

**Northern Essex Community College**  
**Department of Science, Technology, Engineering, and Mathematics**  
**BIO 122 O4Z – Anatomy and Physiology II – Online Asynchronous**  
**Fall 2021**

---

## **Instructor Contact Information**

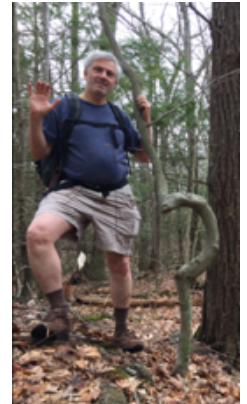
---

**Instructor:** Noel Ways

**Email:** [nways@necc.mass.edu](mailto:nways@necc.mass.edu)

**Virtual Office Hours:** As our schedules vary dramatically from one person to another, specific “office hours” that work for all can be challenging. If you would like to meet, email me, and we will schedule meeting using Zoom video teleconferencing software program during a mutually acceptable time. On Blackboard, you will find a “Zoom Office Hours” link.

---



## **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**

---

**Credits:** 4 Credit Hours. 3 Lecture hours, 2 Lab hours

**Prerequisites:** BIO 121 Anatomy and Physiology I

---

## **Course Collage Description**

---

A continuation of BIO121 Anatomy & Physiology I. Systems covered are circulatory, endocrine, reproductive, urinary, digestive and respiratory. (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 three-week study of the cardiovascular system, followed by an in-depth view of the respiratory system. Other organ systems such as the digestive system, urinary system,

reproductive system will also be examined. Other subjects of particular relevance will be discussed at appropriate points in the lecture sequence.

The course's laboratory component is designed to give the students a “hands-on” appreciation for the anatomical considerations being discussed in lecture and to familiarize the student with some of the more basic physiological considerations as they relate to gross anatomy. This component of the course will be delivered online using 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 towards this aim. Looking towards this end, general course objectives listed below expand on the overall course description. As the flow of the course 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<sub>2</sub> 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

## 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 “Office Hours” Link

### Office Hours

Join Zoom Meeting

<https://zoom.us/j/96233097264>

Meeting ID: 962 3309 7264

One tap mobile

+13017158592,,96233097264# US (Washington DC)

+13126266799,,96233097264# US (Chicago)

Dial by your location

+1 301 715 8592 US (Washington DC)

+1 312 626 6799 US (Chicago)

+1 929 205 6099 US (New York)

+1 253 215 8782 US (Tacoma)

+1 346 248 7799 US (Houston)

+1 669 900 6833 US (San Jose)

Meeting ID: 962 3309 7264

Find your local number: <https://zoom.us/j/96233097264>

Join by SIP

96233097264@zoomcrc.com

Join by H.323

162.255.37.11 (US West)

162.255.36.11 (US East)

115.114.131.7 (India Mumbai)

115.114.115.7 (India Hyderabad)

213.19.144.110 (Amsterdam Netherlands)

213.244.140.110 (Germany)

103.122.166.55 (Australia Sydney)

103.122.167.55 (Australia Melbourne)

149.137.40.110 (Singapore)

64.211.144.160 (Brazil)

149.137.68.253 (Mexico)

69.174.57.160 (Canada Toronto)

65.39.152.160 (Canada Vancouver)

207.226.132.110 (Japan Tokyo)

149.137.24.110 (Japan Osaka)

Meeting ID: 962 3309 7264

Join by Skype for Business

<https://zoom.us/skype/96233097264>

---

## Course Requiements

---

### Method of instruction

This course will be delivered online asynchronously. We will utilize resources available through Blackboard and the instructor's website, to which Blackboard is linked. Each lecture/module will have a **Learning Guide** that will guide the student through the supportive readings, videos, animations, and other media under consideration for any particular lecture/module. Also available is a **Lecture Outline** that will guide the student through the course content in preparation for associated assessment exams. The videos of the lectures will follow a lecture outline closely. Both the lecture outlines and the video support page can be found online. Exams are given on a lecture by lecture basis and should be completed before beginning the next lecture sequence. These exams will cover material covered on the outlines, handouts, as well as on the videos. The exams are noncumulative, but any particular lecture topic assumes a working knowledge of previous lecture topics.

For additional details of the module week, see "Course Walkthrough (or Instructional Rhythm) in the Getting Started folder on Blackboard.

### Workload

We all come from different backgrounds, and varying employment obligations, and may have family relationships and responsibilities that need to be maintained. With all the various pulls on our time and

resources, it can sometimes be difficult to schedule another major activity. Scheduling of several hours daily for study can be a daunting prospect for some. But this must be looked at immediately and requires a quality decision if success is to be assured.

Typically, 2-3 hours needs to be set aside daily for the mastery of the material. However, this is highly individualistic, and it is crucial to determine what your individual learning requirements are.

I also encourage you to talk to those people important in your life about your educational needs at this juncture in your developing career. I would encourage you to look carefully at all the time demanding activities in your life and make appropriate adjustments in light of your important 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 for yourself 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.

Also, as Anatomy and Physiology II is a laboratory course, many topics are presented and assessed in both a lecture and 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 component will be assessed using another assessment format, the laboratory practical, where the material is presented entirely visually. 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 important topics.

To begin the learning process for a module, we **start with the Learning Guide**. This document will provide insight into how to approach the material and point out issues 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 something is not on the outline, 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**, here I will talk through the lecture content following the outline closely, and with rare exceptions, if I do not talk about something, you do not need to know it. Nevertheless, it will require TIME to go over the outlines, view associated videos, and study the handouts to gain a working understanding of the material. Regarding laboratory material, mastery of the anatomical characteristics of systems covered will be important as well as associating appropriate functions with their organs.

## **Exams and Make Up Work**

Exams are to be taken on Blackboard on the day designated by the syllabus. Exams are designed to demonstrate your mastery of the material presented and therefore are to be done individually and without the support of notes, text, or other resources. So, there is an honor system here. The exams are also timed. You will have enough time to read the question, pause and put down an answer. So, in order to make sure that this process goes well, master the material well before the exam date. Also, there is no

backtracking, and the exams must be done in one sitting.

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

Make-up Exams are to be avoided! But if a make-up is needed, documentation is required to certify that the need is legitimate. If documentation is not presented, a make-up 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 make-up, 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 interaction:**

Throughout the semester I will be contacting on a weekly/biweekly basis to offer you advice, provide comments, and give reminders. If your questions have class wide import, the questions may be answered and shared with the class. The best place to ask questions is the “Student Interaction Board” on blackboard, therefore all students will profit from the questions and the answers. Another venue may be scheduling a meeting using Zoom. Students are also encouraged to form online study groups. I have found that students who study together and talk through the material tend to excel.



### **Blackboard**

Please make sure to log in to the Blackboard site AT LEAST once a day. 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 another email account.

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

Email: [nways@necc.mass.edu](mailto:nways@necc.mass.edu)

When you send me an email, always include:

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

---

## Basis for Grading

---

As mentioned above, this course aims to build a foundational knowledge base so that you may become a competent medical professional. A commitment of time and hard work goes a long way towards 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** is 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 for special exam activities. Exams are given on a weekly basis. On the day of an exam, the exam will be found in the appropriate folder at the bottom of the list (i.e., Exam #1 will be in the “Blood” folder; Exam #2 will be in the “Heart” folder).

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
Exam #6	Specific Host Immunity	100 points
Lab Exam #1	Lab Practical #1 (Heart and Vessels)	100 points
Exam #7	Respiratory System, Part #1 and Part 2	100 points
Exam #8a	Digestive System, Part #1	100 points
Exam #8b	Digestive System, Part #2	100 points
Exam #9	Urinary System	100 points
Lab Exam #2	Lab Practical #2 (Lymph, Resp, Dig, Uri. Sys)	100 points
Exam #10	Male Reproductive System	100 points
Exam #11	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 ever (there rarely is) something that appears questionable. You can always email me if you have a question.

**Grade Calculation** - The assignment of a final semester grade will be dependent upon the completion of all lecture exams and lab practicals. All exams are weighted equally. Of all the exams given, the lowest grade may be dropped except for the last unit. Calculation of the grade is therefore 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 point in time.



---

## NECC Grading System

---

Grade	QP Value	Numeric Range/Comment
A	4.00	93-100
A-	3.70	90-92
B+	3.30	87-89
B	3.00	83-86
B-	2.70	80-82
C+	2.30	77-79
C	2.00	73-76
C-	1.70	70-72
D+	1.30	67-69
D	1.00	60-66
F	0.00	59 or less; failure; no credit earned
W	0.00	Withdrawal from course by student within withdrawal period
NW	0.00	Non-participation withdrawal grade assigned by instructor within withdrawal period

---

## Accessibility/Learning Disabilities

---

“Northern Essex Community College is committed to providing equal access to students with documented disabilities. To ensure equal access to this class (and your program) please contact the Center for Accessibility Resources & Services or Deaf and Hard of Hearing Services (DHHS) to engage in a confidential discussion about accommodations for the classroom and clinical/practicum settings.

### **Center for Accessibility Resources & Services (formerly Learning Accommodations Center):**

Serving students with documented disabilities, such as learning disabilities, attention deficit disorders, autism spectrum disorders, brain injuries, chronic illness, low vision/blind, physical disabilities, psychiatric disabilities and seizure disorders.

**Deaf and Hard of Hearing Services:** Serving students who are Deaf or Hard of Hearing.

Accommodations are not provided retroactively. Students are encouraged to register with the Center for Accessibility Resources & Services at the start of their program.

**The Center for Accessibility Resources & Services is scheduling appointments Mondays through Fridays. Communications/meetings can be flexible based on student’s needs and may consist of the following options: Zoom, Phone, In-Person or Email.**

**Following CDC guidelines, individuals who are not vaccinated should always wear masks while on campus to mitigate their risk of catching and spreading COVID-19.**

To get started, students may contact the Center for Accessibility Resources & Services as outlined below:



Call Center for Accessibility Resources & Services main number 978-556-3654 or email [centerforaccess@necc.mass.edu](mailto:centerforaccess@necc.mass.edu).

Deaf and Hard of Hearing Services call 978-241-7045 (VP/Voice) or email or email [deafservices@necc.mass.edu](mailto:deafservices@necc.mass.edu).

To request an Interpreter or communication access email: [interpret@necc.mass.edu](mailto:interpret@necc.mass.edu)

Individual staff members can be contacted via email

### **Deaf and Hard of Hearing Services (DHHS):**

Serving students who are Deaf or Hard of Hearing

Accommodations are not provided retroactively. Students are encouraged to register with the LA Center or DHHS at the start of their program.

### **Contact information during Co-Vid 19:**

The Learning Accommodations Center is scheduling remote appointments from 9:00 am to 5:00 pm. There are no face to face appointments being scheduled at this time. Communications can be flexible based on student's needs and may consist of the following communication options: email, phone, Zoom, Skype, and text messaging. To get started, students may contact us as outlined below:

- Call the LA Center main number 978-556-3654 or email [lacenter@necc.mass.edu](mailto:lacenter@necc.mass.edu)
- DHHS call 978-241-7045 (VP/Voice) or email [deafservices@necc.mass.edu](mailto:deafservices@necc.mass.edu)
- To request an Interpreter or communication access email: [interpret@necc.mass.edu](mailto:interpret@necc.mass.edu)

---

## **Statement on 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 is paramount in importance. To operate competently in such positions, a strong foundation in anatomy and physiology is essential. Towards this end, exams serve as weigh points along your road to success. They indicate that your progress is proceeding well, and you are succeeding in your career goals at this time. But to assure 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 course work 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.



Blood.

On September 22, we will start the module on Vessels and Routes, but before you begin this unit, take Exam #3 on Heart.

## *SCHEDULE - Fall 2021 - Bio 122 O4Z*

### Online - Asynchronous

New Module  
START DATES

Exams must  
be completed by 11:59 pm

September 8	<b>→ Start Module #1 - Blood</b>
September 15	<i>Exam #1 – Blood</i> <b>→ Start Module #2 – Heart</b>
September 22	<i>Exam #2 - Heart</i> <b>→ Start Module #3 - Vessels and Routes</b>
September 29	<i>Exam #3 – Vessels and Routes</i> <b>→ Start Module #4 - Lymphatic</b>
October 6	<i>Exam #4 – Lymphatic</i> <b>→ Start Module #5 - Non-specific Host Immunity</b>
October 13	<i>Exam #5 – Non-specific Host Immunity</i> <b>→ Start Module #6 - Specific Host Immunity</b>
October 20	<i>Exam #6 – Specific Host Immunity</i> <b>→ Start Module #7a - Respiratory System, Part #1</b>
October 27	<i>Lab Practical #1 – Heart and Vessel Lab Practical</i> <b>→ Start Module #7b - Respiratory System, Part #2</b>
November 3	<i>Exam #7 – Respiratory System (Both Parts #1 and #2)</i> <b>→ Start Module #8a - Digestive System, Part #1</b>
November 10	<i>Exam #8a – Digestive System, Part #1</i> <b>→ Start Module #8b - Digestive System, Part #2</b>
November 17	<i>Exam #8b – Digestive System, Part #2</i> <b>→ Start Module #9 - Urinary System</b>
November 24	<i>No Exam</i> Review for Lab Practical #2 (and Urinary System) <b>→ No Class on November 26 – Thanksgiving Recess.</b>
December 1	<i>Exam #9 – Urinary System</i>

**→ Start Module #10 - Male Reproductive System**

---

December 8      *Lab Practical #2 – Lymphatic, Respiratory, Digestive, and Urinary System*

**→ Continue Module #10 - Male Reproductive System**

**→ Start Module #11 - Female Reproductive System**

---

December 15      *Exam #10 – Male Reproductive System*

**→ Continue Module #11 - Female Reproductive System**

---

December 21-22 *Exam #11 – Female Reproductive System*

---

## Distance Education Course Interaction Plan (Form DE-2)

---

This form is to be completed by the faculty of record. Students enrolled in this distance education course shall receive a copy of this completed form.

**Course Title:** *Anatomy and Physiology II*

**Faculty:** Noel Ways

**Email:** *nways@necc.mass.edu*

√ Asynchronous Course

**Asynchronous:** This form of distance education is characterized by an emphasis on “learning on demand” or “as needed communication” between students and faculty from multiple locations at times convenient to participants.

**Synchronous:** This form of distance education entails the use of live, two-way communication among and/or between students and faculty in a scheduled or “fixed” point(s) of time(s), much like classroom-based instruction.

This course may include, but not be restricted to, the following interactions:

	YES	NO
1. Weekly Announcements	√	<input type="checkbox"/>
2. telephone interactions	<input type="checkbox"/>	√
3. electronic interactions (email, internet ...)	√	<input type="checkbox"/>
4. Discussion board	√	<input type="checkbox"/>

If yes, dates, times, places are to be specified.

Students are required to engage in the following interaction(s) for successful completion of this course:

Discussion board promotes student-student and student-instructor interactions.

Student-instructor interactions occur weekly via email and announcements. Should a follow-up meeting be necessary, an online zoom meeting will be scheduled at a mutually acceptable time.

Open invitation for Zoom meetings to discuss content and exams.