

BIOH 113 - HUMAN FORM AND FUNCTION II

COURSE MEETING TIMES: Tuesdays and Thursdays 3:30-4:50pm, ULH

INSTRUCTOR: Heather Labbe

CONTACT INFORMATION:

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Office Hours: Tuesdays 9:00-10:50am, ISB 103A and by appointment

COURSE ONLINE SUPPLEMENT: All lectures, assignments, and info regarding participation opportunities will be posted on the course Learning Management System (LMS), [Moodle](#).

TEXT: REQUIRED: Anatomy and Physiology: From Science to Life. Jenkins and Tortora, 3rd edition

RECOMMENDED: WileyPlus is the publisher generated online content for the course. If you bought your text from the UM bookstore the book will include a registration code for this content. It may also be purchased as a standalone product and does include an e-version of the above required text. If you wish to ONLY purchase WileyPlus and are comfortable having a digital version of the required text you may do so by following the instructions found on the [WileyPlus page for the course](#).

GENERAL COURSE LEARNING GOALS:

- Develop a vocabulary of appropriate terminology to effectively communicate information related to anatomy and physiology.
- Recognize the anatomical structures and explain the physiological functions of body systems.
- Recognize and explain the principle of homeostasis and the use of feedback loops to control physiological systems in the human body.
- Use anatomical knowledge to predict physiological consequences, and use knowledge of function to predict the features of anatomical structures.
- Recognize and explain the interrelationships within and between anatomical and physiological systems of the human body.
- Synthesize ideas to make a connection between knowledge of anatomy and physiology and real-world situations, including healthy lifestyle decisions and homeostatic imbalances.
- Interpret graphs of anatomical and physiological data.
- Approach and examine issues related to anatomy and physiology from an evidence-based perspective.

GENERAL COURSE LEARNING OUTCOMES:

- Demonstrate practical knowledge of human gross and microscopic anatomy.
- Identify structures in the body and their interrelationship with other structures.
- Describe development, regeneration, normal function of body systems.
- From observations of A&P status, interpret observations & predict consequences to homeostasis.
- Demonstrate understanding of chemical and biological principles and knowledge that serve as the foundation for understanding of human anatomy & physiology.
- Employ the scientific process for understanding principles of anatomy & physiology.
- Evaluate scientific value of new A&P observations & data.
- Describe energy-transfer processes in human body & predict consequences of interrupted or pathologic energy transfer.
- Describe cellular processes governing development, growth, & normal function of the human body.

CHAPTER SECTION SPECIFIC LEARNING OUTCOMES ARE PROVIDED AT THE END OF THIS DOCUMENT, IN THE TEXTBOOK, & WILEYPLUS

ASSIGNMENTS:

There are four, 25 point assignments that are due throughout the semester. Assignment assessments are generally based off of a reading, video, or podcast which will be accessible via the course Moodle supplement.

All assignment assessments will be posted on Moodle two weeks prior to their due date, and must be completed and submitted prior to the due date deadline.

NO LATE ASSIGNMENTS WILL BE ACCEPTED.

PARTICIPATION GRADE LAB PROSECTION DAYS:

THURSDAYS 1:30– 3 PM
FRIDAYS 2:30 – 4 PM
SUNDAYS 7:00 - 8:30 PM
MONDAYS 9:00 – 10:30 AM

**Prosection 1: Overview of Organ Systems: Focus on Terminology and Identification and Endocrine System
FEBRUARY 16th, 17th, 19th, AND (Wednesday the 22nd from 10:30-noon due to President's Day Holiday)**

**Prosection 2: Focus on Blood and the Cardiovascular System
MARCH 9TH, 10TH, 12TH, AND 13th**

**Prosection 3: Focus on the Respiratory and Digestive Systems
APRIL 13TH, 14TH, 16TH, AND 17TH**

**Prosection 4: Focus on the Urinary and Reproductive Systems
MAY 4TH, 5TH, 7TH, AND 8TH**

Additional participation point opportunities will be posted to the Moodle page as the semester progresses. These may take the form of, but are not limited to, temporally limited online assessments, service activities, and attendance at on-campus lectures or seminars. Availability of participation opportunities is subject to the discretion of the instructor. No more than 200 points will be made available during the semester, from which each student will fill a quota of 50 points. **Once the quota is filled, a student may continue to complete the participation activities, but no more than 50 participation points will be awarded. If a student accrues 150 or more participation points, a bonus of 5 points of extra credit will be added to their overall course point total.**

NO STUDENT WILL BE ABLE TO ACCUMULATE MORE THAN 50 POINTS OF PARTICIPATION, REGARDLESS OF THE NUMBER OF POINTS ACCUMULATED OVER 50.

NOTIFICATION OF PARTICIPATION POINT OPPORTUNITY AVAILABILITY WILL BE SENT TO YOUR UNIVERSITY EMAIL ADDRESSES VIA MOODLE ANNOUNCEMENTS.

TENTATIVE READING SCHEDULE (AS WE PROGRESS THROUGH SEMESTER- CHECK MOODLE FOR UPDATES)

DATE	TOPIC	REQUIRED READING
1/24	Course Policies and Introduction to Resources	Course P&P handout
1/26	The Human Body, An Orientation	JT: Ch1 sections 1.1-1.7
1/31	The Human Body, An Orientation	JT: Ch1 sections 1.1-1.7
2/2	Control Systems: Endocrine	JT: Ch sections 17.1-17.10
2/7	Control Systems: Endocrine	JT: Ch sections 17.1-17.10
2/9	Control Systems: Endocrine	JT: Ch sections 17.1-17.10
2/14	Connective Tissue: Blood	JT: Ch sections 18.1-18.9
2/16	Connective Tissue: Blood Assignment #1 Due Today	JT: Ch sections 18.1-18.9
2/21	Cardiovascular System: The Heart	JT: Ch sections 19.1-19.8
2/23	Exam #1	

DATE	TOPIC	REQUIRED READING
2/28	Cardiovascular System: The Heart	JT: Ch sections 19.1-19.8
3/2	Cardiovascular System: The Heart	JT: Ch sections 19.1-19.8
3/7	Cardiovascular System: The Heart	JT: Ch sections 19.1-19.8
3/9	Cardiovascular System: The Vessels	JT: Ch sections 20.1-20.10
3/14	Cardiovascular System: The Vessels	JT: Ch sections 20.1-20.10
3/16	The Respiratory System Assignment #2 Due Today	JT: Ch sections 22.1-22.10
3/21	Spring Break	
3/23	Spring Break	
3/28	The Respiratory System	JT: Ch sections 22.1-22.10
3/30	Exam #2	
4/4	The Respiratory System	JT: Ch sections 22.1-22.10
4/6	The Digestive System	JT: Ch sections 23.1-23.10
4/11	The Digestive System	JT: Ch sections 23.1-23.10
4/13	The Digestive System Assignment #3 Due Today	JT: Ch sections 23.1-23.10
4/18	The Digestive System	JT: Ch sections 23.1-23.10
4/20	The Urinary System	JT: Ch sections 24.1-24.10
4/25	The Urinary System	JT: Ch sections 24.1-24.10
4/27	The Reproductive System and Development	JT: Ch sections 25.1-25.5
5/2	The Reproductive System and Development	JT: Ch sections 25.1-25.5
5/4	The Reproductive System and Development Assignment #4 Due Today	JT: Ch sections 25.1-25.5
Tuesday 5/9	Final Exam	(1:10pm - 3:10pm)

HUMAN ANATOMY AND PHYSIOLOGICAL SOCIETY LEARNING OUTCOMES FOR BIOH 113:

MODULE A: BODY PLAN AND ORGANIZATION

Students who have completed this section of the course should understand the scope of studies in anatomy and physiology and be able to use and understand descriptive anatomical and directional terminology.

Topics:

- Anatomical position
- Body planes & sections
- Body cavities & regions
- Directional terms
- Basic terminology
- Levels of organization
- Survey of body systems

MODULE B: HOMEOSTASIS

Students who have completed this section of the course should be able to explain the basic concept of homeostasis and how homeostatic mechanisms apply to body systems.

Topics:

- General types of homeostatic mechanisms
- Examples of homeostatic mechanisms
- Application of homeostatic mechanisms and predictions related to homeostatic imbalance, including disease states & disorders

MODULE J: ENDOCRINE

Students who have completed this section of the course should be able to identify endocrine organs and tissues, explain the terms hormone, endocrine gland, endocrine tissue (organ), and target cell, and describe the mechanisms by which the controlling signals are transferred through the body and the time course of the response(s) and action(s).

Topics:

- General functions of the endocrine system
- Chemical classification of hormones & mechanism of hormone actions at receptors.
- Control of hormone secretion
- Control by the hypothalamus & pituitary gland
- Identity, source, secretory control, & functional roles of the major hormones produced by the body
- Local hormones (paracrines & autocrines) & growth factors
- Hormonal response to stress
- Application of homeostatic mechanisms and predictions related to homeostatic imbalance, including disease states & disorders

MODULE K: CARDIOVASCULAR SYSTEM

Students who have completed this section of the course should be able to describe the basic structure and function of the cardiovascular system, to include blood, the heart, and the body's vessels.

Topics:

- General functions of the cardiovascular system
- Composition of blood plasma
- Identity, microscopic anatomy, numbers, formation, & functional roles of the formed elements of blood
- Hemostasis, including coagulation of blood
- ABO & Rh blood grouping
- Gross & microscopic anatomy of the heart
- Physiology of cardiac muscle contraction
- Blood flow through the heart
- Conduction system of the heart & the electrocardiogram
- Cardiac cycle
- Regulation of cardiac output, stroke volume, & heart rate
- Anatomy & functional roles of the different types of blood vessels
- Pattern of blood circulation throughout the body, including systemic, pulmonary, coronary, hepatic portal, & fetal circulations
- Blood pressure & its functional interrelationships with cardiac output, peripheral resistance, & hemodynamics
- Application of homeostatic mechanisms and predictions related to homeostatic imbalance, including disease states & disorders

MODULE M: RESPIRATORY SYSTEM

Students who have completed this section of the course should be able to identify and describe the major gross and microscopic anatomical components of the respiratory system and describe their functions.

Topics:

- General functions of the respiratory system
- Gross & microscopic anatomy of the respiratory tract & related organs
- Mechanisms of pulmonary ventilation
- Pulmonary air volumes & capacities
- Mechanisms of gas exchange in the lungs & tissues
- Mechanisms of gas transport in the blood
- Control of pulmonary ventilation
- Application of homeostatic mechanisms and predictions related to homeostatic imbalance, including disease states & disorders

MODULES N AND O: DIGESTIVE SYSTEM AND NUTRITION

Students who have completed this section of the course should be able to identify and describe the major gross and microscopic anatomical components of the digestive system and explain their functional roles.

Topics:

- General functions of the digestive system
- Gross & microscopic anatomy of the alimentary canal
- Gross & microscopic anatomy of the accessory glands & organs
- Peritoneum & mesenteries
- Motility in the alimentary canal
- Mechanical & chemical processes of digestion
- Processes of absorption
- Hormonal & neural regulation of digestive processes
- Nutrition and Introduction to metabolism
- Cellular respiration & the catabolism & anabolism of carbohydrates, lipids, & proteins
- Metabolic roles of body organs
- Energy balance & thermoregulation
- Application of homeostatic mechanisms and predictions related to homeostatic imbalance, including disease states & disorders

MODULE P: URINARY SYSTEM

Students who have completed this section of the course should be able to identify and describe the major gross and microscopic anatomical components of the urinary system and explain the role of the kidney in maintaining water balance, pH balance, blood pressure and electrolyte levels.

Topics:

- General functions of the urinary system
- Gross & microscopic anatomy of the urinary tract, including detailed histology of the nephron
- Functional process of urine formation, including filtration reabsorption, & secretion
- Factors regulating & altering urine volume & composition, including the renin-angiotensin system & the roles of aldosterone, antidiuretic hormone, & the natriuretic peptides
- Additional endocrine activities of the kidney
- Innervation & control of the urinary bladder
- Regulation of water intake & output
- Description of the major fluid compartments
- Chemical composition of the major compartment fluids
- Movements between the major fluid compartments
- Buffer systems & their roles in acid/base balance
- Role of the respiratory & urinary systems in acid/base balance
- Application of homeostatic mechanisms and predictions related to homeostatic imbalance, including disease states & disorders

MODULE R: REPRODUCTIVE SYSTEM

Students who have completed this section of the course should be able to identify and describe the major gross and microscopic anatomical components of the male and female reproductive systems and explain their functions.

Topics:

- General functions of the male & female reproductive systems
- Gross & microscopic anatomy of the male & female reproductive systems
- Gametogenesis
- Specific roles of the male and female reproductive organs
- Regulation of reproductive system functions
- Application of homeostatic mechanisms and predictions related to homeostatic imbalance, including disease states & disorders