

**Bergen Community College**  
**Division of Mathematics, Science, and Technology**  
**Department of Biology and Horticulture**

**Anatomy and Physiology II (BIO-209)**

**General Course Syllabus**

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<b>Course Title:</b>	Anatomy and Physiology II (BIO-209)
<b>Course Description:</b>	This course continues the study of human anatomy and physiology. Among the topics considered are the digestive system, metabolism, urinary system, fluid and electrolyte balance, the nervous system, the endocrine system and the reproductive system. Lectures are supplemented by writing assignments, discussion and laboratory sessions that include dissection and elementary physiology experiments.
<b>Prerequisites:</b>	Anatomy and Physiology I (BIO 109) minimum grade C
<b>General Education:</b>	Yes
<b>Course Credits:</b>	4.0
<b>Hours per week:</b>	6.0: 3 hours lecture and 3 hours lab
<b>Course Coordinator:</b>	Thomas Betsy
<b>Required Lecture Textbook:</b>	<p>Principles of Anatomy and Physiology, 15<sup>th</sup> edition, Gerard J. Tortora and Bryan Derrickson, John Wiley and Sons, Hoboken, N.J. 2017</p> <p>You can save a substantial amount of the cost of the textbook if you purchase it at the Bergen Community College bookstore. For BIO 209 you will need Volume 2, which contains all the chapters needed for the course (12-18, 24-29). This can be purchased ONLY at the BCC bookstore. ISBN# 9781119304159</p>
<b>Required Laboratory Manual:</b>	<p>Laboratory Exercises in Anatomy &amp; Physiology with Cat dissections, (8e) Update Robert Amitrano and Gerard J. Tortora, Thomas Brooks/Cole, Belmont, CA, 2013* ISBN# 9781133365471</p> <p>You can save a substantial amount of the cost of the BIO-209 laboratory manual if you purchase it at the Bergen Community College bookstore.</p>

**DO NOT, UNDER ANY CIRCUMSTANCES, PURCHASE USED LABORATORY MANUALS**

## **STUDENT LEARNING OBJECTIVES**

### **The student will be able to:**

1. Identify the structures and explain the functioning of the Digestive System. Students will be evaluated by lecture, laboratory exams, laboratory practical exams and lab reports.
2. Describe the metabolic pathways of carbohydrates, lipids and proteins in the body; explain the importance of vitamins and minerals in the diet. Students will be evaluated by lecture, laboratory exams, laboratory practical exams and lab reports.
3. Identify the structures and explain the functioning of the Urinary System. Students will be evaluated by lecture, laboratory exams, laboratory practical exams, and lab reports.
4. Describe the importance of balance of water, electrolytes, and acid and bases in body compartments. Students will be evaluated by lecture, laboratory exams, laboratory practical exams and lab reports.
5. Identify the structures and the functioning of the Nervous System. Students will be evaluated by lecture, laboratory exams, laboratory practical exams and lab reports.
6. Describe the organs and receptors involved in sensations including proprioception, pain, touch, taste, smell, vision, hearing, and equilibrium. Students will be evaluated by lecture, laboratory exams, laboratory practical exams and lab reports.
7. Identify the structures in the Endocrine System and explain the functions of the various hormones secreted by the endocrine tissues. Students will be evaluated by lecture, laboratory exams, laboratory practical exams and lab reports.
8. Identify the structures and the functioning of the Reproductive System. Students will be evaluated by lecture, laboratory exams, laboratory practical exams and lab reports.
9. Students will model critical thinking skills and apply them to both material presented in the lecture and the analysis of data generated in the laboratory. Students will be evaluated by observation in the laboratory and analysis of experimental results.
10. Students will use the scientific method of inquiry, through the acquisition of scientific knowledge.
11. Students will use computer systems or the appropriate forms of technology to achieve educational and personal goals.

### **Student Assessment Tools:**

The above student learning objectives will be generally assessed or evaluated by instructors using a variety of assessment instruments including lecture exams, laboratory exams, quizzes, laboratory reports, written reports, presentations, projects, etc. The decisions concerning the type or types and number of instruments that are used in a specific section of the course will be left to the instructor of that section. This information, when given by the instructor should be recorded by the student in the Student Assessment Section of this document.

## Course Content

### Lecture topics:

<u>UNIT</u>	<u>TOPICS</u>	<u>CHAPTER</u>
1	<u>Digestive System and Metabolism</u> Carbohydrates, Lipids, Proteins, and Enzymes, Digestive processes, Organization of GI tract, Digestive organs, Physiology of digestion, Metabolism of nutrients, Minerals and vitamins, Metabolism and body heat	2, 24, 25
2	<u>Urinary System</u> Anatomy of urinary organs, Physiology of urine formation, Hemodialysis	26
3	<u>Fluids, Electrolytes and Acid-Base Balance</u> Fluid compartments, Fluid balance, Electrolytes, Movement of body fluids, pH, Acid-base balance, Acid-base imbalances	27
4	<u>Nervous Tissue</u> Divisions of the Nervous system, Histology of neurons and neuroglia, Action potential, Synapses	12
5	<u>Spinal Cord and Spinal Nerves</u> Protection and coverings, External and internal anatomy, Spinal cord physiology, Spinal nerves	13
6	<u>Brain and Cranial Nerves</u> Parts of brain, Functions of brain, Neurotransmitters, Cranial nerves	14
7	<u>Autonomic Nervous System</u> Comparison of Somatic and Autonomic nervous systems, Structure of autonomic nervous system, Functions of autonomic nervous system	15
8	<u>Sensory, Motor, and Integrative Systems</u> Types of sensations, General senses, Sensory and motor pathways, Integrative functions	16
9	<u>Special Senses</u> Olfactory sensation, Gustatory sensation, Visual sensation, Auditory sensation and equilibrium	17
10	<u>Endocrine System</u> Comparison of endocrine and nervous systems, Overview of hormone effects, Mechanisms of hormonal actions, Control of hormonal secretions, Anatomy and physiology of endocrine glands	18
11	<u>Reproductive Systems</u> Male reproductive system, Female reproductive system, Female reproductive cycle	28

## Laboratory schedule:

- Laboratory 1 Review of Microscope & the Histology of the Digestive System, Exercise 1 and 22
- Laboratory 2 Digestive System, Dissection of Cat Digestive System\*, Exercise 22
- Laboratory 3 Digestive System, Laboratory Tests on Different Foods and Enzyme Actions, Exercise 22
- Laboratory 4 Urinary System, Dissection of Cat Urinary System\* and Dissection of Sheep Kidney, Exercise 23
- Laboratory 5 Urinalysis, Exercise 23
- Laboratory 6 pH, Buffers, and Acid-Base Balance, Exercise 24
- Laboratory 7 Nervous Tissue, Nervous System: Spinal cord and spinal nerves, Reflex experiments, Exercises 12 and 13.
- Laboratory 8 Nervous System: Brain and cranial nerves, Tests of Cranial Nerves and Dissection of Sheep Brain, Exercise 13
- Laboratory 9 Nervous System: Autonomic NS, Dissection of cat nervous system (expose brain and spinal cord), Exercise 13
- Laboratory 10 Sensory Receptors, Sensory and Motor Pathways: Characteristics of Sensations, Classification of receptors, Receptors for general senses, and Tests for general senses, Exercise 14
- Laboratory 11 Sensory Receptors, Sensory and Motor Pathways: Sensory pathways, Olfactory sensations, Gustatory sensations, and Visual sensations, Exercise 14
- Laboratory 12 Sensory Receptors, Sensory and Motor Pathways: Auditory sensations and equilibrium, Dissection of cat and beef eye, Exercise 14
- Laboratory 13 Endocrine System, Reproductive Systems: Organs of male reproductive system, Exercises 15 and 25
- Laboratory 14 Reproductive Systems: Organs of female reproductive system, Dissection of cat reproductive system and pig uterus (containing fetus), Exercise 25
- Laboratory 15 Development and Genetics, Exercises 26 and 27

\*SEPARATE CAT MANUAL IN LABORATORY IS ALSO AVAILABLE

## Student Assessment:

A. Unit Examinations . . . . .	<u>65%</u>
B. Laboratory Tests. . . . .	<u>20%</u>
C. Report/Project. . . . .	<u>10%</u>
D. Term paper/research project . . . .	<u>5%</u>
TOTAL . . . . .	<u>100%</u>

If you have a medical condition or develop a medical condition during this semester, which prevents you from fulfilling the requirements of this course, you must notify your physician. You and your physician must decide whether or not it is appropriate for you to remain in this course. If the decision is to remain in this course, please

obtain a letter from your physician indicating that your continued participation in this course is appropriate and present it to the Department Chair.

## **Faculty Addenda: As per individual faculty member**

**Lecture Attendance:** As per instructor;

**Lab Attendance:** As per instructor;

**Policy Concerning Late Assignments:** As per instructor;

**Policy Concerning Make-Up Testing:** As per instructor;

**Safety Information:** As per instructor and assigned exercise;

## **College Policies:**

### **Student Responsibility**

Students will be held responsible for reading all pertinent information in college publications regarding withdrawals, course drops, college deadlines, and tuition refunds. Students are responsible for compliance with the rules and regulations as stated in college publications.

### **Absence of Instructor**

Students are expected to wait twenty minutes for a faculty member to come to class. If at the end of twenty minutes, the faculty member does not come, the students should sign an attendance sheet, which indicates the course, date, and time. A student should deliver the attendance sheet to the divisional office if between 9:00 a.m. and 5:00 p.m. or to the Evening Office if before 9:00 a.m. or after 5:00 p.m. Students cannot be penalized by faculty for not waiting longer than twenty minutes.

### **Academic Dishonesty and Plagiarism**

Bergen Community College is committed to academic integrity – the honest, fair and continuing pursuit of knowledge, free from fraud or deception. Students are responsible for their own work. Faculty and academic support services staff will take appropriate measures to discourage academic dishonesty. **Plagiarism** is a form of academic dishonesty and may be a violation of U.S. Copyright laws. Plagiarism is defined as the act of taking someone else's words, opinions, or ideas and claiming them as one's own.

### **Consequences of Violations Academic Integrity**

#### **A. Instructor's Sanctions for a Violation**

The faculty member will determine the course of action to be followed. This may include:

- Assigning a failing grade on the assignment;
- Assigning a lower final course grade;
- Failing the student in the course
- Other penalties appropriate to the violation;

In all cases, the instructor shall notify the Vice President of Student Services of the violation and the penalty imposed. The student has the right to appeal the decision of the instructor to the appropriate department head.

#### **B. Institutional Sanctions for Violations**

When a violation of academic integrity has been reported regarding a student, the Vice President of Student Services may impose disciplinary penalties beyond those imposed by the course instructor, which may include suspension or dismissal from the College. The student shall have the right to a hearing before the Vice President of Student Services or a designated judicial affairs committee. Judicial procedures governing violations of academic integrity are contained in the student handbook.

### **Class Attendance**

All students are expected to attend punctually every scheduled meeting of each course in which they are registered. Attendance and lateness policies and sanctions are to be determined by the instructor for each section of each course. These will be established in writing on the individual course outline. Attendance will be kept by the instructor for administrative and counseling purposes.

### **Eating and Drinking**

Eating or drinking in classrooms, lecture rooms, laboratories, gymnasium, swimming pool, or passageways is forbidden. Covered beverages only are permitted in the library. Eating and drinking are permitted in cafeteria and vending areas only.

### **Learning Assistance**

#### **Henry and Edith Cerullo Learning Assistance Center**

The Tutoring Center, English Language Resource Center, Math Walk-In Center and Writing Center are collectively known as the Henry and Edith Cerullo Learning Assistance Center. The Cerullo Learning Assistance Center is located in the Pitkin Education Building, in Room L-125. The telephone number is (201) 447-7489. The Learning Assistance Center, staffed with peer and professional tutors, offers free individual and group tutoring, supplemental instruction, and online tutoring for subjects offered at the College. The Center provides alternative approaches to problem solving and organizational skills. Tutors help clarify classroom lectures and textbooks and help students prepare for exams. These services build student self-confidence and reduce fear of failure. The Center is equipped with the latest technology and software, including tapes, books, review sheets, exercises and software.

### **Services for Students with Disabilities**

The Office of Specialized Services/ Deaf Services, located in L-115 in the Pitkin Education Center provides accommodations and auxiliary services to students with disabilities attending Bergen Community College. Students are encouraged to submit documentation to OSS during the early stages of the admission process. The suggested deadlines for submitting documentation are as follows: August 1st for fall semesters, December 1st for spring semesters. For more information please contact our office at 201-612-5270 or at [www.bergen.edu/oss](http://www.bergen.edu/oss).

### **Sidney Silverman Library**

Main Building, Pitkin Education Center, L-wing, 2nd Floor.

Paramus Library Hours: (201) 447-7131 or visit <http://www.bergen.edu/library/calendar/gcal.htm>

Paramus Service Desk: (201) 447-7970

Meadowlands Location: 1280 Wall Street, Lyndhurst 2nd Floor

Meadowlands Library Hours: <http://www.bergen.edu/library/calendar/gcal.htm>

Meadowlands Service Desk: (201) 301-9692

[www.bergen.edu/library](http://www.bergen.edu/library)

### **Testing Services**

The Bergen Community College Office of Testing Services (OTS) is located in Room S-127. OTS serves the college community by identifying, developing, procuring, administering, processing, and/or evaluating examinations, which meet a variety of administrative and instructional needs. To contact the OTS, please call (201) 447-7202. The Office of Testing Services administers makeup tests as a service for students who, for compelling and exceptional reasons, have missed a scheduled classroom examination. Students must receive prior permission from and make arrangements with their course instructors to take these examinations, under specific conditions, in the Office of Testing Services, Room S-127.

### **WebAdvisor**

WebAdvisor is a web interface that allows students to access information contained in Datatel's Colleague, the administrative database used by Bergen Community College. Students may use WebAdvisor to register for classes, to pay tuition and fees, to view their class schedules, to check grades, to check on progress toward degree requirements, etc. WebAdvisor accounts are available for all students enrolled in credit programs. New students are strongly encouraged to attend an in-person registration or advisement session before using a WebAdvisor account. Eligible students without WebAdvisor user names and passwords may access their WebAdvisor account by going to

go.bergen.edu and selecting "I'm new to WebAdvisor." Then, follow the on-screen directions. Check the WebAdvisor FAQ for answers to common questions, such as how to reset your password. Students must have a valid e-mail address on file with the College to use WebAdvisor

**LABORATORY SAFETY:** You will be asked to read in your laboratory manual "General Safety Precautions and Procedures", "Precautions Related to Working With Blood, Other Body Fluids, or Blood Products"; "Precautions Related to Working with Reagents"; and "Precautions Related to Dissection".

**Laboratory coats are required for entrance into the Syndaver lab.**

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**\*\* Dates and exam chapters are subject to change. It is the responsibility of the student to be informed of such changes.**

**\*\*All cell phones and electronic devices must be turned off during classes and labs and put away during exams and quizzes. No video, still pictures or taping is allowed in lecture and or lab.**

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I have carefully read and fully understand the addenda for participation in Anatomy & Physiology II

Signed \_\_\_\_\_

Date \_\_\_\_\_

Print \_\_\_\_\_

Class \_\_\_\_\_