# BIOD 152 Essential Human Anatomy & Physiology II w/ Lab — 4 credits

**Prerequisites:** BIOD 151 – Essential Lab Human Anatomy & Physiology I or equivalent

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**Contact Information:** Faculty may be contacted through the Canvas messaging system

**Additional Information:** www.portagelearning.com*

**Course Meeting Times:** BIOD 152 is offered continuously

**Course Description**: A continued systematic discussion of the anatomical and physiological systems within the human body. The systems discussed are the nervous system and the special senses, circulatory system, reproductive system including discussions of mitosis/meiosis and heredity, and the urinary system with a discussion of fluid and electrolyte balance. Modules cover the common pathology and treatments associated with each of the systems outline above. The laboratory component of this course is delivered using virtual labs and interactive simulations with detailed instruction and demonstrations from an experienced instructor.

**Course Outcomes**: As a result of this course experience a student should be able to:

- Define the anatomy and physiology of the central and peripheral nervous systems as well as the special senses
- Describe the anatomy and physiology of the cardiovascular system
- Explain the anatomy and physiology of the male and female reproductive systems
- Explain the anatomy and physiology of the lymphatic and immune systems

* Portage Learning college courses are offered by Geneva College, which is accredited by the Middle States Commission on Higher Education. Portage Learning is included in the College's Department of Professional and Online Graduate Studies; courses are delivered through the PortageLearning.com platform.

- Describe the anatomy and physiology of the urinary system
- Describe in detail the physiology of urine formation and acid-base balance

*Please see the *Module & Lab Topics* section below for expanded course outcomes.

**Lab Outcomes:** As a result of this laboratory experience, students should be able to:

- Identify major anatomical structures of the central and peripheral nervous systems and understand their function
- Identify the main anatomical structures of the eye and ear and understand the physiologic processes of hearing and sight
- Identify the main anatomical structures of the heart and vessels and understand blood flow through the heart, systemic, and pulmonary circuits
- Explain blood typing
- Identify the main anatomical structures of the male and female reproductive systems and understand the physiology of reproduction
- Identify the main anatomical structures of the urinary system and demonstrate understanding of urinalysis

Each of these BIOD 152 student learning outcomes is measured:

Directly by: (1) Module application problems (with instructor feedback)
(2) Module exams
(3) Lab exams
(4) Cumulative final exam

Indirectly by an end of course student-completed evaluation survey

**Course Delivery:** This course is asynchronously delivered online and is composed of 50 - 60 hours of reviewed module assignments with instructor feedback, 7 contact hours of secure online module exams, 15 – 20 hours of observation of demonstration labs and 8 hours of lab exams.

**Course Progression:** It is the policy for all Portage Learning courses that only one (module lecture/final) exam is to be completed within a 48-hour period. Research on the best practices in learning indicates that time is needed to process material for optimal learning. This means that once an exam has been completed, the next exam may not be opened or taken until 48 hours after the submission of the previous module exam. This allows for instructor feedback/class expectations as the student moves through the material. Instructors, like the College, are not available during the weekend; grading, therefore, is M-F and may take up to 72 hours

during these days. Also, it is the policy of Portage Learning to support a minimum of 28 days to complete a course; this is not a negotiable time period. Please plan your time accordingly.

**Note**: Professors reserve the right to reset any exam taken in violation of these guidelines.

**Required readings, lectures and assignments:** Portage courses do not use paper textbooks. Students are required to read the online lesson modules written by the course author which contain the standard information covered in a typical course. Please note the exam questions are based upon the readings. Video lectures which support each lesson module subject should be viewed as many times as is necessary to fully understand the material.

*We do not support the use of outside resources to study, except for the ones listed in the syllabus under "Suggested External References"*. If you have questions about the material or would like further explanation of the concepts, please contact your instructor.

**Module Problem Sets:** The practice problems within the modules are a part of your final grade, and the module work will be reviewed for completeness (not correctness) by the instructor. **Be sure to answer all of the problems, being careful to answer the questions in your own words at all times since this is an important part of adequate preparation for the exams.** After you answer the practice problems, compare your answers to the solutions provided at the end of the module. If your answers do not match those at the end, attempt to figure out why there is a difference. If you have any questions, please contact the instructor via the Canvas messaging system (see Inbox icon).

**NOTE:** Module problem sets are not an option or a choice; *they are required*. This means that you must complete all the review questions within the modules. Not only are problem sets class participation, they are the best way to prepare for the exams.

**Academic Integrity** is a serious matter. In the educational context, any dishonesty violates freedom and trust, which are essential for effective learning. Dishonesty limits a student's ability to reach his or her potential. Portage places a high value on honest independent work. We depend on the student's desire to succeed in the program he or she is entering. It is in a student's own best interests not to cheat on an exam or put their work into question, as this would compromise the student's preparation for future work. It is the student's responsibility to review the **Student Handbook** and all policies related to academic integrity. If clarification is necessary, the student should reach out to their instructor for further explanation **before** initiating module one.

**Required Computer Accessories**: It is recommended that students use a desktop or laptop computer, PC or Mac, when taking the course. Some tablet computers are potentially compatible with the course, but not all features are available for all tablet computers. The latest full version of Google Chrome, Firefox, Edge, or

Safari browser is required for the optimal operation of the Canvas Learning Management System. In addition, this course will use the Respondus Lockdown Browser for exams; a strong internet connection is needed. You are also **required to use LockDown Browser with a webcam**, which will record you during an online, nonproctored exam. (The webcam feature is sometimes referred to as "Respondus Monitor.") **Your computer must have a functioning webcam and microphone. Additionally, students will need a photo ID that includes your picture and full name is required. Please note, Chromebooks and tablets (other than iPad) are not compatible on exams using the Lockdown Browser.** Instructions on downloading and installing this browser will be given at the start of the course. We highly recommend using a high-speed Internet connection to view the video lectures and labs. You may experience significant difficulties viewing the videos using a dial-up connection.

For more information on basic system and browser requirements, please reference the following:
Canvas browser and system requirements: https://community.canvaslms.com/t5/Canvas-Basics-Guide/What-are-the-browser-and-computer-requirements-for-Canvas/ta-p/66
Respondus Requirements: https://web.respondus.com/he/lockdownbrowser/resources/
Respondus Monitor Requirements: https://web.respondus.com/he/monitor/resources/

## Module & Lab Topics

Module 1: In this module students are introduced to the central and peripheral nervous systems as well as the autonomic nervous system and its divisions. Physiology of action potentials, neuroglial cells, and reflexes are covered in-depth.

Module 2: In this module students are taught in depth content of the central and peripheral nervous systems, including anatomy of the brain, spinal cord, cranial nerves and spinal nerves. The physiology of the autonomic nervous system is covered in-depth. Practical application is included through the overview of common pathology and injury to the nervous system.

Module 3: In this module students are given a complete overview of the anatomy and physiology of the nervous system's special senses, including vision, hearing, smell and taste.

Module 4: In this module students are introduced to the cardiovascular system. Content includes an anatomical overview of the heart and surrounding vessels and structures. This module also covers the blood and its composition. Students are taught in-depth about the blood flow through the heart, pulmonary, and systemic circuits. In addition, there is an in-depth overview of the physiology of the cardiac cycle including electrical impulses. Practical application is included through the overview of diseases of the cardiovascular system.

Module 5: In this module students are introduced to the anatomy and physiology of the lymphatic system and the study of immunology. Practical application is included through the overview of common diseases of the lymphatic and immune systems.

Module 6: In this module students are taught a basic overview of sexual reproduction. Content includes a complete anatomical overview of the male and female reproductive systems and an in-depth physiologic study of the differences between the two including oogenesis, spermatogenesis, and menstruation. The stages of pregnancy, labor, and delivery are also covered in-depth.

Module 7: In this module students cover the urinary system. Content includes a comprehensive overview of the anatomy of all structures within this system including an in-depth study of the kidney, its blood and nervous supply, as well as the physiologic processes of filtration, reabsorption, secretion, and regulation of urine concentration and volume. Content also includes an in-depth discussion of acid-base balance. Practical application includes the discussion of pathology associated with these topics.

Lab 1: In this lab students have in-depth instruction on the central and peripheral nervous systems. Content includes discussion of the anatomical structure and function of the four divisions of the brain as well as the spinal cord. Cranial nerves are also discussed with practical application of signs/symptoms should they be damaged.

Lab 2: In this lab students have an in-depth review of the anatomy of the eye and ear as well as the physiologic processes of sight and hearing.

Lab 3: In this lab students have an in-depth study of the anatomy of the heart structure and major vessels. Content includes discussion of the difference between vessels in the systemic and pulmonary circuits as well as blood flow through these circuits.

Lab 4: In this lab students review blood flow through the heart and the systemic and pulmonary circuits.

Lab 5: In this lab students are introduced to blood types. Content includes a discussion on antigens and antibodies and their function within blood as well as how to determine what blood type a person may have. Practical application includes various case studies.

Lab 6: In this lab students are exposed to microscopic views of various tissues throughout the digestive, endocrine, and reproductive systems.

Lab 7: In this lab students have an in-depth overview of the male and female reproductive anatomy. Content includes discussion of male/female sex organs, gametes, hormones, and secondary sex characteristics.

Lab 8: In this lab students review in-depth the anatomy and physiology and the kidney and other structures within the urinary tract. Practical application is provided with discussion of normal and abnormal urinary findings as well as a demonstration of urinalysis.

## Required Labs and Assignments:

For the laboratory portion of the course, students will observe an experienced lab instructor. It is the responsibility of the student to view each lab video in its entirety and only mark the lab as "done" when it is completed. **Please note that the use of outside material (i.e. the internet, textbooks, articles, etc.) is not permitted while taking the lab exams.** A recommended lab schedule can be found on the home page of each lab; the student should follow this schedule to meet course objectives.

## Suggested Timed Course Schedule (to complete the course within a typical college semester)

All Portage courses are offered asynchronously with no required schedule to better fit the normal routine of adult students, but the schedule below is suggested to allow a student to complete the course within a typical college semester. Students may feel free to complete the course on a schedule determined by them within the parameters outlined under "Course Progression."

| Time Period | Assignments | Subject Matter |
|---|---|---|
| Days 1-7 (1 week) | Modules 1, Exam 1 | Anatomical and physiological overview of the nervous system |
| Days 8-20 (2 weeks) | Module 2, Exam 2<br>Lab 1 and Lab Exam 1 | Anatomical and physiological overview of the central and peripheral nervous systems. |
| Days 21-28 (1 week) | Module 3, Exam 3<br>Lab 2 and Lab Exam 2 | Anatomical and physiological overview of nervous system special senses. |
| Days 29-50 (3 weeks) | Module 4, Exam 4<br>Labs 3, 4, 5 and Lab Exams 3, 4, 5 | Anatomical and physiological overview of the cardiovascular system |
| Days 51-58 (1 week) | Module 5, Exam 5 | |

| | | |
|---|---|---|
| | | Anatomical and physiological overview of the lymphatic and immune systems. |
| Days 59-80 (3 weeks) | Module 6 and Exam 6<br>Labs 6, 7 and Lab Exams 6, 7 | Anatomical and physiological overview of the male and female reproductive systems |
| Days 81-102 (3 weeks) | Module 7, Exam 7<br>Lab 8 and Lab Exam 8 | Anatomical and physiological overview of the urinary system |
| Days 103-108 | Final Exam | Based upon module material |

## Grading Rubric:

| | |
|---|---|
| Check for Understanding = | 1 pt. |
| 7 Module Problem Sets = 5 pts. each x 7 = | 35 pts. |
| 7 Module exams = 100 pts. each x 7 = | 700 pts. |
| 8 Lab exams = 40 pts. Each x 8 = | 320 pts. |
| Final exam = 140 pts. | 140 pts. |
| Total | 1,196 pts. |

The current course grade and progress is continuously displayed on the student desktop.

## Grading Scale:

96.5% - 100% = A+
92.5% - 96.4% = A
89.5% - 92.4% = A-
86.5% - 89.4% = B+
82.5% - 86.4% = B
79.5% - 82.4% = B-
76.5% - 79.4% = C+
72.5% - 76.4% = C
69.5% - 72.4% = C-
66.5% - 69.4% = D+
62.5% - 66.4% = D
59.5% - 62.4% = D-
0% - 59.4% = F

## External References:

If the student desires to consult a reference for additional information, the following textbooks are recommended as providing complete treatment of the course subject matter.

- Frank H. Netter, MD**, Atlas of Human Anatomy**, Saunders
- Richard Drake PhD FAAA*,* **Gray's Anatomy for Students,** Churchill Livingstone
- John E. Hall, **Guyton and Hall Textbook of Medical Physiology,** Saunders

**NOTE:** We do not support the use of outside resources to study, except the ones listed above.

## Learning Support Services:

Each student should be sure to take advantage of and use the following learning support services provided to increase student academic performance:

**Video lectures:** Supports diverse learning styles in conjunction with the text material of each module

**Messaging system**: Provides individual instructor/student interaction

**Tech support:** Available by submitting a help ticket through the student dashboard

## Accommodations for Students with Learning Disabilities:

Students with documented learning disabilities may receive accommodations in the form of an extended time limit on exams, when applicable. To receive the accommodations, the student should furnish documentation of the learning disability at the time of registration, if possible. Scan and e-mail the documentation to studentservices@portagelearning.com. Upon receipt of the learning disability documentation, Portage staff will provide the student with instructions for a variation of the course containing exams with extended time limits. This accommodation does not alter the content of any assignments/exams, change what the exam is intended to measure or otherwise impact the outcomes of objectives of the course.

## One-on-one Instruction

Each student is assigned to his/her own instructor. Personalized questions are addressed via the student dashboard messaging system.

Online learning presents an opportunity for flexibility; however, a discipline to maintain connection to the course is required; therefore, communication is essential to successful learning. **Check your messages daily.** Instructors are checking messages daily Monday-Friday to be sure to answer any questions that may arise from you. It is important that you do the same so you do not miss any pertinent information from us.

## Holidays:

During the following holidays, all administrative and instructional functions are suspended, including the grading of exams and issuance of transcripts.

New Year's Day

Easter

Memorial Day
Labor Day
Christmas Break
Independence Day
Thanksgiving weekend

The schedule of holidays for the current calendar year may be found under the Student Services menu at www.portagelearning.com

**Code of Conduct**: Students are expected to conduct themselves in a way that supports learning and teaching and promotes an atmosphere of civility and respect in their interactions with others. Verbal and written aggression, abuse, or misconduct is prohibited and may be grounds for immediate dismissal from the program.

This is a classroom; therefore, instructors have the academic freedom to set forth policy for their respective class. Instructors send a welcome e-mail detailing the policy of their class, which students are required to read prior to beginning the course.

**Grievances:** If a student has a complaint about the coursework or the instructor, the student is advised to first consult the instructor, who will be willing to listen and consider your concern. To file a formal grievance for consideration by the Academic Review Committee, the process must be initiated via written communication to academics@portagelearning.com.

**Remediation:** At Portage Learning we allow a "one-time" only opportunity to re-take an alternate version of **one** module exam on which a student has earned a grade lower than 70%. This option must be exercised before the final exam is started. If an exam is retaken, the original exam grade will be erased, and the new exam grade will become a permanent part of the course grade. However, before scheduling and attempting this retest, the student must resolve the questions they have regarding the material by reviewing both the old exam and the lesson module material. Once ready to attempt the retest of the exam they must contact their instructor to request that the exam be reset for the retest. Remember, any module retest must be requested and completed **before** the final exam is opened.

**Note**: Exams on which a student has been penalized for a violation of the academic integrity policy may not be re-taken.

Syllabi are subject to change as part of ongoing educational review practices. Students are responsible for accessing and using the most recent version of the course syllabus.