

NORTHERN ESSEX COMMUNITY COLLEGE  
HAVERHILL, MASSACHUSETTS

COURSE OUTLINE  
Spring 2020

*COURSE: BIO 122-HTR (CRN: 1183), Anatomy and Physiology II*

*INSTRUCTOR: Professor Noel Ways*

*TEXTS: Human Anatomy & Physiology 2nd Edition, by Erin C. Amerman;  
Pearson Pub. Co., ISBN: 9780135193761*

*Exploring Anatomy & Physiology in Laboratory 3rd Edition, by  
Amerman Morton Pub. Co., © 2017, ISBN: 9781617316203*

*ADDITIONAL SUPPLIES: 1 1/2" Binder, Safety Glasses, Colored Pencils*

*LOCATION and TIME: Lecture: Lab: H-E251 Tuesday 6:00 – 8:20  
Laboratory: Lec: H-E354 Thursday 6:00 – 8:20*

COLLEGE COURSE DESCRIPTION:

*BIO122 – Anatomy & Physiology II 354*

*A continuation of BIO121 Anatomy & Physiology I. Systems covered are circulatory, endocrine, reproductive, urinary, digestive and respiratory.*

*4 Credit Hours, 3 lecture credits; 2 lab hours*

*Prerequisites: Course or Test: BIO121 Anatomy & Physiology I, minimum grade of D*

Introduction:

*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 laboratory component of the course 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. The laboratory period will also be used for lecture purposes.*

### **INSTRUCTIONAL OBJECTIVES:**

*This course is given to provide a necessary background for students who will pursue a career in the medical and paramedical curricula or other related fields. It also provides answers to those keenly interested in the human body both in form and function. All topics discussed will provide an initial detailed description of anatomical considerations followed by essential physiological processes involved. Throughout this treatment, there will also be an aim to integrate the systems relative to their homeostatic functions. With these thoughts in mind, the following objectives will be covered:*

- 1. Students will be able to identify essential components of the blood and their respective functions. The student will be able to explain the general process by which blood cells are produced and the control mechanisms regulating these processes. The student will demonstrate an understanding of blood clotting, and its relationship to the fighting of infection. The student will also be able to explain the mechanisms of gas transport by red blood cells.*
- 2. The student will be able to identify the name and function of all essential anatomy as it relates to the cardiac cycle. This will be followed by a thorough examination of the cardiac cycle of which the student will demonstrate, in writing, his/her comprehension of this important topic. Finally, the regulatory mechanisms that control cardiac output will be identified.*
- 3. The student will then be expected to demonstrate a broad understanding of the anatomical and physiological characteristics of the blood vessels; and how these vessels differ relative to their location to the heart and critical organs. The students will also identify the major arteries and veins of the human body, and demonstrate a keen understanding of the hepatic portal system. Finally, the physiological mechanisms of fluid exchange and blood pressure will be examined.*

4. *The student will identify the various functions of the lymphatic system as they relate to the organs found in this system. An understanding of the importance of the lymphatic system relative to immune function will be examined and demonstrated.*
5. *The students will be able to explain the essential components of both non-specific and specific host immune responses. This will include the demonstration of interferon and the complement system. Finally, the student will be expected to explain, in essay form, the full functioning of both cellular and humoral immunity.*
6. *The student will be able to identify the name and functions of all major components of the respiratory system. Critical physiological mechanisms relating to gas transport and exchange will likewise be examined. The student will also demonstrate an understanding of the anatomy of the larynx as well as its function.*
7. *The next major topic is the digestive system. Here, the student will be able to sequentially follow the alimentary canal and discuss the various anatomical and physiological modifications to the overall digestive process. The function of accessory organs such as gallbladder, liver, pancreas, salivary glands, as well as human dentition and tooth anatomy will be examined; and the student will be expected to demonstrate his/her competency both in writing and by illustration. The student will also demonstrate in writing lipid transport and regulation.*
8. *The urinary system and nephron function will follow. Here the students will be able to identify all major anatomical parts of this system as well as its functioning unit, the nephron. Following this, the student will be presented with his/her most challenging component of the course: a detailed understanding of nephron physiology expressed in essay form.*
9. *Discussion of the human reproductive systems will aim at providing essential anatomy and physiology as well as hormonal controls for these systems. Besides being able to identify major anatomical components and their respective functions, the student will be asked to illustrate both male and female hormonal regulation. Finally, the unique adaptations of the female body to carry, support, and nurture a fetus/infant will be discussed.*
10. *The last lecture of the semester will cover the endocrine system but also serve as a synthesis of homeostatic themes presented throughout the course. In this respect, the student can anticipate some review of control mechanisms previously presented, but in a more focused context of the endocrine system. As such, the student will become familiar with the anatomy and location of endocrine organs and their specific roles in the maintenance of homeostasis. Several control systems will be presented and the student will illustrate several of these in illustration form.*

### TEACHING PROCEDURES:

*The lecture sequence will be presented in a systematic fashion with accompanying overheads to facilitate organization and understanding of the lecture material. Significant emphasis will be placed upon physiological processes where appropriate with an aim toward an appreciation for the integration of various physiological processes.*

*The laboratory 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. The laboratory period will also be used for lecture purposes.*

### GRADING POLICY

*The course content is divided up maximally so as to reduce total load content on any particular exam. Each exam is worth 100 points. The “lowest” grade may be dropped with the exception of the last exam set and potentially other exams that are “non-droppable”. The student will be informed ahead of time if an exam cannot be dropped. The final grade is based upon an absolute scale and is determined by the college and can be accessed online. A number/letter equivalence chart is provided at the end of this syllabus.*

### ATTENDANCE POLICY:

*Attendance of every lecture and every lab is strongly encouraged, as material will be presented that may not be otherwise covered in the text. A student will not be penalized for failure to attend a class, however, it should be noted that lecture exams and laboratory practicals will have strong representation from class instruction. A name call will be taken for registrar tracking purposes.*

### COLLEGE STATEMENTS:

- **Evaluation of Student Work** *“Northern Essex Community College’s commitment to student success involves the evaluation of student work to help ensure that students are achieving the learning outcomes identified by our programs and the college. This process may involve the collection of student classroom products for evaluation at the program, department, and/or college levels. When collected for this purpose, students’ names will be removed from the products so that the assessing is done anonymously. Evaluations carried out at the program, department, and/or college*

*levels will not impact students' course grades. The process of assigning grades will continue to be the responsibility of the course instructor."*

- **Learning Accommodations**

- Learning Accommodations Center:**

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

- Location: Student Center SC111, call (978) 556-3654*

- Or email: lacenter@necc.mass.edu*

- Deaf and Hard of Hearing Services:**

- Location: Student Center SC110, call (978) 241-7045 (VP?Voice)*

- Or email: deafservices@necc.mass.edu*

## **NOTES "the fine print"**

### **1 Administrative**

- a. **The Syllabus** Please keep a copy of this syllabus as a record of course content for future application purposes.*

### **2 Recording of lectures**

- a. **Recording of Lectures** Recording of the lectures is always permitted. The use of laptop computers or word processors is encouraged if it helps the student integrate the material. Feel free to use a digital camera to photograph laboratory dissections, models, or any other supportive tool. You may videotape the lecture if you like. In short, you may do anything you deem necessary to master the subject matter as long as it is legal, ethical, and non-disruptive.*

### **3 Attendance**

- a. **Attendance** of every lecture and every lab is strongly encouraged, as material will be presented that may not be otherwise covered in the text. Also, as special assignments or lecture sequence modifications or exam date changes may occur; it is imperative that you are proactive in ascertaining if changes have been made and what material has been covered.*
      - b. **Tardiness** Please be on time. Tardiness is disruptive to both the students and the instructor. If you are late, please make sure that you are marked down on the attendance sheet before you leave. Further, announcements, schedule changes, exam date changes etc, may be given at the very beginning of class.*

- c. **Leaving Early** - Never leave class early as lecture topics could be discussed that are not anticipated or special announcements or schedule modifications may be made at the very end of class.

#### 4 **Course Materials/Services**

- a. **Alternative Textbook** If the student chooses to use an alternative textbook, or an edition other than the one required for this course, it is the student's responsibility to obtain information that is either not covered or otherwise not approached in a similar manner as in the required text.
- b. **Textbook Usage** The role of the textbook is to be a supportive tool to the lectures. The student is not expected to memorize the entire textbook, but to use it to reinforce concepts and material presented during lecture.
- c. **Website** The website associated for this course can be found at the following address: [www.noelways.com](http://www.noelways.com) . Once the site is accessed, select your course and there you will find your lecture outlines, handouts, and other support material. There is also an email button for correspondence with your instructor.
- d. **Lecture Outlines and Supplemental Materials** are to be found on the internet. All course materials should be downloaded and organized in a three-ring binder during the first week of classes.
- e. **Tutoring** The college provides free tutoring services during Fall and Spring semesters. Contact the academic support center for the days and times. Tutoring is a free service of the college and designed to assist students who desire to excel in their mastery of the material as well as those struggling.

#### 5 **Exams**

- a. **The Exam Schedule** below is a tentative but probable schedule of topics and dates. The schedule will be modified according to the progress of the lectures. The exam dates are target dates and will represent only material actually covered in class and video assignments. Specifics regarding content will be given as the exam date approaches.
- b. **Exam Filing** All exams are returned to the instructor and filed after being handed back for review.
- c. **Make-up Lecture 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 a penalty is applied at the discretion of the instructor. If there is to be a make-up, this task should be accomplished within a week that the student returns to school in good health. Dates and times are limited, so the students may need to make special arraignments to do the make-up. Contact me so that a time and

*date can be coordinated. After a week, the instructor reserves the right to refuse a make-up.*

- d. ***Make-up Lab Exams*** *Lab exams (practicals) are very difficult to make up. If you miss a lab practical, this may be the exam grade you drop.*

## 6 ***Grading***

- a. ***Dropping One Exam*** *The lowest grade of the semester is dropped, with exception of the last exam set and any other exams that the instructor designates as “non-droppable”.*
- b. ***Final Grade*** *Your final course grade is typically determined the day of the final exam. Once the grades are submitted, confirm your grade with the college, and contact me if there are any issues. After four weeks of the grades being submitted, exams are recycled, and grades are final.*
- c. ***Exam Grades*** *are not given over the internet.*

## 7 ***School Closings and Emergencies***

- a. ***Unscheduled School Cancellations*** *If there is a college cancellation, please check the announcements button on the web for instruction. Class time missed due to unscheduled school cancellations must be made up. Follow instructions on the web for details. If there is a scheduled exam, this will be covered the next time we meet.*
- b. ***Adverse Weather*** *Phone number: ext. 3002*

## 8 ***Final Points***

- a. ***Contact Information*** *See email address for the contact link. When emailing, always identify yourself and the class that you are in. Always have the subject line appropriately filled in. I will not open mail that is not properly identified.*
- b. ***Recommendations*** *Should you seek a letter of recommendation to future programs, please provide the instructor with appropriate information and deadlines that you are facing and a stamped and addressed envelope. Finally, to assure that your application is complete, please contact the school after a reasonable period of time to assure their having received the letter. Contact me if there are any problems.*
- c. ***Identification*** *of all texts, recorders, and lab manuals is important. Please put your name and phone number on all personal belongings. If you leave something behind, you may be contacted as to where to pick it up.*
- d. ***Cellular Phones and Text Messaging*** - *Unless you anticipate an emergency call, please turn your phones off. Text messaging is prohibited during class.*

### **Winter/Spring Schedule**

*This schedule is tentative and will be adjusted according to the progress of the lectures.*

<i>Week of:</i>	<i>LECTURE</i>	
<i>January 19</i>	<i>Cardiovascular System: The Blood</i>	<i>--</i>
<i>January 26</i>	<i>The Blood, cont., Heart</i>	<i>Exam 1</i>
<i>February 2</i>	<i>Cardiovascular System: Heart</i>	<i>Exam 2</i>
<i>February 9</i>	<i>Cardiovascular System: Vessels and Routes</i>	<i>Exam 3</i>
<i>February 16</i>	<i>The Lymphatic System</i>	<i>Exam 4</i>
<i>February 17 (M) College Closed - President's Day</i>		
<i>February 23</i>	<i>Non-specific Host Immunity</i>	<i>Exam 5</i>
<i>March 1</i>	<i>Specific Host Immunity</i>	<i>Exam 6</i>
<i>March 8</i>	<i>The Respiratory System</i>	<i>Lab Practical 1</i>
<i>March 15</i>	<i>Spring Break – No Classes</i>	<i>Video Assignment</i>
<i>March 15 - 22</i>		
<i>March 22</i>	<i>The Respiratory System</i>	<i>Exam 7</i>
<i>March 29</i>	<i>The Digestive System</i>	<i>TBA</i>
<i>April 5</i>	<i>Digestive System</i>	<i>Exam 8</i>
<i>April 13</i>	<i>The Urinary System</i>	<i>Exam 9</i>
<i>April 20 (M) College Closed – Patriot's Day</i>		
<i>April 19</i>	<i>Reproductive System</i>	<i>Lab Prac #2</i>
<i>April 26</i>	<i>Endocrine System</i>	<i>Exam 10</i>
<i>May 3</i>	<b><i>Final Exam</i></b>	

*Understand that the Final exam Day/time may differ from regularly scheduled class.*

*Therefore, the student may need to make appropriate arrangements to attend mandatory final exam.*



## Anatomy and Physiology II Exam Contents

(Modification of content, dates, or number of exams will be announced in class, should any be made. Exams may not be given in the order designated below.)

<i>Exam #</i>	<i>Grade</i>	<i>Exam Title</i>
Exam #1:	_____	_____
Exam #2:	_____	_____
Exam #3:	_____	_____
Exam #4:	_____	_____
Exam #5:	_____	_____
Exam #6:	_____	_____
Exam #7:	_____	_____
Exam #8:	_____	_____
Exam #9:	_____	_____
Exam #10:	_____	_____
Exam #11:	_____	_____
Exam #12:	_____	_____
Exam #13:	_____	_____
Exam #14:	_____	_____

Calculation of your grade is simple. Drop your lowest grade, then do a simple average. This is your course grade to date. Note your grade in the numeric/letter equivalence chart below.

*Grading Policy:*

A	4.0	93-100	C	2.0	73-76
A-	3.7	90-92	C-	1.7	70-72
B+	3.3	87-89	D+	1.3	67-69
B	3.0	83-86	D	1.0	60-66
B-	2.7	80-82	F	0.0	0-59
C+	2.3	77-79			

**Course Average:** \_\_\_\_\_

**Letter Grade:** \_\_\_\_\_

# Academic Calendar Spring Semester 2020

Winter Intersession 2020	January 2-28
Martin Luther King Day (College closed)	January 20
Winter Convocation	January 21
Classes begin	January 22
Course drop/add period (to receive a full refund for courses that begin January 22-28, courses must be dropped by 6:00 pm on January 29)	January 22-28
Withdrawal period begins for full-semester courses	January 30
Thirteen-week classes begin	February 5
First NP/NS (No show) roster due by 12:00 pm	February 6
Last day for change of major non-criteria programs	February 7
Audit forms due to Enrollment Services	February 10
President's Day (College closed)	February 17
Last day to withdraw with "W" for Session I classes	February 21
Session I Finals for Monday and Wednesday classes	March 11
Session I Finals for Tuesday and Thursday classes	March 12
Session I Finals for Saturday classes	March 14
Spring Break (No classes)	March 15-22
Session I grades due by 12:00 pm	March 17
Session II classes begin	March 23
NECC Professional Day (No day classes, evening classes will meet)	March 27
Spring graduation petitions due to Registrar's Office	March 31
Last day to withdraw with "W" Spring 2020	March 31
Second NP roster due by 12:00 pm	March 31
Summer and Fall advising/registration begins	April 6
Last day to withdraw with "W" for Session II	April 17
Patriot's Day (College closed)	April 20
Last day of classes before Final Exams	May 4
Finals period, day and evening classes	May 5-11
Session II Finals for Monday and Wednesday classes	May 6
Session II Finals for Tuesday and Thursday classes	May 7
Makeup day for Final Exams (day classes)	May 11
Spring semester officially ends	May 11
Annual Awards Convocation	May 12
Grades due*	May 13
58th Annual Commencement	May 16
Grades/GPA/Academic Status posted	May 18
Memorial Day (College closed)	May 25
Spring degrees/certificates mailed by	July 7

*Below is a copy of the acknowledgements that NECC students are required to agree to adhere in order to participate in the laboratory.*

## **NECC Biology Laboratory Safety Acknowledgement Form**

To ensure that science experiments are safe, positive learning experiences, faculty must read and discuss this safety rules and procedures acknowledgment with their laboratory section. The students must then sign the attached sheet acknowledging their understanding of, and adherence to the safety rules and procedures of NECC.

1. Eating or drinking in the lab or experimental work area is forbidden.
2. Wear appropriate protective equipment when asked to by your instructor
3. Never work without the professor in the laboratory.
4. Perform the experiments as directed. Do not do anything that is not a part of an approved experimental procedure. Follow all instructions given by the professor.
5. Be properly prepared to do the experiment. Read the written procedure in advance and understand what you are going to do. Lack of familiarity wastes your time and is a major cause of injury. Know the hazards before you do the experiment.
6. Act in a responsible manner at all times. No horseplay or fooling around.
7. Treat all chemicals with the respect they deserve. Know the hazards before you handle the material.
8. Notify the professor of any spill before touching or attempting to clean it up. If instructed, clean up spills immediately. If you are unsure of how to properly clean up the spill ask the professor to assist you.
9. Dissection instruments are often sharp and may cause injury. Pay close attention when using them.
10. Report all accidents, injuries, and close calls to your professor immediately
11. Never take chemicals, supplies, or equipment out of the laboratory without the knowledge and consent of the professor.
12. Some biology labs, especially microbiology, introduce multiple biological hazards. Make sure to clean/disinfect your lab benches, put away all equipment and reagents, and wash your hands at the end of each lab session to prevent injury or illness

### ***Rules Regarding Exams:***

*Things you may NOT do:*

- Look at another students exam
- Go to the bathroom
- Have any electronic devices in hand/lap or in operation
- Nothing may be on desk - water bottles, papers, hats ETC.
- After an exam is complete, if you leave the room, do not reenter until the rest of the class is finished
- If a key of the exam is posted, this may not be photographed
- Cheat ( Dah !! )

*Things you may do:*

- Put down the correct answers
- Hold it, until the exam is over.
- Look at your own exam
- Look at me (I'll smile)

*What if you:*

- Look at another students exam: Exam is dropped / 0
- Go to the bathroom during exam: Exam is dropped / 0
- Have electronic devices in hand/lap (even if they are off):  
Exam is dropped / 0
- Have on desk water bottles, papers, hats ETC:  
Exam is dropped / 0
- Cheat: Exam is dropped / 0

Exams are “open brain” not “open book”: **STUDY HARD !!!**

Students who study hard and know the material well, often enjoy the exams - a reward and confirmation of hard work, and a job well done.