

BI 121 Introduction to Human Physiology Syllabus
University of Oregon, Department of Biology
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Introduction: *Human Physiology* is the study and *science of function in humans*— how processes work at cell, organ, tissue and body system levels of organization or as Lauralee Sherwood says, what makes us tick! It is a wonderfully broad and demanding field that encompasses many disciplines including anatomy, animal physiology, biochemistry, cell biology, environmental and exercise physiology, histology, immunology, mathematics, medical physiology, molecular biology, nutrition, pathophysiology (the study of diseases), physics, and systems physiology! The focus varies based on the adjective used in front of the word *physiology*. For example, the goal of *comparative* physiology is to contrast functions across the animal kingdom. Exercise physiology studies adaptations to unique modes of exercise, primarily in humans. Environmental physiology investigates specific adaptations due to environmental stressors like high vs. low altitudes and cold vs. hot climates. Viral physiology or virology examines mechanisms in viruses, infectious, microscopic, genetic material in a protein coat, found in almost all ecosystems on earth. Certainly, there is much overlap among subdisciplines. Though we will discuss examples from many areas of physiology, our primary focus will be to study humans under normal, healthy conditions at the body systems level. Topic coverage includes homeostasis, basic cell physiology and genetics, and physiology of the gut, heart, vessels, blood, glands, brain, nerves, muscles and lungs. Nutrition and exercise physiology are incorporated with goals of making the material more applicable to daily activities and to promote optimal choices to enhance body awareness and health for a lifetime! Whatever your plans, ultimately my hope is that you enhance your appreciation and understanding of the intricate and miraculous nature of the human body!

Prerequisites: There are no prerequisites for BI 121. Those who are currently undeclared or exploring or from any major are encouraged to enroll in the course. BI 121 helps U of O students satisfy their [Natural Science Area of Inquiry](#) requirement. However, because no assumptions are made about backgrounds in science or math and the course is taught largely to beginning, non-science majors at the 100-level, our approach will be more descriptive (what and where) and correlational (seeking how 2 or more variables are related) rather than mechanistic (how) and purpose-driven (why).

Objectives: By the end of the course, you should be able to complete these dozen learning objectives:

- describe the concept of homeostasis and identify key categories of variables balanced within the extracellular fluid compartment.
- apply a simplified homeostatic model to the regulation of unique input variables that ensure that body systems maintain homeostasis leading to cell survival.
- explain the basic structure and function of cells and cell organelles.
- compare and contrast anaerobic and aerobic metabolism and assign specific exercises to unique areas of the energy continuum.
- distinguish structures and functions of deoxyribonucleic and ribonucleic acids (DNA & RNA).
- discuss the flow of information from the nucleus to cytoplasm, from DNA to RNA to protein.
- paraphrase nutrition and exercise guidelines established by the US Government, the American Institute for Cancer Research, the American Heart Association and the American College of Sports Medicine.
- identify the common characteristics of the world's longest-lived people in [Blue Zones](#).

- analyze the nutrient content of your personal diet relative to national guidelines and make recommendations for self-improvement.
- articulate and debunk common myths about nutrition and exercise.
- summarize the basic structure and function of the gastrointestinal, cardiovascular, endocrine, nervous, skeletal muscular and respiratory systems.
- describe the physiology and inherent multi-organ risks of cigarette smoking and vaping.

Texts & References: BI 121 is designated as a low-cost course because all materials required cost less than 50 US dollars.

Lecture: You have a choice of textbooks for the lecture-discussion component of the course based on personal finances and your reading and studying styles. Below are the 2 choices:

Sherwood, Lauralee (LS). *Fundamentals of Human Physiology, 4th ed.* Belmont, CA: Brooks/Cole, Cengage Learning, 2012, ISBN-13:0840062253. Digital rental or purchase, used or new textbook.

OR

Chiras, Daniel D. (DC). *Human Body Systems: Structure, Function and Environment, 2nd ed.* Burlington, MA: Jones and Bartlett Learning, 2013, ISBN 9781449647933. Digital rental or purchase, used or new textbook.

Chiras & Sherwood options are ~ \$20-40 for 120 – 180-d digital version access. Sherwood's *Fundamentals* (called *the little book* because Dr. Sherwood wrote a more advanced physiology text at a higher level) is over 600 pages, while Chiras' book is more like a packet containing 170 pages. Sherwood's text is far more expensive than Chiras'. Our lectures are in the middle between the lighter nature of Chiras and the more expanded details of Sherwood. Both are excellent writers. Sherwood's text contains cell physiology and genetics sections whereas Chiras' book does not, as it is entirely at the body systems level. However, Chiras' book contains a short nutrition chapter, whereas Sherwood's does not. For nutrition, I will rely uponSizer and Whitney's (S&W) *Nutrition Concepts & Controversies* and many other sources, but it is not necessary that you purchase any additional references beyond books by Sherwood and/or Chiras.

Sizer, Frances S. & Whitney, Eleanor N. (S&W). *Nutrition: Concepts & Controversies, 15th, 14th, 13th or 12th ed.* Boston, MA: Cengage Learning, 2020, 2017, 2013 or 2010 or other peer-reviewed nutrition textbook.

Super nutrition resources with free links are listed on the front of our Canvas course site and on the next page. Please contact me directly if you have questions about resources. Additional nutrition resources:

<https://nutritionfacts.org/>, <https://www.cspinet.org/eating-healthy>
<https://www.hsph.harvard.edu/nutritionsource/>
<https://www.berkeleywellness.com/healthy-eating/nutrition>
<https://www.nutrition.gov/>, <https://www.eatright.org>
<https://www.heart.org/en/healthy-living/healthy-eating/eat-smart/nutrition-basics>
<https://www.aicr.org/cancer-prevention/>, <https://mynutrition.wsu.edu/nutrition-basics>
<https://www.nhlbi.nih.gov/health/educational/wecan/tools-resources/nutrition.htm>
<https://health.gov/our-work/food-nutrition>, <https://www.nutritionletter.tufts.edu/>

Lab: The Lab Manual contains all of the background and the worksheets for our 6 labs. It is usually for sale at the U of O Duckstore (Bookstore) for ~10 US dollars, but for this term, it is free, because I am posting all Lab Backgrounds, Worksheets and Resources online on Canvas.

Lombardi VP, Evonuk E & Carmack MA (LM). *BI 121, Introduction to Human Physiology, Laboratory Manual*. Supplied free as Lab Backgrounds & Worksheets on Canvas.

Requirements:

- **Read, take notes and study** the pages listed on our course outline for our textbooks (LS, Lauralee Sherwood and/or DC, Daniel Chiras) and Lab Manual (LM) prior to our Lecture-Discussions and Lab-Discussions. Our outline is printed at the end of this syllabus and updated for each week on our Canvas Homepage.
- **Rely 1st and foremost upon our course resources** (lectures, labs, textbooks, .pdfs, .mp4s...) prior to seeking information on the internet. For details, see *Guide for Active Learning Questions + Lab Worksheets* within our Canvas [Welcome & Introduction Modules](#). Estimated time = See requirements above & below.
- **View Lecture and Lab .pdfs (slides) and .mp4s (slides w/voice)** on Canvas prior to Lecture-Discussions and Lab-Discussions. This will help pique your curiosity and facilitate lively discussions.
- **Complete Active Learning Questions** and **Lab Worksheets** and submit by way of Canvas no later than 11:59:59 pm the night of each session. It is best to attempt to answer the questions before attending, so that you are primed and focused when you arrive. Active Learning Questions include 5 short questions designed to make you think and to prompt you what to be looking for in each lecture.
- **Attend all Lecture-Discussions and Lab-Discussions** as there is simply nothing like being there! Of course, your attendance is contingent upon your current health status. For your safety and that of others, please stay home if you are ill! If you are enrolled in the Web-only version of the course, your attendance may be limited by your current time zone.
- **Complete all 4 online Canvas Quizzes** covering Lectures, Labs, Active Learning Q and Lab Worksheets. All Quizzes will be completed on Fridays on Canvas sometime between 12 n and 11:59:59 pm. The tabulated grades and answers will be available on Canvas the following Monday morning. Each Quiz will contain 20 questions including a mix of multi-modal drop-down menus (where you are required to make selections from choices built-in to a written paragraph), multiple choice and matching questions. As with all assignments. If you have documented additional needs through our Accessible Education Center (AEC) <https://aec.uoregon.edu/using-aec-connect>, you will have more time allotted to complete the quizzes.

You must do your very best to focus and to keep up consistently with the work! Remember, the benefits you gain will be directly proportional to the efforts you invest!

Estimated Time per Lecture*

Reading text & other resources = ~ 20 – 60 min

Viewing .pdf = ~ 20 min

Viewing .mp4 = ~ 30 – 40 min

Attending Lecture = 80 min

Active Learning Questions = ~ 30 – 40 min

Total per Lecture = ~ 180 – 260 min or ~ **3 – 4 hr**

Estimate Time per Lab*

Reading lab & other resources = 20 – 40 min

Viewing .pdf = ~ 20 min

Viewing .mp4 = ~ 30 – 40 min

Attending Lab = 50 min

Lab Worksheets = ~ 30 – 60 min

Total per Lab = ~ 150 – 210 min or ~ **2.5 – 3.5 hr**

Estimate Time per Quiz* = ~ 20 – 40 min or ~ **0.5 hr**

*If the staff at the U of O Accessible Education Center (AEC) <https://aec.uoregon.edu/using-aec-connect> determines that you need additional time, that time will be allotted and the above may be underestimations.

Quiz Directions:

The quizzes are open book, but not open communication or conversation. You may use your textbook/s and lecture and lab notes, however, once you begin a quiz, you are not allowed to communicate with others, including classmates, family members or any humans (or telepathic animals!) by any communication means including by cell phone, texting, instant messaging, Zoom, e-mail or Morse code! You may not take pictures or use snipping tools to capture quiz questions. You will check a box and provide your electronic signature as pledges ensuring that your work is yours alone independently, and that you have not engaged in any communication, conversation or any dishonesty, plagiarism, preconceived scams, copying or revealing of quiz questions. I want you to know that 1st and foremost, I was raised to value and respect the utmost of integrity and that I hold you to the highest of possible standards! Even though you can use your notes, text/s and Lab Manual, you should be able to answer questions without referring to these and the time allotment will not enable you to search and discover answers while you are taking a quiz. Once you start a quiz, you will have 30 – 40 minutes to complete it, unless you have received additional time for AEC accommodations. Best of luck!

Grading:

The grading for the course is as follows:

10% Lecture Attendance & Participation (determined by attendance in live lecture or Zoom, online Lecture viewing and completion and 1⁰ submission of Active Learning Q on Canvas).

10% Lab Attendance & Participation (determined by attendance in live lecture or Zoom, online Lab viewing and completion and 1⁰ submission of Worksheets on Canvas).

20% Quiz 1

20% Quiz 2

20% Quiz 3

20% Quiz 4

80% for all Quizzes

Organization:

We would like to implement a reverse class plan, where you examine the Active Learning Questions and Lab Worksheets and review each lecture and lab (.pdf, .mp4 & additional resources) online on your own time, prior to actual attendance. Your efforts outside of lectures and labs will make you well prepared and enable all of us to engage in each topic at a deeper level and more fully interact and learn together. Please let me know if you have any questions or need additional information or resources.

University of Oregon
Department of Biology

Course: Introduction to Human Physiology, BI 121, 04 cr (CRN 11158), 100 WIL, TR Lecture Discussions, 08:30-9:50 and Lab Discussions R: 10:00-10:50 (CRN 11159) or 11:00-11:50 (CRN 11160) or 12:00-12:50 (CRN 11161) or 13:00-13:50 (CRN 11162) or 14:00-14:50 (CRN 11163) or 15:00-15:50 (CRN 11164) or 16:00-16:50 (CRN 11165) or 17:00-17:50 (CRN 11166), Fall, 2021. **NB:** Time shift from US PDT (US Pacific Daylight Time) to PST (US Pacific Standard Time) on Sunday, November 7th @ 2:00 am (fall backwards!). :)

Website: <https://canvas.uoregon.edu/courses/191722>

Lecturer; Office Hours; E-Mail; Phone: V. Pat Lombardi; WEB; Zoom appointments; lombardi@uoregon.edu
541-346-6055 (office/message)

Lab Instructors; Office Hours; E-Mail: Peter Newstein; WEB; Zoom appointments; pnewstei@uoregon.edu
Rachael Penick; WEB; Zoom appointments; rpenick@uoregon.edu
Monika Ruwaimana; WEB; Zoom appointments; mruwaima@uoregon.edu

Lab Preparator; E-Mail: Katie Perez, kperez@uoregon.edu

Required Texts: Sherwood, Lauralee (LS). *Fundamentals of Human Physiology*, 4th ed. Belmont, CA: Brooks/Cole, Cengage Learning, 2012, ISBN-13:0840062253. Digital rental or purchase, used or new textbook.

OR

Chiras, Daniel D. (DC). *Human Body Systems: Structure, Function and Environment*, 2nd ed. Burlington, MA: Jones and Bartlett Learning, 2013. Digital rental or purchase, used or new textbook.

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Lombardi VP, Evonuk E & Carmack MA (LM). *BI 121, Introduction to Human Physiology, Laboratory Manual, Fall 2020*. Supplied free as Lab Worksheets & Lab Backgrounds on Canvas.

1^o Supplemental Text: Readings listed in [] below:

Sizer, Frances S. & Whitney, Eleanor N. (S&W). *Nutrition: Concepts & Controversies*, 15th, 14th, 13th or 12th ed. Boston, MA: Cengage Learning, 2020, 2017, 2013 or 2010 or other peer-reviewed nutrition textbook. See also:

<https://nutritionfacts.org/>, <https://www.cspinet.org/eating-healthy>, <https://www.hsph.harvard.edu/nutritionsource/>,
<https://www.berkeleywellness.com/healthy-eating/nutrition>, <https://www.nutrition.gov/>, <https://www.eatright.org>,
<https://www.heart.org/en/healthy-living/healthy-eating/eat-smart/nutrition-basics>, <https://www.aicr.org/cancer-prevention/>,
<https://mynutrition.wsu.edu/nutrition-basics>, <https://www.nhlbi.nih.gov/health/educational/wecan/tools-resources/nutrition.htm>,
<https://health.gov/our-work/food-nutrition>, <https://www.nutritionletter.tufts.edu/>

+See many supplemental reserved texts/resources in Science Library or web listing: <http://libweb.uoregon.edu/>
Click on the **Course Reserves** tab, then sign in with U of O ID and password & type in BI 121.

Tentative Outline:

- Sep 28 (T) **Lecture 1 Discussion. Anatomy, Physiology & Homeostasis I (100 WIL).** I. Introduction (outline, text, grading, expectations...); Compare & Contrast Human Anatomy & Human Physiology; Body Levels of Organization. II. Homeostasis I. **Readings:** *ch 1 vignette p 0, ch 1 pp 1-10* (LS); *Introduction, Study Skills, pp iii-viii; Module 1, pp 1-8* (DC). **Assignment:** **Active Learning Questions Lecture 1.** Submit on Canvas by 11:59:59 pm, US PDT.
- Sep 30 (R) **Lecture 2 Discussion. Homeostasis II, Cell Physiology (100 WIL).** I. Homeostasis II: – Negative vs + Positive Feedback; Simplified Homeostatic Model Balance Examples: Temperature & Blood Pressure. II. Cell Anatomy, Physiology & Compartmentalization: Size; Basic Survival Skills; Organelles. **Readings:** *ch 1, pp 11-17; ch 2, pp 18-27* (LS). **Assignment:** **Active Learning Questions Lecture 2.** Submit on Canvas by 11:59:59 pm, US PDT.
- Sep 30 (R) **1st Lab by way of Zoom. Lab 1 Discussion. Introduction to Anatomy & Physiology (See Canvas for Zoom link).** **Readings:** *pp 1-1 to 1-10* (LM). **Assignments:** **Introduction Card + Lab 1 Worksheet.** Submit on Canvas by 11:59:59 pm, US PDT.
- Oct 5 (T) **Lecture 3 Discussion. Anaerobic vs Aerobic Metabolism (100 WIL).** I. Metabolism: Anaerobic (ATP-PC, Glycolytic) vs Aerobic; Subcategory Location & ATP Production. II. Cytoskeleton. **Readings:** *ch 2, pp 26-41* (LS). **Assignment:** **Active Learning Questions Lecture 3.** Submit on Canvas by 11:59:59 pm, US PDT.

- Oct 7 (R) [Lecture 4 Discussion. Genetics: DNA, RNA & Proteins \(100 WIL\)](#). Readings: *Appendix B, pp A-16, A-17; Appendix C, pp A-18 to A-26* (LS). Assignment: [Active Learning Questions Lecture 4](#). Submit on Canvas by 11:59:59 pm, US PDT.
- Oct 7 (R) [Lab 2 + Discussion. Histology: Microscopic Study of Tissues \(130 HUE\)](#). Readings: *pp i-iii, 1-1 to 1-4* (LM). Activity: Jeopardy Game 1. Assignment: [Lab 2 Worksheet](#). Submit on Canvas by 11:59:59 pm, US PDT.
- Oct 8 (F) [Quiz 1 on Canvas](#). Covers Lectures 1 – 4 and Labs 1 & 2. Open 12 n until 11:59:59 pm, US PDT.
- Oct 12 (T) [Lecture 5 Discussion. Nutrition & Disease Prevention \(100 WIL\)](#). I. Nutrition in the News. II. Standard Serving Sizes: Estimating for Dietary Analyses. III. Nutrients Essential for Life: Water, Energy Nutrients (1^o Carbohydrates, 2^o Fats, 3^o Proteins), Vitamins & Minerals. IV. Blue Zones & Diets of the World's Longest-lived People. V. What about Paleo & Red Meat? VI. Exercise, Dieting or Both? VII. Nutrition Quackery. Readings: *ch 16 pp 485-6* (LS); *Module 2, pp 9-16* (DC); [*Highlights of ch 1, 2, pp 1-69; ch 9, pp 334-80* (S&W)]; See links on Outline p 1 under 1^o Supplemental Text. Assignment: [Active Learning Questions Lecture 5](#). Submit on Canvas by 11:59:59 pm, US PDT.
- Oct 14 (R) [Lecture 6 Discussion. Gastrointestinal System \(100 WIL\)](#). I. Hydrolysis, the Central Theme of Digestion. II. Gut Anatomy, Histology & General Secretions. III. Enzymatic Digestion, Absorption & Defecation. Readings: *ch 15, pp 436-445; focus on Table 15-1 pp 440-441* (LS). *Module 3, pp 17-23* (DC); [*ch 15, pp 445-459, 463-477* (LS)]. Assignment: [Active Learning Questions Lecture 6](#). Submit on Canvas by 11:59:59 pm, US PDT.
- Oct 14 (R) [Lab 3 + Discussion. Nutrition Analyses \(130 HUE\)](#). Record your diet for at least one day on p 3-7 and analyze it using the *Diet Controller//Diet Organizer* or *ASA 24 National Cancer Institute Calorie Counter & Food Diary/Cronometer Nutrition Tracker, HealthyOut, My Fitness Pal* or *Other Smart Phone Software*. Readings: *pp 3-1 to 3-20* (LM). Assignment: [Lab 3 Worksheet](#). Submit on Canvas by 11:59:59 pm, US PDT, by Saturday, October 16th, 2021.
- Oct 19 (T) [Lecture 7 Discussion. Cardiovascular System \(100 WIL\)](#). I. Circulatory: Cardiovascular & Lymphatic. II. Cardiac Physiology: Anatomy, Adult Heart & Fetal Blood Flow. Readings: *ch 9, pp 228-234; ch 10, pp 281-7* (LS); *Module 4, pp 25-29; 33-34* (DC). Assignment: [Active Learning Questions Lecture 7](#). Submit on Canvas by 11:59:59 pm, US PDT.
- Oct 21 (R) [Lecture 8 Discussion. Atherosclerosis & Cardiovascular Diseases \(100 WIL\)](#). I. Atherosclerosis. II. Cardiovascular Diseases (CVDs): What's a Heart Attack (AMI)? Stroke (CVA)? Peripheral Vascular Disease (PVD)? Hypertension (HTN)? III. CVDs Risk Reduction: What Can I Do to Lower My Risk? IV. Heart Rate & Blood Pressure? Readings: *ch 9, pp 252-259; ch 10, pp 266-270, 287-295* (LS); *Module 4, pp 29-33* (DC). Assignment: [Active Learning Questions Lecture 8](#). Submit on Canvas by 11:59:59 pm, US PDT.
- Oct 21 (R) [Lab 4 + Discussion. Heart Rate, Blood Pressure & Cardiovascular Disease Risk \(130 HUE\)](#). Readings: *pp 4-1 to 4-8* (LM). Assignment: [Lab 4 Worksheet](#). Submit on Canvas by 11:59:59 pm, US PDT.
- Oct 26 (T) [Activity in Lecture](#): Jeopardy Game 2 (100 WIL).
- Oct 28 (R) [Lecture 9 Discussion. Blood \(100 WIL\)](#). I. Introduction to Blood Composition: Cells vs Liquid; Red Blood Cells, White Blood Cells, Platelets vs Plasma; Plasma vs Serum. II. White Blood Cell Differentiation & Function. Readings: *ch 11, pp 296-304* (LS). *Module 5, pp 35-9; highlights of Module 6, pp 41-9* (DC); *pp 5-1 thru 5-6* (LM). Assignment: [Active Learning Questions Lecture 9](#). Submit on Canvas by 11:59:59 pm, US PDT by Saturday, October 30th, 2021.
- Oct 28 (R) [No Lab!](#) Study for Quiz 2.
- Oct 29 (F) [Quiz 2 on Canvas](#). Covers Lectures 5 – 8 and Labs 3 & 4. Open 12 n until 11:59:59 pm, US PDT.
- Nov 2 (T) [Lecture 10 Discussion. Blood Testing \(100 WIL\)](#). I. Blood Chemistry Review. II. Hematocrit & Blood Typing. III. Blood Glucose. IV. Diabetes Mellitus: Type I vs Type II; How Exercise & Diet Impact. Readings: *ch 17, pp 525-536* (LS); *Module 13, pp 110-12* (DC). Assignment: [Active Learning Questions Lecture 10](#). Submit on Canvas by 11:59:59 pm, US PDT.

- Nov 4 (R) [Lecture 11 Discussion. Endocrine System \(100 WIL\)](#). I. Introduction to the Endocrine System: What's an Endocrine? Classifying Hormones. IV. Hypothalamus, Pituitary & Target Organs. **Readings:** *ch 4, pp 94-105; ch 17, pp 494-525 (LS); Module 13, pp 103-113 (DC)*. **Assignment:** [Active Learning Questions Lecture 11](#). Submit on Canvas by 11:59:59 pm, US PDT.
- Nov 4 (R) [Lab 5 + Discussion. Blood Chemistry: Blood Glucose & Blood Typing \(130 HUE, but subject to change based on Centers for Disease Control & Prevention, State of Oregon & U of O updates\)](#). **Readings:** *pp 5-1 to 5-6 (LM)*. **Assignment:** [Lab 5 Worksheet](#). Submit on Canvas by 11:59:59 pm, US PDT.
- Nov 9 (T) [Lecture 12 Discussion. Nervous System \(100 WIL\)](#). I. Nervous System & Neurons (Nerve Cells); Central (Brain & Spinal Cord) vs. Peripheral Nervous System (Afferent & Efferent Divisions); II. The Autonomic Nervous System; Fight or Flight. III. Action Potentials, Synapses & the Neuromuscular Junction. **Activity:** Jeopardy Game 3. **Readings:** *ch 5, pp 106-120; ch 7, pp 178-193; highlights of ch 4, pp 70-88 (LS); Module 9, pp 67-77 (DC)*. **Assignment:** [Active Learning Questions Lecture 12](#). Submit on Canvas by 11:59:59 pm, US PST. Note time change from US PDT to PST on Nov 7th!
- Nov 11 (R) No Lecture or Lab. Celebrate Veterans' Day!
- Nov 12 (F) [Quiz 3 on Canvas](#). Covers Lectures 9 – 12 and Lab 5. Open 12 n until 11:59:59 pm, US PST.
- Nov 16 (T) [Lecture 13 Discussion. Skeletal Muscle Structure & Function \(100 WIL\)](#). I. Major Muscle Types; Structure of Skeletal Muscle. II. Molecular Basis of Skeletal Muscle Contraction. III. Metabolism & Fiber Types, Skeletal Muscle Adaptations. **Readings:** *ch 8, pp 194-204, 210-14 (LS); Module 12, pp 97-102 (DC)*. **Assignment:** [Active Learning Questions Lecture 13](#). Submit on Canvas by 11:59:59 pm, US PST.
- Nov 18 (R) [Lecture 14 Discussion. Respiratory System \(100 WIL\)](#). I. Respiratory System: Structure & Histology. II. Gas Volumes & Capacities, III. Ventilation Mechanics & Control. IV. Gas Exchange & Transport. **Readings:** *ch 12, highlights of pp 344-379 (LS); Module 7, pp 51-57 (DC)*. **Assignment:** [Active Learning Questions Lecture 14](#). Submit on Canvas by 11:59:59 pm, US PST.
- Nov 18 (R) [Lab 6 + Discussion: Pulmonary Function Tests \(130 HUE, but subject to change based on Centers for Disease Control & Prevention, State of Oregon & U of O updates\)](#). **Readings:** *pp 6-1 to 6-8 (LM)*. **Assignment:** [Lab 6 Worksheet](#). Submit on Canvas by 11:59:59 pm, US PST.
- Nov 23 (T) [Lecture 15 Discussion. Cigarette Smoking & Vaping \(100 WIL\)](#). **Readings & Videos:** <https://www.lung.org/quit-smoking/smoking-facts/health-effects>, <https://www.cancer.org/cancer/cancer-causes/tobacco-and-cancer.html>, <https://smokefree.gov/quit-smoking/why-you-should-quit/health-effects>, <https://www.cdc.gov/tobacco/campaign/tips/quit-smoking/index.html>, <https://www.pbs.org/video/vaping-1576094392/>; *ch 11, p 340 (LS); Module 7, p 57 (DC)*. **Assignment:** [Active Learning Questions Lecture 15](#). Submit on Canvas by 11:59:59 pm, US PST, by Saturday, November 27th, 2021.
- Nov 25 (R) No Lecture or Lab. Happy Thanksgiving! :)
- Nov 30 (T) Activity in Lecture: Jeopardy Game 4.
- Dec 2 (R) Discussion & Review for Quiz 4 in Lecture.
- Dec 2 (R) No Lab. Study for Quiz 4.
- Dec 3 (F) [Quiz 4 on Canvas](#). Covers Lectures 13 – 15 and Lab 6. Open 12 n until 11:59:59 pm, US PST.

Grading: 10% Lecture Attendance & Active Learning Questions submitted on Canvas
 10% Lab Attendance & Worksheets submitted on Canvas
 80% 4 Quizzes on Canvas each worth 20%