

## Syllabus

BIOL 141 (GN) Introductory Physiology (3): Explanation of the normal structure and function of the animal body, with special emphasis on human body systems. Students who have passed BIOL 472 may not schedule this course.

## Overview

The human body is fascinating to most of us, presumably because we have a rather vested interest in it. It is especially interesting when we include the physiology of diseases, as diseases often represent good illustrations of the systems not functioning properly. I have tried to include information that will both sustain and stimulate your interest, as well as challenge you to extend your knowledge outside this course. There are many good programs on TV and YouTube as well as articles in magazines such as *Science News*, *Scientific American*, *Discover*, *Scientific American Science and Medicine*, and *Natural History* that illustrate the fascinating aspects of human physiology. One of the goals of this course is to develop your ability to understand the more complex scientific and medical advances that are occurring with increasing frequency today.

Physiology is not an easy subject to learn because it contains a tremendous amount of information. It is, however, a logical science and can usually be understood with reasoning. You will find it much more understandable if you will reason logically rather than memorize. Many of the mechanisms you will study can best be learned by thinking of them as a logical sequence of events. Learning by reasoning is not only easier but the information you learn is retained longer. Of course, some memory work is unavoidable. One final word concerning the learning of mechanisms: mechanism should not be confused with need. That is, if you are asked "Why?" in a lesson, you should **not** respond with "Because the body needs it to do this or that." Instead, explain the physiological and mechanical processes involved.

**One last note: You may be taking an online semester course for the first time.** Online learning is different from the traditional classroom learning situation and can be a unique and challenging experience. Because there are no regular class sessions to attend, you need to be sure to devote enough time for each of the weekly lesson assignments. **It is your responsibility to read all instructions for completing the assignments on time and to read any correspondence from the instructor.** You must develop your own study habits and ask questions when you can't find the answer yourself; this is a vital part of the learning process. You can use Canvas to communicate these questions as well as those from your lesson assignments to your instructor. I will respond as promptly as possible. I hope that you will enjoy this course and that you will develop an appreciation and enthusiasm for the amazing workings of the human body.

## Course Objectives

This course is designed to cover the fundamentals of human physiology for students in a variety of life science-related majors including Nursing, Kinesiology, Athletic Training, and Science. By the time you complete this course, you should:

- have a working knowledge and understanding of basic human physiology.
  - be able to apply these physiological principles to problem solving situations as observed in medical situations, including cardiac problems, hypertension, renal failure, acid-base balance disturbances, and endocrine imbalances.
  - have a practical understanding of physiology upon which you can build and use in future clinical settings.
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## Required Course Materials

The following materials are **required**:

- OpenStax A&P online textbook available at:
  - <https://openstax.org/details/books/anatomy-and-physiology>
  - This online text is free to use!
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## Library Resources

Many of Penn State's library resources can be used from a distance. Through the [Library Resources and Services for Off-Campus Users](#) website, you can...

- access magazine, journal, and newspaper articles online using library databases;
- borrow materials and have them delivered to your doorstep...or even your desktop;
- ask a librarian for research help via e-mail, chat, or phone using the ASK! service;

...and much more!

Note: You must have an active Penn State Access Account to take full advantage of the Libraries' resources and services. Once you have a Penn State account, you will automatically be registered with the library within 24–48 hours. If you would like to check that your library registration has been completed, visit the [Library's home page](#), click on "Library Accounts," and then click on "My Library Account."

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## Technical Specifications

<b>Operating System</b>	Windows 7, Windows 8/8.1 or higher; Mac OS X 10.5 or higher recommended
<b>Processor</b>	2 GHz or higher
<b>Memory</b>	1 GB of RAM
<b>Hard Drive Space</b>	60GB free disk space
<b>Browser</b>	<p>Canvas supports the last two versions of every major browser release. To determine if your browser is supported, please review <a href="#">the list of Canvas Supported Browsers</a>.</p> <p>Note: Cookies, Java, and JavaScript must be enabled. Pop-up blockers should be configured to permit new windows from Penn State websites.</p> <p>Due to nonstandard handling of CSS, JavaScript and caching, older versions of Internet Explorer (such as IE 8 or earlier) do not work with our courses.</p>
<b>Plug-ins</b>	Adobe Reader [ <a href="#">Download from Adobe</a> ] Flash Player (v18.0 or later) [ <a href="#">Download from Adobe</a> ]
<b>Additional Software</b>	Microsoft Office (2010 or later)
<b>Internet Connection</b>	Broadband (cable or DSL) connection required
<b>Printer</b>	Access to graphics-capable printer
<b>DVD-ROM</b>	Required
<b>Sound Card, Microphone, and Speakers</b>	Required
<b>Monitor</b>	Monitor (Capable of at least 1024 x 768 resolution)

If you need technical assistance at any point during the course, please contact the [HelpDesk](#).

**PLEASE NOTE: You must have consistent/stable Internet access. Lack of internet access is not a legitimate excuse for late submission of the assignments.** If your computer breaks down or your internet access is disrupted, you are responsible for going to a friend, public library, etc. in order to submit your assignments on time.

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## Course Schedule

The schedule below outlines the topics we will be covering in this course along with the associated time frames and assignments. All times are Eastern Time Zone.

- Course begins: August 23, 2021
- Course ends: December 12, 2021

### Due Dates for Assignments (READ CAREFULLY)

Because many of you are taking this course while juggling work and family responsibilities, I want to give you some flexibility regarding when the various assignments are due. This also means that you need to take responsibility for your own learning and plan your study time accordingly.

**Please read the following carefully!**

**\*\*There are 2 exams for the course, each worth 200 points.**

The **Mid-Course Exam** covers only the material in Lessons 1 through 6. The Mid-Course Exam will be open for you to take from **Sunday, October 3 at 12:01 AM to Sunday, October 10 at 11:59 PM.**

The **Final Exam** covers only the material in Lessons 7 through 12. The Final Exam will be open for you to take from **Sunday, December 5 at 12:01 AM to Sunday, December 12 at 11:59 PM.**

**The 2 Exams will be open-book but are TIMED EXAMS.** You will have 90 minutes to complete these exams once you open them. Unlike the lessons assignments (see below), you cannot save them and come back to complete them at a later time. You are welcome to take these exams whenever you would like during those time periods and wherever you feel comfortable, including at home.

**\*\*There are 12 Lesson Assignments, each worth 100 points for the course.** The lesson assignments are **all open-book**. You may open an assignment, begin work on it (your responses are automatically saved on Canvas) and come back to it at a later time. When you have completed the assignments and checked your responses, simply click on the Submit button at the bottom of the page.

**\*\*There are 4 Discussion Questions, each worth 25 points.** There are specific requirements for each of these questions including word count and citation of a reference. Please check each of the questions for details.

Lesson Assignments 1-6 as well as Discussion Questions 1 and 2 will open at the beginning of the course on August 23. Lesson Assignments 7-12 as well as Discussion Questions 3 and 4 will open on Sunday, October 3.

**Please review the Schedule beginning on page 6 below for Due Dates for these assignments.**

**If you submit your assignments after the due date, you will lose 10% per day for the first three days after the due date. Any assignment submitted AFTER 3 days past the due date will be penalized 30%.**

While many of the Lesson Assignments will have some extra credit questions associated with them, **there will be NO EXTRA CREDIT assignments to try to improve your grade.** The 12 Lesson Assignments are all open-book so be sure to take advantage of the available points on these assignments. I will typically have your assignments graded within 48 hours after you submit them.

And while you may find it easier or more convenient to merely cut and paste your responses for the short answer questions on each assignment, you will learn a lot more (and be better prepared to take the exams) if you find the answer, think about what the answer tells you, and then re-write your response in your own words.

**NOTE: Please be sure to cite any references you use to answer the short answer questions. If you use the textbook, cite the page number and or figure or table number. If you use a reference from the Internet, cite the website address (URL). You must include the citation of that resource as part of your response. If you do not include the citation, you will lose 2 points from each of these questions. You may also be committing plagiarism and you may be subject an Academic Integrity infraction.**

**NOTE: DO NOT use websites like Chegg or Coursehero to find answers for the short-answer questions on the Lesson Assignments. You will not receive credit for those questions if you used these sites as references.**

### **Zoom office hours by appointment**

If you would like to meet with me to discuss anything regarding the course, please let me know. We can set up a Zoom meeting for a virtual chat. Please let me know if you'd like to meet and I'll give you details on what you'll need to do and decide on a time that works for you.

Disclaimer: Please note that the specifics of this Course Syllabus are subject to change and you will be responsible for abiding by any such changes. Your instructor will notify you of any changes.

## **Lesson 1: Introduction to Physiology: Cell Chemistry, The Living Cell, Tissues and Organ Systems**

### **Readings**

- Lesson Commentary: Lesson 1
- Read OpenStax A&P:
  - Chapter 1 An Introduction to the Human Body
  - Chapter 2 The Chemical Level of Organization
  - Chapter 3 The Cellular Level of Organization
  - Chapter 4 The Tissue Level of Organization

### **Assignments**

- Complete and submit Lesson 1 Assignment. **DUE DATE: Sunday, September 5 at 11:59 PM**

## **Lesson 2: Cell Growth, Reproduction, Nutrition and Intermediary Metabolism**

### **Readings**

- Lesson Commentary: Lesson 2
- Read OpenStax A&P:
  - Chapter 24 "Nutrition and Metabolism"

### **Assignments**

- Complete and submit Lesson 2 Assignment. **DUE DATE: Sunday, September 12 at 11:59 PM**
- Submit a response to Discussion Question 1 ("Added ingredients in processed foods").  
**DUE DATE: Sunday, September 12 at 11:59 PM**

## **Lesson 3: Nerve Impulse Physiology**

### **Readings**

- Lesson Commentary: Lesson 3
- Read OpenStax A&P:
  - Chapter 12 "Fundamentals of the Nervous System and Nervous Tissue"

### **Assignments**

- Complete and submit Lesson 3 Assignment. **DUE DATE: Sunday, September 19 at 11:59 PM**
- Submit a response to Discussion Question 2 ("Attention Deficit Disorder—Biology, Environment, or Both?"). **DUE DATE: Sunday, September 19 at 11:59 PM**

## **Lesson 4: The Central Nervous System, The Peripheral Nervous System, The Autonomic Nervous System, and The Special Senses**

### **Readings**

- Lesson Commentary: Lesson 4
- Read OpenStax A&P:
  - Chapter 13 “The Central Nervous System”
  - Chapter 14 “The Peripheral Nervous System and Reflex Activity
  - Chapter 15 “The Autonomic Nervous System”

### **Assignments**

- Complete and submit Lesson 4 Assignment. **DUE DATE: Sunday, September 26 at 11:59 PM**

## **Lesson 5: Physiology of Muscles**

### **Readings**

- Lesson Commentary: Lesson 5
- Read OpenStax A&P:
  - Chapter 10 "Muscles and Muscle Tissue"

### **Assignments**

- Complete and submit Lesson 5 Assignment. **DUE DATE: Sunday October 3, at 11:59 PM**

## **Lesson 6: The Endocrine System**

### **Readings**

- Lesson Commentary: Lesson 6
- Read OpenStax A&P:
  - Chapter 17 "The Endocrine System"

### **Assignments**

- Complete and submit Lesson 6 Assignment. **DUE DATE: Sunday, October 10 at 11:59 PM**

## ***Mid-Course Exam***

### **Time Frame**

- **Sunday, October 10 through Sunday, October 17, at 11:59 PM Eastern Time.**
- **PLEASE NOTE: These are the only dates that you can take the Mid-Course Exam.**

### **Study**

- To prepare for the exam, review readings in Lessons 1-6 and the Commentaries for Lessons 1-6. The time limit is 90 minutes.

### **Deadline**

- **Complete and submit your exam by 11:59 PM Eastern Time on Sunday, October 17. Good Luck!**

## **Lesson 7: The Blood, The Cardiovascular System, and Capillary Exchange**

### **Readings**

- Lesson Commentary: Lesson 7
- Read OpenStax A&P:
  - Chapter 18 "Blood"
  - Chapter 19 "The Cardiovascular System: The Heart"
  - Chapter 20 "The Cardiovascular System: Blood Vessels"

### **Assignments**

- Complete and submit Lesson 7 Assignment. **DUE DATE: Sunday, October 24 at 11:59 PM**

## **Lesson 8: The Lymphatic System and The Immune System**

### **Readings**

- Lesson Commentary: Lesson 8
- Read OpenStax A&P:
  - Chapter 21 "The Immune System: Innate and Adaptive Body Defenses"

### **Assignments**

- Complete and submit Lesson 8 Assignment. **DUE DATE: Sunday, October 31 at 11:59 PM**
- Submit a response to Discussion Question 3 ("Antibiotic resistance and the immune system"). **DUE DATE: Sunday, October 31 at 11:59 PM**



## **Lesson 9: The Respiratory System**

### **Readings**

- Lesson Commentary: Lesson 9
- Read OpenStax A&P:
  - Chapter 22 "The Respiratory System"

### **Assignments**

- Complete and submit Lesson 9 Assignment. **DUE DATE: Sunday, November 7 at 11:59 PM**

## **Lesson 10: The Digestive System**

### **Readings**

- Lesson Commentary: Lesson 10
- Read OpenStax A&P:
  - Chapter 23 "The Digestive System"

### **Assignments**

- Complete and submit Lesson 10 Assignment. **DUE DATE: Sunday, November 14 at 11:59 PM**

## **Lesson 11: The Urinary System and Regulation of Fluids, Electrolytes, and pH in the Body**

### **Readings**

- Lesson Commentary: Lesson 11
- Read OpenStax A&P:
  - Chapter 25 "The Urinary System"
  - Chapter 26 "Fluid, Electrolyte, and Acid-Base Balance"

### **Assignments**

- Complete and submit Lesson 11 Assignment. **DUE DATE: Sunday, November 21 at 11:59 PM**
- Submit a response to Discussion Question 4 ("Homeostasis"). **DUE DATE: Sunday, November 21 at 11:59 PM**

## **Thanksgiving Break: November 21 – November 27**

**Relax and take a break with family and friends! (Or catch up on your assignments!!)**

## Lesson 12: The Reproductive Systems, Pregnancy and Human Development

### Readings

- Lesson Commentary: Lesson 12
- Read OpenStax A&P:
  - Chapter 27 "The Reproductive System"
  - Chapter 28 "Pregnancy and Human Development"

### Assignments

- Complete and submit Lesson 12 Assignment. **DUE DATE: Sunday, December 5 at 11:59 PM**

### *Final Exam—*

#### Time Frame

- **Sunday, December 5 through Saturday, December 12, at 11:59 PM Eastern Time.**
- **PLEASE NOTE: These are the only dates that you can take the Final Exam.**

### Study

- To prepare for the exam, review readings in Lessons 7-12 and the Commentaries for Lessons 7-12. The time limit is 90 minutes.

### Deadline

- **Complete and submit your exam by 11:59 PM Eastern Time on Sunday, December 12. Good Luck!**

Formal instruction will end on the last day of class. If you have an active Penn State Access Account user ID and password, you will continue to be able to access the course materials for one year from the day the course began (with the exception of library reserves).

NOTE: If you are planning to graduate this semester, please communicate your intent to graduate to your instructor. This will alert your instructor to the need to submit your final grade in time to meet the published graduation deadlines. For more information about graduation policies and deadlines, please see "Graduation" on the [World Campus Student Policies](#) website.

## Grading

Your final grade will be based on your performance on the 12 lesson assignments, four discussion questions, and two exams as shown below:

- Lesson Assignments—12 x 100 points each = 1200 points
- Discussion Questions—4 x 25 points each = 100 points
- Mid-Course Exam—200 points
- Final Exam—200 points
- Total—1700 points

**THE EXAMS ARE NOT COMPREHENSIVE.** The Mid-Course exam covers the material in Lessons 1, 2, 3, 4, 5, and 6; the Final exam covers the material in Lessons 7, 8, 9, 10, 11, and 12. The examinations will be mostly multiple-choice questions, similar in format to the weekly assignments, with one or two short-answer questions.

The World Campus follows the same grading system as the Penn State resident program.

A = 1580+ points

A- = 1530 - 1579 points

B+ = 1470 - 1529 points

B = 1415 - 1469 points

B- = 1360 - 1414 points

C+ = 1275 - 1359 points

C = 1190 - 1274 points

D = 1020 - 1189 points

F = fewer than 1020 points

Please refer to the [University Grading Policy for Undergraduate Courses](#) for additional information about University grading policies. If, for reasons beyond the student's control, a student is prevented from completing a course within the prescribed time, the grade in that course may be deferred with the concurrence of the instructor. The symbol DF appears on the student's transcript until the course has been completed. Non-emergency permission for filing a deferred grade must be requested by the student before the beginning of the final examination period. In an emergency situation, an instructor can approve a deferred grade after the final exam period has started. Under emergency conditions during which the instructor is unavailable, authorization is required from one of the following: the dean of the college in which the candidate is enrolled; the executive director of the Division of Undergraduate Studies if the student is enrolled in that division or is a provisional student; or the campus chancellor of the student's associated Penn State campus.

For additional information please refer to the [Deferring a Grade](#) page.

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### **Accommodating Disabilities**

Penn State welcomes students with disabilities into the University's educational programs. Every Penn State campus has an office for students with disabilities. The Office for Disability Services (ODS) website provides contact information for every Penn State campus: [ODS Disability Liaison Contact Information](#). For further information, please visit the [Office for Disability Services website](#).

In order to receive consideration for reasonable accommodations, you must contact the appropriate disability services office at the campus where you are officially enrolled, participate in an intake interview, and provide documentation based on the [ODS documentation guidelines](#). If the documentation supports your request for reasonable accommodations, your campus's disability services office will provide you with an accommodation letter. Please share this letter with your instructors and discuss the accommodations with them as early in your courses as possible. You must follow this process for every semester that you request accommodations.

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### **Additional Policies**

Veterans and currently serving military personnel and/or spouses with unique circumstances (e.g., upcoming deployments, drill/duty requirements, VA appointments, etc.) are welcome and encouraged to communicate these, in advance if possible, to the instructor in the case that special arrangements need to be made.

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