

Spring 2024

## **BIOL 340-102, 104: Mammalian Physiology**

Eric Fortune

Follow this and additional works at: <https://digitalcommons.njit.edu/bio-syllabi>

---

### **Recommended Citation**

Fortune, Eric, "BIOL 340-102, 104: Mammalian Physiology" (2024). *Biology Syllabi*. 133.  
<https://digitalcommons.njit.edu/bio-syllabi/133>

This Syllabus is brought to you for free and open access by the NJIT Syllabi at Digital Commons @ NJIT. It has been accepted for inclusion in Biology Syllabi by an authorized administrator of Digital Commons @ NJIT. For more information, please contact [digitalcommons@njit.edu](mailto:digitalcommons@njit.edu).

## BIOLOGY 340: MAMMALIAN PHYSIOLOGY

|                      |                            |               |  |
|----------------------|----------------------------|---------------|--|
| <b>INSTRUCTOR:</b>   | Eric Fortune, PhD          | <b>PHONE:</b> | 443-310-9746 (text)  |
| <b>OFFICE:</b>       | CKB 428E                   | <b>EMAIL:</b> | eric.fortune@njit.edu  |
| <b>LECTURES:</b>     | KUPF 106 • Monday: 6 – 9pm | <b>LABS:</b>  | 6 - 9pm, CKB•302<br>Section 102 Wednesday<br>Section 104 Tuesday |
| <b>OFFICE HOURS:</b> | <b>Mondays 1 – 4pm</b>     |               |  |

### DESCRIPTION:

In this course we will examine basic concepts of mammalian physiology, including membrane biology, protein structure as applied to the structure of transmembrane transport proteins, cellular excitability and neuronal signaling, mechanisms of muscle physiology, sensory-motor integration, blood and fluid mechanics, cardiovascular physiology and regulation, gas transport and control of respiration, digestive system function, renal physiology and electrolyte homeostasis, endocrine function, growth and metabolism. We will examine the physio-chemical basis of how these systems operate and build from this an understanding of the function of each system as a whole. This knowledge will be applied to the understanding of everyday activities of the human body.

### GOALS:

This course will review general principles of the function of the human body as a mammal, with emphasis on the function and regulation of neuromuscular, cardiovascular, respiratory, endocrine, digestive, and excretory systems. The goal is to provide students with the basic knowledge to understand how their own bodies operate.

### PREREQUISITES:

Foundations of Biology (R120: 201, 202)

### TEXTBOOKS:

- ★ **Lecture Textbook:** Human Anatomy & Physiology — 10<sup>th</sup> edition — Marieb, & Hoehn **ISBN-13: 9780133995190** A physical used copy can be found for a reasonable price (Usually less than \$30) and an online version can be purchased for a more. There is a newer 11<sup>th</sup> edition (**ISBN-13: 978-0134580999**) that is also completely appropriate for this course. That edition is also available used for reasonable prices.
- ★ **Lab Materials:**
  - 1) **Lab Textbook:** Human Anatomy & Physiology Laboratory Manual, Main Version- 11<sup>th</sup> Edition- Marieb & Hoehn, **ISBN-13: 978-0133873214**
  - 2) **PhysioEx** is a software that will be used for the virtual Lab Exercises. Access can be purchased on this page:  
[https://media.pearsoncmg.com/bc/bc\\_0media\\_ap/physioex//10/login/sign-in.php?dest=https://media.pearsoncmg.com/bc/bc\\_0media\\_ap/physioex/10/index.php](https://media.pearsoncmg.com/bc/bc_0media_ap/physioex//10/login/sign-in.php?dest=https://media.pearsoncmg.com/bc/bc_0media_ap/physioex/10/index.php)

### BIOLOGY 340: MAMMALIAN PHYSIOLOGY

COURSE OUTLINE: ◀ **READ CHAPTERS BEFORE CLASS!!** ▶

| WEEK                     | DATE      | TOPICS   |
|--------------------------|-----------|--|
| Week 1                   | Jan 22    | Introduction to the course<br><a href="#">Chapter 1</a> Lecture 1 • Homeostasis  |
| Week 2                   | Jan 29    | Lecture 2 • Cell Signaling<br><a href="#">Chapters 3,11</a> Lecture 3 • Nervous System Part 1  |
| Week 3                   | Feb 5     | Lecture 4 • Nervous System Part 2<br><a href="#">Chapters 11,12</a> Lecture 5 • Nervous System Part 3  |
| Week 4                   | Feb 12    | <b>Exam #1</b> <b>Exam review</b>  |
| Week 5                   | Feb 19    | Lecture 6 • Central Nervous System 1      Lecture 7 • Central Nervous System 2   |
| Week 6                   | Feb 26    | Lecture 8 • Muscle 1      Lecture 9 • Muscle 2   |
| Week 7                   | Mar 5     | <b>Exam #2</b> <b>Exam review</b>  |
| Week 8                   | Mar 10-16 | <b>SPRING BREAK – NO CLASSES</b>   |
| Week 9                   | Mar 18    | Lectures 10-11 • Cardiac System  |
| Week 10                  | Mar 25    | Lectures 12-13 • Respiratory System  |
| Week 11                  | Apr 1     | Lectures 14-15 • Digestive System  |
| Week 12                  | Apr 8     | <b>Exam #3</b> <b>Exam review</b>  |
| Week 13                  | Apr 15    | Lecture 16 • Urinary System  |
| Week 14                  | Apr 22    | Lectures 17-18 • Endocrine system, Microbiome  |
| Week 15                  | April 29  | <b>EXAM #4</b> <b>PREP FOR FINAL EXAM</b>  |
|                          |           | <b>FINAL EXAM, TBA</b>   |
| Important Semester Dates |           | <ul style="list-style-type: none"> <li>March 10-16      Spring Break</li> <li>March 29 (F):      <b>Good Friday</b> – University Closed.</li> <li>April 30 (T):      Last Day of Classes.</li> </ul> |
| FINAL EXAM               |           | TBA • TBA  |

## BIOLOGY 340: MAMMALIAN PHYSIOLOGY

### EXAMINATIONS:

- ★ Your final letter grade is based on lecture exams (75%) and laboratory (25%). There are 4 lecture exams. I will drop the lowest grade of the 4 exams. Each exam will be worth 20% (60% of total lecture) and the cumulative final exam is worth 40% of the total lecture grade. **Extra credit is not an option.**
- ★ Students will have ~80 minutes to complete approximately 50 multiple choice questions. **ATTENDANCE IS MANDATORY FOR EXAM PERIODS.** Make up exams will only be given after authorization from the Office of the Dean of Student Affairs. You must bring proper documentation to that office **ONLY**. Do not contact the instructors or TAs regarding a missed assignment as they are not authorized to grant make ups. Only the Dean of Student Affairs is to be contacted.
- ★ The **Final Exam is cumulative**. The time and location during the Final Exam Period will be announced in class.

### ★ ATTENDANCE POLICY:

Laboratory attendance is **MANDATORY**. **If you miss two lab classes, you FAIL the course.** Attendance is also required to do well in the lecture section of the course. Attendance (sign-in sheets) is taken in every lab class.

- ★ If attendance becomes a problem, the lecture and lab instructor will begin to administer impromptu quizzes that will later be calculated into the Lecture exam grades, valuing at 10% of total semester grade.

### HONOR CODE:

This course will strictly adhere to the [NJIT Honor Code](#)!! Both the lecture and the lab will have zero tolerance for violations to the NJIT's [University Code on Academic Integrity](#)!!

**This is a reading intensive course! Due the volume of material that is to be covered, students are expected to know topics in the text book that could not be covered during lectures. ◀ READ CHAPTERS BEFORE CLASS!! ▶**