National University's goal is for all students to achieve their academic potential, and to have a positive learning experience in the BIO 201-203 series. Department of Mathematics and Natural Sciences has developed advice for students for the courses BIO 201-203. The purpose of this advice is to ensure that students are properly prepared for the materials in these courses. The Department's advice to students is:

1. Health Science and Pre-Nursing students that are new to National University should take the Areas A-E program requirements (e.g. ENG 100, ENG 101, COM 200, ILR 260) **before** taking BIO 201-203. This will enable students to adjust to the pace of National University, while strengthening their written communication and exam skills.

2. Before taking BIO 201-203, students should have **taken introductory biology and chemistry** (BIO100, 100A, 101, 101A), or the equivalent, within the past 5 years.

3. Students should **take BIO 201-203 in the numerical sequence**. This scheme familiarizes students with the laboratory before taking BIO 203, which is the most laboratory intensive course.

**Students with Disabilities:**
Students seeking special accommodations due to a disability must submit an application with supporting documentation, as explained under this subject heading in the General Catalog.

Instructors are required to provide such accommodations if they receive written notification from the University.

* The contents of this outline and syllabus are subject to change throughout the duration of the course.
Course Description
This laboratory course examines organ systems (skeletal, muscular and nervous). Students will make use of models and conduct cat/fetal pig dissections to identify and learn how skeletal muscles are organized according to body region. Sheep brain is used as a model to study human brain.

- Use the compound light microscope.
- Prepare slides of tissues for microscopic examination.
- Describe the cellular components of human tissues and organs.
- Examine the physiology of cells and cell membranes.
- Classify cells and tissues of the integumentary system.
- Identify structural components of the human skeleton, including bones and joints.
- Classify different kinds of human muscles, and explain their functioning.
- Analyze the anatomy and physiology of the nervous system and special senses.
- Explain how and why buffers function.

COURSE CONTENT:

1. Metric measurements and microscopy.
2. Cell structure and function.
3. Human body tissues – epithelial, muscular, nervous, and connective.
4. Examination of the integumentary system.
5. Examination of the skeletal system and joints.
6. Examination of muscles.
7. Examination of the nervous system.
8. Examination of the special senses.
9. Dissection of the fetal pig and/or cat to demonstrate basic mammalian anatomy. Comparison to human anatomy. Emphasis on muscles, spinal cord and spinal nerves.

TEACHING BY THE INSTRUCTOR WILL BE AIDED WITH:
1. The textbook.
2. Written notes, including current newspaper and magazine information, for the students.
3. Writing on the white board/black board.
4. Use of PowerPoint.
5. Use of videos.
6. Use of transparencies.
7. Use of microscope slides.
8. Wall charts and other visual aids.
9. Questions from the students – BE INVOLVED!

*Questions often end up with many in-depth discussions.*
COURSE REQUIREMENTS AND STUDENT RESPONSIBILITIES:
• Attend all class sessions and participate in each class activity. Please be on time.
• Make entries in the Laboratory Notebook.
• Read the assigned textbook chapters before each class meeting.
• Talk to the teacher if there are any difficulties.
• Evaluate the course and your own individual performance.

INSTRUCTOR POLICIES

• There will be no texting or recreational use of cell phones in class. If you must take a message, please wait until break or leave the class. Students seen texting will be asked to turn off their phone or leave the class.
• Computers are to be used only for the class. Students using the computers for other purposes will be asked not to bring computers to class.
• If students know of an absence in advance, please coordinate with the instructor in person & by email prior to being absent. If notifying of an unforeseen absence, please email and follow up with instructor.

Travel arrangements, appointments, etc. should not conflict with exams, quizzes, or homework due dates – students will be expected to fulfill their obligations for assigned dates. Absolutely no late work will be accepted – “late” means not handing in/presenting materials when they have been asked for. Make-up opportunities will not be given – no exceptions. Additionally, NO early exams/quizzes will be given.

ATTENDANCE PROCEDURES:
Students are expected to attend all class sessions. An absence is assessed each time a student is not in attendance during a regularly scheduled class period, whether or not it is an excused absence. An instructor may withdraw a student from class prior to the seventh session in undergraduate courses if there are more than two unexcused absences. Students who have more than three absences, excused or unexcused, cannot be given a satisfactory grade.

GRADE DISTRIBUTION:

Point Break-down:
Practical Exams (3 @ 50 points each) 150 points total
Homework Assignments 50 points total
200 points possible

LAB PRACTICAL EXAMS:

These involve primarily identification of samples with some matching, fill-in-the-blank, and short answer questions.

HOMEWORK QUESTIONS

There will be assignments given worth variable points to be completed at home. These will be short answer and may require research outside the text.
SAFETY GUIDELINES:
Lab safety is largely a matter of common sense. If you have any questions or concerns, don’t hesitate to ask your instructor. If you know and understand your experiment, your work should proceed safely. However, accidents do happen, but let’s not invite them with poor preparation!

Below are a few common safety considerations worth emphasizing:

- **EATING, DRINKING AND SMOKING ARE PROHIBITED IN THE LAB AT ALL TIMES.**
- Everyone must wear appropriate length white lab coats with long sleeves that must always be rolled down.
- **Label** all vessels that you are working with, i.e. know exactly what is in them at all times.
- **Chemical hoods** are to be used for all toxics, corrosives, and flammables.
- Use **plastic trays** on the bench tops.
- It will sometimes be necessary to wear special **gloves**, and **safety glasses** or goggles. These must be worn over prescription glasses. Contact lenses can only be worn with safety goggles (not safety glasses).
- **Cuts** from broken glassware and slipping on wet floors are two of the most common hazards in a laboratory. **Please keep this in mind.**
- **No open-toe shoes will be permitted in the lab.** Long pants are strongly recommended. No shorts will be allowed. Loose-fitting sleeves and long hair may be dangerous. Please tie back long hair, and select apparel wisely. The instructor will have the authority to ask you to leave if your clothing or hair is judged to be a hazard.
- **Know your reagents.** As required by the right-to-know law, information concerning toxicity of the compounds you work with is available. Most of the compounds are somewhat toxic and/or have unknown risk. Handle your chemicals in a responsible manner. Dispose of waste in the proper containers. **Do not put chemicals in the trash or down the drain!!**
- **Do not throw broken thermometers into the glass waste!** Mercury is a dangerous substance if not handled properly. If you break your thermometer, please inform your instructor immediately and use a proper mercury waste container.
- **Accidents do happen.** Inform your instructor of any chemical spill or other lab accident so he or she may take appropriate action. This is especially important if you spill something on your clothing or skin. You are required to have the instructor help fill out an accident report. You are never allowed to take any chemicals with you out from the labs.
- **Accidents will NOT affect your grade in the course, so don’t hesitate to speak up.**
- **Locate all safety equipment** in the laboratory during your check-in. These include fire extinguishers, safety showers, eye-washes and fire blankets, etc.
- **In case of FIRE, stay calm!!**
- **In case of a small fire:** Attempt to extinguish the flames with a carbon dioxide or powder extinguisher. Remove flammable materials from the area. Fires in a beaker, flask, bottle, or jar can usually be extinguished by placing a wet towel or watch glass over the opening. Water may be used to extinguish fires involving water-soluble liquids such as ethanol and acetone. **Water should not be used on fires involving water insoluble liquids**, such as hydrocarbons or either. A carbon dioxide or powder extinguisher should be used, or, if none is available, sodium carbonate (powder) bicarbonate or sand can be used.
- **In case of a large fire:** Get yourself and others away from the burning area and call 911.
- **Burning clothing: DO NOT RUN!** Use an emergency shower (or a faucet for a small area such as a sleeve) or a fire blanket to extinguish the fire.
GRADES AND GRADING SYSTEM:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Range</th>
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<th>Range</th>
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</thead>
<tbody>
<tr>
<td>A</td>
<td>94-100</td>
<td>C+</td>
<td>77-79</td>
<td>D+</td>
<td>67-69</td>
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<tr>
<td>A-</td>
<td>90-93</td>
<td>C</td>
<td>74-76</td>
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<td>87-89</td>
<td>C-</td>
<td>70-73</td>
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<td>B-</td>
<td>80-83</td>
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Definition of Grades (Undergraduate Level):

A  Outstanding Achievement:  Significantly exceeds standards
B  Commendable Achievement:  Exceeds standards
C  Acceptable Achievement:   Meets standards
D  Marginal Achievement:     Below standards
F  Failing
I  Incomplete:  A grade given when a student has completed at least 2/3 of the course class sessions and is unable to complete the course requirements due to uncontrollable and unforeseen circumstances.

PLUS/MINUS GRADING:
National University utilizes a plus/minus grading system. The grades of A+, F+, and F- are not issued. The grade points per credit used in the calculation of the grade point average are as follows:

Grade Points per Credit

<table>
<thead>
<tr>
<th>Grade</th>
<th>Points</th>
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<tbody>
<tr>
<td>A</td>
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<td>A-</td>
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<td>B+</td>
<td>3.3</td>
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<tr>
<td>B</td>
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<tr>
<td>B-</td>
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<tr>
<td>C</td>
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<tr>
<td>C+</td>
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<tr>
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<tr>
<td>D</td>
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<tr>
<td>D+</td>
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<tr>
<td>D-</td>
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</tr>
<tr>
<td>F</td>
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</tr>
</tbody>
</table>

GRADING CRITERIA:

Written work will be graded using the following:
1. completeness and/or correctness of your answer
2. organization and development of your ideas
3. use of data/experience to support your ideas
4. use of references to substantiate your ideas
5. evidence of critical thinking in expressing your judgment
6. good grammar and correct spelling
Biology 201A Schedule *(Dr. Hurley) – Term 1702: February/March 2017 (15627)*

<table>
<thead>
<tr>
<th>Class Week</th>
<th>Date/Day</th>
<th>Lecture Topics (Mon/Wed)</th>
<th>Tortora (14th edition)</th>
<th>Lab Topic – Allen &amp; Harper (5th ed.) (Mon/Wed)</th>
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<tbody>
<tr>
<td>1</td>
<td>Feb 6 M</td>
<td>Intro to Human Body</td>
<td>Ch. 1, 2</td>
<td>Exercises 1 &amp; 2</td>
</tr>
<tr>
<td>1</td>
<td>Feb 8 W</td>
<td>Quiz 1 (Chpt. 1 &amp; 2)</td>
<td>Ch. 3</td>
<td>Exercises 3 &amp; 4</td>
</tr>
<tr>
<td>2</td>
<td>Feb 13 M</td>
<td>Tissue Types &amp; The Integumentary System</td>
<td>Ch. 4, 5</td>
<td>Exercises 6 &amp; 7</td>
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<tr>
<td>2</td>
<td>Feb 15 W</td>
<td>-Exam 1 (Chpt. 1-5)</td>
<td>Ch. 6, 7</td>
<td>Exercise 8, 9, 10 (start bones)</td>
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<tr>
<td>3</td>
<td>Feb 20 M</td>
<td>Holiday (no lecture)</td>
<td></td>
<td>Holiday (no lab)</td>
</tr>
<tr>
<td>3</td>
<td>Feb 22 W</td>
<td>Appendicular Skeleton &amp; Articulations (Joints)</td>
<td>Ch. 8, 9</td>
<td>-Lab Exam 1 (anatomical terms/orientations/positions, microscopy &amp; tissues)</td>
</tr>
<tr>
<td>4</td>
<td>Feb 27 M</td>
<td>Muscular Tissue &amp; Physiology Quiz 2 (Chpt. 6-8)</td>
<td>Ch. 10</td>
<td>Exercises 9, 10, 11</td>
</tr>
<tr>
<td>4</td>
<td>Mar 1 W</td>
<td>Muscular System Anatomy</td>
<td>Ch. 11</td>
<td>Exercises 12 &amp; 14 (start muscles)</td>
</tr>
<tr>
<td>5</td>
<td>Mar 6 M</td>
<td>-Exam 2 (Chpt. 6-10)</td>
<td></td>
<td>Exercises 14 &amp; 15</td>
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<tr>
<td>5</td>
<td>Mar 8 W</td>
<td>Neural Tissue &amp; Physiology</td>
<td>Ch. 12</td>
<td>Exercises 16, 17, 18 (start nerves)</td>
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<tr>
<td>6</td>
<td>Mar 13 M</td>
<td>The Spinal Cord and Spinal Nerves Quiz 3 (Chpt. 12)</td>
<td>Ch. 13</td>
<td>-Lab Exam 2 (bones, joints, &amp; muscles)</td>
</tr>
<tr>
<td>6</td>
<td>Mar 15 W</td>
<td>The Brain and Cranial Nerves</td>
<td>Ch. 14</td>
<td>Exercises 20 &amp; 21</td>
</tr>
<tr>
<td>7</td>
<td>Mar 20 M</td>
<td>-Exam 3 (Chpt. 12-14)</td>
<td>Ch. 15</td>
<td>Exercises 19 &amp; 22</td>
</tr>
<tr>
<td>7</td>
<td>Mar 22 W</td>
<td>Sensation and Sensory Pathways, The Special Senses (overview)</td>
<td>Ch. 16, 17</td>
<td>Exercises 23 &amp; 24</td>
</tr>
<tr>
<td>8</td>
<td>Mar 27 M</td>
<td>The Special Senses (cont’d)</td>
<td>Ch. 17</td>
<td>Finish Exercise 24</td>
</tr>
<tr>
<td>8</td>
<td>Mar 29 W</td>
<td>-Exam 4 (Chpt. 15-17)</td>
<td></td>
<td>-Lab Exam 3 (CNS, PNS &amp; special senses)</td>
</tr>
</tbody>
</table>

* - Schedule is subject to change