

BIOLOGY 340 (002-104): MAMMALIAN PHYSIOLOGY

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OFFICE HOURS:	Students must make an appointment to meet. Please email for an appointment.	LECTURES:	T, R: 10:00am - 11:20am [CKB 303]
		LABS:	T, R: 4:00pm - 5:20pm [GITC 1400] 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 & 202 or BIOL 201 & 202 and R120: 205 & 206 or BIOL 205 & 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

COURSE 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.

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](#)!!

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ATTENDANCE POLICY:

Please be on time. Laboratory AND Lecture attendance is **MANDATORY**. If you miss more than two lab classes, you will **FAIL the lab course**. Attendance is also required to do well in the lecture section of the course. Attendance (sign-in sheets & iClickers) is taken in every lecture and 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.

The clicker system will be used to assess attendance- the instructor will ask questions at the beginning of each class related to the previous lecture and all students must answer.

GRADING POLICY:

Lecture: 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 lecture 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. Grades are not negotiable.**

Lab: Your final grade will be based your attendance / quizzes worth 5%. Your midterm and final exam worth 35% each counts as 70% of your overall grade. Finally, lab reports overall are worth 25% of your entire grade.

EXAMINATIONS:

Make-Up Exams: Laboratory exams **CANNOT** be made-up. These are practical exams, which take time to prepare. We cannot setup the entire exam for an individual student, or even for a small number of students. Therefore, if you miss a scheduled lab exam, you will receive a grade of **zero**. If you have a conflict with your lab exam notify your TA **at least 3 weeks BEFORE** the exam so that you can make arrangements.

- Lab Reports** – MUST be in the proper format found on page XVI of your lab manual. If you miss lab reports, you miss the grade for the lab. **NO late submissions** will be tolerated! We will form groups of 4 in the very beginning and stick to these all throughout the semester. **PLAGARISM** will not be tolerated. Working as group is great, but when it comes to your reports individual minds work best.
- Lab Exams** - Both exams are practical with stations. We will discuss more in detail later in the semester.
- Students will have 80 minutes to complete 50 multiple-choice questions. **ATTENDANCE IS MANDATORY FOR MINI 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.

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: To be announced in class.

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

WEEK	DATES	TOPICS AND ASSIGNMENTS
Week 1	Jan 21	Introduction to Class & Definitions, Cell Membrane, Molecular Transport
Week 2	Jan 28-30	Ionic Basis of Cell Physiology, Intracellular Signaling – LAST DAY TO ADD/DROP 1/31
Week 3	Feb 4-6	Neurons and Nervous System [Chapter 12]
Week 4	Feb 11-13	Nervous System (cont.) Muscle Physiology [Chapters 12 & 9] + MINI EXAM #1
Week 5	Feb 18-20	Muscle Physiology [Chapter 9 continued]
Week 6	Feb 25-27	Sensory-Motor Integration and Blood, Fluid Mechanics [Chapter 17]
Week 7	Mar 3-5	Circulatory System [Chapters 19 & 18]
Week 8	Mar 10-12	Respiratory System [Chapter 22] + MINI EXAM #2
Week 9	Mar 17-19	MARCH 15-22: SPRING BREAK – NO CLASSES
Week 10	Mar 24-26	Digestive System [Chapter 23]
Week 11	Mar 31- Apr 2	Nutrition, Metabolism and Thermoregulation [Chapter 24]
Week 12	Apr 7-9	Urinary System [Chapter 25] + MINI EXAM #3
Week 13	Apr 14-16	Endocrine System [Chapter 16]
Week 14	Apr 21-23	Endocrine System [Chapter 16] + Immune System [Chapters 20 & 21]
Week 15	Apr 28- 30	Functional Integration of Major Systems + Review
Week 16	May 5	MINI EXAM #4
Important Semester Dates		<ul style="list-style-type: none"> ▪ March 15-22: Spring Break ▪ April 10 (F): Good Friday – University Closed. ▪ May 5 (T): Last Day of Class. Classes Follow a FRIDAY Schedule.
FINALS		FINAL EXAM WEEK: MAY 8-14, 2020

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

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LAB OUTLINE: Please Read the lab BEFORE showing up for labs – not only does this put you ahead but you also know what you are doing. Exercises (**Black**= version 8 &9 **Red**=version 10 & 11)

WEEK	OF	TOPICS AND ASSIGNMENTS
Week 2	Jan 27	#19 #17 Gross Anatomy of the Brain and Cranial Nerves
Week 3	Feb 3	#21 #19 – Spinal Cord and Spinal Nerves #22 #21 Human Reflex Physiology – LAST DAY TO ADD/DROP 1/31
Week 4	Feb 10	#16A #14 Skeletal Muscle Physiology: Wet lab – Activities 1 and 3 Online Assignment: Mastering A&P Instructions are in the Back of the Manual: Page Number: PEx-17 Exercise 2 Skeletal Muscle Physiology: (The Activity can be done in the lab or as homework and the results are due in the following week's lab)
Week 5	Feb 17	#27 #27 Anatomy and Basic Function of the Endocrine glands #17 #15 Histology of Nervous Tissue
Week 6	Feb 24	Lab Exam I: Exercises First 4 weeks of Lab
Week 7	Mar 2	#30 #30 Anatomy of the Heart #31 #31 Conduction System of the Heart and Electrocardiography Mastering A&P-Physio Ex 9.1-Exercise 6: Activities 1-4
Week 8	Mar 9	#33A #33 Human Cardiovascular Physiology-Blood Pressure and Pulse Determination. Lab report due.
Week 9	Mar 17-19	MARCH 15-22: SPRING BREAK – NO CLASSES
Week 10	Mar 23	#29A #29 Blood
Week 11	Mar 30	#37A #37 Respiratory System Physiology
Week 12	Apr 6	Good Friday- No Labs
Week 13	Apr 13	#33B Cardiovascular Dynamics: Computer Simulation #34B Frog Cardiovascular Physiology: Computer Simulation
Week 14	Apr 20	Lab Exam II: All Material after Midterm
Week 15	Apr 27	TBA
Week 16	May 4	LAST DAY OF CLASSES 5/5
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