# Lab Schedule

<table>
<thead>
<tr>
<th>Week of</th>
<th>Lab Exercise</th>
<th>Page</th>
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<tbody>
<tr>
<td>9/3</td>
<td>No labs this week</td>
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<tr>
<td>9/10</td>
<td>Lab #1: Microscopy and Histology</td>
<td>7</td>
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<tr>
<td>9/17</td>
<td>Lab #2: Central Nervous System</td>
<td>20</td>
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<tr>
<td></td>
<td>Due: Lab #1 report</td>
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<tr>
<td>9/24</td>
<td>Lab #3: Reflexes and General Sensation</td>
<td>26</td>
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<tr>
<td>10/1</td>
<td><strong>Lab practical #1</strong></td>
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<td></td>
<td>Due: Lab #3 report</td>
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<tr>
<td>10/8</td>
<td><strong>No lab—Fall recess</strong></td>
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<td>10/15</td>
<td>Lab #4: Vision, Hearing and Equilibrium</td>
<td>38</td>
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<tr>
<td>10/22</td>
<td>Lab #5: Anatomical Terminology and the Skull; Skin cat</td>
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<td>Due: Lab #4 report</td>
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<td>10/29</td>
<td>Lab #6: Anatomy of the Torso</td>
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<td>Due: Lab #5 report</td>
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<td></td>
<td>Due: Pre-Lab Homework</td>
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<tr>
<td>11/5</td>
<td><strong>Lab practical #2</strong></td>
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<tr>
<td>11/12</td>
<td>Lab #7: Anatomy of the Upper Limb</td>
<td>64</td>
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<td>Due: Pre-Lab Homework</td>
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<tr>
<td>11/19</td>
<td><strong>No lab—Thanksgiving break</strong></td>
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<tr>
<td>11/26</td>
<td>Lab #8: Anatomy of the Lower Limb</td>
<td>70</td>
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<td>Due: Pre-Lab Homework</td>
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<tr>
<td>12/3</td>
<td>Lab #9: Skeletal Muscle Function</td>
<td>76</td>
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<tr>
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<td>Lab #9 report due at the end of lab</td>
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<tr>
<td>12/10</td>
<td><strong>Lab practical #3</strong></td>
<td>80</td>
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Lab Policies and Guidelines

Required supplies
3. Laboratory dissecting kit.
4. Laboratory manual.

Safety procedures
1. A college-wide lab safety policy is posted in the lab and included in the manual (p. 6). Take some time your first week to read it. Be sure you know where the eye wash station is and how to use it. All incidents or injuries must be reported to the lab instructor, regardless of how minor.
2. No food or drink is permitted in lab.
3. Appropriate attire must be worn, including closed-toe shoes. No sandals or flip-flops! If your attire is inappropriate, you will be asked to leave the lab and change.

Attendance
1. Attendance is mandatory. If you must miss your scheduled lab, advanced written notification is required. You are required to do all of the following prior to your usual lab section:
   a) contact your laboratory instructor in writing (email) to obtain permission.
   b) obtain permission from the instructor whose lab you wish to attend.
   c) notify your lab partner.
   d) submit your completed lab report to your usual instructor prior to your usual section, unless otherwise specifically arranged.
2. If you must miss lab due to illness, notification from the health center or your physician is required.
3. Unexcused absences will result in a loss of at least 20 points. You will not be permitted to make up unexcused labs or assignments from those labs.
4. Labs are scheduled to last approximately three hours. You should expect to be in lab for the entire period, although some labs may end earlier. Meetings and appointments should be scheduled at other times.
5. Lab practicals cannot be rescheduled or made-up unless permission is granted prior to your usual lab. Practicals require significant set-up time and are available only during the week scheduled. An unexcused absence on the day of a practical will result in a zero score. Long illness that precludes completion of the practical within the scheduled week requires verification from the Engle Health Center and clear communication with your laboratory instructor.
Preparation for lab
1. Read the assignments in your lab manual and/or textbook before coming to lab. This will make it easier for you to understand the instructions given in lab and will allow you to make more efficient use of your time in lab.
2. For many labs you will be referring to your text; be sure to bring it to lab every week.

Lab reports
1. All lab reports are due the following week at the beginning of lab, even if you are excused from lab (send it with a friend or turn it in early). Reports with multiple pages must be stapled together; staplers will not be available in lab so staple them before you arrive.
2. Labs turned in after the start of lab will be penalized 50% (ex. 10 out of 20 points); assignments more than 24 hours late will not be accepted. Submit late assignments in person; do not use campus mail.

Academic Dishonesty
Academic dishonesty will not be tolerated in any form. All occurrences will be formally investigated and the Dean of the School of Health and Natural Sciences will be notified. Consequences may range from a grade of zero for the assignment to failure of the course. Examples include, but are not limited to, the following:
1. Plagiarism
   You may use your textbook and confer with your lab partner to answer the questions on lab reports. However, your answers must be in your own words. Answers which are identical (word for word) or nearly identical will result in a zero for all students involved. Therefore, do not allow other students to “borrow” or “look over” your work – they may copy it and turn it in as their work. You must cite other sources, such as your textbook or a website, even if you put the material in your own words. If you use another author’s ideas, you must give credit.
2. Cheating on quizzes and practicals
   Dishonesty includes looking at other students’ answers, bringing answers or notes with you in any form, or advanced knowledge of the contents of a quiz or practical. All students will take the same practicals in order to maintain consistency across lab sections. Discussion of specific questions or general topics prior to or after taking a quiz or practical constitutes dishonesty.

Access outside of scheduled lab
The labs are locked each evening and over the weekend. However, you are permitted and encouraged to come in and review lab material during the morning; additional open lab hours will be scheduled before each practical.
1. Your lab grade will be combined with your lecture grade to produce your final grade for the course.
2. The format for practicals may involve timed questions and/or a time limit for the entire practical; no exceptions will be made as this is a standard expectation of the course.
3. Spelling will count on practicals. One point will be deducted for every two misspelled answers.

<table>
<thead>
<tr>
<th>Grading</th>
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<tbody>
<tr>
<td>Lab reports</td>
<td>115</td>
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<tr>
<td>Lab practicals (3 @ 50 points)</td>
<td>150</td>
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<tr>
<td>Quizzes</td>
<td>50 (approximate)</td>
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<tr>
<td>Pre-lab homework</td>
<td>30</td>
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<td>Total</td>
<td>345 (approximate)</td>
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Messiah College Biological Sciences Department  
Safety Rules for Laboratories

Laboratory work involves potential hazards which can be removed by use of proper procedures and safety equipment. Messiah College is committed to providing a safe environment for all students and employees. These rules have been developed to achieve this goal. They must be followed in all laboratories and storerooms.

Gerald D. Hess, Chair, Biological Sciences Dept.

1. Eye protection must be worn at all times in any laboratory which has a sign indicating this requirement or when specified by the instructor. Goggles are essential if contact lenses are worn in chemical laboratories, when specified by the instructor or where indicated by a sign.

2. Horseplay, pranks or other acts of mischief are especially dangerous and are prohibited.

3. The hazards of chemicals used should be known (e.g., corrosiveness, flammability, reactivity, stability and toxicity). This information will be supplied by the instructor. Additional information (Material Safety Data Sheets) are available at the website msds.messiah.edu.

4. Eating and drinking are not allowed in the laboratory.

5. Unauthorized experiments are prohibited.

6. Appropriate clothing and shoes must be worn. When specified by the instructor, gloves, a protective apron or lab coat will be required and open-toe shoes will not be permitted.

7. Mouth suction must never be used to fill pipets, to start siphons, or for any other purpose.

8. Experiments shall not be performed when a worker is alone in a laboratory unless suitable arrangements have been made with the course instructor.

9. All persons should wash their hands when leaving the laboratory.

10. No chemicals or equipment may be removed from the laboratory without the specific permission and supervision of the instructor.

11. All accidents and significant near-accidents must be reported to the instructor who will in turn report them to the chairperson of the Safety and Chemical Hygiene Committee.

12. All workers must know the location and proper use of all safety equipment in the laboratory. Instructors will supply this information.

13. If a person sustains an injury which is not incapacitating but causes bleeding, (s)he shall place a sterile bandage over the wound and go to the College nurse for treatment. No other person should be involved in any way which might cause her/him to contact the blood. The instructor will see that the "Laboratory Accident Procedure" is followed.
Objectives:
1. Learn the parts of the microscope and its proper use.
2. Learn the characteristics of the four classes of tissue and study various examples of each.

Preparation:
1. Read the laboratory manual instructions.
2. Read Chapter 4 in the textbook and Chapter 1 in the atlas.

Procedure 1 – The Microscope

A. General use and care of the microscope:

-- hold the microscope at the arm and the base when carrying it
-- when focusing, always start with the low power objective
-- use the coarse adjustment knob to bring the object into focus, then move to a high power objective
-- do not use the coarse adjustment knob to focus with the 10x or 40x objectives, as you may damage the objective or the slide
-- use only lens paper to clean objective lenses

B. Terms you should know:

total magnification – equal to the magnification of the ocular lens multiplied by the objective lens. For example: if the ocular lens is 10x and the objective lens is 10x, then total magnification is 100x. This is what you should report when asked for the magnification of an object.
working distance – the distance between the objective lens and the slide. It gets smaller as the objective power increases.
field – the portion of the slide you see when looking through the microscope.
C. Parts of the microscope

Use the diagram below to identify the parts of the microscope. You should be prepared to identify them and describe their function on the lab practical.

**ocular lenses** – used to view the slide; the ocular lenses on the laboratory scopes have a magnification of 10x.

**objective lenses** – provide magnification of the specimen at 4, 10, or 40 times the original size.

**stage** – platform on which slide is placed; usually has clips to hold slide in place

**condenser** – concentrates a beam of light onto the specimen; should be adjusted so that it is just beneath the stage.

**iris diaphragm lever** – alters the contrast when viewing a specimen by adjusting the amount of light that passes through the condenser

**coarse adjustment knob** – used to bring the specimen into focus; used only with the low power (4x) objective

**fine adjustment knob** – used to make small adjustments in focusing

**light source** – a bulb in the base of the microscope