BIOLOGY 340 (002-012): MAMMALIAN PHYSIOLOGY

INSTRUCTOR: Darshan J. Desai, PhD
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OFFICE: 432 Colton Hall
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OFFICE HOURS: M: 10am-12pm & W: 1130am-2pm  Students must make an appointment to meet!

LECTURES:  T, R: 8:30am – 9:55am [GITC 1400]
LABS:  Lab Schedules [COLT 120A]

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.

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:
 AND
⊙ choose ONE of these lecture textbook bundles:
⊙ An i-Clicker is required for this course. You can purchase one from the NJIT campus bookstore.
# Course Syllabus

**SPRING 2013**

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## BIOLOGY 340 (002-012): MAMMALIAN PHYSIOLOGY

### Course Outline: Topics subject to change...

**◄ READ CHAPTERS BEFORE CLASS!! ►**

<table>
<thead>
<tr>
<th>WEEK</th>
<th>DATES</th>
<th>TOPICS</th>
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</thead>
<tbody>
<tr>
<td>Week 1</td>
<td>Jan 21-25</td>
<td>Definitions, Cell Membrane, Molecular Transport</td>
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<tr>
<td>Week 2</td>
<td>Jan 28-Feb 1</td>
<td>Ionic Basis of Cell Physiology, Intracellular Signaling</td>
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<td>Week 3</td>
<td>Feb 4-8</td>
<td>Neurons and Nervous System [Chapter 12]</td>
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<td>Week 4</td>
<td>Feb 11-15</td>
<td>Nervous System (cont.) Muscle Physiology [Chapters 12 &amp; 9] + <strong>MINI EXAM #1</strong></td>
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<tr>
<td>Week 5</td>
<td>Feb 18-22</td>
<td>Muscle Physiology [Chapter 9 continued]</td>
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<td>Week 6</td>
<td>Feb 25-Mar 1</td>
<td>Sensory-Motor Integration and Blood, Fluid Mechanics [Chapter 17]</td>
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<tr>
<td>Week 7</td>
<td>Mar 4-8</td>
<td>Circulatory System [Chapters 19 &amp; 18]</td>
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<tr>
<td>Week 8</td>
<td>Mar 11-15</td>
<td>Respiratory System [Chapter 22] + <strong>MINI EXAM #2</strong></td>
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<tr>
<td>Week 9</td>
<td>Mar 18-22</td>
<td><strong>MARCH 18-22: SPRING BREAK – NO CLASSES</strong></td>
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<tr>
<td>Week 10</td>
<td>Mar 25-29</td>
<td>Digestive System [Chapter 23]</td>
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<tr>
<td>Week 11</td>
<td>Apr 1-5</td>
<td>Nutrition, Metabolism and Thermoregulation [Chapter 24]</td>
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<tr>
<td>Week 12</td>
<td>Apr 8-12</td>
<td>Urinary System [Chapter 25] + <strong>MINI EXAM #3</strong></td>
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<tr>
<td>Week 13</td>
<td>Apr 15-19</td>
<td>Endocrine System [Chapter 16]</td>
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<td>Week 14</td>
<td>Apr 22-26</td>
<td>Endocrine System [Chapter 16] + Immune System [Chapters 20 &amp; 21]</td>
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<tr>
<td>Week 15</td>
<td>Apr 29-May 3</td>
<td>Functional Integration of Major Systems + <strong>MINI EXAM #4</strong></td>
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### Important Semester Dates

- **January 21, 2013:** Dr. Martin Luther King, Jr. Day – University Closed
- **March 26, 2013:** Last day to **WITHDRAW** from this course.
- **May 7, 2013:** Classes Follow a **FRIDAY** Schedule

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### Finals

**FINAL EXAM WEEK: MAY 9-15, 2013**

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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!! ►**
EXAMINATIONS:

- Your final letter grade is based on lecture exams (75%) and laboratory (25%). There are 4 MINI lecture exams. I will drop the lowest grade of the 4 exams. Each MINI exam will be worth 20% (60% of total lecture grade) plus the cumulative final exam 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.

<table>
<thead>
<tr>
<th>Mini Exam #1</th>
<th>will cover weeks 1-3 of the course</th>
<th>Mini Exam #2</th>
<th>will cover Chaps 9, 17, 18 &amp; 19</th>
<th>Mini Exam #3</th>
<th>will cover Chaps 19, 21 &amp; 22</th>
<th>Mini Exam #4</th>
<th>will cover Chaps 16, 23, 24 &amp; 25</th>
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- The Final Exam is cumulative and it is during the Final Exam Period: May 9-15, 2013 (3 hours).

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 & i•clickers) 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 i•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.

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!!

Pass with honor and fail with dignity!

RESISTANCE IS FUTILE! YOU WILL BE ASSIMILATED!!