

*NORTH SHORE COMMUNITY COLLEGE
DANVERS, MASSACHUSETTS*

COURSE OUTLINE

Summer 2020, Session II, July 6 – August 15

COURSE: BIO 212 OL2 (CRN: 65504), Anatomy and Physiology I I

INSTRUCTOR: Professor Noel Ways

SUPPLEMENTAL INSTRUCTOR: Christine Mulholland

TEXTS: Anatomy & Physiology II, by Saladin; Publisher: McGraw-Hill © 2020

ADDITIONAL SUPPLIES: 1 1/2” Binder, Colored Pencils

LOCATION and TIME: Lecture: moved online
Lab: moved online

ABOUT AN ACCELERATED 6 WEEK CLASS:

Anatomy and Physiology II is designed to provide course content in a typical 16-week semester, not a 6-week session. Therefore, students opting to take this course must understand that this unabridged course is accelerated; and that the curricula continues to reflect a four-credit course. Further, as the course is now entirely online substantial time must be allocated by the student for the mastery of the material outside of a typical structured class setting. As this course is online there are readings, videos, and other support material that the student will be required to master independently of class meetings. Note that there is a more detailed rendering under the “Welcome to the Course” link and “What is Entailed in an Accelerated 6 Week Course.”

Supplemental Instruction (SI)

Supplemental Instruction (SI) is offered as is a FREE voluntary academic development program that increases student performance and retention. The program is designed to offer assistance in historically difficult subjects. 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 help students master course content. It is a great way to study

while also facilitating relationships between classmates. Session times will be scheduled by the SI Leader, who will conduct study sessions via zoom.

Supplemental Instruction is not tutoring. It is for the serious student who wants to excel in their studies, and benefit from someone who has very successfully gotten through the material.

The SI Instructor is Christine Mulholland, and she can be reached at cmulholl01@northshore.edu. You will find Christine to be an extraordinary help to you. She has been through the course, taken the exams, and can help you navigate this course's rigors in the time frame allotted to us. She will provide reviews of the more challenging and essential aspects of the lecture sequence.

COLLEGE COURSE DESCRIPTION:

BIO104 - Anatomy and Physiology 2

Pre: BIO103 with 'C' or better

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

Introduction:

Human Anatomy and Physiology II (A&P 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 (A&P I) and will proceed on a system-by-system basis. A&P II assumes a working knowledge of topic and concepts presented in A&P I.

The course will commence with an in-depth study of the cardiovascular system. This is followed by a unit that explores the lymphatic system and immunity. Afterwards, other organ systems such as the respiratory system, digestive system, urinary system, and reproductive systems will also be examined. Other subjects of particular relevance will be discussed at appropriate points during the lecture sequence.

The laboratory component of the course was traditionally designed to give the students a “hands-on” appreciation for the anatomical considerations being discussed in a lecture and to familiarize the student with some of the more basic

physiological considerations as they relate to gross anatomy. As this course is now online, laboratory exercises will be video recorded sessions looking at anatomical structures and functions that reinforce lecture topics.

INSTRUCTIONAL OBJECTIVES:

This course is given to provide the essential background needed for students pursuing a career in the medical and paramedical curricula or related fields. It also provides answers to those keenly interested in the human body both in form and function. Lecture topics generally commence with a detailed description of anatomical considerations followed by relevant physiological processes. Throughout this approach, there will also be an aim to integrate the systems relative to their homeostatic functions. With these thoughts in mind, the following course-level objectives will be covered:

1. Students will identify the 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 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 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 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 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.

INSTRUCTIONAL MODES

This course will be delivered online utilizing resources available through Blackboard and/or the instructor's web site. Each lecture/module will have an instructional guide that will guide the student through the supportive readings,

videos, animations, and other media under consideration for any particular lecture/module. The online resources will guide the student through the essential information the student needs in preparation for associated assessment exams. The video lectures will follow a lecture outline, both of which can be found online. These are essential tools to prepare the student for the lecture assessment exams. Exams are given on a lecture by lecture basis will be completed within the time frame on the schedule below. These exams will cover material covered on the outlines, handouts, as well as on the videos. The exams are noncumulative but any particular lecture assumes a working knowledge of previous lecture topics.

For additional details of the module week, see “Course Walkthrough (or Instructional Rhythm) in the Course Information folder on Blackboard

Course student outcomes include but are not limited to:

- Describe the functions of the blood in the maintenance of homeostasis.
- Describe the process of erythropoiesis and erythrocyte break down.
- Describe the process of hemostasis (blood clotting).
- Describe the anatomy and heart of heart structures.
- Describe in detail the events of the cardiac cycle.
- Describe control measures in cardiac output.
- Describe and distinguish the various classifications of blood vessels and the particular function in blood transport.
- Identify specific blood vessels in the list provided.
- Explain how blood pressure is controlled.
- Describe the various means by which the body accomplishes a non-specific host immune response.
- Explain the process of wound healing.
- Explain what initiations the complement system and interferon and the specific outcomes of both systems.
- Describe how the specific host immune system develops.
- Provide details on several specific host immune paradigms.
- Describe the anatomy and physiology of organs of the respiratory system.
- Describe the structure and function of the larynx.
- Describe how the lungs remain inflated, and what happens during pneumothorax.
- Explain how partial pressure effects gas movement.
- Explain the mechanics of ventilation.
- Describe how environmental conditions effect the carrying capacity of hemoglobin for oxygen.
- Describe the anatomy and physiology of organs of the digestive system.

- Describe the events that occur during deglutition.
- Describe the function of the stomach and how gastric events are regulated.
- Describe the anatomy and functions of the gall bladder, pancreas, and liver.
- Describe the metabolic processes associated with the liver.
- Identify the anatomical structures large intestine and describe their functions.
- Describe the anatomy and the physiology of organs associated with the urinary system.
- Describe the anatomical and physiological characteristics of each part of the nephron.
- Describe and identify the organs of the reproductive tract.
- Explain how spermatogenesis is controlled.
- Explain how the ovarian and uterine cycle works together and the control mechanisms for both.

TEACHING PROCEDURES:

The lecture sequence will be presented in a systematic fashion using YouTube videos. These videos will follow lecture outlines, all of which can be found online. Accompanying visuals to facilitate organization and understanding of the lecture material will be presented in the videos. Significant emphasis will be placed upon physiological processes occurring within body systems. An additional goal will be to integrate how the anatomy and physiology of the various body systems work together to maintain life.

EXAMS AND GRADING POLICY

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

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

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

Exams are to be taken on Blackboard through the testing center within the time frame listed on the schedule below. The testing center offers Proctored Testing. It will be your responsibility to contact the testing center to schedule your exam during the time designations. The Registration Form can be located at:

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

Procedure for taking Proctored Exams Online (and comments):

1. Note exam date on the syllabus, below
2. Complete the registration form (link is above). Please do this well in advance.
 - As the testing center closes at 5 pm, you will want to schedule your exam early enough so that you can use the whole time allotted to the exam. For example, if an exam is 1 hour long, you will want to schedule a time before 4 pm. (I suggest giving yourself even extra time allowing for any issues)
3. By the time you are ready to do the exam, the Testing Center will have sent you a confirmation and a zoom link.
4. Please make sure all background applications are closed (they can interfere with the exam, you do not want the computer to freeze up in the middle of the exam.) Only have what is absolutely necessary open.
5. Open the exam on blackboard.
6. Connect with the Testing Center via Zoom.
7. The testing center will give you the exam password.
8. Put in the password and take the exam.

TESTING CENTER STATEMENT OF RULES:

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

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

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

The assignment of grades is based upon an absolute scale, see chart below. If you miss an exam, that will be the exam you drop. If you miss two exams, one you will drop, the other will be a 0. The student is strongly encouraged to take all the exams.

Regarding make up exams, please have appropriate documentation for doing the makeup. If there is no documentation, any scaling of the exam will be affected at the discretion of the instructor.

Grading Policy:

A	4.0	93-100	B-	2.7	80-82	D+	1.3	67-69
A-	3.7	90-92	C+	2.3	77-79	D	1.0	63-66
B+	3.3	87-89	C	2.0	73-76	D-	0.7	60-62
B	3.0	83-86	C-	1.7	70-72	N	0.0	0-59

COLLEGE STATEMENTS:

- **Students with Learning Disabilities** - North Shore Community College welcomes students with disabilities to engage in an interactive, collaborative partnership with Disability Services and faculty in order to meet your educational and academic needs. If you have a disability-related need for reasonable academic accommodations in this course and have not yet met with a Disability Counselor, please visit www.northshore.edu/disability and follow the outlined procedure to request services. If Disability Services has formally approved you for an academic accommodation in this class, please present me with your “Faculty Notice of Academic Accommodations” during the first week of the semester, so that we can address your specific needs as early as possible. If you will require assistance during an emergency evacuation on campus, please notify me immediately. For your reference, evacuation procedures are posted in all classrooms.

ADDITIONAL NOTES

1 Administrative

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

2 Course Delivery

- a. All course material is provided online. Lectures will be done by YouTube video and have closed-caption options available. Videos will broadly follow detailed course outlines and handouts, which can also be found online. Outlines and handouts are designed also to facilitate note taking. You will need to have the outlines in hand while viewing the videos. And you will find that the lecture exams will reflect the outline and video presentations. Generally, I do not assess information that I have not talked about, although there are a few exceptions. An important rule is this: if it is on the outline, you need to know it. If something is not on the outline, you do not need to know it.

3 Attendance

- a. **Attendance** With the exception of taking the exams, your attendance and daily study time is set by you. As mentioned, you will certainly want to schedule two important time allotments:
 - Schedule ~two hours **daily** for viewing lecture and lab presentations online

- Schedule at least ~four hours **daily** for mastery of the material presented.

The specific amount of time allotted and how a student budgets this time is highly personal, and it will vary from student to student depending on your individual learning requirements and learning goals.

- Tardiness** Please be on time for taking the scheduled exams at 6 pm on the designated day. If you take an exam outside of the set scheduled time, the grade is effected.

4 **Course Materials/Services**

- 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.
- Textbook Usage** The role of the textbook is to be a supportive tool for the lectures. The student is not expected to memorize the entire textbook, but to use it to reinforce concepts and material presented during lecture.
- Website** The website associated with this course can be found at the following address: www.noelways.com. Also, all course material may be accessed on Blackboard. All exams are done on Blackboard. Once the site is accessed, select your course, and there you will find your lecture outlines, handouts, and other support material.
- 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.
- 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**

- The Exam Schedule** On the summer schedule below is the schedule of topics and dates. The exam will represent only material actually covered on course outlines, handouts, video assignment and other designated learning venues.
- 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 is 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 a date can be coordinated. After a week, the instructor reserves the right to refuse a make-up.

6 **Grading**

- a. **Dropping One Exam** The lowest grade of the semester is dropped with exception of the last exam unit and any other exam 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. When the exams are graded the grade will be posted on Blackboard

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. All email should be done through your college email account.
- b. **Recommendations** Should you seek a letter of recommendation to future programs; please provide the instructor with appropriate information and college deadlines that you are facing. Finally, to ensure that your application is complete, please contact the school after a reasonable period of time to assure that they have received the letter. Contact me if there are any problems.

Summer Schedule

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

<i>Lecture (Module) Date</i>	<i>LECTURE</i>	<i>Exam</i>
<i>Lecture #1 July 6 (Mon)</i>	Blood	<i>No Exam June 22</i>
<i>Lecture #2 July 9 (Thurs)</i>	Heart	<i>Exam on Blood by 4 pm</i>
<i>Lecture #3 July 13 (Mon)</i>	Vessels and Routes	<i>Exam on Heart @ 4 pm</i>
<i>Lecture #4 July 16 (Thurs)</i>	Lymphatic System and Non-specific host Immunity	<i>Exam on Vessels and Routes @ 4 pm</i>
<i>Lecture #5 July 20 (Mon)</i>	Respiratory System, Part 1	<i>Exam on Lymph. Sys & Non Sp. Imm @ 4 pm</i>
<i>Lecture #6 July 23 (Thurs)</i>	Respiratory System, Part 2	<i>Lab Practical #1 (Heart and Vessels) @ 4 pm</i>
<i>Lecture #7 July 27 (Mon)</i>	Digestive System, Part 1	<i>Exam on Respiratory System @ 4 pm</i>
<i>Lecture #8 July 30 (Thurs)</i>	Digestive System, Part 2	<i>Exam on Digestive System, Part 1 @ 4 pm</i>
<i>Lecture #9 August 3 (Mon)</i>	Male Reproductive System	<i>Exam on Digestive System, Part 2 @ 4 pm</i>
<i>Lecture #10 August 6 (Thurs)</i>	Female Reproductive System	<i>Exam on Male Reproductive System @ 4 pm</i>
<i>Lecture #11 August 10 (Mon)</i>	<i>Lab Review Time</i>	<i>Exam on Female Reproductive System @ 4 pm</i>
<i>Lecture #13 August 13 (Thurs)</i>	<i>No Lecture assignment</i>	<i>Lab Practical #2 @ 4 pm</i>

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.)

Exam #	Grade	Exam Title
Exam #1:	_____	_____
Exam #2:	_____	_____
Exam #3:	_____	_____
Exam #4:	_____	_____
Exam #5:	_____	_____
Exam #6:	_____	_____
Exam #7:	_____	_____
Exam #7:	_____	_____
Exam #9:	_____	_____
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: _____