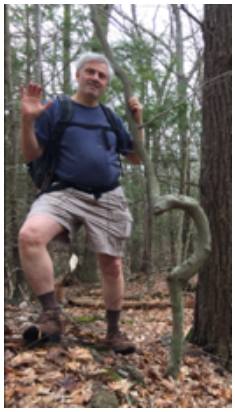
Northern Essex Community College
Department of Science, Technology, Engineering, and Mathematics
BIO 122 L1A – Anatomy and Physiology II
Summer 2022

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 122 B1B - Anatomy and Physiology II **CRN:** 5057
Campus/Room: LA109
Class Meeting Time: Monday 5:00 pm – 8:10 pm
Credits: 4 Credit Hours. 3 Lecture hours, 2 Lab hours
Prerequisites: BIO 121 Anatomy and Physiology I

Instructor Contact Information

Instructor: Noel Ways
Email: 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.

College Course 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 study of the cardiovascular system, followed by an in-depth view of the

respiratory system. Following this, other organ systems such as the lymphatic system, immunity, digestive system, and 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 of the anatomical considerations discussed in the lectures and to familiarize them with some of the more basic physiological concerns related 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_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

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 Links - "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/u/adSc6HD29O

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 Requirements

Method of instruction

This course will be delivered in a hybrid format where there will be both an online component as well as an in-class component. The online component will utilize resources available through Blackboard and the instructor's website, to which Blackboard is linked and will be aimed at delivering course curricular content. The In-class component will involve weekly meetings on campus for module introduction, laboratory work, and assessment. 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 usually given on a lecture-by-lecture basis. Administration of the exams will usually occur in class on campus during regularly scheduled class time. Alternatively, some exams will be administered on Blackboard. The exams cover material on the outlines, handouts, as well as on the 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.

Workload

We all come from different backgrounds and varying employment obligations and may have family relationships and responsibilities that need to be maintained. With the various pulls on our time and resources, scheduling another major activity can sometimes be challenging. For example, scheduling several hours daily for study can be daunting for some. But this must be looked at immediately and requires a quality decision if success is to be assured.

Typically, 3-4 hours must be set aside daily for the mastery of the material. However, this is highly individualistic, and it is crucial to determine your unique learning requirements.

I also encourage you to talk to those people important in your life about your educational needs at this juncture in your developing career. Then, look carefully at your life's time-demanding activities 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 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 important topics.

To begin the learning process, start with the **Learning Guides**. These documents will provide insight into approaching the material on a module by module basis and point out issues that require special attention or preparation. The **lecture outline** will guide you systematically 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**, I will closely discuss the lecture content following the outline. Note, if something is on the outline, you are responsible for it, even if I do not talk about it. Nevertheless, 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., will be important, as well as associating appropriate functions with them.

Exams and Make Up Work

Most exams are taken in class on the day designated on the course schedule. A few may be administered

over Blackboard. The course schedule below will clarify when exam where exams are to be taken. 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.

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

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 to the grade is made at the discretion of the instructor. This adjustment typically reduces extra points that would otherwise bolster your grade. You will never get a grade lower than your earned grade. 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 interaction:

Weekly scheduled class times provide opportunity to provide guidance, answer questions, and interact in a classroom setting. Beyond this, email and blackboard announcement will be provide a platform for the answering of questions. 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

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 special exam activities. Exams are given on a weekly basis. Should an exam be given over Blackboard, the exam will be found in the appropriate 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 weighted 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 final semester grade assignment will depend upon the completion of all lecture exams and lab practicals. All exams are weighted equally. Of all the exams, the lowest grade may be dropped except for the last unit and/or final exam. Calculating 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 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.

Deaf and Hard of Hearing Services call 978-241-7045 (VP/Voice) or email or email deafservices@necc.mass.edu.
To request an Interpreter or communication access email: 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.

Important Contact information:

- **Learning Accommodations Center (LAC)** main number 978-556-3654 or email lacenter@necc.mass.edu
- **Deaf and Hard of Hearing Services (DHHS): c**all 978-241-7045 (VP/Voice) or email deafservices@necc.mass.edu
- **Interpreter** - To request an Interpreter or communication access email: 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.

NECC Outcomes Assessments

NECC's commitment to student success involves the evaluation of student work at the program, department, and/or campus levels to help ensure that students are achieving the learning outcomes identified by our programs and the college. This process may include the collection of such evidence as student classroom products or classroom-associated reports of student knowledge or skill demonstrations. All collected products will have any identifying information removed before they are reviewed. Results from these reviews are then aggregated to provide an overall view of students' outcomes achievements. Assessments carried out at the program, department, and/or campus levels will not impact students' course grades. The process of assigning grades will continue to be the responsibility of the course instructors. Any student who does not wish to have their products collected for program, department, or campus-level assessment can opt out by notifying their instructor.

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: NECC 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.

Assignments

A particular Lecture Topic will be considered on a module start date. Your assignment is to use the resources provided to you to begin mastering that topic in preparation for an exam on that topic. As mentioned above, read the Learning Guide found on Blackboard for particular guidance on how to approach the material. In addition, the Lecture Outline will provide structure and organization for the lecture content and provide room to take notes. And supplemental handouts will reinforce and expand on anatomical and physiological topics of particular importance or complexity. And in the lecture videos, I will walk you through all (with a few exceptions) of the material.

SCHEDULE - Summer 2022 - Bio 122 L1A

Exams on Blackboard must be completed between 8 am and 12 midnight on the day designated.

New Module
START DATES

June 27 (M)	→ **Formal Start – Module: Blood**
June 29 (W)	→ **Module: Heart Dissection & Cardiac Cycle**
June 30 (Thurs)	*Exam – Blood Exam on Blackboard*
July 4 (M)	***College Closed, No Class – View videos on your own*** → **Module: Vessels and Routes**
July 6 (W)	*Exam – Heart* → **Modules: Lymphatic & Non-specific Host Immunity**
July 8 (Friday)	*Exam – Vessels and Routes on Blackboard*
July 11 (M)	*Exam – Lymphatic and Non-specific Host Immunity* → **Module: Respiratory System, Part #1**
July 13 (W)	*Lab Practical #1 (Heart and Vessels)* → **Module: Respiratory System, Part #2**
July 18 (M)	*Exam – Respiratory System (Both Parts #1 and #2)* → **Module: Digestive System, Part #1**
July 20 (W)	*Exam – Digestive System, Part #1* → **Module: Digestive System, Part #2**
July 25 (M)	*Exam – Digestive System, Part #2* → **Module: Male Reproductive System**
July 27 (W)	→ **Module: Female Reproductive System**
July 28 (Thurs)	*Exam – Male Reproductive System on Blackboard*
August 1 (M)	*Exam – Female Reproductive System* → **Brief Primer on Urinary System, and Lab Review Time**
August 3 (W)	Final Review for final exam
August 5 (FRI)	*Lab Practical #2 on Blackboard*

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

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

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*

Hybrid √ Asynchronous Component √ Synchronous Componenet

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. in person meetings	√	☐
2. telephone interactions	☐	√
3. electronic interactions (email, internet …)	√	☐

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.