湖北工業大學
HUBEI UNIVERSITY OF TECHNOLOGY

Course Title	Human Physiology I
Course Code	BIOL 3613
Semester	Summer 2026
Course Length	8 Weeks, 60 Contact Hours
Credits	4
Instructor	TBA
Office	TBA
Email	TBA
Prerequisite	BIOL 1101 Principles of Biology CHEM 1111 General Chemistry I PHYS 1011 General Physics I
Antirequisite	BIOL 3611 Human Physiology I (4 Weeks)

Course Description:

This course offers a high-level investigation into the biological principles governing human physiological systems, focusing on the sophisticated mechanisms of homeostasis. The course provides an integrated understanding of how cells, tissues, and organ systems function in concert, with a particular emphasis on the biophysical properties of excitable tissues. Students will explore the intricate regulatory pathways of the nervous, muscular, endocrine, and reproductive systems at the molecular and systemic levels. Beyond conceptual understanding, the course emphasizes scientific reasoning and the application of physiological concepts to solve complex biological problems.

Course Goals:

Students who successfully complete this course will demonstrate competency in the following general education core goals:

- **Critical Thinking Skills** – Students will engage in analytical thinking, demonstrating the ability to critically evaluate, synthesize, and apply knowledge to complex problems, and construct well-reasoned solutions and arguments.
- **Independent Research and Inquiry** – Students will conduct independent research, utilizing academic resources to explore relevant topics, formulating research questions, analyzing data, and presenting findings in a coherent, scholarly manner.
- **Problem-Solving and Application** – Students will apply theoretical concepts and methodologies learned in the course to real-world problems, demonstrating the ability to develop practical solutions informed by academic inquiry.
- **Global and Cultural Awareness** – Students will gain awareness of the global and cultural contexts relevant to the course, appreciating diverse perspectives

and considering the implications of their studies in a broader, international context.

Student Learning Outcomes:

Upon completion of this course, students will be able to:

- Explain homeostasis and the dynamic regulation of body fluids and molecular transport;
- Describe the electrical and chemical signaling processes in neurons, synapses, and muscle tissue;
- Analyze sensory processing, motor control, and autonomic regulation within the central and peripheral nervous systems;
- Integrate endocrine signaling with physiological control of metabolism, growth, and stress responses;
- Outline the hormonal and cellular basis of reproductive function and early embryonic development;
- Apply physiological principles to interpret clinical scenarios involving regulatory dysfunction.

Textbooks/Supplies/Materials/Equipment/ Technology or Technical Requirements:
Dee Unglaub Silverthorn. *Human Physiology: An Integrated Approach, 8th Edition.* Pearson.

Course Requirements:

Quizzes and Homework Assignments (25%): Short assessments (10-15 multiple-choice/short-answer questions or brief problem sets) assigned after each lecture block. These reinforce key concepts from readings and lectures, encourage regular review, and provide timely feedback.

Midterm Examination (25%): This exam covering the first half of the course. Format includes multiple-choice, short-answer, and integrative diagram/essay questions testing homeostasis, membrane physiology, neural signaling, muscle function, and early CNS/sensory topics.

Case-Study Project (15%): An individual written analysis (approx. 1500 words) of a real-world regulatory disorder (e.g., selected endocrine or neuromuscular condition). Students apply course concepts to explain mechanisms, symptoms, and homeostatic compensation.

Final Comprehensive Examination (35%): A cumulative exam emphasizing the latter half of the course while integrating earlier material. Includes multiple-choice, short-answer, and scenario-based questions on advanced CNS functions, endocrine regulation, reproduction, and overall system integration.

Assessments: Activity	**Percent Contribution**
Quizzes and Homework Assignments	25%
Midterm Examination	25%
Case-Study Project	15%

Final Comprehensive Examination 35%

Grading:

Final grades will be based on the sum of all possible course points as noted above.

Grade	**Percentage of available points**
A	94-100
A-	90-93
B+	87-89
B	84-86
B-	80-83
C+	77-79
C	74-76
C-	70-73
D	64-69
D-	60-63
F	0-59

Course Schedule:
The schedule of activities is subject to change at the reasonable discretion of the instructor. Minor changes will be announced in class, major ones provided in writing.

BIOL 3613 Schedule			
Lecture	Topic	Readings	Due dates
L1	Introduction to physiology and homeostasis	Ch. 1 & 6	
L2	Body fluid compartments and membrane transport	Ch. 5	Quiz 1
L3	Diffusion, osmosis, and mediated transport	Ch. 5	
L4	Epithelial transport and cell signaling	Ch. 3 & 5	Homework 1
L5	Neural tissue: structure and glial support	Ch. 8	
L6	Resting membrane potential and graded potentials	Ch. 8	
L7	Action potentials and propagation	Ch. 8	
L8	Synapses and synaptic transmission	Ch. 8	Quiz 2
L9	Skeletal muscle structure and contraction	Ch. 12	
L10	Excitation-contraction coupling and motor units	Ch. 12	Homework 2
L11	CNS organization and protective structures	Ch. 9	
L12	Somatosensory and proprioceptive systems	Ch. 10	
--	**Midterm Exam (covers L1-12)**		
L13	Special senses: vision and hearing	Ch. 10	
L14	Vestibular system and equilibrium	Ch. 10	Homework 3
L15	Olfactory and gustatory systems	Ch. 10	Quiz 3
L16	Motor pathways and reflexes	Ch. 11 & 13	
L17	Autonomic nervous system divisions	Ch. 11	Homework 4
L18	Endocrine system: general principles and hypothalamic-pituitary axis	Ch. 7 & 23	
L19	Thyroid, parathyroid, and calcium regulation	Ch. 23	
L20	Adrenal and pancreatic hormones	Ch. 23	Case-Study Project Due
L21	Stress response and metabolic regulation	Ch. 23	Quiz 4
L22	Reproductive hormones and gonadal function	Ch. 26	Homework 5

L23	Male reproductive physiology	Ch. 26	Quiz 5
L24	Female reproductive cycle and pregnancy	Ch. 26	
L25	Integration of regulatory systems and clinical correlations	Review	
--	**Final Examination (Cumulative)**		

Accommodation Statement:

Academic accommodations may be made for any student who notifies the instructor of the need for an accommodation. It is imperative that you take the initiative to bring such needs to the instructor's attention, as he/she is not legally permitted to inquire. Students who may require assistance in emergency evacuations should contact the instructor as to the most appropriate procedures to follow.

Academic Integrity Statement

Each student is expected to maintain the highest standards of honesty and integrity in academic and professional matters. The University reserves the right to take disciplinary action, up to and including dismissal, against any student who is found guilty of academic dishonesty or otherwise fails to meet the standards. Any student judged to have engaged in academic dishonesty in coursework may receive a reduced or failing grade for the work in question and/or for the course.

Academic dishonesty includes, but is not limited to, dishonesty in quizzes, tests, or assignments; claiming credit for work not done or done by others; hindering the academic work of other students; misrepresenting academic or professional qualifications within or outside the University; and nondisclosure or misrepresentation in filling out applications or other University records.

Other Items:

Attendance and Expectations

All students are required to attend every class, except in cases of illness, serious family concerns, or other major problems. We expect that students will arrive on time, be prepared to listen and participate as appropriate, and stay for the duration of a meeting rather than drift in or out casually. In short, we anticipate that students will show professors and fellow students maximum consideration by minimizing the disturbances that cause interruptions in the learning process. This means that punctuality is a must, that cellular phones be turned off, and that courtesy is the guiding principle in all exchanges among students and faculty. You will be responsible for the materials and ideas presented in the lecture.

Assignment Due Dates

All written assignments must be turned in at the time specified. Late assignments will not be accepted unless prior information has been obtained from the instructor. If you believe you have extenuating circumstances, please contact the instructor as soon as possible.

Make-Up Work

The instructor will not provide students with class information or make-up assignments/quizzes/exams missed due to an unexcused absence. Absences will be excused and assignments/quizzes/exams may be made up only with written documentation of an authorized absence. Every effort should be made to avoid scheduling appointments during class. An excused student is responsible for requesting any missed information from the instructor and setting up any necessary appointments outside of class.

Access, Special Needs, and Disabilities

Please notify the instructor at the start of the semester if you have any documented disabilities, a medical issue, or any special circumstances that require attention, and the school will be happy to assist.