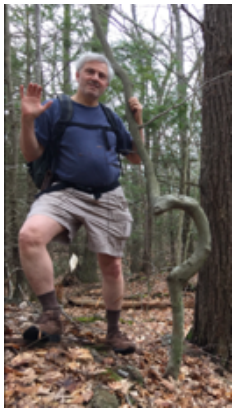
Northern Essex Community College
Department of Science, Technology, Engineering, and Mathematics
BIO 121 B1A – Anatomy and Physiology I
Summer 2023

Welcome



Welcome to Anatomy and Physiology I. 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 121 B1A – Anatomy and Physiology I **CRN:** 5071
Campus/Room: Haverhill, E352
Class Meeting Time: Monday and Wednesday 4 – 7 pm
Credits: 4 Credit Hours. 3 Lecture hours, 2 Lab hours
Prerequisites: BIO 115 Physiological Chemistry or CHM 111 Introduction to Chemistry or higher or high school chemistry in the past five years.

Instructor Contact Information

Instructor: Noel Ways
Email: nways@necc.mass.edu
Virtual Office Hours: As our schedules vary dramatically from one person to another, scheduling "office hours" that work for all can be challenging. If you would like to meet, email me, and we will schedule a meeting using Zoom video teleconferencing software program during a mutually acceptable time. On Blackboard, you will find a "Zoom Office Hours" link.

General Course Description

Anatomy and Physiology I is intended to provide a foundational knowledge base for students preparing for a career in the allied health professions. Students taking this course frequently end up in our medical facilities with substantial responsibility for patient health and safety. This course is setting the stage for a successful and responsible life-long career.

Collage Course Description

The start with the introduction of essential basic principles of biology. These are followed by an introduction to the study of the structure and functioning of the human body. Systems covered are integumentary, skeletal, muscular and nervous. Emphasis will be placed on the interrelationships among the systems. Related topics such as diseases of the systems will be integrated where applicable. Laboratory work will include dissection, microscope work, and the study of charts and models.

General Course Objectives

As we endeavor to prepare you for a career in the allied health professions, specific goals and benchmarks have been established for this aim. Looking toward this end, the general course objectives listed below expand on the overall course description. As the course flow ensues, you will find that the course topics and laboratory work will align with these objectives.

- Develop a working knowledge of anatomical terminology applicable to writing medical reports and reading professional literature associated with their discipline.
- Develop an understanding of how homeostasis is maintained through negative and positive feedback systems
- Distinguish between essential chemical processes and molecular classifications in preparation for further discussion of physiological concepts in both A&P I and A&P II, and clinical instruction.
- Compare and contrast the functional relationships of major cellular organelles.
- Compare and contrast transport mechanisms for substances entering and exiting through the cell membrane.
- Critique different tissues found in the body according to their function-location relationships.
- Differentiate between the regions of the Integumentary System and their functions.
- Write the process of deep wound healing while taking into account the logical progression of healing events through time.
- Relate the structural makeup of osseous tissue to healthy bone maintenance.
- Diagram the homeostatic mechanisms involved in the maintenance of normal blood calcium levels.
- Compare and contrast the stages in the process of healthy bone growth.
- Develop a working knowledge of the body's major bones and the numerous processes, fosses, etc. of the same.
- Categorize the major articulations of the body, both structurally and functionally.
- Relate the anatomy of muscle tissue to how muscles contract.
- Predict the amount of ATP produced per one glucose molecule based upon an illustrated
- Predict the actions of various muscle contractions based upon their location, origin, and insertion.
- Compare and contrast the major parts of the central nervous system according to their essential functions.
- Examine the process of nerve impulse propagation.
- Produce illustrated diagrams of select spinal reflexes.
- Distinguish between the different parts of the human brain and their respective functions.
- Compare and contrast how the different parts of the central nervous system work in a coordinated manner.
- Predict the levels of both sympathetic and parasympathetic nervous activity under various degrees of stress and rest.

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:** Websites that feature animations explaining complex physiology

Aside from the required text, other course materials are linked on blackboard.

Zoom Link

Office Hours

Join Zoom Meeting
https://zoom.us/j/97324652145

Meeting ID: 973 2465 2145
One tap mobile
+13017158592,,97324652145# US (Washington DC)
+13126266799,,97324652145# 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: 973 2465 2145
Find your local number: https://zoom.us/u/aywfgaH2l

Join by SIP
97324652145@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: 973 2465 2145

Join by Skype for Business
https://zoom.us/skype/97324652145

Course Requirements

Method of Instruction

This course is delivered in a ***hybrid format***, where the students:

- Receive instruction in class
- Work independently outside a traditional classroom and laboratory setting.

The course content is organized into modular components to facilitate accessibility, clarity, and organization to this process.

Each module will have the following components:

- **Learning Guide** - A Learning Guide will guide the student through the supportive readings, videos, animations, and other media under consideration for any particular lecture/module. This document provides tips on approaching the material and issues of specific concern relating to the associated exam.
- **Lecture Outline** - A lecture outline organizes the course content and guides the student through the material in preparation for associated assessments. In addition, the outline is designed for student note-taking.
- **Handouts** – Handouts highlight points in the lecture sequence requiring special attention, comment, or visual support. These tend to revolve around more complex physiological topics.
- **Videos Support** - Videos of the lectures will follow a lecture outline closely. The goal of this media is to cover all content, both in the lecture setting as well as in the laboratory.
- **Laboratory** - In a traditional educational setting, the laboratory lends itself to a "hands-on" approach to understanding course content. As this course has a laboratory component but is entirely online, rich image banks compensate for this aspect with rich image banks and accompanying video support.
- **Exams** are usually given on a module-by-module basis and are administrated on Blackboard. The exams cover material on the outlines, handouts, and 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.

Assignments

Anatomy and Physiology is a content-heavy study. And the essential purpose of each module is to build 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 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 laboratory 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 essential 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. Next, 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 it is not, you are not responsible for it, even if it is in your text. Finally, handouts and videos will supplement and reinforce key concepts. Regarding the Video Support, I will closely discuss the lecture content following the outline. Again, if something is on the outline, you are responsible for it, even if I do not talk about it. Needless to say, 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

Exams are administered over Blackboard and in a few cases in class. The course schedule below provides the specific dates for all exams. The time frame for completing exams on Blackboard is broad as the exam will be available at 8 am on a particular day, and the exam will close at midnight. The exams are timed, there is no backtracking, and they need to be completed in one sitting. Since the exams must be completed by midnight, make sure that you start 10:30 to 11 pm at the latest. If you wait, the exam may close down when it is not finished. 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 instructor's discretion. 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 issue is resolved. Contact me so that a time and a date can be coordinated for a makeup.

Communication and interaction:

Email and blackboard announcements 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. There is also a

discussion board available on Blackboard.

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, receiving good grades on exams gives a certain satisfaction of a job well done.

Exams - Note, ***Grading Criteria*** are 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 weekly. Exams will be found in the appropriate Blackboard folder at the bottom of the list. (i.e., Exam #1 will be in the "Organization of the Human Body" folder; Exam #2 will be in the "Chemistry of Life" folder).

Exam #1	Organization of the Human body	100 points
Exam #2	Cytology	100 points
Exam #3	Histology	100 points
Exam #4	Integumentary system	100 points
Exam #5	Skeletal (Osseous) Tissue	100 points
Lab Exam #1	Histology Practical	100 points
Exam #6	Glycolysis and Cellular Respiration and Articulations	100 points
Lab Exam #2	Laboratory Practical on Skeletal System	100 points
Exam #7	Myology	100 points
Exam #8	Nervous 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). Always email me if you have a question.

Grade Calculation - The final semester grade assignment will depend upon completing 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

A link to the College Grading System can be found at: 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 (CARS) 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: 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 CARS or DHHS 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 communication options: Zoom, Phone, In-Person or Email.
To get started students may contact us as outlined below:

- **Call** the **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 deafservices@necc.mass.edu.**
- **To request an Interpreter or communication access email: interpret@necc.mass.edu**
- **Individual staff members can be contacted via email**

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 Assessment (a College Statement)

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. Please email me if you would like assistance regarding study tips, progress, or other issues. We can also collaborate through an appointment on Zoom. So 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.necc.mass.edu/succeed/academic-support-services/tutoring-center/

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 2023 - Bio 121 B1A

New Module
START DATES

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

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Week #1

May 22 (M) → Start Module #1 - Organization of the Human Body

May 24 (W) → Continue Module #1 - Organization of the Human Body
→ Start Module #2 - Cytology

May 25 (**Thur**) Exam #1 - Organization of the Human Body *on Blackboard*

Week #2

May 29 (M) **No Class** – Memorial Day
Exam #2 – Cytology *on Blackboard*
→ Start Module #3 - Histology

May 31 (W) → Continue Module #3 - Histology
→ Start Module #4 - The Integumentary System

June 2 (**FRI**) *Exam #3 – Histology on Blackboard*

Week #3

June 5 (M) *Exam #4 on Integumentary System*
→ Start Module #5 – Skeletal (Osseous) Tissue

June 7 (W) → Continue Module #5 – Skeletal (Osseous) Tissue
→ Start Module #6a - Axial Skeletal System

June 8 **(Thurs)** *Exam – Skeletal (Osseous) Tissue on Blackboard*

June 10 **(Sat)** *Lab Practical #1 – The Histology Practical on Blackboard*

Week #4

June 12 (M) → Start Module #6a - Axial Skeletal System
→ Start Module #7 – Articulations (Videos)

June 14 (W) *Exam – Articulations*
→ Start Module #6a - Appendicular Skeletal System

Week #5

Jun 19 (M) **No Class** - Juneteenth Holiday - *Lab Practical #2 – Bone Practical*
→ Start Module #8 – Glycolysis and Cellular Respiration

Jun 21 (W) → Start Module #9 – Myology

Jun 22 **(Thurs)** *Exam – Glycolysis and Cellular Respiration on Blackboard*

Jun 24 **(Sat)** *Exam – Myology*

Week #6

June 26 (M) → Start Module #10 – Nervous System

June 28 (W) → Continue Module #10 – Nervous System

June 30 (FRI) *Final Exam (Non-cumulative) on Blackboard* – Nervous System

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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 I*
Faculty: *Noel Ways*
Email: *nways@necc.mass.edu*

√	Hybrid	Asynchronous Component	Synchronous Component

Hybrid Designation implies both Asynchronous and Synchronous Component for the course

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

Synchronous Face-to-Face Instruction: This form of education entails classroom basied instruction where live, two-way communication among and/or between students and faculty in a scheduled at "fixed" point(s) of time(s), and location.

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.