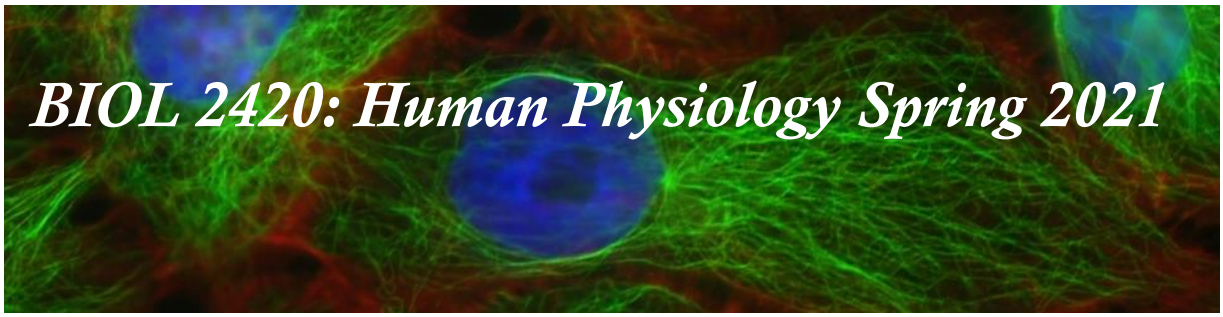
UtahStateUniversity
BRIGHAM CITY REGIONAL CAMPUS



Welcome!

Hi, my name is Kevin, and I will be taking a journey with you, deep into the heart of our bodies. Actually, we will be going deep into our kidneys, intestines, and other organs as well! We are going to explore how, from a cellular to an organismal level, the body carries out the processes to ensure its own survival and to ensure the survival of the species. We will explore human physiology broadly, and also investigate specific biological functions of your cells, tissues, and organ systems in detail. We will use basic anatomy as a map, but much of the time we will be considering microanatomy. My goal is for you to look upon all living things with greater appreciation and amazement, and to have a greater understanding of health and disease at the cellular level that you can apply in many life decisions. We will deal with a lot of small details, but always try to look at the big picture, and always feed your wonder!

Course Objectives

In this course, you will:

- gain **factual knowledge** (terminology, classifications, methods, and trends in human physiology)
- learn **fundamental principles** (general physiological mechanisms and theories)
- **develop specific skills** that are used by medical and lab professionals (diagnostic tests and lab techniques)

Course Instructor

Dr. Kevin V. Young (call me whatever you like). I'm in love with all living things and all wild places. I'm married to April, who is a great biologist who studied black bears. We have 4 kids, the oldest of which has graduated and works as a storyboard artist, while the other 3 still have a lot of life decisions to make. I taught for USU Brigham City for 9 years, went away and taught at three other schools for 10 years, and came back to USU in Aug 2020. Physiology was my lowest college grade, and it has taken me a long time to understand it better. I'm definitely not a physiologist, but I have an increasing interest in how cells work. My hobbies include camping/hiking/fishing, permaculture/gardening/composting, cryptocurrencies (IOTA, specifically), conservation, and anything that allows me to learn from nature. I'm pretty illiterate when it comes to popular culture, sports, politics, etc. Frivolous wish: a Tesla Cyber Truck! I lived on the U.S./Mexican border for 9 years and have volunteered with refugee humanitarian organizations. My French is better than my Spanish.

Contact information:

Use the Canvas inbox (usually <24 hr response). If it is urgent, text me: 801-656-7531. We have the good fortune of having two additional highly-experienced instructors helping run the class this semester: Ricki Burnett Arndt and Terry Dial. Ricki is in Brigham City and Terry is in Moab, but you can reach out to either on Canvas, or attend online study sessions with either one.

Office hours:

I have morning and evening Zoom appointments available. Please email me through the Canvas inbox to let me know when you'd like to meet.

Class meetings

Lectures: We will meet live each Tues/Thurs 5:15-6:45, and all sessions will be recorded and posted to Canvas. It's more fun to have you present, but attendance is not required. It's easy for me to slip into lecturing (I like to talk), but I'm going to try to take more of a podcast/radio-show approach. My idea is that Terry and I will bounce back and forth, but we need a student to complete our discussion triangle. I will ask for volunteers and have a sign-up sheet so you can be a little more prepared on the day you will be a co-host. Although anyone is welcome to comment or question at any time, the student co-host of the day should specifically represent the student view and ask questions about things other students might find confusing. I have Power Point slides which I will post, but I am not sure yet how extensively I will use them (perhaps a lot, perhaps a little). At the end of this syllabus, you'll find a weekly schedule. I will try to stick to that schedule, but it may be modified slightly as we go along.

Labs: Labs will be delivered online using McGraw-Hill Connect Virtual Labs. The assigned labs will be timed so that overall they do not exceed the regular lab time for the face-to-face course. Ricki Burnett Arndt will take the lead on these labs, and Terry Dial will be in a support role to help wherever possible.

Tutoring: Both Ricki and Terry will hold regular reviews/open office hours via Zoom and can also meet by request. Ricki will survey the class to determine what time is preferred for a weekly review, and she will hold an extra review each exam week. Terry will be available Wed 5:15-6:45p to engage students with the lab material. He will also be available on request for individual tutoring and will set up a general office hours as needed.

Required materials

1. "**Fundamentals of Human Physiology**" by Stuart Ira Fox. 2009. McGraw-Hill (ISBN 978-0-07-340349-6).
2. **Auto Access: Connect for Biology Virtual Labs 1e by McGraw-Hill**

This course requires all-inclusive digital materials that are provided to you at a lower price than traditional printed materials. These materials are paid for through an "Auto Access Digital Materials" charge placed on your student account when you registered for the course. To access the materials, visit the Canvas course site. For more details, including dates, deadlines, and opt-out info, visit your student Auto Access Portal: https://portal.verba.io/usu/login

3. Optional: Human Physiology Wikibook. This is a book I made with students many years ago. I thought it was pretty good, but I'm sure it needs updating. OpenStax Anatomy and Physiology is a free, online textbook. It includes both anatomy and physiology and may provide another useful perspective.

Lab fee

As part of your registration for this class you were required to pay an $80.00 lab fee. This fee is used to provide the course tutor and to furnish the materials used by students in the weekly labs.

General Course Requirements

You will be expected to read each chapter, watch each lecture recording, and complete each assigned lab. Tutor/exam reviews, office hours, and practice quizzes are optional, but highly recommended. This is a challenging course with a lot of interesting material to cover; **1–2 hours of study per day outside of "class time" is recommended.** Read the syllabus carefully and discuss any questions with me. Lab test and exam dates will not change, so please mark those on your calendar. Having said that, I'm pretty flexible about accommodating life circumstances.

Objectives

Objectives for each Chapter are found in the Check Points, Summary, and Review Activities. If you can work through the Review Activities successfully, then you are meeting all the objectives. Please share things that confuse you—confusion may be our greatest teaching opportunity. Look over the objectives and prepare questions ahead of class; our class time will focus on discussing and explaining key concepts and trying to clarify any points of confusion.

Grading

I have developed a strong aversion to traditional grading. My #1 interest is to teach you as much as possible, so I try to eliminate things that might interfere with your learning or my teaching. I believe that traditional grading hurts learning, so I am taking a different approach. You *will* receive a course grade, and it *will* be a reflection of how well you have achieved the course objectives, but I will not determine your grade through normal point-based methods. I believe grading should be very thoughtful, very careful, and should take into account as many measures and variables as possible. For that reason, I believe YOU are in a better position to determine your grade than I am. Thus, I am turning that responsibility over to you. I will try to create clear objectives (with your input) and ways to measure your progress, but it will be *you* that measures your learning and understanding. You thus have extra responsibilities: 1) learn the material, 2) document your learning and achievements, 3) interpret your performance as a grade, and 4) report that grade to me with an explanation of the criteria you used and the evidence of meeting those criteria at the level you stated. I hope you will find that this method results in you learning more than you anticipated, with more fun and less anxiety. For further details, please see my 2021 Grading Philosophy.

To document your learning (and to help your learning), each of you must create a portfolio in the form of a slideshow that you maintain from week to week. I am not asking you to recreate all the lectures, but to create a record of what you have learned. I would like the portfolio to reflect what you understand as well as what you do not yet understand. You can include links to other resources, pictures of notes, completed worksheets, videos of you explaining concepts, results from tests or quizzes, or other things that document your effort, learning, and knowledge. If you take side quests to learn more about something in particular, document it. The slide show should be like a timeline, with divider slides for each week or each chapter. I recommend Google Slides so you can easily share with me, since I will ask to see your portfolio and an intermediate grade evaluation on four occasions (three days after each test). Your portfolio and your grade are works in progress. If you give yourself a C for the endocrine system, it does not mean it has to stay a C. You could go back, learn more, test yourself more, and decide that you should now have a B or an A. Just document your journey and provide justification for your grading.

Why not just stick with traditional grading practices? With any method there is a risk that the grade is an incorrect measurement, but with traditional grading there are a host of additional problems. Traditional grading is very precise, but this does not mean it is accurate. Traditional grading punishes mistakes rather than rewards learning. Students become overly concerned with earning points, not losing points, and trying to sweet-talk the teacher or get extra credit to make up a deficit of points. Note that it becomes about points, about avoiding punishment, and about the grade rather than being about the learning. Traditional grading punishes people who may be good learners but not good test takers (test anxiety is real!), or people who have life events that make it so they cannot perform up to their potential on the day of the test. It punishes people who learn slowly or who speak a different language. Traditional grading rewards people for short-term memorization and regurgitation and good guessing. Traditional grading puts the students and teacher at odds with each other-instead of me being on your side, I become an obstacle in your path. Many studies indicate that GPA is a poor measure of how well you will perform professionally, so we are probably promoting the wrong skills through traditional grading. By “ungrading” I want to promote deeper learning, encourage mistakes, remove stress, promote cooperation, and to have a more equitable, trusting teacher-student relationship. If the concern is really about grade accuracy, I contend that you are the person in the best position to give a true, accurate measure of your learning and knowledge, so I entrust you with that task.

Lab Assessments and Participation

Ricki Burnett Arndt and **Terry Dial** are your lab instructors. Ricki is in charge of setting the due dates for each lab, correcting your lab assignments, and writing and grading the lab tests, and Terry will assist. So if you have questions about lab, please email Ricki or Terry directly through the Canvas inbox. Each lab will have 10 points of credit associated with it. **No make-up labs will be offered, so watch your due dates closely**. We try to be flexible, so if you know there will be a problem meeting a due date, contact Ricki.

All labs will be delivered online via McGraw-Hill Connect. Connect Virtual Labs can be accessed using an Internet browser by computer or tablet. Although they can be accessed on a phone, it is not recommend due to the detailed nature of the simulations.

McGraw-Hill Connect TECH SUPPORT
CALL: (800) 331-5094 E-MAIL & CHAT: mhhe.com/support

Tests

I am interested in exams as learning opportunities as well as indications of your overall knowledge. I will give 4 lecture exams, each composed of ~50 questions and worth 100 points each, given on the dates listed in the schedule, and you will also get 2 lab exams. I encourage making mistakes and learning from them. Canvas will keep track of points, but I am not using points in any way to determine your grade. You can determine how you use them as part of your overall grading process. Exams will be available to take unlimited times so you can go back and freshen up on past material at any time. I will also ask some essay questions, about 1 per chapter, which I will not grade but will try to give feedback on.

Quizzes

I am a fan of frequent quizzes but find it difficult to write them all the time. I will work with you to make quizzes that we take in the form of a game. We might take quizzes at the start of each class, or perhaps we will play a quiz game part-way through a lecture, or sometimes I may assign quizzes to be done from home. Since not everyone can be in lecture, I will have the quizzes available at non-class times as well, but those in class can compete with each other (just for fun).

Academic Integrity

I trust you. For some people, trust must be earned. With me, you have my trust immediately. I trust you are here to learn, and I appreciate your trust that I can help you. If you do not value your integrity, that is your problem, and it will always bite you in the long run, so I operate on the basis that you are honest with yourself and I do not need to police you. The #1 argument against my grading methodology is that you could be dishonest in your grade evaluation. This is a fair criticism, and I have seen people (typically with larger egos) overestimate their abilities. If you are truly being dishonest and trying to BS your way through the class, I reserve the right to exercise my teacher's judgment to give you a failing grade. Having said that, since I trust you, you will almost always get exactly the grade you tell me you deserve, even if I would have given you a lower grade. *Occasionally* I let a student know that I think their evidence is weak or that they seem to be very lenient with their definition of meeting the objectives, at which point they might reevaluate their grade.

I hope that we can create a cooperative environment. I am interested in how far we can all go together, and my particular interest is helping those who struggle the most. You can help by speaking to me and your classmates about your struggles and by helping each other as much as possible. Teaching someone is perhaps your greatest learning opportunity, and learning from each other will deepen your friendships.

Final Exam

A comprehensive final exam will be given from Friday, Apr 30 to Tuesday, May 4. It will be different than other exams, in that it will be written. For each chapter there are a series of open-ended and essay-style questions at the back of the chapter, and I will assign some on each test (but will not grade them). The final exam will be a compilation of several of those essay questions, or something related to them. I will ask that you take the exam closed-book, then add to your answers using the book, then check yourself against an answer key I will provide, then report to me how you did. It will simply be another piece of data that you should consider in forming your final grade. It will also help me see which principles were best and least understood by the class.

Final Portfolio and Grade Evaluation

You will have been working on your portfolio and assessing yourself all semester. You will already have reported to me about how you are doing on four occasions. After you have taken the final and are ready to report on your grade, I will ask that you provide your portfolio (or a link to it) as one submission and your written grade evaluation as a separate submission. For your grade evaluation I would like to see a short statement at the beginning where you provide your grade, and the rest of the document explaining how you arrived at that determination. It should be about a page.

Need extra help?

In additional to life's normal crises, Covid19 and political drama are affecting our lives in unexpected ways. Please contact me, Ricki, or Terry if you could use an extra accommodation. We will work with you the best we can.

Classroom Policies and USU Student Information

Virtual Classroom Reminders:

Behavior that disrupts the learning/teaching environment, or that is hurtful to others, will not be tolerated. We're all on the same team and we should strive to support one another.

1. **When you join a Zoom class meeting, please mute your microphone unless speaking.** I love seeing you, but I understand Zoom fatigue, so I get it if your camera is off. I'm really bad at names, so bonus imaginary points if you can get me to learn your name.
2. Only students registered for the course are allowed to participate in Zoom class sessions. For a full description of USU's policy on classroom incivility, see *http://www.usu.edu/policies/pdf/Classroom-Incivility.pdf.*

Withdrawal Policy and "I" Grade Policy:

Students are required to complete all courses for which they are registered by the end of the semester. In some cases, a student may be unable to complete all of the coursework because of extenuating circumstances, but not due to poor performance or to retain financial aid. The term 'extenuating' circumstances includes: (1) incapacitating illness which prevents a student from attending classes for a minimum period of 2 weeks, (2) a death in the immediate family, (3) financial responsibilities requiring a student to alter a work schedule to secure employment, (4) change in work schedule as required by an employer, or (5) other emergencies deemed appropriate by the instructor.

Missing class:

Are you a student athlete who will miss class due to team travel? Do you have a university-sponsored event that conflicts with class? Did you just get a new job that does not allow you to attend lecture? Let me know if you feel you will need particular accommodations, but since the class is set up to be flexible, you may find you can find your own solution. Did you just decide to fly to Hawaii and get married? Don't tell me about it—just go and deal with the consequences!

Accommodation for Disabilities:
The Americans with Disabilities Act states: "Reasonable accommodation will be provided for all persons with disabilities in order to ensure equal participation within the program." If you have a disability that will likely require some accommodation, please let me know. If you have not already done so, document the disability through the Disability Resource Center (435) 797-2444, preferably during the first week of the course, since any requests for special consideration related to attendance, pedagogy, taking of examinations, etc., must come to me through them so it can be properly documented that your rights are being met. In cooperation with the Disability Resource Center, course materials will be provided in alternative format (e.g. large print, audio, diskette, or Braille) upon request. I want to help each of my students succeed.

Grievance Process:
Students who feel they have been unfairly treated...may file a grievance through the channels and procedures described in the Student Code: *http://www.usu.edu/studentservices/pdf/StudentCode.pdf#page=3* (Article VII. Grievances, pp. 27-36).

Course communications:
Email is an official form of communication at USU. Any communication to you about this course will be sent to the email address you have listed in Canvas as your preferred address. You are responsible for any information conveyed to you at that email address. If the class wants to set up a GroupMe or WhatsApp chat, I'm fine with that. I try to be very available, but sometimes I get overwhelmed too. If you have not heard from me after a couple of days, please try again or text me.

To ensure that Canvas is using the email account you prefer, do the following:

- Log in to Canvas and click on the link "Profile" at the top right of the page. ● Click on "Notifications" at the left side of the screen. ● Verify your email address.
- You may also opt to receive course notifications via text on your cell phone. Click the downward arrowhead to the right of "Email me at" on the "Notifications Preferences" page to bring up the option "Text my Cell at."

It is <u>your</u> responsibility to check your Canvas account <u>regularly</u> so that you do not miss announcements or emails to the class. All questions regarding academic progress or grades must be sent via the Canvas inbox.

To log in to Canvas, go to: canvas.usu.edu (no "www"). Your username is your Banner username (your "A" number) and your password is your BANNER password. BIOL 2420 should appear under the heading "Courses."
❖ **For help with Canvas**, contact the IT service desk: **435-797-HELP (4357)** or 1-877-878-8325.

Diversity Statement:
I believe there is great strength in diversity, and I hope to create a very welcoming environment. Regardless of intent, careless or ill-informed remarks can be offensive and hurtful and detract from the learning climate. If you feel uncomfortable in a classroom due to offensive language or actions by an instructor or student(s) regarding ethnicity, gender, or sexual orientation, please feel free to come to me. You can also contact one of the following: at USU Brigham City, contact Jill Rasmussen, Room D102, (435) 919-1246; at other regional campuses, contact your advisor, or; Moises Diaz, Director of Multicultural Student Services (435) 797-1733, moises.diaz@usu.edu; James Morales, Vice President of Student Services (435) 797-1712, james.morales@usu.edu; Ann Austin, Vice Provost for Faculty Development and Diversity, ann.austin@usu.edu; Maure Smith, LGBTA Services, maure.smith@usu.edu; Steven Russell, Student Advocate (435) 797-1720, s.r.@aggiemail.usu.edu. You can learn about your student rights by visiting: *www.usu.edu/studentservices/studentcode*.

Emotional and Mental Wellbeing:
School can be a very stressful experience. Utah State University has a mission to support students in all facets of life, including their emotional well-being. All USU students have access to confidential mental health services through Counseling and Psychological Services (CAPS). This includes a full range of counseling services, workshops, and support/therapeutic groups. If you live in the Logan area, CAPS is located in the Taggart Student Center (TSC 306, 435-797-1012). If you live outside the Logan area, please contact Justin Barker at justin.barker@usu.edu, Tammy Taylor at tammy.taylor@usu.edu, or Kim Meyers at kimberly.meyers@usu.edu. CAPS-RC has the capability to provide you with mental health services regardless of the location of your regional campus. If suicide is an issue, you can get help from the National Suicide Prevention Lifeline at 1-800-273-TALK (8255).

If you or someone you know has experienced sexual assault, please contact the Sexual Assault and Anti-Violence Information office (SAAVI) at 435-797-7273 or see their website at www.usu.edu/saavi/, or contact the CAPSA 24-hour crisis line at (435) 753-2500. If you or someone you know needs emergency services for trauma or life-threatening situations please call 911.

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Anticipated Schedule

WEEK	DAY	DATE	TOPIC	CHAPTER
Week 1	Tues	Jan-19	Intro to class, to physiology, the syllabus, etc.	1
	Thurs	Jan-21	The Chemical Basis of Life	1
	Lab		Lab introduction with Ricki Burnett Arndt	
Week 2	Tues	Jan-26	Cells and Their Parts	2
	Thurs	Jan-28	How Cells Reproduce / Cellular Respiration	2
	Lab		Lab 1: see LAB ACTIVITIES below	
Week 3	Tues	Feb-2	Tissues	2
	Thurs	Feb-4	Transport Across the Membrane	3
	Lab		Lab 2: See LAB ACTIVITIES below	
Week 4	Tues	Feb-9	Neurons & Synapses	4
	Thurs	Feb-11	REVIEW DAY and **Test 1**. **Submit portfolio by Sunday.**	
	Lab		Lab 3: See LAB ACTIVITIES below	
Week 5	Tues	Feb-16	Peripheral Nervous System & Central Nervous System	5-6
	Thurs	Feb-18	Sensory System	7
	Lab		Lab 4: See LAB ACTIVITIES below	
Week 6	Tues	Feb-23	Sensory System 2	7
	Thurs	Feb-25	Sensory System 3	7
	Lab		Lab 5: See LAB ACTIVITIES below	
Week 7	Tues	Mar-2	REVIEW DAY and **Test 2. Submit portfolio by Friday.**	
	Thurs	Mar-4	Endocrine System	8
	Lab		Lab Quiz #1	
Week 8	Tues	Mar-9	Endocrine System 2	8
	Thurs	Mar-11	Muscle Physiology	9
	Lab		Lab 6: See LAB ACTIVITIES below	
Week 9	Tues	Mar-16	REVIEW DAY and **Test 3. Submit portfolio by Friday.**	
	Thurs	Mar-18	Blood & Circulation	10
	Lab		Lab 7: See LAB ACTIVITIES below	
Week 10	Tues	Mar-23	Blood & Circulation 2	10
	Thurs	Mar-25	Immune System	11
	Lab		Lab 8: See LAB ACTIVITIES below	
Week 11	Tues	Mar-30	Respiratory System	12

	Thurs	Apr-1	Urinary System	13
	Lab		Lab 9: See LAB ACTIVITIES below	
Week 12	Tues	Apr-6	Urinary System 2	13
	Thurs	Apr-8	NO CLASS-attend Friday classes instead (no school Friday)	
	Lab		Lab 10: See LAB ACTIVITIES below	
Week 13	Tues	Apr-13	Digestive System	14
	Thurs	Apr-15	REVIEW DAY and **Test 4. Submit portfolio by Sunday.**	
	Lab		Lab Quiz #2	
Week 14	Tues	Apr-20	Male reproductive system	15
	Thurs	Apr-22	Female reproductive system	15
	Lab		No lab	
Week 15	Tues	Apr-27	Human development	15
	Thurs	Apr-29	Final Exams begin	
	Lab		No lab	
Week 16	Tues	May-4	**Submit final portfolio and final grade report.**	
	Thurs	May-6	Commencement May 6-7	

LAB	DUE DATE	LAB ACTIVITES
1	Jan-29	**Virtual labs tutoria**l
		Lab Safety: Personal safety, Hand washing procedure, homework questions
		Metric measurement: length, weight, volume, temperature, homework questions
2	Feb-5	**Microscopy:** Operation of a bright field microscope, Oil immersion, Pond water wet mount, homework questions
3	Feb-12	**Diffusion:** Diffusion across a selectively permeable membrane, homework questions
		Osmosis: Diffusion of water across a selectively permeable membrane, Tonicity in red blood cells, homework questions
		How enzymes function: Enzyme activity, Effect of temperature, Effect of pH, homework questions
4	Feb-19	**Nervous system:** Demonstrate monosynaptic reflexes, homework questions
		Skeletal Muscle: Shoulder and elbow movement exercise; Electrical stimulation, homework questions

5	Feb-26	**Eye vision:** Visual acuity test, Astigmatism test, Color vision test, Blind spot
		demonstration, Pupillary reflex test, Accommodation of the lens, Convergence reflex test, Eye dissection, homework questions
		Endocrine system: Influence of thyroid hormone on temperature regulation,
		homework questions
Lab Quiz #1	Mar-5	**Lab Quiz #1- (Labs #1-5)**
6	Mar-12	**Electromyography:** Motor unit recruitment, Time to fatigue, homework questions
7	Mar-19	**Cardiovascular physiology:** Electrocardiography, homework questions
		Blood: Blood typing, Differential WBC count, homework questions
8	Mar-26	**Blood:** Hematocrit, homework questions
		Respiratory system: Mechanism of breathing, Pulmonary function tests, homework questions
9	Apr-2	**Cardiovascular physiology:** Pulse rate, Blood pressure, homework questions
		Endocrine system: Effects of blood glucose level, homework questions
10	Apr-9	**Digestive System:** Enzymes and digestion, homework questions
Lab Quiz #2	Apr-16	**Lab Quiz #2-** (Labs #6-10)