COURSE POLICY FOR BIOLOGY 385: HUMAN PHYSIOLOGY
FALL SEMESTER, 2021

Course Description: Normal functions of organ systems in humans. This course fulfills the physiology requirements for biology, human development, nutritional sciences, and physical education majors and is recommended for students with pre-professional interests in medical or allied health fields. Three hours of lecture and three hours of lab per week, 4 credits. **Prerequisites: One of the following: BIOL 101, BIOL 111, or BIOL 160; and one of the following: CHEM 101, CHEM 105, or CHEM 117 (or equivalent).**

Lectures: Dr. Jennifer Bray
Office: **CBB 311**
Email: jbray@uwsp.edu

Office hours: Please email me with any questions you have or to set up zoom appointments.

Assigned Text: "Human Physiology, From Cells to Systems," 9th ed., by Lauralee Sherwood; Brooks/Cole, Cengage Learning, 2016. Available at Text Rental. Think about buying an old edition for your own reference after you take the course.

Supplemental Texts available (OPTIONAL): "Physiology Coloring Book," 2nd ed., 1999, by Wynn Kapit, Robert Macey, and Esmail Meisami; Harper & Row publishers. These are available for purchase from the bookstore. New and used coloring books can also be purchased online. Also suggested is the "Study Guide for Sherwood's Human Physiology: From Cells to Systems," which can be purchased online. An older edition will work just fine or buy a used one. These will be much cheaper!

Physiology course outcomes: Upon completion of this course students should be able to

1. Understand and describe the basic physiological principles of cells, tissues, organs, and organ systems.
2. Recognize and explain the principle of homeostasis and the use of feedback loops to control physiological systems in the human body.
3. Explain how physiological systems are integrated and identify physiological tradeoffs.
4. Demonstrate proficiency in the methods and philosophy of science, including articulation and application of the scientific method, collection and analysis of biological data, and application of professional ethics.
5. Articulate the application of biological science to meeting the needs of society.

Last day to drop the course: Friday, November 5th (A "W" will appear on your transcript.)

Lecture Slides: Lecture PowerPoint presentations will be made available to registered students through the course link in *Canvas*. Lecture materials and recordings for Human Physiology, Biology 385, are protected intellectual property at UW-Stevens Point. Students in this course may use the materials and recordings for their personal use related to participation in this class. Students may also take notes solely for their personal use. Students may not copy or share lecture materials and recordings outside of class, including posting on internet sites or selling to commercial entities. Students are also prohibited from providing or selling their personal notes to anyone else or being paid for taking notes by any person or commercial firm without the instructor's express written permission. Unauthorized use of these copyrighted lecture materials and recordings constitutes copyright infringement and may be addressed under the university's policies, UWSP Chapters 14 and 17, governing student academic and non-academic misconduct.

Exams: There will "mini" lecture exams on each topic that will be scheduled throughout the semester. Exams will be taken online through Canvas. The exams will consist of multiple choice, true and false, and matching questions. The last exam is NOT cumulative.

Grade Scale: Exams will be 80% of your final grade, with your lab grade the reaming 20%. Your grade will be based on a straight scale as shown below. **There will be NO negotiation of grades between instructor and students!**

GRADE	MINIMUM PERCENT FOR GRADE
A+	97.0%
A	90.0%
A-	86.7%
B+	83.3%
B	80.0%
B-	76.7%
C+	73.3%
C	70.0%
C-	66.7%
D+	63.3%
D	60.0%
F	0.0%

The **A+** designation is called "honorary honors," which does not appear on your transcript, but will be noted in letters of recommendation ☺

Academic Misconduct: Any form of *cheating* on quizzes, exams, or assignments will not be tolerated and will earn a grade of ***F (0 points for the quiz, exam, or assignment)***. Student grievances are handled per the University of Wisconsin's administrative code, "Student Academic Standards and Disciplinary Procedures," found at http://docs.legis.wisconsin.gov/code/admin_code/uws/14.pdf

Tutoring: The Tutoring-Learning Center (TLC) offers FREE group, drop-in, and individual tutoring to support you in your biology classes. The tutors are UWSP students who have done well in their classes and who are here to share their successful study habits and biology content knowledge to help others succeed. Discussing physiology concepts and processes together clarifies and solidifies knowledge, and the tutors are eager to study with you. If you have questions about the schedules or would like to make an appointment, please visit the TLC in ALB 018 (library basement), email (tlctutor@uwsp.edu), or call (715) 346-3568 for information. vzx Please visit the TLC website for the tutoring schedule: https://www.uwsp.edu/tlc/Pages/schedules.aspx

Suggestions: Also see handouts on Canvas!

- Make a ***LIST OF TERMS*** from your notes for each lecture and text assignment as a guide for day-to-day study. **RED BOLD** words are key terms and concepts that you will be expected to know for exams.
- **Take notes while watching the lecture: research shows that writing notes by hand increases retention by 50%!**
- **Since physiology does *not* lend itself to memorization very well, study the material as soon after *each* lecture as possible.**
- Participation in a ***study group*** of three or four, meeting once a week is ***the most effective way to study physiology***. Turn the lecture topics into questions; it is a great way to see how well you know the material.

BIOLOGY 385: HUMAN PHYSIOLOGY
LECTURE SCHEDULE, FALL 2021

Date	Topic	Recommended Reading: *Human Physiology*, 9th ed., 2016 by L. Sherwood
	Course Overview	Review Syllabus and watch intro video on canvas!
Sept. 2	Introduction to Physiology and Homeostasis	Ch. 1 (1-18)
3	Cell Physiology and Overview of Organelles	Ch. 2 (21-30), *Table 2-2 (45)*
7	The Plasma Membrane and Cell to Cell Adhesions	Ch. 3 (55-63)
9	Membrane permeability; passive and active transport; Tonicity	Ch. 3 (63-77), *Table 3-2 (78)*
10	Neurophysiology I: Membrane Potential, origin of electrical potentials from dissolved ions	Ch. 3 (77-85)
14	Neurophysiology II: Excitable membranes, depolarization, hyperpolarization, repolarization, and action potentials in neurons	Ch. 4 (87-102)
16	Neurophysiology III: Action Potentials	Ch. 4 (87-102)
17	Neurophysiology IV: Synapses	Ch. 4 (102-108)
21	Neuro-muscular Junction (motor end-plate)	Ch. 7 (242-248)
23	Skeletal muscle I: structure and molecules of muscle contraction	Ch. 8 (251-256)
24	Skeletal muscle II: calcium-triggering system: the sarcoplasmic reticulum and t-tubule system	Ch. 8 (256-262)
28	Skeletal muscle III: mechanics, motor nerves and muscle group, motor units and origin of reflexes	Ch. 8 (262-275)
30	Skeletal muscle IV: muscle metabolism and skeletal muscle types	Ch. 8 (262-275)
Oct. 1	Smooth muscle	Ch. 8 (286-294), *Table 8.4 (287)*
5	Overview of the central nervous system (CNS)	Ch. 5 (Tbl 5-1*, refer to slides for pages and figs)
7	Spinal cord and reflexes, muscle spindles	Ch. 5 (172-178); Ch. 8 (281-286)
8	The autonomic nervous system (ANS)	Ch. 7 (233-241)
12	Red blood cells: anemia and polycythemia	Ch. 11 (380-389)
14	White blood cells: granulocytes and lymphocytes; Hemostasis	Ch. 11 (392-394), Ch. 11 (395-400)
15	Immunology: macrophage & lymphocyte function; humoral and cellular immunity	Ch. 12 (see slides for page numbers)
19	Cardiac Physiology I: heart as a muscular pump; properties of arteries and veins	Ch. 9 (297-303); Ch. 10 (skim 335-365) *Tbl 10-1*
21	Cardiac Physiology II: ECG; blood pressure patterns	Ch. 9 (303-314)
22	Cardiac Physiology III: the Cardiac Cycle	Ch. 9 (314-318; *Fig 9-16, p.316*)
26	Cardiac Physiology IV: Cardiac Output	Ch. 9 (319-325)

28	Blood flow and blood pressure relationships	Ch. 10 (365-369) (see slides for additional pages)
29	Pulmonary Physiology I: Respiratory Anatomy and mechanics	Ch. 13 (445-465)
Nov. 2	Pulmonary Physiology II: Gas Exchange and transport	Ch. 13 (466-478)
4	Pulmonary Physiology III: Chemistry of respiration, Hb and carbonic anhydrase	Ch. 13 (466-478)
5	Pulmonary Physiology IV: nervous and chemical control of respiration	Ch. 13 (479-488)
9	Renal Physiology I: regulation of body fluids; gross and micro-anatomy of the kidney	Ch. 14 (491-498)
11	Renal Physiology II: filtration, GFR	Ch. 14 (498-505)
12	Renal Physiology III: Tubular reabsorption and secretion, role of the hormones aldosterone and vasopressin in the regulation of water excretion/blood volume	Ch. 14 (505-517)
16	Renal Physiology IV: urine excretion; counter- current multipliers; fluid and acid-base balance	Ch. 14 (517-527), Ch. 15 (535-563)
18	Introduction to endocrinology control systems: the pituitary gland - the "master" endocrine gland	Ch. 18 (638-652; Tbl 18-2 summary, p. 644-645)
19	The hypothalamus-pituitary team, using the control of the thyroid gland as a model system	Ch. 19 (665-671)
23	The adrenal gland: anatomy, steroid hormones, epinephrine and pituitary control and adrenal diseases	Ch. 19 (672-685)
30	Regulation of blood glucose: insulin and glucagon	Ch. 19 (685-701)
Dec. 2	Diabetes - Type I & II	Ch. 19 (685-701)
3	Sex determination and sex differentiation	Ch. 20 (715-723)
7	Male reproductive endocrinology; Spermatogenesis	Ch. 20 (723-732)
9	Female sex-steroid hormones I: estrogen, progesterone	Ch. 20 (736-749)
10	Female sex-steroid hormones II: the menstrual cycle and overview of fertilization	Ch. 20 (749-750)

* Please note: Course schedule and topics covered are subject to change. Please refer to Canvas and the lecture slides for up-to-date information on page numbers and material covered on exams.

BIOLOGY 385 HUMAN PHYSIOLOGY LAB SCHEDULE FALL SEMESTER 2021

LAB BEGINNING	*EXPERIMENT DESCRIPTION*
September 6	ANATOMY OF THE PRESERVED RAT **ALL ONLINE – Please watch videos on canvas!**
September 13	PERMEABILITY: PENETRATION OF SUBSTANCES INTO CELLS
September 20	THE SPECIAL SENSES: HEARING, TOUCH, TASTE & SMELL
September 27	SKELETAL MUSCLE
October 4	SPINAL AND SUPRASPINAL REFLEXES
October 11	FORMED ELEMENTS OF THE BLOOD; RBC MEASUREMENTS, IMMUNITY, AND BLOOD TYPING
October 18	HEART ANATOMY AND THE ELECTROCARDIOGRAM
October 25	HEART (VALVE) SOUNDS AND BLOOD PRESSURE
November 1	CAPACITIES OF THE RESPIRATORY SYSTEM – **ALL ONLINE / AT HOME**
November 8	SMALL-ANIMAL SURGERY PRACTICE AND PREPARATION
November 15	HORMONE-DEPENDENT TISSUE GROWTH, PT. I: OVARIECTOMY OF FEMALE RATS
November 22	NO LAB – THANKSGIVING BREAK 😊
November 29	THYROID HORMONES AND METABOLISM: SOLVING A HORMONE UNKNOWN
December 7	HORMONE-DEPENDENT TISSUE GROWTH, PT II: HORMONE & SURGERY EVALUATION

Lab Sections:

LAB DAY	SECTION	INSTRUCTOR
MAM (9:00 - 11:50 am)	**Section 1**	**Dr. Bray**
TPM (12:00 – 2:50 pm)	**Section 2**	**Dr. Bray**
WPM (1:00 – 3:50 pm)	**Section 4**	**Dr. Steury**
ALL ONLINE	**Section 9**	**Dr. Bray**

Lab Grade: The lab grade consists of *quiz grades*, and *lab reports*. *It counts for 20% of the final grade.* *Think of your lab grade as an extra lecture exam.* Because lab is a major component of the course, you must complete the lab reports if you want to do well in this course. **Lab reports are due a week after the lab is performed.** Therefore, if you have lab on a Monday, your report must be uploaded into canvas by midnight the following Monday. If they are not turned in within a week of the due date, the grade will be converted into a zero and you will no longer be able to submit a report for that lab activity. If you are missing five or more lab reports or lab assignments, your final lab grade will be converted to a zero (0%), because you will not have completed the lab component portion of the course.

Face Coverings:

- At all UW-Stevens Point campus locations, the wearing of face coverings is mandatory in all buildings, including classrooms, laboratories, and other instructional spaces. Any student with a condition that impacts their use of a face covering should contact the Disability and Assistive Technology Center to discuss accommodations in classes. **Please note that unless everyone is wearing a face covering, in-person classes cannot take place.** This is university policy and not up to the discretion of individual instructors. Failure to adhere to this requirement could result in formal withdrawal from the course.

Other Guidance:

- Please monitor your own health each day using this screening tool. If you are not feeling well or believe you have been exposed to COVID-19, do not come to class; email your instructor and contact Student Health Service (715-346-4646).
    - As with any type of absence, students are expected to communicate their need to be absent and complete the course requirements as outlined in the syllabus.
- Do not congregate in groups before or after class; stagger your arrival and departure from the classroom, lab, or meeting room.
- Wash your hands or use appropriate hand sanitizer regularly and avoid touching your face.
- Please maintain these same healthy practices outside the classroom.