



Course Information

BIO 215

Course Title: Human Anatomy & Physiology 1

Credit Hours: 4 credit hours

Communicating With the Instructor

When questions arise throughout the course, please remember to check the following resources for an answer **before** reaching out to me:

1. Course Syllabus
2. Announcements
3. The Question Center Discussion Board

Question Center Discussion

The Question Center Discussion is a great place for you to ask questions and get answers from your peers and from me. You are encouraged to post your questions here before reaching out directly to me unless it is a time-sensitive matter. If you have questions of a personal nature such as relating to a personal emergency, questioning a grade on an assignment, or something else that needs to be communicated privately, you are welcome to contact me directly via email or phone.

Response Time

If you need to contact me directly, my preference is that you will email me. Please allow 24 hours for me to respond to emails Monday through Friday and 48 hours on the weekend.

If you have a question about the technology being used in the course, please contact the Doane

University Service Center for assistance, their contact information is listed later in the syllabus.

Technology Help

If you have a question about the technology being used in the course, please contact the Doane University Service Center for assistance, their contact information is listed later in the syllabus. If there are third-party tools utilized in the course, please reach out to them directly.

Catalog Description

The first of a two-part series - This course begins the study of the structure and function of the human body, beginning with cells and tissues and then continuing with the study of 4 of the 11 major organ systems (integumentary, skeletal, muscular, and nervous). Upon successful completion of this course students should be prepared to complete Anatomy and Physiology 2. Upon successful completion of Anatomy and Physiology 1 and 2 courses, students will have a solid foundation in human structure and function and be prepared for basic clinical course-work.

Recommended Course Prerequisites

BIO 101 or BIO 111 or BIO 112

Course Textbook and Materials

Required

Hole's Human Anatomy and Physiology by Welsh and Prentice-Craver, 16th edition
CONNECT Access Code with eBook (ISBN – 9781264262830).*

*Course books and materials will be integrated into your Canvas portal

Course Lab

As this is a 4-credit course, you can expect to complete weekly labs to fulfill the course requirements.

Topic for each lab:

Module 1 – pH lab / cell transport lab

Module 2 – Histology lab

Module 3 – Bone markings lab

Module 4 – Skeletal muscle physiology lab

Module 5 – Muscle identification lab

Module 6 – Reflex and nervous system lab

Module 7 – Nervous system function lab

Module 8 – Special sensory lab

I might add additional lab requirements throughout the term. Please check Canvas and make sure you complete all lab assignments for a given week.

Course Learning Objectives and Course Outline

Learning Objectives:

By the end of this course, students will be able to

1. Identify and describe anatomical structures and their locations, including relation to other structures within the body.
2. Compare and contrast form and function of tissues and organs.

3. Predict functional changes when presented with structural injury or pathology.
4. Identify how physiological parameters are regulated through reflex pathways (homeostatic mechanisms).
5. Predict how misregulation of reflex pathways results in disease.

Course Outline

Module	Topic	Assessments & Activities	Aligned Objectives
1	Body Orientation & Regions, Chemistry, and Cell Review	<p>Discussions:</p> <ol style="list-style-type: none"> 1. Self-Introduction Discussion 2. Week 1 Discussion <p>Assignments:</p> <ol style="list-style-type: none"> 1. Chapter 1-4 Concepts 2. pH Balance – Functions of Buffers 3. How Enzymes Work – Enzyme Activity 4. Passive and Active Process of Membrane Transport 5. Osmosis - Tonicity in Red Blood Cells 6. Diffusion Against A Selectively Permeable Membrane 7. APR Cadaver Lab Activity - Week 1 <p>Assessments:</p> <ol style="list-style-type: none"> 1. Chemistry Pre-test Quiz (Chapter 2) 2. Module 1 Quiz (Covers Chapter 1, 3, and 4) 	<p>1.1 Describe a person in anatomical position, identify anatomical regions and body cavities using appropriate terminology, and accurately identify right and left on anatomical specimens, drawings, and medical imaging.</p> <p>1.2 Identify and define the various anatomic planes in which a body might be views and be able to describe the appearance of a body presented along various planes</p> <p>1.3 Describe the organizational levels of the human body from cell to organ system.</p> <p>1.4 Describe the major organs and the location and functions of each organ system.</p> <p>1.5 List and describe the major requirements of organisms to maintain life</p> <p>1.6 Describe the parts of the homeostatic mechanism and explain how it is used to maintain conditions for life</p> <p>1.7 Explain the pH scale and the function of buffers in resisting pH change</p> <p>1.8 List the major groups of inorganic chemicals and organic</p>

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			<p>molecules common in cells and explain the function(s) of each group</p> <p>1.9 Explain and diagram how substances are transported between cellular compartments and across the plasma membrane using active and passive processes</p>
2	Basic Histology & The Integumentary System	<p>Discussion:</p> <p>Week 2 Discussion Board</p> <p>Assignments:</p> <ol style="list-style-type: none"> 1. Chapter 5 Tissues 2. Chapter 6 Integumentary System 3. Epithelial Tissue Histology 4. Connective Tissue Histology 5. Muscle Tissue Histology 6. Nervous Tissue Histology 7. APR Cadaver Lab Activity - Week 2 <p>Assessments:</p> <ol style="list-style-type: none"> 1. Case Study: Burn Case Study 2. Week 2 Quiz 	<p>2.1 Contrast the general features and functions of the four major tissue types.</p> <p>2.2 Identify cell and tissue types, layers, and accessory structures of the integument</p> <p>2.3 Describe the general features and functions of the hypodermis, the dermis, and the epidermis.</p> <p>2.4 Describe the location and arrangement of tissues and cells of the integument using appropriate directional terminology.</p> <p>2.5 Explain how function in the integument is maintained in the presence of infection or injury.</p> <p>2.6 Explain how the skin helps regulate body temperature</p>
3	Skeletal System	<p>Discussion:</p> <p>Week 3 Discussion Board</p> <p>Assignments:</p> <ol style="list-style-type: none"> 1. Chapter 7 Skeletal System 2. Chapter 8 Joints of the Skeletal System 3. APR Cadaver Lab Activity - Week 3 <p>Assessments:</p> <ol style="list-style-type: none"> 1. Case Study: Fracture Case Study 	<p>3.1 Define the two major divisions of the skeletal system and list the bones and types of bones contained in each.</p> <p>3.2 Discuss the major functions of bones</p> <p>3.3 Identify individual bones, major bone markings and features, and their location within the body using appropriate directional terms.</p> <p>3.4 Show and describe basic movements that occur at joints and</p>

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		2. Week 3 Quiz	<p>within each anatomical plane using proper terminology.</p> <p>3.5 Describe the anatomical and functional classification of joints and the major structural components of a synovial joint.</p> <p>3.6 Predict movements that would be allowed at a given synovial joint using proper terminology and describe the bones and anatomical features involved.</p> <p>3.7 Describe the major functions of the skeletal system and explain how the skeletal system relates to other body systems to maintain homeostasis.</p> <p>3.8 Predict factors or situations affecting the skeletal system and articulations that could disrupt normal homeostatic function.</p> <p>3.9 Identify and describe common fractures seen in the skeletal system.</p>
4	Muscle Tissue & Muscular System	<p>Discussion:</p> <p>Week 4 Discussion Board</p> <p>Assignments:</p> <p>1. Chapter 9 Muscle Anatomy and Physiology Part A 2. Skeletal Muscle Physiology 3. APR Cadaver Lab Activity - Week 4</p> <p>Assessments:</p> <p>1. Case Study: DMD 2. Midterm Exam (Proctored): Covers Modules 1-4</p>	<p>4.1 Describe and diagram the mechanism of skeletal muscle contraction including neural control, major events and energy sources.</p> <p>4.2 Describe how a muscle may become fatigued and how oxygen debt may play a role</p> <p>4.3 Compare ATP energy production in type I and type II muscle fibers and describe how that affects the functional differences between them</p> <p>4.4 Compare the contraction mechanisms of skeletal, cardiac and smooth muscle fibers</p> <p>4.5 Predict factors or situations affecting the muscular system that could disrupt homeostasis.</p>

Module	Topic	Assessments & Activities	Aligned Objectives
5	Identifying Skeletal Muscles	<p>Discussion:</p> <p>Week 5 Discussion Board</p> <p>Assignments:</p> <ol style="list-style-type: none"> 1. Major Skeletal Muscles 2. Skeletal Muscles on a Model <p>Assessments:</p> <ol style="list-style-type: none"> 1. Skeletal Muscle Model Quiz 2. Week 5 Quiz 	<p>5.1 Identify the location, origin, insertion and action of the major skeletal muscles and demonstrate these muscle actions.</p> <p>5.2 Describe the major functions of the muscular system and explain how the muscular system relates to other body systems to maintain homeostasis.</p> <p>5.3 Describe how exercise can help maintain a healthy muscular system</p>
6	Nervous System Part I	<p>Discussion:</p> <p>Week 6 Discussion Board</p> <p>Assignments:</p> <ol style="list-style-type: none"> 1. Nervous System Part I 2. Nervous System (Reflex) 3. APR Cadaver Lab Activity - Week 6 <p>Assessments:</p> <ol style="list-style-type: none"> 1. Case Study: Spinal Injury 2. Week 6 Quiz 	<p>6.1 Differentiate between: the motor (efferent) and sensory (afferent), the somatic motor and autonomic motor, and the somatic and visceral sensory divisions of the nervous system.</p> <p>6.2 Compare and contrast the structure and function of the central nervous system and the peripheral nervous system</p> <p>6.3 Identify and describe the major landmarks of the four major parts of the adult brain including the five lobes of the cerebral cortex and describe the motor and sensory functions of each.</p> <p>6.4 Identify the meninges and describe their anatomical and functional relationship to the brain, cranial bones, spinal cord, and vertebrae.</p> <p>6.5 Identify name, number and location of cranial nerves and describe the specific functions of each.</p> <p>6.6 Describe the gross anatomy and features of the spinal cord, spinal nerve plexuses, and spinal nerves</p>

Module	Topic	Assessments & Activities	Aligned Objectives
			<p>and specify their location relative to the anatomy of the other organ systems.</p> <p>6.7 Describe the major functions of the nervous system, and explain how the nervous system interacts with other body systems to maintain homeostasis.</p>
7	Nervous System Part II	<p>Discussion:</p> <p>Week 7 Discussion Board</p> <p>Assignments:</p> <p>1. Nervous System Part II 2. Neuron Physiology</p> <p>Assessments:</p> <p>Week 7 Quiz</p>	<p>7.1 Describe and diagram the nervous system as a series of neurons in a reflex pathway containing sensory receptors and neurons, the central nervous system (integrating center) and outputs via somatic motor and autonomic innervation of target organs and tissues</p> <p>7.2 Describe the structure and function of the five types of sensory receptors and how they are able to respond to stimuli. Be able to classify whether they are part of the general or special senses</p> <p>7.3 Describe how somatic motor and autonomic neurons are able to stimulate effectors in response to stimulus</p> <p>7.4 Describe the events leading to the generation of an action potential and how action potentials move down myelinated and unmyelinated axons</p> <p>7.5 Explain how information passes from a presynaptic neuron to a postsynaptic cell</p> <p>7.6 Describe how membrane potential changes stimulates by excitatory and inhibitory neurotransmitters sum to affect membrane potential in the trigger zone</p>

Module	Topic	Assessments & Activities	Aligned Objectives
			<p>7.7 Compare and contrast the sympathetic and parasympathetic divisions of the autonomic nervous system to include neuronal arrangement, neurotransmitters used and effects on target tissues</p> <p>7.8 Predict deficits when presented with factors or situations affecting the structure of the nervous system.</p> <p>7.9 Describe common pathologies that disrupt homeostatic function within the nervous system.</p>
8	Sensory Receptors & Organs	<p>Discussion:</p> <p>Week 8 Discussion Board</p> <p>Assignments:</p> <ol style="list-style-type: none"> 1. Special Senses 2. Eye Dissection 3. Visual Acuity Test 4. Convergent Eye Test <p>Assessments:</p> <p>Final Exam (Proctored) – Covers Modules 1-8</p>	<p>8.1 Identify accessory eye structures, optical components and the neural components of the eye and describe the path of optic nerve impulses from the retina to various parts of the brain.</p> <p>8.2 Identify the location and structures of the olfactory epithelium and describe the path of nerve impulses from the olfactory receptors to various parts of the brain.</p> <p>8.3 Identify the location and structure of taste buds and describe the path of nerve impulses from the gustatory receptors to various parts of the brain.</p> <p>8.4 Identify the hearing structures and anatomic features of the outer, middle and inner ear.</p> <p>8.5 Describe how the various structures of the outer, middle and inner ear function in hearing and trace nerve impulses from the spiral organ to various parts of the brain.</p> <p>8.6 Analyze factors or situations affecting the structure of special sense organs and predict functional impact.</p>

Course Requirements

This is an online course and there will **not be any face-to-face class sessions**. All communications, submissions of assignments, course interactions, and posting of grades will utilize Canvas LMS (<https://doane.instructure.com>). You must have a **reliable internet connection** throughout the duration of the course.

Attendance/Participation

Attendance in an online course means logging into Canvas regularly and participating in all of the activities that are posted in the course. In addition, check your Doane University email account regularly, as I may send important information about the course.

Class Preparation

Preparation for class means reading the assigned readings and reviewing all information required for that module. You should plan to work on this course every day. Regular engagement is expected for online courses.

Netiquette Guidelines

At heart, Netiquette (etiquette for the Internet) is simple, good manners and business courtesy. Some of it may seem basic, but some infringements can result in major problems for others or can create an unintended insult to another user. The guidelines are adapted from The Core Rules of Netiquette by Virginia Shea (1994). For more information, please review the [Netiquette Guidelines](#) in the Student Resource Center.

Computer Requirements

For the successful use of Canvas please refer to Doane University's [minimum computer requirements](#). This also includes:

- Reliable computer and internet connection
- A web browser (Chrome or Mozilla Firefox)
- Adobe Acrobat Reader (free)
- Word processing software—Microsoft Word or Google Docs
- Webcam and mic*

*For privacy purposes, use of a webcam is **optional** during video conferencing and recording.

Campus Network or Canvas Outage

When access to Canvas is not available for an extended period of time (greater than one entire evening - 6 pm until 11 pm) you can reasonably expect that the due date for assignments will be changed to the next day.

Drop and Add Dates

If you feel it is necessary to withdraw from the course, please contact your advisor for full details on the types of withdrawals that are available and their procedures.

Federal requirements state that students must complete 75% of the coursework to be eligible to receive an incomplete for the course. If students fall more than two weeks behind, they cannot meet this requirement.

Academic Integrity

Fundamental to our mission, our core values, and our reputation, Doane University adheres to high academic standards. Students of Doane University are expected to conduct themselves in a manner reflecting personal and professional integrity. Disciplinary actions may be taken against students whose academic behavior is not congruent with the expectations of the University. Students are responsible for adhering to the standards detailed in this policy. Not being familiar with these standards does not mean that the students will not be accountable for adherence to them. Additional details on the Academic Integrity policy for violating academic integrity are published in the undergraduate and graduate catalogs. Please review [Doane University's Academic Integrity Policy](#).

Submitting Assignments

All assignments, unless otherwise communicated to me, must be submitted via Canvas. Each assignment will have a designated place to submit your work. All materials, assignments, and deadlines are subject to change without prior notice. It is your responsibility to stay in touch with me and review the course site, including Announcements, regularly to learn about changes to assignments or due dates.

Grading Scale

Assignment of letter grades is based on a percentage of points earned. The letter grade will correspond with the percentages achieved. All course requirements must be completed before a grade is assigned.

Grading Scheme

Course grades are calculated based on the following weighted categories:

Lecture Assignments: 10%

Digital Lab Activities: 10%

Discussion: 10%

APR Lab Activity: 10%

Case Studies: 10%

Lecture Quizzes: 15%

Lecture Exams (Proctored): 35%

Late or Missed Assignments

All assignments must be completed and turned in to finish the course. Unless you discuss a late assignment with your instructor prior to the assignment due date, your assignment will not receive credit if late. You have a week to complete each assignment.

Assignment & Assessment Feedback

Please allow 1-3 days for feedback on assignments. Be sure to review all of my feedback, as this will help you reflect on what you have learned while receiving suggestions for improvement.

Grade Appeals

Students who believe that their grade was miscalculated due to a mathematical error should contact the instructor within **ten (10) days of the grade posting**. A student is encouraged to talk with their advisor to offer an assessment of the concern and to clarify the steps of the appeal process. More information is published in the [Undergraduate and Graduate Catalogs](#).

Studying and Preparation Time

The course requires you to spend time preparing and completing assignments. Doane University expects active participation by a student in a course, whether the course is on-ground or online. Regular engagement is expected for online courses. You should plan to work on this course every day. This is a condensed, fast-paced, course. Expect to spend **approximately 18 hours a week** preparing for and actively participating in this 8-week course.

Tutor Me

Students will have access to a free tutor me service within their Canvas account. You can connect with a live free tutor or submit a paper to get feedback before submitting.

Proctoring

It is used in your course to proctor quizzes and exams.

Rewrites

Not Applicable

Submitting Assignments

All assignments, unless otherwise announced by the instructor, **MUST** be submitted via Canvas. Each assignment will have a designated place to submit the assignment.

Support and Services

Technical Support

If you are in need of technical assistance, please access the [Self-Service Portal](#). You may reach the help desk at 402-826-8411 or by email at helpdesk@doane.edu.

Accessibility Statement

In compliance with the Rehabilitation Act of 1973, Section 504, and the Americans with Disabilities Act of 1990, professional disability specialists and support staff at Doane University facilitate a comprehensive range of academic support services and accommodations for qualified students with disabilities. Doane University staff coordinate student transitions from high schools and community colleges, conduct in-service training for faculty and staff, enable the resolution of accessibility issues,

conduct community outreach, and facilitate collaboration among Doane University staff on disability policies, procedures, and accommodations.

Accommodations & Disability Services

[Doane University's Disability Services Office](#) will provide guidance on accommodations and universal access. To request accommodations please complete the [Self-Identification Form](#) and visit the website for additional information as soon as possible.

Academic Support

Doane University offers all of its students access to [Academic Support](#) services.

Title IX Requirements: Mandatory Reporting

At Doane, all university employees, including faculty, are considered Mandatory Reporters. As a Mandatory Reporter, I am required to report incidents of sexual misconduct and relationship violence to the Title IX Coordinator and, thus, cannot guarantee confidentiality. This means that if you tell me about an incident of sexual harassment, sexual assault, domestic violence, dating violence, stalking and/or other forms of prohibited discrimination, I have to share the information with the University's Title IX Coordinator. My report does not mean that you are officially reporting the incident. This process is in place to ensure you have access to and are able to receive the support and resources you need. For additional information, including confidential resources, please visit the [Campus Advocacy, Prevention, and Education \(CAPE\) Project](#).

Anti-Harassment Policy

Doane University, referred to as the "University", is committed to providing a safe and non-discriminatory learning, living, and working environment for all members of the University community. This policy addresses the University's responsibilities under Title IX, the Violence Against Women Reauthorization Act of 2013, and the Jeanne Clery Disclosure of Campus Security Policy and Campus Crime Statistics Act ("Clery Act"). More information is published in the [Student Handbooks](#).

Instructional Technology Accessibility and Privacy Policies

[Technology accessibility and privacy policies](#) are available on the Student Resource Center within the Canvas LMS.

Syllabus Addendum & Disclaimer

I (the instructor) view the course syllabus as an educational contract between myself and each student. Every effort will be made to avoid changing the course schedule but the possibility exists that unforeseen events will make syllabus changes necessary. I reserve the right to make changes to the syllabus as deemed necessary. Students will be notified in a timely manner of any syllabus changes via email or in the course site Announcements. Please remember to check your Doane University email and the course site Announcements often.

Syllabus Changes

The instructor and Doane University reserve the right to make changes as necessary to this course syllabus. All students will be notified of any changes.

Syllabus Addendum

Each student is responsible for being aware of the policies, resources, and expectations as specified in the [Doane Syllabus Addendum](#).