

NORTHERN ESSEX COMMUNITY COLLEGE
HAVERHILL, MASSACHUSETTS

COURSE OUTLINE

Fall 2015

COURSE: BIO 122-LLR (CRN: 7354), Anatomy and Physiology II

INSTRUCTOR: Professor Noel Ways

TEXTS: Seeley's Anatomy & Physiology 9th edition, by Vanputte, Regan, and Russo; WCB McGraw-Hill Pub. Co., © 2014

Exploring Anatomy & Physiology in Laboratory, by Amerman
Morton Pub. Co., © 2013

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

LOCATION and TIME: Lecture/Lab: Rooms: L015 Thursday 5:30 – 10:20

COLLEGE COURSE DESCRIPTION:

BIO122 – Anatomy & Physiology II

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

Supplemental Instruction:

Supplemental Instruction (SI) is a FREE voluntary academic development program that increases student performance and retention. The program is offered to all students in this class, as well as for other historically difficult subjects on campus. SI provides regularly scheduled out-of-class peer-facilitated sessions. Senior students (SI Leaders), who have successfully taken the course before, facilitate structured group study sessions to support students to master course content and learn effective study skills. It is a great way to study while also facilitating relationships between classmates. All SI Leaders receive extensive training. Session times will be presented by the SI Leader during the first week of class; they are

also available on the SI website at <http://www.necc.mass.edu/academics/support-services/supplemental-instruction-classes/>

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*

- it's 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 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 humeral 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 it's 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 gall bladder, 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 it's 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 a 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 the 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 grade is based upon an absolute scale and is determined by the college and can be accessed on-line. 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 assessment 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/blindness, 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

- **Safety Issues** *If you have a known disease condition or are pregnant, you must obtain written permission from your physician to participate in lab where chemicals, fixatives, or preservatives are used. A “Material Safety Data Sheet” (MSDS) for each chemical used will be provided to you for submission to your physician. No one is permitted in the lab that has a known medical condition and where chemical substances are present where a physician has not granted permission.*
- **The Syllabus** *Please keep a copy of this syllabus as a record of course content for future application purposes.*
- **Recording of Lectures** *Recording of the lectures is always permitted. The use of lap-top 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.*

- **Attendance** of every lecture and every lab is strongly encouraged, as material will be presented that may not be otherwise covered in the text.
- **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.
- **Cellular Phones and Text Messaging** - Unless you anticipate an emergency call, please turn your phones off. Text messaging is prohibited during class.
- **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 similar manner as in the required text.
- **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.
- **Web Site** The web site associated for this course can be found by doing a search on your browser for your instructor's name, or typing in the following address: 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.
- **Lecture Outlines and Supplemental Materials** are to be found on the internet. Should you have difficulty downloading any of the material at home, then you are encouraged to do this task at the school. All course materials should be downloaded and organized in a three ring binder during the first week of classes
- **The 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. Specifics regarding content will be given as the exam date approaches.
- **Exam Filing** All exams are returned to the instructor and filed after being handed back for review.
- **Make-up Lecture Exams** are to be avoided! If a make-up exam is needed, documentation should be provided to justify the absence. If a doctor's note is submitted, then a make-up exam is permitted. If a doctor's note is not submitted, a make-up exam is also permitted, but a "point correction" is applied at the discretion of the instructor. The instructor reserves the right to refuse the make-up. If there is to be a make-up, this task must be accomplished as soon as the student returns to school in good health, and within 5 school days. Lab practicals are very difficult to make up. Generally, if you miss a lab practical, this will be the exam grade you drop.

- **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.
- **Exam Grades** are not given over the internet.
- **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”.
- **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.
- **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.
- **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.
- **Unscheduled School Cancellations** If there is a college cancellation, please check the announcements button on the web for instruction.
- **Contact Information** See email address for 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.
- **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.

Laboratory

- **Clothing in Lab** Students are advised to never wear valuable clothing to lab as laboratory procedures may result in permanent damage to clothing.
- **Safety Eyewear** must be used during dissection exercises. Acceptable eyewear must have a rating of “Z87.1”.
- **Eating** during laboratory time is prohibited.
- **Children** Due to safety concerns, children are never permitted in the lab.

Fall Schedule

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

The exam schedule is likewise tentative but probable. An exam will not be given on a topic until the topic under discussion has been concluded. Any alteration of the exam schedule will be announced in class.

<u>Day of:</u>	<u>LECTURE</u>	<u>Exam</u>
September 10	Cardiovascular System: The Blood	--
September 17	Cardiovascular System: The Heart	Blood
September 24	Cardiovascular System: Vessels and Routes	Heart
October 1	The Lymphatic System	Vessels
October 8	Non-specific Host Immunity	Lymphatic System
October 15	Specific Host Immunity	Non-Spec. Immunity
October 22	The Respiratory System	Specific Immunity
October 29	The Respiratory System	Lab Practical #1
November 5	The Digestive System	Respiratory Sys
November 12	The Digestive System	--
<i>Nov 11 - Veterans Day - Tuesday</i>		
November 19	The Urinary System	Digestive System
November 26	No Class - Thanksgiving Holiday	--
December 3	Reproductive System	Urinary System
<i>Nov 27, 28, 29 - Thanksgiving - Thursday, Friday, Saturday</i>		
December 10	Reproductive System / Endocrine System	Lab Practical #2
December 17	Endocrine System	Reproductive
Final Exam		Endocrine

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:	_____	_____
Lab Prac #1:	_____	_____
Exam #6:	_____	_____
Exam #7:	_____	_____
Exam #8:	_____	_____
Exam #9:	_____	_____
Lab Prac #2:	_____	_____
Exam #10:	_____	_____
Exam #11:	_____	_____

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: _____

Exam Taking Rules

Here is a set of Rules regarding taking 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