North Shore Community College
Danvers, Massachusetts
Department of Science, Technology, Engineering, and Mathematics
BIO 212 O02 (CRN: 60219) – Anatomy and Physiology II
Summer II 2024 (July 8, 2024 – August 17, 2024)

Welcome

Welcome to Anatomy and Physiology II. My name is Noel Ways. I am a biologist by training, and for over 30 years, I have had the privilege to teach both A&P I and A&P II hundreds of times. Oddly, the content never gets old. The material is the same, but what breathes life into the classroom every semester is the student. We work together, and we learn together. As you begin your journey into this segment of your academic career, I am here to help guide and encourage you to be the best you can be. Welcome to the class.

Course Information

BIO 212 O02 - Anatomy and Physiology II
Course Number: Bio 212 O02 **CRN:** 60219
Credits: 4 Credit Hours. 3 Lecture hours, 2 Lab hours
Dates: July 8 – Aug 17 (~6 weeks)

Presentation Modality: Fully asynchronous/online

Prerequisites: BIO 121 Anatomy and Physiology I

Instructor Contact Information

Instructor: Noel Ways
Email: nways@northshore.edu
Virtual Office Hours: As our schedules vary dramatically, specific "office hours" that works for all can be challenging. If you would like to meet, email me, and we will schedule a meeting using the Zoom video teleconferencing software program during a mutually acceptable time. You will find a "Zoom Office Hours" link on Blackboard.

College Course Description

Continuation of Anatomy and Physiology 1. Topics include the digestive, respiratory, urogenital, and circulatory systems and the endocrines. Laboratory work is designed to supplement the lecture material and includes dissection of the fetal pig. Fulfills open, liberal arts, and with BIO103, laboratory science sequence electives (3 hours of lecture and 2 hours of lab per week.)

General Course Description

Human Anatomy and Physiology II is designed to provide an anatomical and physiological foundation for students pursuing careers in the allied health fields. Human Anatomy and Physiology, as the name implies, is the study of the human body: how it is put together and how the various parts work together. This course is a continuation of Human Anatomy and Physiology I, and will proceed on a system-by-system basis.

The course will commence with a study of the cardiovascular system, followed by an in-depth view of the lymphatic system and aspects of the immune system. Following this, the other organ systems to be examined are the digestive, urinary, and reproductive systems. Other subjects of particular relevance may be discussed at appropriate points in the lecture sequence.

The course's laboratory component is designed to give the students a "hands-on" appreciation of the anatomical considerations discussed in the lecture and to familiarize the student with some of the more basic physiological concerns related to gross anatomy. This course component will be delivered online using online and video resources.

General Course Objectives

As we endeavor to prepare you for a career in the allied health professions, specific goals and benchmarks have been established for this aim. Looking toward this end, the general course objectives listed below expand on the overall course description. As the course flow ensues, you will find that the course topics and laboratory work will align with these objectives.

Module - Blood

- Distinguish between the formed elements of the blood by name and function.
- Describe erythrocyte production and regulation.
- Describe hemostasis and the control of blood clotting.
- Illustrate the CO_2 gas transport as it involved erythrocytes.
- Compare and contrast leukocyte functions in fighting infection.

Module - Heart

- Identify the name and functions of the structures of the heart.
- Explain the cardiac cycle, integrating electrical activity, pressure issues, EKG, heart sounds, and blood flow.
- Describe how cardiac output is controlled.

Module – Vessels and Routes

- Compare and contrast how the tissues of blood vessels and how tissue differences affect the specific functions of various vessel types.
- Identify specific major blood vessels in the body.
- Describe the vessels of and function of the hepatic portal system and the hypothalamic hypophyseal portal system.
- Describe the fluid exchange of capillaries and fluid return to the heart.
- Illustrate blood pressure regulation.

Module – Lymphatic System

- Identify the name and functions of lymphatic organs.
- Describe the relationship of various organs to the particular functions in the immune response and other blood maintenance activities.

Modules – Nonspecific Host Immunity *and* Adaptive Immunity

- explain the essential components of both non-specific and specific host immune responses.
- Critique the complement system and place of interferon in the immune system.

Module – Respiratory System

- Identify the major organs of the respiratory system and their functions.
- Explain the mechanism of gas transport.
- Describe the anatomy and physiology of the larynx and sound production.
- Explain how lungs are "inflated" and what happens in pneumothorax.
- Explain the mechanisms that affect the oxygen carrying-capacity of hemoglobin.

Module – Digestive System

- Identify the major organs of the digestive system and their functions.
- Describe gastric regulation
- Describe the process of lipid digestion and transport
- Describe the process of deglutition

Module – Urinary System

- Identify the major organs of the urinary system and their functions.
- Compare and contrast nephron components in terms of their anatomy and physiology

Modules – Male Reproductive System *and* Female Reproductive System

- Identify the structures and functions of major organs of the reproductive system
- Describe the hormonal regulation of spermatogenesis
- Describe and integrate the physiology of both the uterine cycle and the ovarian cycle
- Illustration several examples of hormonal regulation in the body

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Course Materials

- **Textbook (Required):** *Anatomy and Physiology* an Open Educational Resource (OER).

  https://openstax.org/details/books/anatomy-and-physiology

- **Videos:** YouTube Lecture Videos with Closed Caption
- **Handouts:** Accessible and downloadable PDFs
- **Internet:** Web sites that feature animations explaining complex physiology

Aside from the required text, other course materials are linked on Blackboard.

Zoom Link: "Office Hours"

Office Hours

NOEL WAYS is inviting you to a scheduled Zoom meeting.

Topic: Anatomy and Physiology II (Office Hours)
Time: This is a recurring meeting Meet anytime

Join Zoom Meeting
https://northshore-edu.zoom.us/j/98590288536

Meeting ID: 985 9028 8536
One tap mobile
+13017158592,,98590288536# US (Washington DC)
+13126266799,,98590288536# US (Chicago)

Dial by your location
+1 301 715 8592 US (Washington DC)
+1 312 626 6799 US (Chicago)
+1 646 558 8656 US (New York)
+1 253 215 8782 US (Tacoma)
+1 346 248 7799 US (Houston)
+1 669 900 9128 US (San Jose)
Meeting ID: 985 9028 8536
Find your local number: https://northshore-edu.zoom.us/u/aeHpPWas0H

Join by Skype for Business
https://northshore-edu.zoom.us/skype/98590288536

Course Presentation – 6 weeks, Asynchronous/Online Modality

This course is delivered Asynchronously online, where the students where students work independently outside a traditional classroom and laboratory setting.

The course content is organized into modular components to facilitate accessibility, clarity, and organization to this process. Each module will have the following components:

- **Learning Guide** - A Learning Guide will guide the student through the supportive readings, videos, animations, and other media under consideration for any particular lecture/module. This document provides tips on approaching the material and issues of specific concern relating to the associated exam.
- **Lecture Outline** - A lecture outline organizes the course content and guides the student through the material in preparation for associated assessments. In addition, the outline is designed for student note-taking.
- **Handouts** – Handouts highlight points in the lecture sequence requiring special attention, comment, or visual support. These tend to revolve around more complex physiological topics.
- **Videos Support** - Videos of the lectures will follow a lecture outline closely. The goal of this media is to cover all content, both in the lecture setting as well as in the laboratory.
- **Laboratory** - In a traditional educational setting, the laboratory lends itself to a "hands-on" approach to understanding course content. As this course has a laboratory component but is entirely online, rich image banks compensate for this aspect with rich image banks and accompanying video support.
- **Exams** are usually given on a module-by-module basis and are administrated on Blackboard. The exams cover material on the outlines, handouts, and videos. The exams are noncumulative, but any lecture topic assumes a working knowledge of previous lecture topics.

For additional details of the module week, see "Course Walkthrough" in the Getting Started folder on Blackboard.

Course Workload for a 6-week Accelerated Online Course

We all come from different backgrounds and have varying employment obligations, family relationships, and responsibilities that we must maintain. With the various pulls on our time and resources, scheduling another major activity into one's daily routine can sometimes be difficult. Scheduling several hours daily for study can be a daunting prospect for some. But this must be looked at immediately and requires a quality decision to ensure success.

As this course endeavors to cover a typical 16-week semester course in 6 weeks, the course is accelerated, and therefore students must anticipate 4-6 hours daily to master the material. However, this is highly individualistic, but it is crucial to determine your unique learning requirements.

I also encourage you to talk to those important in your life about your educational needs at this juncture in your career. I encourage you to look carefully at all the time-demanding activities in your life and make appropriate adjustments in light of your essential career aspirations. The word "priorities" comes to mind here.

Assignments

Anatomy and Physiology is a content-heavy course. Your primary assignment for each lecture topic is to build a foundation that will carry you through the rest of your developing career. So, with the beginning of a module/lecture topic, your assignment is to gain a working knowledge of the body of material being presented. To start, each Module will have a ***Learning Guide*** that will walk you through the particular goals and points worthy of consideration in preparation for an assessment. The module content is outlined in the **"Lecture Outline."** The Lecture Outline will have the following functions:

- The "Lecture Outline" is designed for note-taking purposes.
- The "Lecture Outline" is your study outline.
- The "Lecture Outline" is also the exam outline. If something is on the outline you will need to know it. If something is not on the outline, you do not need to know it, even if it is in the textbook.

As Anatomy and Physiology II is a laboratory course, many topics are presented and assessed in a laboratory context. For example, we will discuss the heart in a lecture context and have an appropriate assessment. We will also study a heart dissection and models of the heart. This laboratory component will be assessed using another assessment format, the laboratory practical, where the material is visually presented. Having alternative methods of studying the material and alternative forms of assessment not only provides students with different ways to access the content and demonstrate mastery but also reinforces essential topics.

To begin the learning process, start with the ***Learning Guides***. These documents provide insight into approaching the material on a module-by-module basis and point out matters that require special attention or preparation. The ***lecture outline*** will then systematically guide you through the text and lecture content. If something is on the outline, you need to know it; if it is not, you are not responsible for it, even if it is in your text. Handouts and videos will supplement and reinforce key concepts.

Regarding the ***Video Support***, I will talk through the lecture content following the outline closely. Note, if something is on the outline you are responsible for it, even if I do not discuss it. With this in mind, it will require TIME to review the outlines, view associated videos, and study the handouts to understand the material. Regarding laboratory material, mastery of the anatomical characteristics of tissue, bones, organs, etc., and associating appropriate functions with them will be necessary.

Proctored Exams, the Testing Center, and Make-up Work

The assignment of a final semester grade will depend upon completing all exams listed on the syllabus below, of which the lowest grade may be dropped (with the exception of the last unit). These exams will cover material from both online assignments, handouts, and video presentations. The nature of the exams is non-comprehensive. However, any particular unit will assume a working knowledge of previous units.

Exams consist of a variety of question types listed below. For details, see the "Assessments" document online.

- True and False
- Matching
- Fill in the Blanks
- Illustrations
- Guided Essays
- Short Answers

Exams are to be taken on **Blackboard** through the college **Testing Center**. The exams are to be taken on the day listed below and during the testing center's normal hours of operation. In addition, the testing center offers Proctored Testing. Therefore, you will be responsible for contacting the Testing Center to schedule your exam during the time designated on the syllabus. The Registration Form can be located at:

https://www2.registerblast.com/northshore/Exam/List

Procedure for taking Proctored Exams Online (and comments):

1. Note exam date on the syllabus, below
2. Complete the registration form (link is above). Please do this well in advance.
    - As the testing center closes at 5 pm, you will want to schedule your exam early enough so that you can use the whole time allotted to the exam. For example, if

an exam is 1 hour long, you will want to schedule a time before 4 pm. (I suggest giving yourself even extra time allowing for any issues)

3. By the time you are ready to do the exam, the Testing Center will have sent you a confirmation and a Zoom link.
4. Please make sure all background applications are closed (they can interfere with the exam, you do not want the computer to freeze up in the middle of the exam.) Only have what is necessary open.
5. Open the exam on Blackboard.
6. Connect with the Testing Center via Zoom.
7. The testing center will give you the exam password.
8. Put in the password and take the exam.

TESTING CENTER STATEMENT OF RULES:

The student must have a PC, laptop or Chromebook with a camera and microphone. IPads and smartphones can NOT be used.

- I understand that if I am late to my scheduled appointment, I will not be able to enter the test and I will have to reschedule.
- I understand that although I'm taking this test in a private environment, the test proctor will be viewing my activities via ZOOM
- I understand that I will be required to show the test proctor various parts of the room I'm in prior to testing to ensure no unauthorized aids are around me.
- I understand that taking this test in a private environment may require my proctor to access my computer screen.
- I understand that a photo ID is required (license, school ID, passport). You will need to show the test proctor your ID before you start testing. If you do not have a photo ID you can not test.
- Only aids authorized by my instructorare allowed for this test. Cell phones, watches, books, notes and all other devices and materials should be removed from the area of testing.
- If your instructor allows scrap paper, you must show the test proctor both sides of the paper before testing, and you will be required to tear up the scrap paper into very small pieces before your results will be released.

I understand that if my test proctor feels that I have not followed any of the rules above, my test session will be terminated and my results will be invalid.

Makeup Exams and Documentation - Makeup Exams are to be avoided! But if a makeup is needed, documentation is required to certify that the need is legitimate. If documentation is not presented, a makeup is still permitted, but an adjustment is to the grade is made at the discretion of the instructor. This adjustment is typically a reduction in extra points that would otherwise bolster your grade. You will never get a grade lower than your earned grade. But if there is to be a makeup, this task should be accomplished within a week that the student returns to school. Contact me so that a time and a date can be coordinated.

Communication and Interactions

Throughout the course, I will be contacting you on a biweekly basis to offer advice, provide comments, and give reminders. If you have questions with a class-wide import, the questions may be answered and shared with the class on the Student Interaction Board (a Discussion Board).

Blackboard

Please make sure to log in to the Blackboard site daily. Announcements, class resources, and all assessments will be handled through Blackboard. I will also regularly broadcast emails to the class through Blackboard. In such cases, Blackboard will send the email to your NECC student account. If you wish, you can change which email account these messages are sent to in your Blackboard settings.

If you find that you are having difficulty with Blackboard, contact the college "helpdesk."

Email

Please check your student email daily. You can also forward your student mail to any other email account.

Email is the best way to contact me. The turnaround time is typically 24 hours or less.

Email: nways@northshore.edu

When you send me an email, always include:

- Your name
- Your class (either course number or title, day, and time)
- A relevant subject

Grading Criteria

As mentioned above, this course aims to build a foundational knowledge base so that you may become a competent medical professional. Committing time and hard work go a long way toward realizing your career goals. Further, when one receives good grades on exams, it gives a certain satisfaction of a job well done.

Exams - Note, Grading Criteria are presented in the Learning Guides available on Blackboard. See the Learning Guides for specifics on the criteria for grading, suggestions on where to focus, and special exam activities. Exams are given bi-weekly. Exams will be found in the appropriate Blackboard folder at the bottom of the list.

Exam #1	Blood	100 points
Exam #2	Heart	100 points
Exam #3	Vessels and Routes	100 points
Exam #4	Lymphatic and Non-specific Host Immunity	100 points
Exam #5	Non-specific Host Immunity	100 points
Lab Exam #1	Lab Practical #1 (Heart and Vessels)	100 points
Exam #6	Respiratory System, Part #1 and Part 2	100 points
Exam #7	Digestive System, Part #1	100 points
Exam #8	Digestive System, Part #2	100 points
Lab Exam #2	Lab Practical #2 (Lymph, Resp, Dig, Uri. Sys)	100 points
Exam #9	Male Reproductive System	100 points
Exam #10	Female Reproductive System	100 points

All exams are weighed equally. Always record your grades! You will want to do this not only to ascertain how you are doing in the class but also to be alerted if there is something that appears questionable (there rarely is). Of course, you can always email me if you have a question.

Grade Calculation - The assignment of a final semester grade will depend upon the completion of all lecture exams and lab practicals. All exams are weighted equally. The lowest grade may be dropped except for the last unit(s) of all the exams given. Calculating your current standing in the class is simple: drop the lowest grade, do a simple average, and then use the Number/Grade Equivalency chart (below). You will know where you stand in the class regarding your grade at any particular time.

NSCC Grading System

Number/Letter Equivalency:

A	4.0	93-100	C-	1.7	70-72
A-	3.7	90-92	D+	1.3	67-69
B+	3.3	87-89	D	1.0	63-66
B	3.0	83-86	D-	0.7	60-62
B-	2.7	80-82	F	0	Below 60
C+	2.3	77-79	W	0	Withdrawal
C	2.0	73-76	IP	--	In progress

Accessibility/Learning Disabilities

Accessibility Services Statement - "As a student at North Shore Community College (NSCC), you are invited to engage in an interactive, collaborative partnership with Accessibility Services and your professor to meet any disability-related need for reasonable academic accommodations in this course.

- To begin this process, please visit www.northshore.edu/accessibility_services and follow the outlined procedure to request services.
- If you have already received approval for accommodations from Accessibility Services at NSCC, please present your professor with your Faculty Notice of Academic Accommodations during the first week of the semester or as soon as possible. Accommodations go into effect once you hand-deliver this notice to your professor.
- If you will require assistance during an emergency evacuation on campus, please notify your professor immediately. For your reference, evacuation procedures are posted in all classrooms."

As your instructor, I feel I have a responsibility to do everything within reason to actively support a wide range of learning styles and abilities. As such, I have taken training and applied the principles of Universal Design for Learning (UDL) to this course. Feel free to discuss your progress in this course with me at any time. In addition, if you require any accommodations, submit your verified accommodations form to me during the first two weeks of the course.

Statement of Plagiarism and Academic Integrity

As students pursuing a career in the allied health professions, you will someday be in a position with medical or other important responsibilities. The health and well-being of the people you work with and for are paramount. A strong foundation in anatomy and physiology is essential to operate competently in such positions. Towards this end, exams serve as weigh-points along your road to success.
They indicate that your progress is progressing well and you are now succeeding in your career goals.
But to ensure that this process proceeds well, academic integrity and ethical behavior are vital.
To receive a grade that does not accurately reflect your knowledge and skill undermines your academic progress and puts you at risk of not fulfilling your goals or potentially harming others in your care. All future coursework and clinical activity will stand squarely on the shoulders of the knowledge base you are lying down now.

All work done on assessments and practicals must be your own. You are encouraged to work together, prepare together, and collaborate, but the work must be your own when an exam is done. Therefore, the following guidelines are established to help guide you in an ethical and legitimate approach to your assessments.

1. When exams are taken, no electronic devices may be on.
2. No web browsers or other sources of information may be used.
3. Violation of the above will result in one of the following
   - a "0" on the exam
   - an "F" for the Course
   - a meeting with the dean of students who would assess the infringement and follow college disciplinary procedures.

Getting Help

I am here to help you with this course and to make this an enjoyable and successful experience. If you would like assistance regarding study tips, progress, or other issues, please send me an email. We can also collaborate through an appointment on Zoom. Please do not wait until the last moment to ask for help. Remember, I am just an email away.

Additional Educational Services

Tutoring: NSCC also offers FREE tutoring and other services at:
https://www.northshore.edu/support/tutoring/index.html

Lecture Syllabus

Below is a tentative but probable schedule of topics and dates. The schedule could be adjusted according to the progress of the lecture sequence or should unforeseen circumstances occur.

North Shore Community College

Anatomy and Physiology II

SCHEDULE - 2024, Summer II – 6 Week - Bio 212-O02

Below is a tentative but probable schedule of topics and dates. The schedule may be modified according to the progress of the lecture or unforeseen circumstances.

Exam Administration - Exams are administered on Blackboard and proctored by the NSCC Testing Center. They are available during the testing center's regular operating hours.

Register Blast – The student must register to take all exams with the testing center using the Registerblast website at least a week before the exam date.

Testing Center Hours – Click HERE to view the "Zoom Testing" and "On Campus Testing" hours.

Exam Availability – Exams are generally available over two days. For example, on the schedule below, July 11 (Thurs) is the Exam on the blood. Note that when you register for the exam, you will have the option to do it on either July 11 or 12. All exams are similar except for Exams offered on Saturdays. Exams on Saturday are not proctored and will be available to you on Blackboard from 7 am to 12 midnight.

NOTE: the lowest exam grade may be dropped with the exception of the:

- Final Exam (Lab Practical #2)
- Reproductive Exams (male and female)

July 8 (Mon) → **Formal Start – Module: Blood**

July 11 (Thur) *Exam – Blood Exam on Blackboard*
→ **Module: Heart, Cardiac Cycle, & Dissection**

July 15 (Mon) *Exam – Heart*
→ **Module: Vessels and Routes**

July 18 (Thur) *Exam – Vessels and Routes on Blackboard*
→ **Modules: Lymphatic**

July 22 (Mon) *Exam – Lymphatic*
→ **Modules: Non-specific Host Immunity**

July 25 (Thur) *Exam – Non-specific Host Immunity*
→ **Review for Laboratory Practical #1**

July 27 **(SAT)** ***Lab Practical #1 (Heart and Vessels)***
(NOT PROCTORED)
Exam available one day only: Saturday 7 am – 12 midnight)
→ **Module: Respiratory System, Part #1**

July 29 (Mon) *Exam – Respiratory System (Parts #1)*
→ **Module: Respiratory System, Part #2**

August 1 (Thur) *Exam – Respiratory System (Parts #2)*
→ **Module: Digestive System, Part #1**

August 5 (**Mon**) *Exam – Digestive System, Part #1*
→ **Module: Digestive System, Part #2**

August 8 (Thur) *Exam – Digestive System, Part #2*
→ **Module: Male Reproductive System**

August 12 (**Mon**) *Exam – Male Reproductive System*
→ **Module: Female Reproductive System**

NOTE: Note carefully the dates that follow.
Dates vary due to end-of-semester scheduling issues

August 15 (Thur) *Exam – Female Reproductive System*
→ **Review for Laboratory Practical #2**

August 17 **(SAT)** ***Lab Practical #2 on Blackboard***
(NOT PROCTORED)
Exam available one day only: Saturday 7 am – 12 midnight)

NORTH SHORE COMMUNITY COLLEGE
ACADEMIC CALENDAR, ABRIDGED

Summer 2024

- Official NSCC Academic Calendar

Below is an *abridged* rendition of the Academic Calendar.
Click the link above for the official NSCC Academic Calendar.

Summer Session II 2024 – 6 - Week (July 8 – August 17)

Classes begin	July 8	(Monday)
Student add/drop period	July 8-9	
Last day to withdraw and receive a W grade	August 2	(Friday)
Classes end	August 17	(Saturday)
Grades due from faculty by noon	August 20	
Grades posted in MyNorthShore for students	August 21	

Summer Session I 2024 - 12 Week (May 20 - August 17)

Classes begin	May 20	(Monday)
Memorial Day, no classes	May 27	(Monday)
Student add/drop period	May 20-26	
Juneteenth, no classes	June 19	(Wednesday)
Deadline for IP Contracts for Spring 2024	June 28	
Summer Break	July 1-6	
Academic alerts due by 5 pm	July 8	
Last day to withdraw and receive a W grade	August 2	(Friday)
Classes end	August 17	(Saturday)
Grades due from faculty by noon	August 20	
Grades posted in MyNorthShore for students	August 22	

Summer Session II 2024 - 10 Week (June 3 - August 17)

Classes begin	June 3	(Monday)
Student add/drop period	June 3-9	
Juneteenth no classes	June 19	(Wednesday)
Deadline for IP Contracts for Spring 2024	June 28	
Summer Break	July 1-6	
Academic alerts due by 5 pm	July 15	
Last day to withdraw and receive a W grade	August 2	
Adjunct evaluations	August 5-10	
Classes end	August 17	(Saturday)
Grades due from faculty by noon	August 20	
Grades posted in MyNorthShore for students	August 22	