Biology 232 Syllabus

Portland Community College
PO Box 19000
Portland OR 97280-0990

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232 Information

Course Number: Biology 232, Winter 2026 (CRN 10418- 4 credits)

Course Prerequisites: Bi 112 and Bi231 (with a C or better) and placement into Writing 121 or higher.

Course Meeting Times: Lab Tuesday 8 AM to 10:50 AM bldg 7 room 121

Lecture Tuesday 11:30 AM-12:50 PM bldg 7/rm 109

Final Exam Day & Time: Tuesday March 17th 11:30-1:30 PM

Instructor Information

Instructor: Rebecca Hillary, PhD (She/Her/)

Email: rebecca.hillary@pcc.edu

Office Location: Virtual Office and bldg 7 (room 207)

Student Hours: In Person: Tuesday between lab and lecture by appointment, Tuesday 1-2 PM, Some additional Monday evenings in person in the lab

Biology Administrative Assistant : Susan Lipski ; Phone: (971) 722-7257 ; Email: susan.lipski@pcc.edu

You belong.

Many students are nervous to start what may be their first college Biology course. The definition of belonging as defined by the PCC department of Equity and Inclusion is pasted below. https://www.pcc.edu/equity/tools/definitions/

Belonging: *After an individual's basic needs are met, the door is opened to create a sense of belonging. In the college environment, both the academic and social elements work in tandem to create a sense of belonging, which cultivates feelings that the individual matters, they are*

valued, they feel safety in the group, and it is conveyed that they are indispensable to the group. A sense of belonging is relational, reciprocal, and dynamic.

Attendance Expectations

I expect students to attend our F2F class meetings and labs cannot be completed if you are absent. Vacations and work are not reasonable reasons to miss our class. If you have to work during our class meeting time, please take a different class that fits your schedule. If you have to miss class for illness or emergency, reach out before the class and we will figure it out together. Communication is key.

Communication Guidelines

The best way for you to contact me is via email. rebecca.hillary@pcc.edu

I will be checking email several times daily on weekdays. Please write Biology 232 in the subject of your email because I teach more than one course. Email sent on weekdays will be answered within 24 hours. Email sent over the weekend will likely be answered within 24 hours as well but may not be answered until the following Monday if I am exploring outside of wifi range.

Course Description

A laboratory science course designed to teach theory and clinical applications associated with human anatomy and physiology. The first term covers the integument, skeletal, muscular and spinal nerves and nervous histology.

The Expected Learning Outcomes for this course are shown here: Course Content and Outcome Guide ***https://www.pcc.edu/ccog/bi/232/*** And listed below:

Learning Objective 1.0 THE NERVOUS SYSTEM

- The goal is to complete the survey of the anatomy and physiology of the human nervous system, focusing on the brain, cranial nerves, autonomic nervous systems including the organs of the special senses. Another goal is to develop an understanding of the role that the nervous system plays in regulating the functions of other organ systems.

Learning Objective 2.0 INTRODUCTION TO THE ENDOCRINE SYSTEM

- The goal is to survey the anatomical and physiological components of the human endocrine system, and to develop an understanding of the role that the endocrine system plays in controlling the functions of other organ systems.

Learning Objective 3.0 INTRODUCTION TO THE CARDIOVASCULAR SYSTEM

- The goal is to survey the anatomical and physiological components of the human cardiovascular system.

Learning Objective 4.0 LYMPHATICS, NONSPECIFIC RESISTANCE TO DISEASE AND THE IMMUNE SYSTEM

- To develop an understanding of immunological concepts and the role that the immune system plays in the maintenance of health.

Instructional Materials

Required Textbook

- **Lecture Book:** Anatomy & Physiology: The Unity of Form and Function. 10th Edition By Kenneth Saladin. The Connect Access /A & P Revealed that comes with the book is optional. Students find it helpful. I can show you how to use it on the first day of class. If you want to talk about this sooner, please reach out to me with any questions.

  ISBN13: 9781260256000

  Other options:

  - Older editions are okay but they will not come with the optimal access code and you will need to purchase it separately if you want it.

  Lab Book: I will provide you with an online PDF of the lab each week. You can purchase a bound portion of this PDF with practice images embedded in the bookstore *if you want a printed version.* This lab PDF will serve as your study guide for lab quizzes and exams. There are reference books in the lab to study from. We have open lab times for students to come into the lab to study with the models, microscopes, and specimens.

Technical Expectations

The technical requirements for online courses include:

- Technology Requirements for taking an online course at PCC
- A recommended Internet Browser installed
- Ability to use Google Drive and Google Docs
- Webcam and/or microphone for meetings and online appointments
- Microsoft Office or equivalent (Google Docs, iWork, etc). You must be able to save files as doc, docx, rtf, or pdf format.
- **Free Access to Microsoft 365:** https://www.microsoft.com/en-us/education/products/office
- Firefox, Chrome, or Safari browser

Accessibility

This course uses digital courseware, software, or texts that may cause barriers for those using assistive or accessibility-related technologies. If you encounter barriers, please contact the Access Tech Team at access-tech-group@pcc.edu or by calling 971-722-TECH (971-722-8324).

Instructional Approach

This course has a “Hybrid” structure. This means that each week, you will complete work online on your own for both Lecture and Lab, and we will meet together as a class on campus for a 3-hour hands-on Lab Session and a 80 minute- hands-on Lecture Session. This structure allows us to use the power of both asynchronous (on your own, not at a specific time) and synchronous (together in a scheduled session) learning. We will use our in-person meetings to review the more difficult concepts and complete lab activities that are most effective to complete in person. In this hybrid format, it is useful to think of your instructor as a facilitator. Because part of our course is online, you are expected to be consistent and disciplined in your effort to engage the course material. A hybrid course like this one requires responsibility on your part to keep up with the online material each week before we meet in person.

This course is arranged chronologically and employs a modular design. Each week, students should complete all activities and assignments listed in that week's lesson module and attend in-person sessions prepared to engage. These modules are available by clicking "Content" on the course navigation bar. Activities and assignments along with due dates will be clearly identified as online or in-person on the Course Schedule and inside each content module.

Assignments within the modules may direct students to use many of the tools contained in Brightspace, including Assignments, Discussions or Quizzes. These tools will be accessible

from within the weekly content modules, as well as from the course navigation bar in the Activities drop down menu.

Weekly Structure

Please note that the unique nature of this Lecture - Lab course is that you are learning and completing work for BOTH the lecture and lab components of the course concurrently (at the same time). It can be tough at first, but you will get into the swing of things after the first couple of weeks. Be sure to ask questions if you are unsure about what you should be working on. The description below should help you get oriented and don't forget to use the Course Lobby Q&A discussion for your questions.

Lecture: Each week you will have a foundational reading assignment from your text. Occasionally, you may also have an additional reading assigned. During the In Person meetings we will complete activities that help students understand concepts. The weekly Lecture homework assignments are intended to help you check your understanding and prepare for exams. You can resubmit them unlimited times until the Midterm (week 5), or Final (week 11). if you send a draft by the due date. I will give you feedback on accuracy when you submit. There is also a weekly study guide to help you focus while listening to the online lectures. The study guides will be set up by lecture video and will be used as study guides for lecture quizzes and exams.

Lab: Each week we will meet in person for our hands-on lab exercise. Before you come to in-person lab, you are expected to read the lab overview. The first thing we will do when we meet in-person for the lab is take a quiz on the content from the previous week's lab. After the quiz, you will work on the current week's lab.

Attendance & Participation

Students in this course are expected to enter the online course at least three times a week to check announcements and email, study the learning materials, and complete assignments. For each credit hour a student should expect to spend at least 3 hours each week during the course. You can expect to spend at least 12 hours per week studying on this 4 credit course. If you are new to this content you may find you need more than 15 hours per week to be successful. This does not include watching lecture videos. Those are considered part of your class time. This is study time for the material you learn in online and in person classes.

Because this is a hybrid course, it's important to read through everything carefully. Be proactive in finding answers by checking the syllabus, announcements, and/or weekly content for clarification. If something is still unclear, please ask your classmates in the Course Lobby or send the instructor an email.

The Biology Department requires lab attendance for all Biology classes. Students who miss more than three lab sessions will not pass the class regardless of their grades on other assignments; however, we will work together to find solutions if there is a string

of illness and emergency. If you miss lab, you are still responsible for the material and will be expected to take the lab quiz on the missed material. Reach out with questions on any missed material.

First Week Participation

During the first week of the term instructors must:

- Identify students who are enrolled but not engaged in a class. These are referred to as "No Show" students, and will be dropped from the class as per PCC's Grading Guidelines policy.
- In order to avoid being dropped as a "No Show" student, you must complete the following activities before the end of the day on the first week of the term:
    - Attend our first in-person session
    - Be in touch with your instructor before the first in -person session.
    - Spots will be given to waitlist students if students do not show up to our first class.

Other

- Schedule your required one time 1 on 1 meeting with your instructor here.
- Reach out to me via Q & A, email, come to student hours or just ask questions during lab / before or after class.
- Go to open lab: add times in here:

- Get tutored at the student learning center.
- *USE PCC'S FREE TUTORING: Tutors from Academic Support Services, including Student Learning Centers, Reading/Writing Centers and STEM labs, provide interactive and dynamic tutoring support. Drop-in and appointment-based sessions are available for one-on-one tutoring or can be scheduled for groups. Visit www.pcc.edu/tutoring to access the zoom link and schedule appointments.*
- *Form a study group with classmates, I can help facilitate.*

Assignments

For more information, please go to the PCC Grading Guidelines.

Discussions (ungraded/optional)

Lecture or lab Q and A discussion- We will have a Q and A discussion for you to post questions about the material- online or in person material. You can also post specific questions or items you want me to discuss or go through during our in person sessions.

Challenge questions (ungraded/part of engagement/participation grade)
There will be weekly challenge questions and case studies that we work through together in class, and you may continue to work through on your own. These will not be graded but they will help you succeed on the exam. When we meet, we will talk about how challenging yourself and working through hard questions can help with basic long term understanding and retention of material. Ungraded, will be reflected in the participation grade.

Weekly Lecture homework (graded)
There will be weekly homework assignments. These are intended to prepare you for the exams and to provide suggestions of ways to study the material or reflect on your studying. You can submit them partially done and get feedback unlimited times before the due date. They will be accepted late but not after the exam covering the material.

Pathophysiology Project (graded):

Students will create a case study based on a disease related to one of the body systems we are learning in class. We will share the ideas in small groups. See the Instructions and sign up information here.

Signature Assignment (graded): *This assignment is required for our state assessment of our program. You will put the CRN and last four digits of your G number on the front instead of your name and then upload them into the specific assignment folder. The names will be removed so the responses are anonymous. I will grade this assignment on effort and completion but it will also be submitted to a review board for anonymous assessment. This will be due during week 9 of the term but you can turn it in early if you prefer.*

Quizzes and Exams

Weekly practice quizzes (optional and ungraded): *practice quizzes covering the weekly videos, online each week there are new videos.*

Lecture Quizzes (graded): *Quizzes will be set up like mini exams. They are short quizzes worth 50 points.*

Midterm Exam: *The questions will consist of short answer questions, fill in the blanks, matching, multiple choice, and essay questions. Lecture Exams are closed book and in person. You will have the entire lecture period to take the lecture exams but they will be scheduled to take one hour.*

Final Exam: *The questions will consist of short answer questions, fill in the blanks, matching, multiple choice, and essay questions. The Final Exam will be cumulative, closed book and in person. You will have 2 hours.*

Lab Quizzes: *Lab quizzes will take place in person and be a mixture of labeled models and images on a powerpoint projection.* ***Students must be in class within 5 minutes of us starting our lab quiz to participate in the quiz. I will allow for 2 late make ups total and after that students will earn a zero if they are late for the lab quiz.***

Lab Exams: *Lab Exams are in person, closed book and timed. They will involve answering questions about models, microscope slides and specimens. We will do some practice questions before the first exam.*

Other:

One on One check in:
I just want to check in with each of you at least once- in person or on zoom, to see how you are finding the course materials and set up. You will earn full credit for meeting me. While I would love to see your face, I will not require you to use your camera on zoom if it makes you uncomfortable. I will use mine. Please sign up for your class meeting during the first week of class.

Class Engagement
This is based on your attendance and participation in live lectures and work on case studies and other in class assignments. In the lab it is based on your engagement and also working with your group to set up practice lab quizzes. Students who are quiet or shy will not be given less points for class participation, as long as I can tell you are engaged with the material. We can talk more about this if it is helpful to you.

Late Work & Make-up Policy
Late class preparation homework assignments will be accepted until the exam covering that material. I will not accept assignments after the exam dates listed on the syllabus. Late online quizzes will **not** be accepted unless students reach out to me before the deadline to discuss an extension. All due dates are written with your success in mind. Getting behind in this class can make it difficult to pass the course. If you need flexibility with deadlines, please reach out to me ahead of the due date. Quiz and Exam deadlines are rigid because of the need to go over the quizzes, exam during class time. Please let me know if you have an illness or emergency and we will schedule a make up within one week time.

Lecture Grading Criteria

Activities	Number	Points each	Total
Class Engagement	6 (8 drop 2)	3.5	21
Teacher Meeting	1	14	14
Lecture Quizzes	3	50	150
Weekly Lecture Homework	8	18	144
Pathophysiology Project	1	20	20
Midterm	1	150	150
Final Exam	1	200	200
Total	-	-	**700**

Lab Grading Criteria

Activities	Number	Points each	Total
Exams	2	75	150
Quizzes	5 (6 drop lowest)	20	100 (drop lowest)
Participation In Practice Quiz Set Up	6 (8 drop 2)	6	36

Signature Assignment	1	14	14
Total	-	-	**300**

Grading Scale* (approximate-Lecture and Lab points combined)

Letter Grade	Grading Scale by Points	Grading Scale by Percentage
A	895 -1000	89.5 - 100%
B	795 to 894	79.5 - 89.4%
C	695 to 794	69.5 - 79.4%
D	595 to 694	59.5 - 69.4%
F	<594	< 59.4%

***This scale is not subjective.**

Class Schedule

(A detailed schedule with weekly descriptions found here) and due dates are listed below:

Things Due:

Week 1

- Sign up for one on one teacher meeting here. (must be complete before the end of week 4 for points)
- Read through the course site in D2L and the course syllabus to see if you have any questions on the layout, material or the course policies.
- **Tuesday January 6th Homework Assignment 1** due online before class. This first assignment will be shorter since its due during week 1.

Week 2

- **Tuesday January 13th -** Homework Assignment 2 due online before class.
- **Tuesday January 13th** - Lab Quiz 1, in person, in lab
- **Tuesday January 13th** - Choose your pathophysiology topic. Add your topic to this document. Here is the information about this pathophysiology project.

Week 3

- **Tuesday January 20th**-Homework Assignment 3 due online before class.
- **Tuesday January 20th**- Lab Quiz 2 in person, in class
- **Tuesday January 20th** -Lecture Quiz I (brain and cranial nerves)

Week 4

- **Tuesday January 27th** -Homework Assignment 4 due online before class. If you prefer to handwrite the HW you can bring it to class with you.
- **Tuesday January 27th** -Lab Quiz 3 in person, in class
- **Tuesday January 27th** Nervous System pathophysiology project (any topics from chapters 14-16).

Week 5

- **Monday February 2nd by 11:00 AM -**Last chance to submit or resubmit homework assignments 1-4

Week 6

- **Tuesday February 10th** Homework 5 assignment due online
- **Tuesday February 10th** Signature Assignment due (I will give an assignment introduction in class).

Week 7

- **Tuesday February 17th** - Homework 6 due online before class. If you prefer to handwrite the HW you can bring it to class with you.
- **Tuesday February 17th** lab quiz 4

Week 8

- **Tuesday February 24th** homework 7
- **Tuesday February 24th** - Lab Quiz 5
- **Tuesday February 24th** - lecture quiz II Endocrine, Blood and Blood Flow.

Week 9

- **Tuesday March 3rd** Lecture Homework 8
- **Tuesday March 3rd** Lab Quiz 6
- **Tuesday March 3rd** Due date for pathophysiology topics (endocrine, blood, heart or blood vessels).

Week 10

- **Tuesday March 10th**-- Lecture Quiz 3
- **Tuesday March 10th**- -Make up lab quiz online.
- **Tuesday March 10th**- Lab Exam II

Finals Week

Tuesday March 17th 11:30 AM-1:30 PM -Final Exam.

Library:

PCC Library employees are available to help you navigate. Here is information about what to expect if you visit in person (hours, etc.)
https://www.pcc.edu/library/visiting-the-library-in-person/

PCC Policies

Visit the PCC Policies page for information on:

- Academic Integrity Policy
- Accessibility Statement & Resources
- Drop/Withdraw Deadlines
- Grading Policy
- Internet Etiquette
- PCC Payment Policy
- PCC Registration Policy
- Sanctuary College
- Student Rights and Responsibilities
- Title IX/Non-Discrimination

PCC Policies and Deadlines

Student is responsible to add/ drop/ withdraw class. Please review PCC Registration Policy for more information.

Add and Drop Deadlines

- Students need to register online via MyPCC. Please review Online Registration Instructions to find out how.
- For 8-12 week classes, students need to drop by the end of the first week of classes. Students can view course specific deadlines from the MyPCC Home tab, 'View My Drop & Withdraw Dates' link.
- For late add, students must add within two business days of the course drop deadline.

Payment Deadlines

Payment is due two Mondays before the first day of term. Students who register after the payment deadline must make the same day payment arrangements. You can see your balance or access your

bill online in the MyPCC Paying for College tab. Please review PCC Payment Policy for more information.

Student Rights and Responsibilities Handbook:

Students are required to comply with the policies contained in the Student Rights and Responsibilities Handbook. The Handbook includes the Code of Student Conduct and the Academic Integrity Policy.

Student Challenges

If you face challenges affording food or housing, this will naturally affect your classwork. PCC wants you to be successful and offers some resources that may help: Student Life and Leadership has lots for you. You can also contact a campus Student Conduct and Retention Coordinator at conductandcare@pcc.edu.

Internet Etiquette (or Netiquette)

Click here for more information about Netiquette.

Title IX/ Non-Discrimination

Portland Community College is committed to creating and fostering a learning and working environment based on open communication and mutual respect. If you believe you have encountered sexual harassment, sexual misconduct, sexual assault, or discrimination based on race, color, religion, age, national origin, veteran status, sex, sexual orientation, gender identity, or disability please contact the Office of Equity and Inclusion at (971) 722-5840 or equity.inclusion@pcc.edu.

Sanctuary College

PCC is a sanctuary college. Find out more on our resources for undocumented students page.

Accommodations and Services

PCC is committed to supporting all students. If you plan to use academic accommodations for this course, please contact your instructor as soon as possible to discuss your needs. Accommodations are not retroactive; they begin when the instructor receives the “Approved Academic Accommodations” letter from you (submitted in person for courses on campus; via email for Distance Learning courses). To request academic accommodations for a disability, please contact a disability services counselor on any PCC campus. Office locations, phone numbers, and additional information may be located on the Disability Services website.

Academic Integrity (rules about cheating, plagiarism, or sharing work)

Learning is your responsibility; nobody can do it for you. I expect you to approach learning with self-honesty and integrity so that you gain the greatest benefit from your hard work. Students are required to complete this course in accordance with the Student Rights and Responsibilities Handbook. Cheating includes any attempt to defraud, deceive, or mislead the instructor in arriving at an honest grade assessment, and may include copying answers from other students or using unauthorized notes during tests.

- "Students of Portland Community College are expected to behave as responsible members of the college community and to be honest and ethical in their academic work," Student Code of Conduct Policy.

It is not appropriate to copy someone else's work and hand it in as your own work as this would plagiarize the work of a fellow human, this includes work posted on online student study help sites such as Coursehero or Chegg and copying work generated by Artificial intelligence (AI). PCC's Student Code of Conduct specifically lists plagiarism as an action subject to disciplinary action and describes it as follows: "includes but is not limited to use of someone else's language, ideas or other original material (not common knowledge) without attribution of the source" and gives the following as an example, "submitting someone else's language, ideas or materials as one's own." Copying from any source which you have not created yourself to paste into any assignment for this course without proper attribution is plagiarism.

- Any assignment found to include plagiarized material may receive a grade of 0 for the entire assignment and will be reported to the college.

- For further information, review the institution's Academic Integrity Policy.

Use of Artificial Intelligence (AI) in This Course
In this class, you are encouraged to explore and use AI tools as part of your learning process. However, your work must reflect your own understanding and engagement with our course materials.

- AI should be used as a learning aid, not a shortcut.
    - AI tools may be used for brainstorming, clarifying concepts, or generating study strategies. If you are using AI it should be to support your thinking, not replace it. You should always reference your use of AI.
- Course materials should come first.
    - Assignments must demonstrate that you've engaged with class readings, lectures, and discussions. **If you are copy pasting AI-generated content into an assignment you will earn a zero.** Critical thinking on homework will bring you to the type of thinking you need to succeed in this class. For example: You may ask AI to quiz you on concepts, but your submitted answers should show your reasoning based on what we've covered in class.
- Transparency

    - If you use AI in developing an assignment, include a brief note at the end explaining how (e.g., “I used ChatGPT to brainstorm possible examples of muscle contraction, then compared them with my textbook to develop my answer.”).
    - Remember: AI tools can be inaccurate, incomplete, or biased. Always verify information against your textbook, lecture notes, or scholarly sources.

Use of other online study help sites:

Online study help sites (Coursehero, Chegg, Brainly, Quizlet) are great places to share materials you have created but are an inappropriate place to share course materials created by the instructor or completed course assignments including activities, homework, labs, quizzes, tests, and exams.

- It is OK to post material you have created yourself, like a set of lecture notes.
- It is NOT OK to post material somebody else created like the lecture videos, discussion, labs, homework, quizzes, and exams that were created specifically for this course by PCC faculty. The materials for this course are copyrighted by PCC and you do not have permission to post these materials to any note-sharing site.

Flexibility Statement

The instructor reserves the right to modify course content and/or substitute assignments and learning activities in response to institutional, weather or class situations.

PCC Gender Statement

Welcome to Anatomy and Physiology at Portland Community College! As you enter and progress through this three-term series, you will learn about the fundamental structures and functions of the human body. You will notice that your textbook, lab manual, and lecture materials will refer to male and female forms. For the purpose of this course, it is important to define terms from the onset. These definitions are not meant to be comprehensive or reflective of personal or societal usage. They are meant to set the expectations for our class. Additional definitions related to equity and inclusion can be found at PCC Diversity Definitions

1. **Anatomical sex**: The structural and functional characteristics of a person or organism that allow assignment as either male or female.

2. **Male**: An individual of the sex that is typically capable of producing small, usually motile gametes.

3. **Female**: An individual of the sex that bears young or that produces ova or eggs.

4. **Androgens**: Any natural or synthetic steroid hormone which regulates the development and maintenance of male characteristics in vertebrates by binding to androgen receptors

5. **Estrogens:** steroid hormone that is produced by the ovaries and, in lesser amounts, by the adrenal cortex, placenta, and male testes. They are the primary female sex hormones. It is responsible for the development and regulation of the female reproductive system and secondary sex characteristics.

6. **Gender Identity:** A person's innermost core concept of self, which can include girl/woman, boy/man, a blend of both, neither, and many more. Gender identity is how each person perceives themselves and what they call themselves, which can be consistent with or different than their anatomical sex.

As a course designed to teach the fundamentals of human structure and function, your course materials reflect a binary male/female system. The human body shows great variation among individuals that includes, but is not restricted to, sexual dimorphism. In order to better reflect this variation, some structures and functions can be described as resulting from dominant hormones, which may be consistent with or different from the sex of an individual.

Additional resources can be found at: PCC Diversity and Inclusion Resources