify that your scores are being correctly recorded. Emails may be occasionally sent about important class events, such as reminders for exams or review sessions. You should check your university email and Canvas for announcements.

**Course prerequisites:** A basic understanding of general biology and introductory chemistry is expected. Therefore, the minimum recommended prerequisites are General Biology, (BIOL 1210) and General Chemistry I (CHEM 1210). However, you may enroll at your own risk with approval from the Biology Department without taking these courses or their equivalents.

**Class drop (delete) and withdrawal policy:** It is your responsibility to be aware of the deadlines associated with dropping or withdrawing from the course and exercise your right to drop or withdraw from the course by those deadlines, if you deem it necessary. The dates included in the syllabus are deemed to be correct however, you need to verify any date to ensure they are correct. Instructors do not have the ability to withdraw or drop students after these deadlines.

**Incomplete policy:** According to University of Utah regulations, an incomplete grade can only be given if all three of the following requirements are met: 1. You are passing the class (at least a C), 2. You have finished 80% of the class (the first three midterm exams), 3. Something beyond your control has prevented you from finishing the class, such as serious

illness. Only very rarely do students meet these requirements. You can read about the University policy here: <http://registrar.utah.edu/handbook/incomplete.php>. Incomplete grades cannot be used to allow students to take a class a second time without paying tuition. An incomplete grade does not erase the scores from your current exams. It only allows you to take the final exam at a later date.

### **University Policies**

**Academic integrity:** You are expected to be honest in your academic studies. **Academic dishonesty of any type during the semester will result in a failing grade for the exam or quiz, and may result in a failing grade for the course.** Academic dishonesty includes the use of cheat-sheets, note cards, dictionaries, or books during an exam or quiz. Looking at another student's exam or transmitter during a quiz is cheating. Using a programmable calculator, smart phone, notebook computer, or tablet computer during a quiz or exam also qualifies as cheating. During exams and quizzes, you are only allowed a single non-programmable calculator and a pen. Blank scratch paper, if requested, is also permissible. During quizzes absolute silence must be maintained and your eyes should be on the screen the entire time. All instances of academic dishonesty are recorded in the University database, which is shared by all academic units on campus. If you are caught copying from another student, you will receive a zero for that test.

**The Americans with Disabilities Act.** The University of Utah seeks to provide equal access to its programs, services, and activities for people with disabilities. If you will need accommodations in this class, reasonable prior notice needs to be given to the Center for Disability Services, 162 Olpin Union Building, (801) 581-5020. CDS will work with you and the instructor to make arrangements for accommodations. All written information in this course can be made available in an alternative format with prior notification to the Center for Disability Services.

**University Safety Statement.** The University of Utah values the safety of all campus community members. To report suspicious activity or to request a courtesy escort, call campus police at 801-585-COPS (801-585-2677). You will receive important emergency alerts and safety messages regarding campus safety via text message. For more information regarding safety and to view available training resources, including helpful videos, visit [safeu.utah.edu](http://safeu.utah.edu).

**Addressing Sexual Misconduct.** Title IX makes it clear that violence and harassment based on sex and gender (which includes sexual orientation and gender identity/expression) is a civil rights offense subject to the same kinds of accountability and the same kinds of support applied to offenses against other protected categories such as race, national origin, color, religion, age, status as a person with a disability, veteran's status or genetic information. If you or someone you know has been harassed or assaulted, you are encouraged to report it to the Title IX Coordinator in the Office of Equal Opportunity and Affirmative Action, 135 Park Building, 801-581-8365, or the Office of the Dean of Students, 270 Union Building, 801-581-7066. For support and confidential consultation, contact the Center for Student Wellness, 426 SSB, 801-581-7776. To report to the police, contact the Department of Public Safety, 801-585-2677(COPS).

## 1. COVID-19 Fall 2021 Statement

University leadership has urged all faculty, students, and staff to **model the vaccination, testing, and masking behaviors** we want to see in our campus community.

These include:

- Vaccination
- Masking indoors
- If unvaccinated, getting weekly asymptomatic coronavirus testing

### Vaccination

- **Get a COVID-19 vaccination** if you have not already done so. Vaccination is proving highly effective in preventing severe COVID-19 symptoms, hospitalization and death from coronavirus. Vaccination is the single best way to stop this COVID resurgence in its tracks.
- Many in the campus community already have gotten vaccinated:
  - More than 80% of U. employees
  - Over 70% of U. students
- Visit <http://mychart.med.utah.edu/>, <http://alert.utah.edu/covid/vaccine>, or <http://vaccines.gov/> to schedule your vaccination.

### Masking

- While masks are no longer required outside of Health Sciences facilities, UTA buses and campus shuttles, **CDC guidelines now call for everyone to wear face masks indoors.**
  - Check the CDC website periodically for masking updates—  
<https://www.cdc.gov/coronavirus/2019-ncov/vaccines/fully-vaccinated-guidance.html>
  - Treat masks like seasonal clothing (i.e. during community surges in COVID transmission, masks are strongly encouraged indoors and in close groups outside).

### Testing

- **If you are not yet vaccinated, get weekly asymptomatic coronavirus tests.** This is a helpful way to protect yourself and those around you because asymptomatic individuals can unknowingly spread the coronavirus to others.
  - Asymptomatic testing centers are open and convenient:
    - Online scheduling
    - Saliva test (no nasal swabs)
    - Free to all students returning to campus (required for students in University housing)
    - Results often within 24 hours
    - Visit [alert.utah.edu/covid/testing](http://alert.utah.edu/covid/testing)

- **Remember: Students must self-report if they test positive for COVID-19** via this website: <https://coronavirus.utah.edu/>.

### **Student Mental Health Resources**

- Rates of burnout, anxiety, depression, isolation, and loneliness have noticeably increased during the pandemic. If you need help, reach out for [campus mental health resources](#), including counseling, trainings and other support.
- Consider participating in a [Mental Health First Aid](#) or other [wellness-themed](#) training provided by our Center for Student Wellness and sharing these opportunities with your peers, teaching assistants and department colleagues

**Diverse Student Support.** Your success at the University of Utah is important to all of us here! If you feel like you need extra support in academics, overcoming personal difficulties, or finding community, the U is here for you.

### *Student Support Services (TRIO)*

TRIO federal programs are targeted to serve and assist low-income individuals, first-generation college students, and individuals with disabilities.

Student Support Services (SSS) is a TRIO program for current or incoming undergraduate university students who are seeking their first bachelor's degree and need academic assistance and other services to be successful at the University of Utah.

For more information about what support they provide, a list of ongoing events, and links to other resources, view their website or contact:

### **Student Support Services (TRIO)**

801-581-7188

[trio.utah.edu](http://trio.utah.edu)

Room 2075

1901 E. S. Campus Dr.

Salt Lake City, UT 84112

### *American Indian Students*

The AIRC works to increase American Indian student visibility and success on campus by advocating for and providing student centered programs and tools to enhance academic success, cultural events to promote personal well-being, and a supportive “home-away-from-home” space for students to grow and develop leadership skills.

For more information about what support they provide, a list of ongoing events, and links to other resources, view their website or contact:

**American Indian Resource Center**

801-581-7019

[diversity.utah.edu/centers/airc](http://diversity.utah.edu/centers/airc)

Fort Douglas Building 622  
1925 De Trobriand St.  
Salt Lake City, UT 84113

*Black Students*

Using a pan-African lens, the Black Cultural Center seeks to counteract persistent campus-wide and global anti-blackness. The Black Cultural Center works to holistically enrich, educate, and advocate for students, faculty, and staff through Black centered programming, culturally affirming educational initiatives, and retention strategies.

For more information about what support they provide, a list of ongoing events, and links to other resources, view their website or contact:

**Black Cultural Center**

801-213-1441

[diversity.utah.edu/centers/bcc](http://diversity.utah.edu/centers/bcc)

Fort Douglas Building 603  
95 Fort Douglas Blvd.  
Salt Lake City, UT 84113

*Students with Children*

Our mission is to support and coordinate information, program development and services that enhance family resources as well as the availability, affordability and quality of child care for University students, faculty and staff.

For more information about what support they provide, a list of ongoing events, and links to other resources, view their website or contact:

**Center for Childcare & Family Resources**

801-585-5897

[childcare.utah.edu](http://childcare.utah.edu)

408 Union Building  
200 S. Central Campus Dr.  
Salt Lake City, UT 84112

### *Students with Disabilities*

The Center for Disability Services is dedicated to serving students with disabilities by providing the opportunity for success and equal access at the University of Utah. They also strive to create an inclusive, safe, and respectful environment.

For more information about what support they provide and links to other resources, view their website or contact:

#### **Center for Disability Services**

801-581-5020

[disability.utah.edu](http://disability.utah.edu)

162 Union Building

200 S. Central Campus Dr.

Salt Lake City, UT 84112

### *Students of Ethnic Descent*

The Center for Ethnic Student Affairs offers several programs dedicated to the success of students with varied cultural and ethnic backgrounds. Their mission is to create an inclusive, safe campus community that values the experiences of all students.

For more information about what support they provide, a list of ongoing events, and links to other resources, view their website or contact:

#### **Center for Ethnic Student Affairs**

801-581-8151

[diversity.utah.edu/centers/cesa/](http://diversity.utah.edu/centers/cesa/)

235 Union Building

200 S. Central Campus Dr.

Salt Lake City, UT 84112

### *English as a Second/Additional Language (ESL) Students*

If you are an English language learner, there are several resources on campus available to help you develop your English writing and language skills. Feel free to contact:

#### **Writing Center**

801-587-9122

[writingcenter.utah.edu](http://writingcenter.utah.edu)

2701 Marriott Library

295 S 1500 E

Salt Lake City, UT 84112



## **English Language Institute**

801-581-4600

[continue.utah.edu/eli](http://continue.utah.edu/eli)

540 Arapeen Dr.

Salt Lake City, UT 84108

### *Undocumented Students*

Immigration is a complex phenomenon with broad impact—those who are directly affected by it, as well as those who are indirectly affected by their relationships with family members, friends, and loved ones. If your immigration status presents obstacles that prevent you from engaging in specific activities or fulfilling specific course criteria, confidential arrangements may be requested from the Dream Center.

**Arrangements with the Dream Center will not jeopardize your student status, your financial aid, or any other part of your residence.** The Dream Center offers a wide range of resources to support undocumented students (with and without DACA) as well as students from mixed-status families.

For more information about what support they provide and links to other resources, view their website or contact:

### **Dream Center**

801-213-3697

[dream.utah.edu](http://dream.utah.edu)

1120 Annex (Wing B)

1901 E. S. Campus Dr.

Salt Lake City, UT 84112

### *LGBTQ+ Students*

The LGBTQ+ Resource Center acts in accountability with the campus community by identifying the needs of people with a queer range of [a]gender and [a]sexual experiences and responding with university-wide services.

For more information about what support they provide, a list of ongoing events, and links to other resources, view their website or contact:

### **LGBTQ+ Resource Center**

801-587-7973

[lgbt.utah.edu](http://lgbt.utah.edu) (Links to an external site.)

409 Union Building

200 S. Central Campus Dr.

Salt Lake City, UT 84112

### *Veterans & Military Students*

The mission of the Veterans Support Center is to improve and enhance the individual and academic success of veterans, service members, and their family members who attend the university; to help them receive the benefits they earned; and to serve as a liaison between the student veteran community and the university.

For more information about what support they provide, a list of ongoing events, and links to other resources, view their website or contact:

#### **Veterans Support Center**

801-587-7722

[veteranscenter.utah.edu](http://veteranscenter.utah.edu) (Links to an external site.)

418 Union Building

200 S. Central Campus Dr.

Salt Lake City, UT 84112

### *Women*

The Women's Resource Center (WRC) at the University of Utah serves as the central resource for educational and support services for women. Honoring the complexities of women's identities, the WRC facilitates choices and changes through programs, counseling, and training grounded in a commitment to advance social justice and equality.

For more information about what support they provide, a list of ongoing events, and links to other resources, view their website or contact:

#### **Women's Resource Center**

801-581-8030

[womenscenter.utah.edu](http://womenscenter.utah.edu)

411 Union Building

200 S. Central Campus Dr.

Salt Lake City, UT 84112

### *Inclusivity at the U*

The Office for Inclusive Excellence is here to engage, support, and advance an environment fostering the values of respect, diversity, equity, inclusivity, and academic excellence for students in our increasingly global campus community. They also handle reports of bias in the classroom as outlined below:

*Bias or hate incidents consist of speech, conduct, or some other form of expression or action that is motivated wholly or in part by prejudice or bias whose impact discriminates, demeans, embarrasses, assigns stereotypes, harasses, or excludes*

*individuals because of their race, color, ethnicity, national origin, language, sex, size, gender identity or expression, sexual orientation, disability, age, or religion.*

For more information about what support they provide and links to other resources, or to report a bias incident, view their website or contact:

### Course Schedule

<u>Date</u>	<u>day</u>	<u>Lecture Topic</u>	<u>Chapter</u>
08/22	M	Intro to physiology, chemistry for hu phys, biomolecules	1,2
08/24	W	Cell structure and function	2
08/26		Last day to add w/out a permission code and last day to wait list	
08/29	M	Metabolism and glycolysis	3
08/31	W	Metabolism TCA and oxidative phosphorylation	QUIZ #1
09/02		Last day to add, drop, audit and elect CR/NC classes	
09/05		Labor Day	
09/07	W	Cell membranes part 1	QUIZ #2
09/12	M	Cell membranes part 2	
09/14	W	Chemical messengers	QUIZ #3
09/19	M	Endocrine system	6
09/21	W	Exam 1 over chapters 1-5	
09/26	M	Neurons and electrical impulses	7
09/28	W	Synaptic transmission and neural integration	QUIZ #4
10/03	M	CNS	9
10/05	W	Sensory systems, Part 1	QUIZ #5
10/09-16		Fall break	
10/17	M	Part 2 vision	
10/19	W	Part 3 Hearing, taste and smell	QUIZ #6
10/21		Last day to withdraw from classes	
10/24	M	Autonomic nervous system and motor neurons	11
10/26	W	Exam 2 over material covered from 09/19 to 10/19	
10/31	M	Muscle physiology	12
11/02	W	Cardiovascular system	13
11/07	M	Blood vessels and blood pressure	QUIZ #7
11/09	W	Blood	15
11/14	M	Respiratory system	16
11/16	W	Exam 3 over material from 10/18 through 11/09	
11/21	M	Gas exchange	17
11/23	W	Renal function	QUIZ #8
11/28	M	Fluid and electrolyte balance	19
11/24-27		Thanksgiving Break	
11/30	W	GI tract	20
12/02		Last day to reverse CR/NC option	
12/05	M	Review	
12/07	W	Final exam over material from 11/14 to 11/30	