University of Oregon
Department of Biology

Course: BI 121, Introduction to Human Physiology, 04 cr, CRN 10942, 8:30-9:50 TR (100 WIL) + R Lab (130 HUE):10:00-10:50 (CRN 10943) or 11:00-11:50 (CRN 10944) or 12:00-12:50 (CRN 10945) or 13:00-13:50 (CRN 10946) or 14:00-14:50 (CRN 10947) or 15:00-15:50 (CRN 10948) or 16:00-16:50 (CRN 10949) or 17:00-17:50 (CRN 10950), Fall 2019.

Website: *http://blogs.uoregon.edu/bi121/fall-2019/*
Prior Websites: *http://blogs.uoregon.edu/bi121/summer-2019/* (past summer, most recent & up-to-date)
http://blogs.uoregon.edu/bi121/fall-2018/ (last fall, most synchronous)

Lecturer: V. Pat Lombardi; 65A Klamath (KLA); office hr: 10:00-11:00 T + by appointment; phone: 541-346-6055 (Biology Advising Center office/message); *lombardi@uoregon.edu*

Lab Preparator: Katie Pérez; *kperez@uoregon.edu*

Lab Instructors: Heather Foote; 130 Huestis, 16:30-17:30 W; *hfoote@uoregon.edu*
Isabella Salinas; 130 Huestis, 13:00-14:00 M; *isalinas@uoregon.edu*
Tim Wheeler; 130 HUE, 9:00-10:00 W; *twheele3@uoregon.edu*

Required Text & Lab Manual (available @ U of O Bookstore/Duckstore online *https://www.uoduckstore.com/*):
Chiras Daniel D (DC). *Human Body Systems: Structure, Function & Environment, 2nd ed.* Burlington, MA: Jones & Bartlett Learning, 2013.

Lombardi VP, Evonuk E & Carmack MA (LM). *BI 121, Introduction to Human Physiology, Laboratory Manual, Fall 2019*.

Supplemental Texts:
On-reserve in Science Library (90-min reserve period). Supplemental readings listed in [ ] below:

Sherwood Lauralee (LS). *Fundamentals of Human Physiology. 9th...4th or 3rd ed.* Belmont, CA: Brooks/Cole, Cengage Learning, 2016...2012 or 2006.

Sizer FS & Whitney EN (S&W). *Nutrition: Concepts & Controversies, 14th, 13th, 12th or 11th ed.* Belmont, CA: Wadsworth Cengage Learning, 2016, 2014, 2012 or 2010.

+ See supplemental reserved texts/readings in the Allan Price Science Commons & Research Library and listed under *UO Library Search*: *https://library.uoregon.edu/course-reserves*. Click on *Search Course Reserves*, then *Continue*, then type in *BI 121* and the course reserve list will appear.

Tentative Outline:

Oct 1 (T) **Lecture 1.** I. Introduction (outline, texts, labs, grading, expectations...); Introduction to Human Physiology; Body Levels of Organization. II. Homeostasis. **Readings:** *Introduction, Study Skills, pp v-viii; An Introduction to Structure and Function, Module 1, pp 1-8* (DC). [*ch 1 vignette p 0; ch 1, pp 1-10* (LS)] (100 WIL).

Oct 3 (R) **Lecture 2.** Connections: Homeostasis. Negative vs. Positive Feedback; Homeostatic Balance Examples; Simplified Homeostatic Model. II. Cell Anatomy, Physiology & Compartmentalization: Size; Basic Survival Skills; Begin Organelles. **Readings:** [*ch 1, pp 11-17; ch 2, pp 18-26* (LS)] (100 WIL).

Oct 3 (R) **Lab 1**: Histology, Microscopic Study of Tissues. **Readings:** *pp i-iii, 1-1 to 1-4* (LM) (130 HUE).

Oct 8 (T) **Lecture 3.** I. Cell Structure & Function: Organelles (continued). II. Anaerobic & Aerobic Metabolism. III. Introduction to Genetics. **Readings:** [*ch 2, pp 26-41*; *Appendix B, pp A-16, A-17; Appendix C, pp A-18 to A-26* (LS). Check your uo e-mail about these readings] (100 WIL).

Oct 10 (R) **Lecture 4.** I. Connections: Transcription & Translation. II. Nutrition in the News. III. Standard Serving Sizes: Estimating for Dietary Analyses. IV. Nutrients Essential for Life: Water, Energy Nutrients (1^0 Carbohydrates, 2^0 Fats, 3^0 Proteins), Vitamins & Minerals. V. Blue Zones & Diets of the World's Longest-lived People. What about Paleo? VI. Exercise, Dieting or Both? **Readings:** *Nutrition, Module 2, pp 9-16* (DC). [*ch 16 pp 485-6* (LS). *Highlights of ch 1, 2, pp 1-69*; *ch 9, pp 334-80* (S&W)] (100 WIL).

Oct 10 (R) **Lab 2**: Introduction to Anatomy & Physiology. **Readings:** *pp 2-1 to 2-10* (LM) (130 HUE).

Oct 15 (T) **Lecture 5.** I. Connections: Nutrition Quackery. II. 2015-2020 Dietary Guidelines for Americans. III. Hydrolysis, the Central Theme of Digestion. IV. Gut Anatomy, Histology & Functions. **Readings:** *The Digestive System, Module 3, pp 17-23* (DC). [*ch 15, pp 436-45*; *focus on Table 15-1 pp 440-1* (LS)]

Oct 17 (R) **Lecture 6.** I. Enzymatic Digestion, Absorption & Defecation. **Readings:** [*ch 15, pp 445-59; 463-77* (LS)]

Oct 17 (R) **Lab 3**: Nutritional Analyses. *NB*: Before the lab, please record your diet on p 3-7 (LM). Our goal is to use the *DietController* software program on computers in the lab to evaluate your diet and to make recommendations in order to enhance your nutrition awareness and lower your risk of disease. **Readings:** *pp 3-1 to 3-20* (LM). (130 HUE).

Oct 22 (T) **Lecture 7.** I. Circulatory: Cardiovascular & Lymphatic; Cardiac Physiology: Anatomy, Adult Heart & Fetal Blood Flow. **Readings:** *The Circulatory System, Module 4, pp 25-9, 33-4* (DC). [*ch 9, pp 228-34; ch 10, pp 281-7* (LS)]

Oct 24 (R) **Lecture 8.** Cardiovascular Physiology (continued), Diseases & Risk Reduction: I. What's a Heart Attack (AMI)? Stroke (CVA)? Peripheral Vascular Disease (PVD)? Hypertension (HTN)? II. What Can I Do to Lower My Risk of Cardiovascular Diseases (CVDs)? III. Heart Rate & Blood Pressure? **Readings:** *The Circulatory System, Module 4, pp 29-33* (DC). [*ch 9, pp 252-9; ch 10, pp 266-70, 287-95* (LS)]

Oct 24 (R) **Lab 4**: **Required Notebook Check.** Heart Rate, Blood Pressure & Cardiovascular Risk. **Readings:** *pp 4-1 to 4-13* (LM) (130 HUE).

Oct 27 (S) **Summary & Review Session for Exam I, 6-7:30 pm** (100 WIL). **Readings:** *Review slides on our website @ http://blogs.uoregon.edu/bi121/fall-2019/.*

Oct 29 (T) **Exam I** (100 WIL + TBA alternative exam sites).

Oct 31 (R) **Lecture 9.** I. Blood Composition: Plasma vs. Serum, Red Blood Cells, White Blood Cells, Platelets. II. Hematocrit & Blood Typing. III. The Blood & Body Defenses. IV. Blood Glucose & Diabetes Mellitus. V. Blood Chemistry Lab Review + Safety. **Readings:** *pp 5-1 thru 5-6* (LM); *The Blood, Module 5, pp 35-9; The Immune System, Module 6, pp 41-9*; *The Endocrine System, Module 13, pp 110-12* (DC). [*ch 11, pp 296-313*; *ch 17, pp 525-36* (LS)]

Oct 31 (R) No Lab. Break for Exam I Week! Study!! Take a break!! ☺

Nov 5 (T) **Lecture 10.** I. Introduction to the Endocrine System: What's an Endocrine? Classifying Hormones. II. Hypothalamus, Pituitary & Target Organ Overview. III. Principles of Neural & Hormonal Communication. **Readings:** *The Endocrine System, Module 13, pp 103-9* (DC). [*ch 4, pp 94-105; ch 17, pp 494-536* (LS)]

Nov 7 (R) **Lecture 11.** I. Blood Chemistry Lab Review + Safety. II. Peripheral Endocrine Organs. **Readings:** *The Endocrine System, Module 13, pp 109-13* (DC). [*pp 5-1 thru 5-6* (LM); *ch 17, pp 506-25* (LS)]

Nov 7 (R) **Lab 5:** Blood Chemistry: Blood Glucose & Blood Typing. **Readings: Please reread *pp 5-1 to 5-6* (LM) prior to the lab. Thanks sincerely!** (130 HUE).

Nov 12 (T) **Lecture 12.** I. Nervous System & Neurons. II. Central vs. Peripheral Nervous System. III. The Autonomic Nervous System. IV. Fight or Flight. **Readings:** *The Nervous System, Module 9, pp 67-77* (DC). [*ch 5, pp 106-11; ch 7, pp 178-86* (LS)]

Nov 14 (R) **Lecture 13 (Lucky!!). Mystery Guest! :)** I. Action Potentials, Synapses & the Neuromuscular Junction. **Readings:** [*ch 7, pp 186-93; ch 4, pp 70-88* (LS)]

Nov 14 (R) No Lab. Study for Exam II!

Nov 19 (T) **Lecture 14.** Muscle Physiology: I. Major Muscle Types. II. Structure of Skeletal Muscle. **Readings:** *The Muscular System, Module 12, pp 97-102* (D&C). [*ch 8, pp 194-198* (LS)]

Nov 21 (R) **Lecture 15.** I. Molecular Basis of Skeletal Muscle Contraction. II. Metabolism & Fiber Types. III. Skeletal Muscle Adaptations & Exercise Physiology. **Readings:** [*ch 8, pp 198-204; 210-4* (LS)]

Nov 21 (R) **Lab 6**: Pulmonary Function Tests. **Optional 2nd Notebook Check. Readings:** *pp 6-1 to 6-8* (LM) (130 HUE).

Nov 26 (T) **Lecture 16.** Respiratory System: I. Structure & Histology. II. Ventilation Mechanics & Control. III. Gas Volumes & Capacities. **Readings:** *The Respiratory System, Module 7, pp 51-7* (DC). [*ch 12, pp 344-62, 373-9* (LS)]

Nov 28 (R) Thanksgiving Holiday. No lecture or laboratory. Be safe & have a Happy Turkey Day!! ☺

Dec 3 (T) **Lecture 17.** I. Gas Exchange & Transport. II. Physiology of Cigarette Smoking. **Readings:** [*ch 12 pp 362-73; ch 11 p 340* (LS)]

Dec 5 (R) **Lecture 18. Summary & Review Session for Exam II** (100 WIL). **Readings:** *Review slides on our website @ http://blogs.uoregon.edu/bi121/fall-2019/*. No laboratory.

Dec 13 (F) **Exam II**, 8:00-9:50 *NB*: 8:00 start time! (100 WIL + TBA alternative exam sites).

Grading: Lecture* (20%) & Laboratory *(20%) Attendance & Participation, Exam I (30%), Exam II (30%).

*Required attendance & participation are essential components of your grade! ☺ ...& of your life! We ♥ Human Physiology!!!