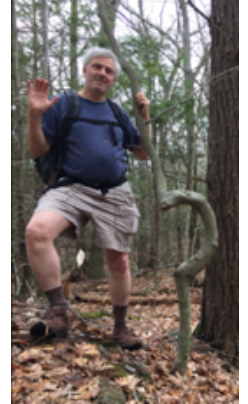


Northern Essex Community College
Department of Science, Technology, Engineering, and Mathematics
BIO 121 B1A (CRN: 5062) – Anatomy and Physiology I
Summer 2024

Welcome

Welcome to Anatomy and Physiology I. My name is Noel Ways. I am a biologist by training, and over the past 35 years, I have had the privilege to teach this course hundreds of times. Oddly, it 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

Name: Anatomy and Physiology I

Course Number: Bio 121 B1A **CRN:** 5062

Presentation Modality: Hybrid

Credits: 4 Credit Hours. 3 Lecture hours, 2 Lab hours

Dates: May 20 – June 28 (~6 weeks)

Presentation Modality: Hybrid

Class Meeting Dates and Times: Monday and Wednesday, 4 pm – 7:00 pm

Location: Haverhill Campus, Room E352

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, specific “office hours” that work for all can be challenging. If you would like to meet, email me, and we will schedule a meeting using the Zoom video conferencing 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.

College Course Description

The basic principles of chemistry are reviewed, and the basic principles of biology are introduced. An introduction to the study of the structure and functioning of the human body follows these. The 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 experiments, 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 toward 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 for 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 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 considering 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 maintaining normal blood calcium levels.
- Compare and contrast the stages in the process of healthy bone growth.
- Develop a working knowledge of the body's bones and the numerous processes, fosses, etc.
- 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 sympathetic and parasympathetic nervous activity under various degrees of stress and rest.

Course Materials

- **Textbook (Required):** Anatomy & Physiology, by OER Commons. Note, that the textbook is obtained as a free online resource and can be accessed at:
<https://www.oercommons.org/courses/anatomy-and-physiology-4/view>
- **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 material resources are linked on Blackboard.

Zoom Links – “Office Hours 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 Presentation – 6 weeks, Hybrid Modality

This course will be delivered in a hybrid format with both an online and in-class component. The online component will utilize resources available through Blackboard and the instructor's website, to which Blackboard is linked, and will be aimed at delivering course curricular content. The In-class component will involve weekly meetings on campus for module introduction, laboratory work, and assessment.

Each 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.

Workload for a 6-week Accelerated Hybrid Course

We all come from different backgrounds and have varying employment obligations, family relationships, and responsibilities that must be maintained. With the various pulls on our time and resources, scheduling another major activity into one's daily routine can be challenging. Scheduling several hours daily for study can be a daunting prospect for some. However, this must be looked at immediately and requires a quality decision to ensure success.

As this course endeavors to cover a typical 16-week semester course in 6 weeks, the course is accelerated. Therefore students must anticipate ~6 hours of study daily to master the material. However, this is highly individualistic, but it is crucial to determine your unique learning requirements.

I also encourage you to talk to those important in your life about your educational needs at this juncture in your career. I would encourage you to look carefully at all the time-demanding activities in your life and make appropriate adjustments in light of your career aspirations. The word "priorities" comes to mind here.

Assignments

Anatomy and Physiology I is a content-heavy course. Your primary assignment for each lecture topic is to build for yourself a foundation that will carry you through the rest of your developing career. So, with the beginning of a module/lecture topic, your assignment will be to gain a working knowledge of the material presented.

Also, as Anatomy and Physiology I is a laboratory course, some topics are presented and assessed more than once, once in a lecture context and the other in a laboratory context. For example, we will discuss histology in a lecture context and have an appropriate assessment. We will also study histological samples, which are assessed using another assessment format, the laboratory practical, where the material is presented entirely visually. Having alternative methods of studying the material and alternative assessment forms provides students with different avenues to access the content, demonstrate mastery, and reinforce important topics.

To begin the learning process, start with the **Learning Guides**. These documents will provide insight into approaching the material on a module-by-module basis and point out issues that require special attention or preparation. The lecture outline will then systematically guide you 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. Handouts and videos will supplement and reinforce key concepts.

Regarding the **Video Support**, I will talk through the lecture content closely following the outline. Note, if something is on the outline you are responsible for it, even if I do not discuss it. Nevertheless, it will require TIME to review the outlines, view associated videos, and study the handouts to understand the material. Regarding laboratory material, mastery of the anatomical characteristics of tissue, bones, organs, etc., and associating appropriate functions with them will be necessary.

Exams and Make-Up Work

Exams are done either on Blackboard or in class. The course schedule below will indicate when and how exams will be administered. You must refer to the schedule weekly to avoid missing any exams. Exams are designed to demonstrate mastery of the material presented and, therefore, are to be done individually and without the support of notes, text, or other resources. So, there is an honor system here. The exams are also timed. You will have enough time to read the question, pause, and put down an answer. So, to ensure this process goes well, master the material well before the exam date.

For exams administered on Blackboard, there is no backtracking, and the exams must be done in one sitting.

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 Summer 2024, Session I – Noel Ways Bio 121 BIA

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. But if there is to be a makeup, this task should be accomplished within a week of the student's return to school. Contact me so that a time and a date can be coordinated.

Communication and Interactions

Weekly scheduled class times provide an opportunity to provide guidance, answer questions, and interact. Beyond this, email and blackboard announcements will provide a platform for answering questions. Another venue may be scheduling a meeting using Zoom. Students are also encouraged to form online study groups. I have found that students who study together and talk through the material tend to excel.



Blackboard

Please make sure to log in to the Blackboard site daily. 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.

Email

Please check your student email daily. You can also forward your student mail to any other email account. Instructions can be found at: [\(link to instructions\)](#).

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. Committing time and hard work goes a long way towards realizing your career goals. Further, when one receives good grades on exams, it gives a certain satisfaction of a job well done.

Exams - Note, **Grading Criteria** 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 generally given on a biweekly basis in class.

All exams are weighted equally. Always record your grades! You will want to do this to ascertain how you are doing in the class and be alerted if something is ever (there rarely is) questionable.

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	Articulations	100 points
Lab Exam #2	Laboratory Practical on Skeletal System	100 points
Exam #7	Glycolysis and Cellular Respiration	100 points
Exam #8	Myology	100 points
Exam #9	Nervous System	100 points

Grade Calculation - The assignment of a final semester grade will depend upon completing all lecture exams and lab practicals. All exams are weighted equally. The lowest grade may be dropped except for the last unit of all the exams given. To calculate your grade, 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**

COVID vaccinations are required to be on campus. NECC is a mask optional campus, however, please consider wearing a mask on campus to mitigate the risk of catching and spreading COVID-19. For current information please visit: Coronavirus Information and Updates and Student COVID-19 Vaccination Requirement.

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 essential responsibilities. The health and well-being of the people you work with and for are paramount. 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 you are progressing well and succeeding in your career goals. But to ensure 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 coursework and clinical activity will stand squarely on the shoulders of the knowledge base you are laying down now.

All work done on assessments and practicals must be your own. You are encouraged to work together

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and collaborate, but the work must be your own when an exam is done. Therefore, the following guidelines are established to help guide you in an ethical and legitimate approach to your assessments.

1. When exams are taken, no electronic devices may be on.
2. No web browsers or other sources of information may be used.
3. Violation of the above will result in one of the following
 - a “0” on the exam
 - an “F” for the Course
 - a meeting with the dean of students who would assess the infringement and follow college disciplinary procedures.

NECC Outcomes Assessments

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

Getting Help

I am here to help you with this course and to make this an enjoyable and worthwhile experience. If you would like assistance outside of class, please send me an email to arrange an appointment on Zoom. Please do not wait until the last moment to ask for help. Remember, I am just an e-mail 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 should unforeseen circumstances occur. Note, the modules below always start on a Wednesday, and the assessment for that module can be anticipated the following Wednesday.

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 on Blackboard for particular guidance on approaching the material. The Lecture Outline will provide structure and organization for the lecture content, and it

provides room to take notes. 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) the material.

For any particular module start date, this will also typically serve as the assessment date for a previous module. So, before we start a new unit, the assessment of the previous module will be administered. For example:

SCHEDULE - Summer 2024 - Bio 121 B1A

Lecture and Lab: Presented in Hybrid Modality.

Below is a tentative but probable schedule of topics and dates. The schedule may be modified due to the progress of the lecture sequence or unforeseen circumstances.

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

- Nervous System

→ **Exam Administration** - exams administered on **BLACKBOARD** will open at 8 am and must be completed by 11:59 pm. Please plan accordingly.

→ **Unexpected College Closures or Interruptions** - Should there be an unforeseen college closure on a day when an exam is scheduled to be administered in class, the exam will be automatically administered on BLACKBOARD.

May 20 (Mon) → Start Module - Organization of the Human Body

May 22 (Wed) → Start Module #2 – Cytology

May 23 (Thurs) *Exam - Organization of the Human Body (on Blackboard)*

May 27 (Mon) * Memorial Day - **no Class Meeting**

Exam – Cytology (on Blackboard)

→ Start Module - Histology

May 29 (Wed) → Continue Module - Histology

May 31 (FRI) *Exam – Histology (on Blackboard)*

→ Start Module - The Integumentary System

June 3 (Mon) *Exam – Integumentary System (on Blackboard)*

→ Start Module – Skeletal (Osseous) Tissue

June 5 (Wed) → Continue Module – Histology Lab

→ Start Module - Axial Skeletal System

- June 7 **(FRI)** *Exam – Skeletal (Osseous) Tissue (on Blackboard)*
- June 10 **(Mon)** → Start Module - Appendicular Skeletal System
 → Start Module – Articulations
- June 11 **(Tues)** *Lab Practical #1 (on Blackboard)*
- June 12 **(Wed)** → continue study of Skeletal System
- June 13 **(Thurs)** *Exam – Articulations (on Blackboard)*
- June 17 **(Mon)** *Lab Practical #2 – Bone Practical (In Class)*
 → Start Module – Glycolysis and Cellular Respiration
- June 19 **(Wed)** * Juneteenth Holiday - ***no Class Meeting***
 Exam – Glycolysis and Cellular Respiration (In Class)
 → Start Module - Myology
- June 22 **(SAT)** *Exam – Myology (on Blackboard)*
 → Start Module #10 – Nervous System
- June 24 **(Mon)** → Start Module #10 – Nervous System
- June 28 **(FRI)** *Final Exam (Non-cumulative) – Nervous System (In Class)*
 → *Extra Credit - Brain Dissection*

NORTHERN ESSEX COMMUNITY COLLEGE ACADEMIC CALENDAR, ABRIDGED

Summer 2024

- Official NECC [Academic Calendar](#)

Below is an *abridged* rendition of the Academic Calendar.
Click the link above for the official NECC Academic Calendar.

Summer Session I 2024

Classes meet for 6 weeks Monday, May 20 - Friday, June 28

Book Voucher Period

Session I classes begin

To receive a full refund for Session I,
classes must be dropped by the close of business
See Student Affairs Hours and Refund Policy

Memorial Day (College closed)

No Show (NS) Rosters due by noon for Summer Session I classes

Last Day to Withdraw with "W"

Juneteenth holiday (no classes)

Finals Period Day and Evening Classes

Grades due by noon

May 13-31

May 20 (Monday)

May 24

May 27 (Monday)

May 31

June 10 (Monday)

June 19 (Wednesday)

June 22-28

July 3

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*

In-class Meetings: yes Hybrid: yes Asynchronous Course: Partial Synchronous Course: Partial

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

Synchronous: This form of distance education entails the use of live, two-way communication among and between students and faculty in a scheduled or “fixed” point(s) of time(s), much like classroom-based instruction.

In-class: This form of education does not involve distance learning. Students and instructors meet in class on campus on fixed days, times, and locations.

This course may include, but not be restricted to, the following interactions:

	YES	NO
1. in-person meetings on campus	✓	<input type="checkbox"/>
2. In-person meetings (via Zoom), by appointment	✓	<input type="checkbox"/>
3. telephone interactions	<input type="checkbox"/>	✓
4. electronic interactions (email, internet ...)	✓	<input type="checkbox"/>

If yes, dates, times, and places are to be specified.

Students are encouraged to engage in the following interaction(s) for successful completion of this course:

Attend scheduled weekly in-class meetings for lecture, laboratory, and exam taking purposes

Discussion board promotes student-student and student-instructor interactions.

Student-instructor interactions occur weekly in-class, via email and announcements. Should a follow-up meeting be necessary, an online Zoom meeting may be scheduled at a mutually acceptable time.