

BIOLOGY 340 (002-012): MAMMALIAN PHYSIOLOGY

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| INSTRUCTOR: | Dr. John Yarotsky | PHONE: | 973-642-7976 |
| OFFICE: | 340C Central King Bldg. | EMAIL: | yarotsky@njit.edu |
| OFFICE HOURS: | T: 12:00PM – 2:00PM Please email for an appointment. | LECTURES: | M, R: 4:00pm – 5:25pm [CKB 303] |
| | | LABS: | Lab Schedules [CKB 302] |

COURSE 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 physico-chemical basis of how each system operates 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.

PREREQUISITES:

Foundations of Biology R120:201 and R120:202 and BIOL 205 and BIOL 206

TEXTBOOK:

⊕ Human Anatomy & Physiology Plus Mastering A&P with eText Access Card Package (10th Edition); ISBN 978-0321927026 – Marieb; Hoehn **OR** Human Anatomy & Physiology LAB— Main Version (w/Version 8 CD)— Marieb, 8th Edition; ISBN: 9780321542472

⊕ Human Anatomy & Physiology LAB— Main Version - Marieb; Smith, 11th Edition; ISBN: 978-0133902389

And

⊕ choose ONE of these lecture textbook bundles:

1. Human Anat & Phys (Set: Txt/Brf Atlas)(w/10 Syst CD&AC)—Marieb, 8th Ed; ISBN: 9780805395914
2. Human Anat & Phys FORMAT: Café Scribe Format— Marieb, 8th Ed; ISBN: 9780321698971
3. Human Anatomy & Phys (Set:Txt/Brf Atlas2nd)(w/9 Syst CD)— Marieb, 7th Ed; ISBN: 9780805359091

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ATTENDANCE POLICY:

Laboratory attendance is **MANDATORY**. If you miss more than 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.

ACADEMIC DISHONESTY:

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](#)!!

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.**
- ⊗ The MINI exams will be all on Thursday class periods. Students will have 80 minutes to complete 50 multiple choice questions. **ATTENDANCE IS MANDATORY FOR MINI EXAM PERIODS.** Should you have a conflict with the exam date, you need to contact me by email prior to or **immediately** after the exam. Should you miss an exam due to a legitimate reason, you must provide **written documentation** before I will consider giving you a make-up exam. All make-ups are essay-style exams and are given near the end of the semester.

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| Mini Exam #1 | will cover weeks 1-3 of the course | Mini Exam #3 | will cover Chaps 19, 21 & 22 |
| Mini Exam #2 | will cover Chaps 9, 17, 18 & 19 | Mini Exam #4 | will cover Chaps 16, 23, 24 & 25 |

- ⊗ The **Final Exam is cumulative** and it is during the Final Exam Period: May 6-12, 2016 (3 hours).

COURSE LEARNING OUTCOMES / 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.

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COURSE OUTLINE: *Topics subject to change...* ◀ **READ CHAPTERS BEFORE CLASS!!** ▶

| WEEK | DATES | TOPICS AND ASSIGNMENTS |
|---------------------------------|--------------|--|
| Week 1 | Jan 19 | Introduction to Class & Definitions, Cell Membrane, Molecular Transport |
| Week 2 | Jan 23-26 | Ionic Basis of Cell Physiology, Intracellular Signaling |
| Week 3 | Jan 30 Feb 2 | Neurons and Nervous System [Chapter 12] |
| Week 4 | Feb 6-9 | Nervous System (cont.) Muscle Physiology [Chapters 12 & 9] + MINI EXAM #1 |
| Week 5 | Feb 13-16 | Muscle Physiology [Chapter 9 continued] |
| Week 6 | Feb 20-23 | Sensory-Motor Integration and Blood, Fluid Mechanics [Chapter 17] |
| Week 7 | Feb 27 Mar 2 | Circulatory System [Chapters 19 & 18] |
| Week 8 | Mar 6-9 | Respiratory System [Chapter 22] + MINI EXAM #2 |
| Week 9 | Mar 12-19 | MARCH 12-19: SPRING BREAK – NO CLASSES |
| Week 10 | Mar 20-23 | Digestive System [Chapter 23] |
| Week 11 | Mar 27-30 | Nutrition, Metabolism and Thermoregulation [Chapter 24] |
| Week 12 | Apr 3-6 | Urinary System [Chapter 25] + MINI EXAM #3 |
| Week 13 | Apr 10-13 | Endocrine System [Chapter 16] |
| Week 14 | Apr 17-20 | Endocrine System [Chapter 16] + Immune System [Chapters 20 & 21] |
| Week 15 | Apr 24-27 | Functional Integration of Major Systems + MINI EXAM #4 |
| Important Semester Dates | | <ul style="list-style-type: none"> ▪ March 12-19: Spring Break ▪ April 14 (F): Good Friday – University Closed. ▪ May 2 (T): Last Day of Class. Classes Follow a FRIDAY Schedule.. |
| FINALS | | FINAL EXAM WEEK: MAY 5-11, 2017 |

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!!** ▶