INSTRUCTOR

DR. THEODORE C. FOX
Associate Professor of Plant Biology  Tel. No.: 850.474.2754
Office: Building 58, Room 062A  Fax No.: 850.474.2749
Lab: Building 58, Room 119  Email: tfox@uwf.edu
Outdoor Office: Building 58, Loading Dock

OFFICE HOURS
Tuesday  10:00 – 12:00
Wednesday  12:00 – 2:00
Thursday  10:00 – 12:00

Other times may be arranged by appointment, although you are welcome to stop by my office or lab at any time. Questions submitted via email will be responded to as promptly as possible.

LABORATORY TEACHING ASSISTANTS

MS. ALLYSON BRADLEY  MR. STEVEN PERZ
ajm15@students.uwf.edu  sep21@students.uwf.edu

REQUIRED TEXTBOOKS


Winter, Peggy A; Fox, Theodore C.  2010.  Plants in the Laboratory.  University of West Florida Bookstore, Pensacola, FL, USA.

Turning Point Response Pad

COURSE COREQUISITES

BOT2010L General Botany Laboratory

IMPORTANT DATES

Lecture Exam 1. . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . Jan 18
Lecture Exam 2. . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . Feb 17
Lab Exam 1. . . . . . . . . . . . . . . . . . . . . . . . . . . Feb 25 – Feb 26
Lecture Exam 3. . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . Mar 19
Plant Transformation Lab Report Due. . . . . . . . . . . . Mar 4 – Mar 5
Last Day to Withdraw with Automatic “W”. . . . . . . . . . . . Mar 24
Lecture Exam 4. . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . Apr 7
Lab Exam 2. . . . . . . . . . . . . . . . . . . . . . . . . . . Apr 22 – Apr 23
Lecture Exam 5. . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . Apr 30

COURSE DESCRIPTION

This course provides an introduction to the basic concepts which apply to all plants including cells theory, biosynthetic processes, physiological response, development and reproduction as well as consideration of plant morphology, systematics, and evolution. Topics include the angiosperm plant body, classification of plants, cell biology and unit membranes, plant cell structure and function, membrane transport, plant biotechnology, stem development in dicots, primary tissues in dicot stems, cell types, leaves, roots, secondary growth, flower anatomy, the angiosperm life cycle, soil and mineral nutrition, water and mineral absorption, transpiration and guttation, conduction, plant responses to external stimuli, plant hormones, phytochrome, herbicides, algae, fungi, bryophytes, fern allies, ferns, gymnosperms, and photosynthesis. The accompanying laboratory features experiments selected to demonstrate and reinforce important principles discussed in lecture. Topics include the plant body and microscope, cells and cell physiology, plant transformation and propagation, primary growth of stems, cell types, leaves, roots, secondary growth, flowers and fruits, nutrition and transpiration, seeds and hormones, algae, fungi, mosses, ferns, fern allies, and gymnosperms. A material and supply fee is assessed for the lab. Although you must register for BOT2010 and BOT2010L separately, you will receive a single grade for your performance in both lecture and lab. General studies course: NS/LEC

COURSE OBJECTIVES & STUDENT LEARNING OUTCOMES

This course meets the following programmatic goals for the B.S. Biology program and the General Studies program. Fulfillment of these goals will be assessed through exams, quizzes, reports, writing assignments, and class discussions. For purposes of programmatic assessment, the Rubric for Programmatic Assessment of BOT2010/L General Botany & Laboratory will be used.

Upon successful completion of the course, students will be able to:
ALC Goal 1: Content
- Describe the basic principles and concepts of plant biology pertaining to plant anatomy and morphology, cell biology, physiology, development, ecology, taxonomy, and diversity.
- Explain the importance and practical applications of plants in everyday life.
- Describe career options available to students who study plant science.

ALC Goal 2: Critical Thinking
- Use experimental evidence to support and explain mechanistic models in plant biology.
- Apply appropriate elementary statistical descriptors to data sets.

ALC Goal 3: Communication
- Correctly and accurately employ the terminology of plant science.
- Write a clear and concise technical lab report (extra credit option only).

ALC Goal 4: Ethics
- Explain the ethical importance of accurate and precise collection and reporting of experimental data.

ALC Goal 5: Project Management
- Collect, analyze, and interpret experimental data in botany.
- Work in teams to set up and perform experimental protocols and to analyze data.

CLASS POLICIES

Class Participation. Students are expected to attend and actively participate in the class. Lectures will be used to amplify, clarify, and supplement the important principles covered in the textbook. Lecture exams are based on material covered in class. Laboratory exercises are designed to give practical experience with lecture topics through direct observation and experimentation. It is difficult to perform well on the lab practical exams without regular lab attendance. The laboratory permits informal discussion of lab topics with the instructor and other students and provides a forum for students to ask additional questions about lecture topics. Students are strongly encouraged to ask questions about the reading, lecture, and lab material both during and outside of class. Students should sign the attendance sheet that will be passed around during each class.

Classroom Decorum. Students should refrain from activities that distract or disrupt the attention of other students during lecture (e.g., distracting noises or mannerisms, unnecessary conversation, arriving late, leaving early, cell phones), but please do not hesitate to raise questions and participate in discussions during class.

Course Materials. Lecture outlines, slide sets, lab handouts, lab review sets, and additional information will be available online at Desire2Learn
http://elearning.uwf.edu
which may be accessed through ARGUS. Students are required to have a UWF email account and PIN number to access this site. For help with Desire2Learn and email accounts, contact the ITS Help Desk at 474.2075. Please inform the instructor if you encounter problems accessing any file.

Lecture Preparation. Students should refer to the Lecture Schedule for reading assignments. Check the date and assigned page numbers.

Laboratory Operations. Laboratory exercises are designed to give practical experience with the lecture topics through direct observation and experimentation. The scientific method will be emphasized. Only cursory remarks will be given at the beginning of the laboratory to assure that students have the opportunity to learn through discovery. The instructor and teaching assistant will be available to answer questions throughout the laboratory period; however, whenever possible, questions will be answered with questions that seek to guide the deductive reasoning process and to preserve the opportunity for discovery. Whenever possible, students will observe living plants and make their own preparations from fresh materials in an effort to provide the most accurate information about plants and provide the most direct experiences. In addition to the assigned lab exercises, a number of demonstrations will be placed on tables around the edges of the room to expand the variety of plant materials and concepts to which students are exposed.

Laboratory Preparation. Students should bring the lab manual and textbook to the laboratory each week. Check the Laboratory Schedule and read the appropriate exercises and relevant sections in the textbook prior to the laboratory session.

Laboratory Safety. Laboratories are inherently dangerous. Students must work in a safe manner at all times and take all necessary precautions as outlined in the laboratory manual and as directed by the instructor or teaching assistants. Students must refrain from exposing himself/herself and others to unnecessary risks during lab activities.

Make-up Exams. Make-up exams and quizzes will be allowed only for official, University-recognized excused absences. To be eligible for a make-up exam or quiz, the student must inform the instructor via phone (at least leave a message) that he/she will be absent prior to administration of the exam or quiz, or in the event of an emergency, as soon as is reasonably possible. A make-up exam or quiz must be taken within one week of the originally scheduled exam or quiz.

Make-up Labs. Labs may be made up only for official, University recognized excused absences. Due to the amount of set-up time and space required, labs can be made up only during week that the lab module is scheduled. In order to make up a lab, you must contact the instructor to arrange to attend another lab section during that week. Teaching Assistants will not admit students into a lab section for which they are not registered without the instructor’s permission.

Plagiarism. Lab reports must be your own original work. Plagiarism is unethical and if discovered in any section of your written work will result in a score of zero on that assignment. Be aware that you can plagiarize yourself by copying your own work from another class without proper attribution. Your written work is your intellectual property; you should guard it carefully against appropriation by others. It is a good practice to save early drafts of your work to verify ownership should a question of authorship arise. Written work submitted for a grade may be screened with plagiarism detection software such as Turnitin. If you are unsure about what constitutes
plagiarism, ask the instructor. For a tutorial on what constitutes plagiarism, visit the UWF Library website at http://library.uwf.edu/Tutorials/module_plagiarism/default.htm.

In the lab, you will work in groups to perform the Marigold Transformation Experiment that you may write up for extra credit. You may discuss the data and how to interpret it with your colleagues in the class, but each student must write his/her own lab report. Students who submit substantially identical lab reports will receive a score of zero for that report.

**Special Needs Students.** Students with special needs that require specific accommodations for exams or other course activities should contact the Student Disability Resource Center (SDRC) at 850.474.2387 or http://www.uwf.edu/SDRC. SDRC will provide the student with a letter for the instructor that specifies recommended accommodations for individual students. Every reasonable effort will be made to accommodate your needs.

**Student Conduct.** The Student Code of Conduct and the Student Life Handbook set forth the rules, regulations, and expected behavior of students enrolled at the University of West Florida. Academic dishonesty is an egregious offense and is taken seriously. Violations of any rules, regulations, or behavioral expectations may result in the penalties outline in the Student Code of Conduct and the Student Life Handbook. It is the responsibility of the student to read the Student Code of Conduct and the Student Life Handbook and conduct himself/herself accordingly. You may access the current Student Code of Conduct and Student Life Handbook at http://www.uwf.edu/judicialaffairs.

**Withdrawal from the Course.** The Registrar is responsible for overseeing and enforcing the University’s course withdrawal policy. The withdrawal deadline for this course is March 24. Please discuss any academic concerns with the instructor prior to withdrawing from the course; support services may be available to improve your performance such as tutors, study groups, Student Success Center, the Counseling Center, the Writing Lab, or the Math Lab. Students who do not officially withdraw from the course will be assigned a standard letter grade. Students who withdraw are not enrolled in the course as of the date that the withdrawal is processed by the Registrar.

Withdrawal after the deadline will only be approved for one of the five following reasons: (1) a death in the immediate family, (2) serious illness of the student or an immediate family member, (3) a situation deemed similar to Categories 1 and 2 by all in the approval process, (4) withdrawal due to military service (Florida Statute 1004.07), or (5) National Guard Troops ordered into active service (Florida Statute 250.482). Late withdrawals must be approved by the student’s academic advisor, the course instructor, the department chairperson, and the University Academic Appeals Committee. A student must present a Request for a Late Withdrawal Form with appropriate documentation that justifies the qualifying reason in order for the request to be approved.

### ASSESSMENT OF STUDENT PERFORMANCE

**Lecture Exams.** Five written exams will be administered during the course of the semester on the dates specified in the Lecture Schedule. Exams are not cumulative; each exam only covers the lecture topics indicated in the Lecture Schedule. For a description of the exam format and sample questions, see the Exams supplement which may be found at Desire-2-Learn in the Course Information section.

**Lab Exams.** Two lab exams will be administered during the lab on the dates specified in the Laboratory Schedule. The exams are not cumulative; each exam covers only the exercises indicated in the Laboratory Schedule. For a description of the exam format and sample questions, see the Exams supplement which may be found at Desire-2-Learn in the Course Information section.

**Lab Surveys.** Students are required to complete a lab survey at the end of each lab period. Lab surveys will be comprised of approximately 10 questions based on the activities performed in the lab on the date. Collectively, the 10 lab surveys are worth 10% of the course grade. Missed lab surveys may not be made up.

**Lab Report (Extra Credit).** Students may write a lab report on the Marigold Transformation Experiment for extra credit. Requirements for preparing the lab report are explained in the Plant Transformation Lab Report Guidelines which may be found at Desire-2-Learn in the Course Information section. Up to 2 points may be added to your final grade for successfully completing the report. The lab report must be submitted to the instructor or teaching assistant no later than March 5, to receive extra credit.

### GRADES

Grades for the course will be based on your performance in both the lecture and lab using the following criteria:

<table>
<thead>
<tr>
<th>Activity</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lecture Exam 1</td>
<td>15%</td>
</tr>
<tr>
<td>Lecture Exam 2</td>
<td>15%</td>
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<tr>
<td>Lecture Exam 3</td>
<td>15%</td>
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<td>Lecture Exam 4</td>
<td>15%</td>
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<tr>
<td>Lecture Exam 5</td>
<td>15%</td>
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<td>Lab Exam 1</td>
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<td>Lab Exam 2</td>
<td>7.5%</td>
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<td>Lab Surveys</td>
<td>10%</td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>100%</strong></td>
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</table>

Up to 2 points of extra credit may be added to your final course average for satisfactory completion of a lab report on the Plant Transformation Experiment.

Your average score will be rounded to the nearest whole number and the final grade assigned as follows:

- A 93-100%
- A− 90-92%
- B+ 87-89%
- B 80-86%
- C+ 77-79%
- C 70-76%
- D+ 67-69%
- D 60-66%
- F <60%
### LECTURE SCHEDULE

<table>
<thead>
<tr>
<th>CLASS No.</th>
<th>DATE</th>
<th>TOPIC</th>
<th>READINGS IN TEXT (pages)</th>
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<tbody>
<tr>
<td></td>
<td></td>
<td>Introduction</td>
<td>1-12</td>
</tr>
<tr>
<td>2</td>
<td>F 01-08</td>
<td>Angiosperm Plant Body</td>
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<td>3</td>
<td>M 01-11</td>
<td>Classification</td>
<td>8-10, 413-415, 418-419</td>
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<td>4</td>
<td>W 01-13</td>
<td>Cell Biology &amp; Unit Membranes</td>
<td>41-43, 246-256</td>
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<td>5</td>
<td>F 01-15</td>
<td>Plant Cell Structure and Function</td>
<td>45-60</td>
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<td>6</td>
<td>M 01-18</td>
<td><strong>Holiday – Martin Luther King Day</strong></td>
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<td>7</td>
<td>W 01-20</td>
<td>Membrane Transport</td>
<td>41-44</td>
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<td>8</td>
<td>F 01-22</td>
<td>Plant Biotechnology</td>
<td>356-358</td>
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<td>9</td>
<td>M 01-25</td>
<td>Plant Biotechnology</td>
<td>356-358</td>
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<td>10</td>
<td>W 01-27</td>
<td>Review – Classes 1-9</td>
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<td>11</td>
<td>F 01-29</td>
<td><strong>LECTURE EXAM 1 – Classes 1-9</strong></td>
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<tr>
<td>12</td>
<td>M 02-01</td>
<td>Stem Development in Dicots</td>
<td>96-117</td>
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<td>13</td>
<td>W 02-03</td>
<td>Primary Tissues in Dicot Stems</td>
<td>96-117</td>
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<tr>
<td>14</td>
<td>F 02-05</td>
<td>Cell Types</td>
<td>91-96</td>
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<td>15</td>
<td>M 02-08</td>
<td>Leaves</td>
<td>120-140</td>
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<td>16</td>
<td>W 02-10</td>
<td>Roots</td>
<td>143-158</td>
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<td>17</td>
<td>F 02-12</td>
<td>Secondary Growth</td>
<td>161-208</td>
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<td>18</td>
<td>M 02-15</td>
<td>Review – Classes 12-17</td>
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<td>19</td>
<td>W 02-17</td>
<td><strong>LECTURE EXAM 2 – Classes 12-17</strong></td>
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<td>20</td>
<td>F 02-19</td>
<td>Flowers</td>
<td>188-208</td>
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<tr>
<td>21</td>
<td>M 02-22</td>
<td>Angiosperm Life Cycle</td>
<td>67-80, 208-211</td>
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<tr>
<td>22</td>
<td>W 02-24</td>
<td>Angiosperm Life Cycle</td>
<td>67-80, 208-211</td>
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<tr>
<td>23</td>
<td>F 02-26</td>
<td>Soils</td>
<td>298-301</td>
</tr>
<tr>
<td>24</td>
<td>M 03-01</td>
<td>Mineral Nutrition</td>
<td>292-308</td>
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<td>25</td>
<td>W 03-03</td>
<td>Water &amp; Mineral Absorption</td>
<td>147, 149-150</td>
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<td>26</td>
<td>F 03-05</td>
<td>Transpiration &amp; Guttation</td>
<td>282-289</td>
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<td>27</td>
<td>M 03-08</td>
<td><strong>Holiday – Spring Break</strong></td>
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<td>28</td>
<td>W 03-10</td>
<td><strong>Holiday – Spring Break</strong></td>
<td></td>
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<td>29</td>
<td>F 03-12</td>
<td><strong>Holiday – Spring Break</strong></td>
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<td>30</td>
<td>M 03-15</td>
<td>Conduction</td>
<td>280-282</td>
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<tr>
<td>31</td>
<td>W 03-17</td>
<td>Review – Classes 20-30</td>
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<td>32</td>
<td>F 03-19</td>
<td><strong>LECTURE EXAM 3 – Classes 20-30</strong></td>
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<tr>
<td>33</td>
<td>M 03-22</td>
<td>Plant Responses to External Stimuli</td>
<td>311-318</td>
</tr>
<tr>
<td>34</td>
<td>W 03-24</td>
<td>Plant Hormones: Auxins</td>
<td>319-329</td>
</tr>
<tr>
<td>35</td>
<td>F 03-26</td>
<td>Plant Hormones: Gibberellins &amp; Cytokinins</td>
<td>319-329</td>
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<tr>
<td>36</td>
<td>M 03-29</td>
<td>Plant Hormones: Abscisic Acid &amp; Ethylene</td>
<td>319-329</td>
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<tr>
<td>37</td>
<td>W 03-31</td>
<td>Algae</td>
<td>435-457</td>
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<tr>
<td>38</td>
<td>F 04-02</td>
<td>Fungi</td>
<td>549-568</td>
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<tr>
<td>39</td>
<td>M 04-05</td>
<td>Review – Classes 33-38</td>
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<td>40</td>
<td>W 04-07</td>
<td><strong>LECTURE EXAM 4 – Classes 33-38</strong></td>
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<tr>
<td>41</td>
<td>F 04-09</td>
<td>Bryophytes</td>
<td>458-475</td>
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<td>42</td>
<td>M 04-12</td>
<td>Fern Allies</td>
<td>483-492</td>
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<tr>
<td>43</td>
<td>W 04-14</td>
<td>Ferns</td>
<td>492-498</td>
</tr>
<tr>
<td>44</td>
<td>F 04-16</td>
<td>Gymnosperms</td>
<td>502-519</td>
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<tr>
<td>45</td>
<td>M 04-19</td>
<td>Photosynthesis–Light Reactions</td>
<td>221-230</td>
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<td>46</td>
<td>W 04-21</td>
<td>Photosynthesis–Carbon Reactions</td>
<td>231-241</td>
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<td>47</td>
<td>F 04-23</td>
<td>Review – Classes 41-46</td>
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<td>48</td>
<td>F 04-30</td>
<td><strong>LECTURE EXAM 5 – Classes 41-46</strong></td>
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**Time:** 8:30-11:00
# LABORATORY SCHEDULE

<table>
<thead>
<tr>
<th>LAB No.</th>
<th>DATE</th>
<th>TOPIC</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>R 01-07 – F 01-08</td>
<td>Holiday</td>
</tr>
<tr>
<td>2</td>
<td>R 01-14 – F 01-15</td>
<td>Exercise 1 – Plant Body</td>
</tr>
<tr>
<td>3</td>
<td>R 01-21 – F 01-22</td>
<td>Exercise 2 – Cell Physiology</td>
</tr>
<tr>
<td>4</td>
<td>R 01-28 – F 01-29</td>
<td>Exercise 3 – Plant Transformation, Propogation, &amp; Hormones</td>
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<tr>
<td>5</td>
<td>R 02-04 – F 02-05</td>
<td>Exercise 4 – Stems</td>
</tr>
<tr>
<td>6</td>
<td>R 02-11 – F 02-12</td>
<td>Exercise 5 – Leaves</td>
</tr>
<tr>
<td>7</td>
<td>R 02-18 – F 02-19</td>
<td>Review</td>
</tr>
<tr>
<td>8</td>
<td>R 02-25 – F 02-26</td>
<td><strong>LAB EXAM 1</strong></td>
</tr>
<tr>
<td>9</td>
<td>R 03-04 – F 03-05</td>
<td>Exercise 6 – Roots &amp; Secondary Growth</td>
</tr>
<tr>
<td>10</td>
<td>R 03-11 – F 03-12</td>
<td><strong>Holiday – Spring Break</strong></td>
</tr>
<tr>
<td>11</td>
<td>R 03-18 – F 03-19</td>
<td>Exercise 7 – Flowers &amp; Fruit</td>
</tr>
<tr>
<td>12</td>
<td>R 03-25 – F 03-26</td>
<td>Exercise 8 – Water, Soils, &amp; Mineral Nutrition</td>
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<td>13</td>
<td>R 04-01 – F 04-02</td>
<td>Exercise 9 – Algae &amp; Fungi</td>
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<td>14</td>
<td>R 04-08 – F 04-09</td>
<td>Exercise 10 – Bryophytes, Pterophytes, &amp; Gymnosperms</td>
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<td>15</td>
<td>R 04-15 – F 04-16</td>
<td>Review</td>
</tr>
<tr>
<td>16</td>
<td>R 04-22 – F 04-23</td>
<td><strong>LAB EXAM 2</strong></td>
</tr>
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</table>

**NOTE:** Bring your lab manual and textbook to the lab each week.
BOT 2010/L General Botany & Laboratory meets the following programmatic goals for the B.S. Biology Program. Fulfillment of these goals will be assessed through exams, quizzes, reports, writing assignments, and class discussions. For purposes of programmatic assessment, the skill mastery levels described below will be utilized.

<table>
<thead>
<tr>
<th>ALC Goal</th>
<th>Student Learning Outcome</th>
<th>Skill Mastery Level</th>
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</thead>
<tbody>
<tr>
<td>No. 1 Content</td>
<td>Describe the basic principles and concepts of plant biology pertaining to plant anatomy and morphology, cell biology, physiology, development, ecology, taxonomy, and diversity</td>
<td>Critical inability to grasp and describe the basic concepts of plant biology</td>
</tr>
<tr>
<td></td>
<td>Explain the importance and practical applications of plants in everyday life</td>
<td>Critical inability to grasp and explain the practical significance of plants in everyday life</td>
</tr>
<tr>
<td></td>
<td>Describe career options available to students who study plant science</td>
<td>Critical inability to grasp and describe career options in plant science</td>
</tr>
<tr>
<td>No. 2 Critical Thinking</td>
<td>Use experimental evidence to support and explain mechanistic models in plant biology</td>
<td>Critical inability to comprehend and use experimental evidence to support and explain mechanistic models in plant biology</td>
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<td></td>
<td>Apply appropriate elementary statistical descriptors to data sets</td>
<td>Critical inability to select and apply appropriate statistical descriptors to data sets</td>
</tr>
<tr>
<td>No. 3 Communication</td>
<td>Correctly and accurately employ the terminology of plant science</td>
<td>Critical inability to accurately use plant science terminology</td>
</tr>
<tr>
<td></td>
<td>Write a clear and concise technical lab report (extra credit option only)</td>
<td>Maintains a lack of adherence to technical writing style and skills, uses improper grammar and spelling, exhibits an inability to integrate ideas in the literature of plant biology, and lacks logical coherence</td>
</tr>
<tr>
<td>No. 4 Ethics</td>
<td>Explain the ethical importance of accurate and precise collection and reporting of experimental data</td>
<td>Critical inability to grasp and apply the principles of ethical data collection and dissemination in botany</td>
</tr>
<tr>
<td>No. 5 Project Management</td>
<td>Collect, analyze, and interpret experimental data</td>
<td>Critical lack of organizational skills necessary to collect, analyze, and interpret data in botany</td>
</tr>
<tr>
<td>ALC Goal</td>
<td>Student Learning Outcome</td>
<td>Skill Mastery Level</td>
</tr>
<tr>
<td>-----------------------</td>
<td>-----------------------------------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>No. 5 Project Management</td>
<td>Work in teams to set up and perform experimental protocols and to analyze data</td>
<td>Critical inability to coordinate with team members to execute experiments and analyze results</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Demonstrates a basic level of coordination with team members to execute experiments and analyze results</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Consistently coordinates activities and cooperates with all team members to execute experiments and analyze results</td>
</tr>
</tbody>
</table>
We will have a total of seven exams: five lecture exams, each worth 15% of your final grade and two lab exams, each worth 7.5% of your final grade. The exams are not comprehensive; the material covered on each exam is specified in the syllabus.

The lecture exams will test you on material discussed in lecture; test questions will be derived mainly from the in-class lecture and lecture slide sets. The lab practical exams will test you on the organisms, structures, and processes observed as well as procedures used in the lab.

**FORMAT**

**LECTURE EXAMS**

Lecture exams will be composed of multiple choice questions in the standard format generally with five alternatives from among which you select the best, most specific, response contained in the list. In some cases, you may encounter questions with less than five possible responses, occasionally as few as two (true or false). Each multiple choice question will be worth one point.

**LAB EXAMS**

Lab exams will consist of 25 slides about which you will be asked two questions relating to the organism, structure, function, or process depicted. Each question is worth one point. A 26th slide accompanied by two questions will be presented for extra credit. The exam will be conducted by projecting the slides onto the screen for approximately one minute and the two questions verbally stated. The slide set will then be shown a second time for you to review your answers before turning in your answer sheet. Students may request to view any slide for a third time before submitting their answer sheets.

**GRADES**

The total number of points on each test or quiz is not fixed and will vary depending on the course content. Your score will be converted to a percentage using the following equation:

\[
\text{Grade} = \left( \frac{\text{Points Correct}}{\text{Total Points}} \right) \times 100
\]

Your grade will be rounded to the nearest whole number and used to calculate your course average.

---

**SAMPLE QUESTIONS**

**LECTURE EXAMS**

1. The cell theory was first proposed by
   A. Aristotle
   B. Hook
   C. Linneaus
   D. Mendel
   E. Schwann and Schleiden

2. In the system used to classify plants, which of the following is not correct?
   A. Division names end with -ae
   B. Class names end with -ales
   C. Order names end with -aceae
   D. Family names end with -phyta
   E. Genus names are italicized

3. Mosses gave rise to land plants.
   A. True
   B. False

**LAB EXAMS**

4A. Name the part of the microscope at Pointer A
4B. What is the function of the object at Pointer A?

5A. Name the genus of this alga.
5B. To what division does this alga belong (blue-green, green, red, brown, or golden-brown)?

---

**IMPORTANT DATES**

<table>
<thead>
<tr>
<th>Event</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lecture Exam 1</td>
<td>Jan 18</td>
</tr>
<tr>
<td>Lecture Exam 2</td>
<td>Feb 17</td>
</tr>
<tr>
<td>Lab Exam 1</td>
<td>Feb 25 – Feb 26</td>
</tr>
<tr>
<td>Lecture Exam 3</td>
<td>Mar 19</td>
</tr>
<tr>
<td>Lecture Exam 4</td>
<td>Apr 7</td>
</tr>
<tr>
<td>Lab Exam 2</td>
<td>Apr 22 – Apr 23</td>
</tr>
<tr>
<td>Lecture Exam 5</td>
<td>Apr 30</td>
</tr>
</tbody>
</table>
As you progress through the semester you may wonder, what scores do I need on the remaining exams in order to get an A (or maybe just a C, but hopefully not a D) in the course? The equation below is used to calculate your final grade and can be manipulated to give you your answer. The following examples demonstrate how to use the equation to determine the average grade needed on the remaining exams and quizzes in order to get the grade you desire. Remember, this equation does not take into account any extra credit you may receive for completing the extra credit lab report; those extra credit points are added onto your final average.

**THE EQUATION**

\[
\text{Grade} = (0.15 \times X_1) + (0.15 \times X_2) + (0.15 \times X_3) + \\
(0.075 \times X_4) + (0.075 \times X_5) + (0.075 \times X_6) + \\
(0.01 \times X_7) + (0.01 \times X_8) + (0.01 \times X_9) + \\
(0.01 \times X_{10}) + (0.01 \times X_{11}) + (0.01 \times X_{12}) + \\
(0.01 \times X_{13}) + (0.01 \times X_{14}) + (0.01 \times X_{15}) + \\
(0.01 \times X_{16}) + (0.01 \times X_{17})
\]

where:

- \(X_{1,5}\) are Lecture Exams, each worth 15\% (or 0.15) of your grade
- \(X_{6,7}\) are Lab Exams, each worth 7.5\% (or 0.075) of your grade
- \(X_{8,17}\) are Lab Surveys, each worth 1\% (or 0.01) of your final grade

**TO USE THE EQUATION**

- Select the desired grade you want from the Grading Scale and substitute that numerical value for “Grade” in the equation.

**Grading Scale**

- A  93-100\%
- A–  90-92\%
- B+  87-89\%
- B   80-86\%
- C+  77-79\%
- C   70-76\%
- D+  67-69\%
- D   60-66\%
- F   <60\%

- Substitute all known grades for the appropriate \(X\) in the equation.

- Solve the equation for \(X\). \(X\) is the average grade needed for the remaining exams and lab surveys to attain your desired grade in the course.

Remember that when your final grade is calculated, each exam is rounded to the nearest whole number before using the equation above, so it is advisable to round \(X\) up to the next whole number to estimate the average grade needed for the remaining exams in order to obtain your desired grade in the course.

**EXAMPLE 1**

You scored 73\% on Lecture Exam 1, 100\% on Lab Survey 1, and 90\% on Lab Survey 2. What average grade do you need on the remaining exams and lab surveys to get an A in the course? An A requires at least 93\%. Substitute the appropriate values in the equation and solve for \(X\), rounding \(X\) up to the next whole number at the end.

\[
93 = (0.15 \times 73) + (0.15 \times X_2) + (0.15 \times X_3) + \\
(0.075 \times X_4) + (0.075 \times X_5) + (0.075 \times X_6) + \\
(0.01 \times X_7) + (0.01 \times X_8) + (0.01 \times X_9) + \\
(0.01 \times X_{10}) + (0.01 \times X_{11}) + (0.01 \times X_{12}) + \\
(0.01 \times X_{13}) + (0.01 \times X_{14}) + (0.01 \times X_{15}) + \\
(0.01 \times X_{16}) + (0.01 \times X_{17})
\]

You scored 73\% on Lecture Exam 1, 100\% on Lab Survey 1, and 90\% on Lab Survey 2. What average grade do you need on the remaining exams and lab surveys to get an A in the course? An A requires at least 93\%. Substitute the appropriate values in the equation and solve for \(X\), rounding \(X\) up to the next whole number at the end.

\[
93 = (0.15 \times 73) + (0.15 \times X_2) + (0.075 \times X_4) + \\
(0.075 \times X_5) + (0.01 \times X_6) + (0.01 \times X_7) + \\
(0.01 \times X_{10}) + (0.01 \times X_{11}) + (0.01 \times X_{12}) + \\
(0.01 \times X_{13}) + (0.01 \times X_{14}) + (0.01 \times X_{15}) + \\
(0.01 \times X_{16}) + (0.01 \times X_{17})
\]

You scored 73\% on Lecture Exam 1, 100\% on Lab Survey 1, and 90\% on Lab Survey 2. What average grade do you need on the remaining exams and lab surveys to get an A in the course? An A requires at least 93\%. Substitute the appropriate values in the equation and solve for \(X\), rounding \(X\) up to the next whole number at the end.

\[
93 = (0.15 \times 73) + (0.15 \times X_2) + (0.075 \times X_4) + \\
(0.075 \times X_5) + (0.01 \times X_6) + (0.01 \times X_7) + \\
(0.01 \times X_{10}) + (0.01 \times X_{11}) + (0.01 \times X_{12}) + \\
(0.01 \times X_{13}) + (0.01 \times X_{14}) + (0.01 \times X_{15}) + \\
(0.01 \times X_{16}) + (0.01 \times X_{17})
\]
EXAMPLE 3
You scored 73% on Lecture Exam 1, 78% on Lecture Exam 2, 84% on Lecture Exam 3, 96% on Lab Exam 1, 100% on Lab Survey 1, 90% on Lab Survey 2, 90% on Lab Survey 3, 100% on Lab Survey 4, 100% on Lab Survey 5, 100% on Lab Survey 6, 90% on Lab Survey 7. What average grade do you need on the remaining exams and lab surveys to get an B+ in the course? A B+ requires at least 87%. Substitute the appropriate values in the equation and solve for X, rounding X up to the next whole number at the end.

\[
87 = (0.15 \times 73) + (0.15 \times 78) + (0.15 \times 84) + (0.15 \times X) + (0.075 \times 96) + (0.075 \times X) + (0.01 \times 100) + (0.01 \times 90) + (0.01 \times X) + (0.01 \times 90) + (0.01 \times X) + (0.01 \times 90)
\]

Round X up to 97

EXAMPLE 4
You scored 73% on Lecture Exam 1, 78% on Lecture Exam 2, 84% on Lecture Exam 3, 81% on Lecture Exam 4, 96% on Lab Exam 1, 83% on Lab Exam 2, 100% on Lab Survey 1, 90% on Lab Survey 2, 90% on Lab Survey 3, 100% on Lab Survey 4, 100% on Lab Survey 5, 100% on Lab Survey 6, 90% on Lab Survey 7, 0% on Lab Survey 8, 100% on Lab Survey 9, and 100% on Lab Survey 10. What grade do you need on the final exam to get a B in the course? A B requires at least 80%. Substitute the appropriate values in the equation and solve for X, rounding X up to the next whole number at the end.

\[
80 = (0.15 \times 73) + (0.15 \times 78) + (0.15 \times 84) + (0.15 \times X) + (0.075 \times 96) + (0.075 \times X) + (0.01 \times 100) + (0.01 \times 90) + (0.01 \times X) + (0.01 \times X) + (0.01 \times X) + (0.01 \times X)
\]

Round X up to 96

EXAMPLE 5
You scored 73% on Lecture Exam 1, 78% on Lecture Exam 2, 84% on Lecture Exam 3, 81% on Lecture Exam 4, 96% on Lab Exam 1, 83% on Lab Exam 2, 100% on Lab Survey 1, 90% on Lab Survey 2, 90% on Lab Survey 3, 100% on Lab Survey 4, 100% on Lab Survey 5, 100% on Lab Survey 6, 90% on Lab Survey 7, 0% on Lab Survey 8, 100% on Lab Survey 9, and 100% on Lab Survey 10. What average grade do you need on the final exam to get a B in the course? A B requires at least 80%. Substitute the appropriate values in the equation and solve for X, rounding X up to the next whole number at the end.

\[
80 = (0.15 \times 73) + (0.15 \times 78) + (0.15 \times 84) + (0.15 \times X) + (0.075 \times 96) + (0.075 \times X) + (0.01 \times 100) + (0.01 \times 90) + (0.01 \times X) + (0.01 \times X) + (0.01 \times X) + (0.01 \times X)
\]

Round X up to 69

Round X up to 75
Although these guidelines are specifically designed for your marigold transformation lab report, the general format is applicable to most scientific reports. As you take more advanced biology courses, you will utilize this basic format to prepare your lab reports for those courses as well.

GENERAL INFORMATION

Report Layout

The first page of your report contains the title of your report, your name, the course number and course name, your course section, and the date submitted. The body of your report begins on the page 2 and it is divided into six sections: Abstract, Introduction, Materials and Methods, Results, Discussion, and Literature Cited. The Report Outline below describes the information that you need to include in your report and how it should be organized. Your report must be written in paragraph form; the outline is only a guide to help you write the report. On page 3 of this handout, you will find examples of how the pages in your report should appear as well as additional tips for preparing your report.

Margins, Line Spacing, Headings, Indentations, Page Numbers

You should leave one inch margins on all sides of each page and the body of the text should be double-spaced throughout to permit editorial comments when your paper is graded. Dividing your paper into sections adds structure and clarity to your composition. Section headings should be centered over the following paragraph, bold-faced, and preceded by a blank line (in addition to the normal double-spacing). All paragraphs must be indented. Please select a font and font size that are easy to read; a font size between 10 and 12 point is recommended. To ensure that your pages do not get out of order, place the page number in the upper right-hand corner of each page. Examples of the proper format are shown on page 3 of this handout.

Grammar, Spelling, Punctuation, and Abbreviations

As in all writing, the use of proper grammar, punctuation, and spelling are important in constructing a well-written lab report. Grammar, spelling, and punctuation should conform to standard expository English. Pay attention to sentence structure, subject-verb agreement, use of subordinate clauses, and clarity of pronoun usage. Use of contractions, such as "can’t" for "can not," should be avoided in scientific writing. Abbreviations may be used provided that they are properly defined at their first use in the text and consistently used thereafter. Abbreviations are properly defined by placing the acronym in parenthesis following the first appearance of the term in the text; thereafter, only the abbreviation should appear in the text.

REPORT OUTLINE

Below is an outline describing what you should include in your lab report beginning on page 2. Your report must be written in paragraph form (NOT in outline form) divided into the following sections: Abstract, Introduction, Materials and Methods, Results, Discussion, and Literature Cited. Unless otherwise indicated, each major item in the outline (e.g., 1. 2. 3,...) should be a separate paragraph containing the listed sub-items (e.g., x.1, x.2, x.3,...). For example, the Abstract should be a single paragraph of no more than 250 words that summarizes the hypothesis tested, methods used, and conclusions drawn from the results. The Introduction should be composed of two paragraphs. The first paragraph explains the transformation process (i.e., the vector used, how it enters the plant and causes disease, and how the vector can be used to engineer plants). The second paragraph states your hypothesis, indicates alternative outcomes, and describes why it is interesting to test the hypothesis. Proceed through the outline in this manner to complete your report.

ABSTRACT 250 words or less in a single paragraph

1. State the hypothesis tested.
2. Briefly summarize the methods used to test hypothesis.
3. State the conclusions drawn from experiments.

INTRODUCTION Each item should be in a separate paragraph

1. Explain a few basic facts about plant transformation.
   1.1. Describe the vector used for angiosperm dicots.
   1.2. Explain how the vector enters the plant. Via infection?
   1.3. Describe the disease caused by the vector.
   1.4. Explain briefly how this vector can be engineered.
2. Introduce the hypothesis tested in your project.
   2.1. State the hypothesis.
   2.2. Indicate the alternative outcomes to the stated hypothesis
   2.3. Describe why it is of interest to test this hypothesis

MATERIALS AND METHODS Each item should be in a separate paragraph

1. The vector.
   1.1. Name and describe the vector used.
   1.2. Explain how the vector was cultured.
   1.3. Describe the method used to determine culture density.
2. The plants.
   2.1. Name and describe plants used and their general appearance.
   2.2. Explain how the plants were cultured.
3. Describe the experimental design.
   3.1. How were the plants selected? Same size?
   3.2. Enumerate and describe the zero time measurements.
   3.3. Describe the method for exposing the experimental plants to vector.
3.4. Describe the method for treating the control plants.

4. Describe environmental conditions for incubating the plants for the duration of the experiment.

5. Enumerate the measurements and observations to be made in the subsequent 3 weeks.
   5.1. Timing of the measurements.
   5.2. Types of measurements and observations that were made.

6. Describe the data analysis methods and explain how you handled your data. Do not report results here!
   6.1. Data summarized in tables.
   6.2. Plotting of means on graphs.
   6.3. Compare means and observations for control and experimental plants.

**RESULTS**

Items 1 to 4 may each be a single paragraph, however more paragraphs may be necessary.

For each item below, you should prepare a table or graph. The data sheets in which you collected your data should not be presented in your lab report. You need to use the data in the data sheets to construct tables or graphs that clearly show the points you are trying to make in the paragraph for each item. Each table or graph that you create should allow the reader to easily see three things: (1) how the control plants responded over time, (2) how the experimental plants responded over time, and (3) compare the responses of the control and experimental plants. Since you used two plants as controls and two plants as experimental, you should use the mean (or average) for the control and experimental plants at each time point in your tables or graphs. Each table or graph must be clearly labeled as Table 1, Table 2, etc., or Figure 1, Figure 2, etc. (note that graphs are called figures in scientific writing). Tables and figures are numbered sequentially in the order in which they are first mentioned in the text of your report. In your report, do not present the same data in both a table and graph; you must choose either a table or a graph. The choice of presenting a table or a graph is left to the discretion of the author with the goal of presenting the data in a form that the reader can most easily see and interpret the results. You are not required to use all tables or all graphs in your report; any combination of tables and graphs is acceptable provided that the data is presented clearly.

1. Plant height.
   1.1. Compare the growth, as indicated by the change in plant height, of the experimental and control plants during the experiment.
   1.2. Present a graph or table showing the average plant heights over the course of the experiment.
   1.3. Comment on the appearance of your plants during the experiment.

2. Injection site thickness.
   2.1. Compare the change in stem, root, or leaf thickness at the injection site of the experimental and control plants during the experiment.
   2.2. Present a graph or table showing the average injection site thicknesses of experimental and control plants over the course of the experiment.

3. Number of galls formed.
   3.1. Compare the number of galls formed on the experimentals and controls during the experiment.

3.2. Present a table or graph showing the average number of galls formed on the experimental and control plants during the experiment.

3.3. When did the first galls form? Did more galls appear after the first galls formed?

3.4. From what tissue did galls form?

3.5. Where did galls form relative to the injection sites?

4. Gall growth.
   4.1. Compare the growth of the galls on the experimental and control plants over the course of the experiment.
   4.2. Present a graph or table showing the average diameter of the galls over the course of the experiment.
   4.3. How does the growth of the galls correlate with the growth of the plant (i.e., change in plant height).

**DISCUSSION**

Items 1 and 2 are separate paragraphs; Items 3 and 4 may be combined into one paragraph

1. Accept or reject the original hypothesis.
   1.1. Explain why the hypothesis was accepted or rejected.
   1.2. Describe the significance of the results.

   *Example: Hypothesis comparing infection of 3 plant organs*

   It is important to understand that all three plant organs can be infected by *Agrobacterium tumefaciens* because future lab experiments need not be limited to any single organ. Furthermore, it would be of interest to learn which plant organ is most often infected in nature and why.

2. Critique the quality of the data and experimental design of your investigation.

3. Describe modifications to the experimental design that would improve future studies testing the same hypothesis.

4. Suggest additional hypotheses that might be tested.

**LITERATURE CITED**

1. Use bibliographic citations to identify any footnotes used to support statements in the text of the report. Citations may include the textbook, lab handouts, or personal communication with the instructors, the internet, or library articles. All sources cited in the text are collected into an alphabetical list under the heading of Literature Cited with each citation separated by a blank line (in addition to the normal double-spacing).

2. Examples of scientific footnotes within the text of your report:

   *Agrobacterium tumefaciens* is a parasite that can insert DNA directly into plant cells (Moore, Clark, and Vodopich, 1998). Marigolds are particularly susceptible to infection by this parasite (Winter, 2001).

3. Examples of bibliographic citations in the Literature Cited section:


Abstract
The abstract should provide a short, one-paragraph summary of your report. Do not use abbreviations in this section.

Introduction
The introduction is used to explain to the reader what you are studying and why it is important. Here, you introduce your experimental system in general terms (the specific details are reserved for the Materials and Methods section). You will almost certainly cite references in this section to support your case. For example, you might write the following:

*Agrobacterium tumefaciens* is a parasite that can insert DNA directly into plant cells (Moore, Clark, and Vodopich, 1998). Marigolds are particularly susceptible to infection by this parasite (Winter, 2001).

Note how the reference source (the authors’ last name and date of publication) is placed at the end of the sentence in parentheses and the full citation appears in the Literature Cited section.

Materials and Methods
This section provides a complete, detailed description of the materials you used and the methods you employed to carry out your study. You describe what results you obtained and how you handled, or will present, them, but you do not present your data in this section. Anyone reading this section should be able to replicate your work precisely.

Results
In this section, you present the results of your experiments in a logical order. You may embed your tables and figures in the text at the point you first mention them. Alternatively, you may collect all tables and figures and append them to the end of your report; if you choose this option, all of your tables should be grouped together followed by all of your figures and each table or figure should be on a page by itself and clearly labeled. Even if you embed your figures and tables in the text, they should be clearly labeled as Figure 1, Figure 2, etc., or as Table 1, Table 2, etc.

Discussion
In this section, you present the conclusions you inferred from your data, referring to your data to support your conclusions, and explain the significance of your work. Often you will show how your conclusions are supported by or refute previously published works in the field.

Literature Cited

Welcome to the University of West Florida! General Botany (BOT2010), along with General Zoology (ZOO1010) and Cell Biology (PCB2131), are the three foundational courses underlying all other courses in biology. These three courses provide a broad survey of the organization, function, and ecology of plants and animals. Consequently, these courses are required of all biology majors and should be taken during your first year at university. General Botany also provides non-biology majors who need a laboratory science elective with a good introduction to the world of plants.

The “tree of knowledge” is an excellent analogy for your academic career. For biology majors, General Botany, General Zoology, and Cell Biology form the trunk of the tree from which all of the sub-disciplines of biology branch off. We all have our favorite branches where we like to hang out, but without a strong foundation in the basic biology of all organisms, it is easy to overlook the interconnectedness of all biological systems and to recognize the similarities and differences among all living organisms.

As freshmen, you are entering an exciting new phase of your life as you take up residence at the university. Many of you are coming to the university directly from high school and this will be a big change. You will make new friendships that will last throughout your life. You will have much more independence over your daily activities without the parental units looking over your shoulder. For most of you, you are transitioning into adulthood and with that comes the responsibility for your life. While this time in your life can be fun and exciting, it can also be a bit daunting because from now on the accomplishments in your life are mainly up to you.

Understand that you do not go to university to simply get a degree; you go to university to get an education. There is a big difference between a degree and an education. If all you are interested in is doing the minimum to get by with a degree, then you can certainly do that. Mediocrity can be achieved with only a modicum of effort. Getting C’s in all of your courses will get you a degree, but they won’t get you the job that you want. A true education is about much more than just getting a degree; it means truly learning the subject matter, being able to think critically, communicating your thoughts clearly in both oral and written forms, and excelling in your academic work. If you apply yourself, you will find new ways of thinking, new avenues of interest, and new ways of looking at the world. At times, the process may be tedious, but it really can be fun as well. It all comes down to personal responsibility. You have lots of personal freedom at the university – no one will be breathing down your neck to make sure that you eat right, do your homework, or enforce study time. However, that freedom comes with a great deal of responsibility: the quality of your education is largely dependent on the amount of effort that you put into it with the guidance of your professors.

University life is challenging and it is not unreasonable to be apprehensive or anxious about what lies in store for you. My goal here is to provide you with some strategies for dealing with your academic challenges. Hopefully, the suggestions will allay some of your fears and make you a more effective student so that you make the most of your educational experience. It is important to understand that these suggestions are my perspectives. Other professors will have different views on these same issues; make no mistake, there are many different, and valid, approaches to these topics. You need to figure out how to negotiate your new academic environment and adopt the most appropriate coping strategies for you – and the sooner you can do this, the better off you will be.

UNIVERSITIES AND HIGH SCHOOLS DIFFER

In dealing with academic life in a university, it useful to consider how high school and university are different, especially for those of you coming directly from high school. You did well in high school and that is a good predictor that you will do well in university. However, just doing the same things you did in high school to get good grades may not work as well in university, and they may even get you in trouble academically if you are not careful.

- In high school, your courses usually met every day and were arranged to fill the entire school day. University courses rarely meet every day; in fact, some courses meet only once per week. Do not be fooled into thinking that the university structure is easier because you appear to have much more “free time” between classes. University courses are much more demanding and faster paced compared to high school courses. Without regular, concentrated study time, you are unlikely to do well in your courses. Consequently, you need to incorporate good, quality study time into your regular schedule.

- In high school, all of your courses had a mandatory attendance policy. In university, the attendance policy will vary from course to course. Some professors have strict attendance policies and deduct points from your grade for missing too many classes. Other professors have no mandatory attendance policies, except for exams and assignments. It may seem easy to skip classes in these courses because there is no penalty on the front end. But, and it is a big but, there can be a huge penalty on the back end: i.e., your grade. When you skip classes, you are missing a lot of important information that will no doubt appear on an exam at some point in the future. A good personal policy to adopt right from the beginning is that you will do your best never to miss a class and to be on time for each class, no matter what the attendance policy. It is your responsibility to get the most out of your education and attending each and every class is an excellent first step.

- In high school, teachers are able to work very closely with students and their genuine concern is easy to discern. University professors have less face-to-face time with students which may lead you to think that your professors do not care as much about you. This is not so true – professors care very much about how their students are doing and are usually very disappointed when they have to give a poor grade. Part of the university experience is that it gives you the chance to be responsible for yourself – to live and act as an adult. Therefore, professors will not be looking over your shoulder to make sure that everything is all right – you will be treated like an adult. If you fail to do the work in the course, you will receive a poor grade; it is as simple as that. A poor grade does not mean that your professor does not care about you or that your professor is “out to get you.” The grade that you receive is an honest assessment of your performance. Your grades are almost entirely up to you.
Critical thinking is the basis of a university education and is extremely important for a well-rounded education. A good education involves more than just memorizing facts and giving them back on a test. The best education is also about learning how to think critically about a subject. Even in objective, multiple choice exams, there is still a need to be able to think critically in order to select the best choices on the tests. Here are some important facets of critical thinking.

- Critical thinking involves being able to make connections between disparate ideas and the ability to synthesize material.
- Critical thinking requires the assessment of information and ideas by exploring the underlying biases, checking facts, and having knowledgeable discussions.
- Critical thinking means that you are able to understand and appreciate opinions and thoughts that are completely different from your own.
- Critical thinking is not the same as opinion. In fact, critical thinking is the evaluation of your own opinion to check its viability. Just because you hold a strong opinion about something does not mean that it is the only opinion, or even the best opinion. Critical thinking will help you evaluate what you believe.

**THE COURSE CATALOG**

The Course Catalog contains the current curricula, education plans, offerings, and requirements of the University of West Florida. As a general rule, if you meet the requirements for your degree plan spelled out in the Course Catalog at the time you enter the university and abide by all of the policies and procedures, you will get your degree. The Course Catalog, however, is not a contract; under Florida law, the university must reserve the right to change any provision.

The Course Catalog is not an “an easy read,” but parts of it are well worth your time, especially the Academic Policies and Biology Degree Program sections (if you are not a biology major, then you should find your degree program section). The university provides academic advisors to help you map out and complete your degree plan. Initially, you will meet with an advisor in the Academic Advising Office and later be assigned to a departmental advisor (in the Department of Biology, that will be Mr. Steve Celestial). You should meet with your advisor regularly to be sure that you are on track to fulfilling your degree plan.

Here are some points to consider as you work your way through your degree plan.

- Not every course is offered every semester. While some courses are offered every semester, other courses are offered only once per year, and some courses are only offered every other year. In addition, some courses have prerequisites that will determine the sequence in which you take a set of courses. Consequently, you need to do some planning in order to take the courses you want so that you can graduate in a timely manner.
- What is a prerequisite? A prerequisite is a course that must be satisfactorily completed before you are permitted to take a more advanced course. Professors do not specify prerequisites for their courses on a whim; they require prerequisites because their course extensively builds on the concepts covered in the prerequisites. If you have not mastered the material in the prerequisites, you are unlikely to do well in the course; in fact, students lacking the prerequisites often fail the course. So, if you want to do well in a course but have not already completed the prerequisites, you would be wise to delay taking that particular course until you are better prepared.
- What is a corequisite? A corequisite is one of a pair of courses that must be taken concurrently (i.e., both courses must be taken in the same semester). For example, many biology lecture
courses are accompanied by a laboratory course and both lecture and laboratory courses must be satisfactorily completed during the same semester. In some cases, you will receive a single grade for both corequisites even though you have to register for them separately.

- Florida has established a common course numbering system and common prerequisites for academic degree plans to facilitate the transfer of credits among the community colleges, colleges, and universities within the state. This is extremely advantageous for you since you can take some of your courses at any institution of higher learning in Florida and apply the credits earned toward your degree. Lower division common prerequisites and general studies courses can be completed at any Florida community college, college, or university. Upper division majors courses should be taken at the university that will grant your degree because academic degree programs (i.e., the specific upper division course requirements) vary from university to university. Because of this arrangement, biology students typically find themselves with heavy loads of upper division science courses during their junior and senior years. There is another strategy, but it only works to your advantage if you do all of your course work at one university, so if you are in a situation where you are likely to move out of the area and complete your degree elsewhere (for example, you are subject to being transferred in your job or military service), this option is not for you. This strategy involves spreading out your general studies courses so that you take only two upper division science course each semester. Some students prefer this approach because general studies courses are usually lower division courses that are less intense than the upper division courses and they provide a contrast to their upper division sciences courses.

- Spend some time planning your academic degree program on your own and periodically review your plan with your advisor. You have a range of choices for general studies courses and electives; but remember, not all courses are not offered every semester. If you plan ahead, you can take courses that align better with your particular interests rather than courses that just happen to fit into your schedule.

**THE SYLLABUS**

Each of your classes will have a syllabus which is a document that provides you with all the important information pertaining to the course, such as contact information, class policies, reading assignments, test dates, etc. You should always read the entire syllabus thoroughly at the beginning of the semester. Here are some important concepts to keep in mind when reading a syllabus.

**What is a syllabus?**

- The syllabus is an outline of the content and policies for a particular course. Professors have a wide degree of latitude in terms of how they design and operate their courses. Specific policies will differ from professor to professor and, even for an individual professor, policies may differ from course to course. The level of detail in the syllabus will also depend on your professors. Some professors will provide a relatively simple syllabus, while other professors provide a long, detailed syllabus. If you are unclear about what is expected of you and the syllabus does not address your concern, then ask the professor.

- The syllabus is a contract between you and the professor. The course is governed by the policies that the professor provides, and these are usually (but not always) included in the syllabus.

Be aware that the university has established a set of general policies that apply to all courses and that these policies apply to you even if they are not reiterated in the course syllabus. The university’s policies may be found in the Student Code of Conduct (URL: www.uwf.edu/judicialaffairs).

- Your professor will usually go over the syllabus on the first day of class. Sometimes professors only discuss the “high points” in class, so be sure to thoroughly read and understand the syllabus as soon as possible. Just because a professor fails to mention an item in the syllabus on the first day of class does not mean that it does not apply to you. If it’s in the syllabus, it applies!

- By staying in the course, you implicitly agree to the contract established by the syllabus. This is very important – if you stay in the course, you are agreeing to accept the standards outlined in the syllabus, whether or not you actually read the syllabus. For instance, if the syllabus states that your final grade will be reduced by one full letter grade on your third unexcused absence, then don’t complain if you miss three classes and get a lower grade as a result. Keep in mind that the policies in the syllabus apply throughout the semester. So, pay close attention to the policies and due dates during the entire semester. If you mess up on an assignment that was clearly spelled out in the syllabus, don’t expect much sympathy from your professor. The syllabus is the bible for that particular course.

How do you read a syllabus? The syllabus is usually divided into sections to help you locate information easily. Here are the most important things to identify immediately.

- How do you contact the professor? Note the professor’s name, phone number, email address, office location (building and room number), and office hours. You need this information to get in touch with your professor easily.

- What is the attendance policy? For the most part, your attendance is directly under your control, and it is best not to incur penalties that can be avoided – you may wish you had those points at the end of the semester when final grades are calculated. You should also note if, in addition to attendance, the professor penalizes tardy students. Some courses, especially some laboratory courses, may require field trips and if you do not show up at the departure point at the designated time, then you have missed class that day.

- What is the class schedule? This section usually lists the major topics covered in each class and any reading assignments that will help you prepare for that class. You will also find the dates for tests and the due dates for assignments. All very important stuff to know ahead of time!

- What is the policy for make-up tests and assignments that are turned in late? Of course, you plan to take all exams and get all of your assignments submitted on time, but occasionally unexpected events, such as an illness, an accident, or a death in the family, interrupt your schedule. It is best to know in advance what you need to do to minimize the impact of such emergencies on your course grade.

The syllabus contains lots of other information that you will need throughout the semester, so keep the syllabus handy so that you can easily refer to it when you need to.
GET TO KNOW YOUR PROFESSORS

Students, particularly incoming freshmen, tend to be intimidated by or afraid of professors. Get over it! Not only is it unnecessary, it is counter-productive to your education. Your professors can be a fantastic source of help and a wonderful resource for you. Here are some tips for establishing a good working relationship with your professors.

- Professors do care about you. While they won’t baby you, most professors are interested in your well-being and concerned about how you are doing in their courses. If you come to them and ask for assistance, most professors are more than willing to help you out.

- Take advantage of office hours. Each professor will have regularly scheduled office hours that are set aside for students. It is amazing how few students take advantage of this opportunity. If you need to see your professor, just go by their office during office hours—that’s what they are there for. Be sure to check the syllabus for where to find your professor; for example, some professors may meet with you in their research laboratory instead of their office.

- Ask questions, engage in discussion, and seek the advice of your professors. In other words, talk to your professors. You’ll get to know each other as people rather than just as lecturer/listener. In addition to helping you understand the course material, professors can discuss your academic program and your career goals and options with you. As you near graduation, you will probably need letters of recommendation for a job, graduate school, medical school, etc. Professors can write a much stronger recommendation for you if you’ve established a relationship with the professor that goes beyond the lecturer/listener mode. So, get to know your professors and let them get to know you.

- Approach professors as one adult to another. There is really no reason to be intimidated by professors. That’s not to say that some professors are not intimidating—they certainly can be. But, if you allow that to keep you from approaching them, then you may not get the help you need. You’re an adult now, and you certainly can approach another adult and talk to them.

- Don’t waste everyone’s time by being unprepared. Realize that professors are very busy. While teaching is one of the primary functions of professors, it is not the only one. Professors must also conduct research (which by the way usually helps them be better teachers) and serve on university, community, and professional committees. Nonetheless, most professors are committed to helping their students learn. So, if you do need to go see a professor, then by all means go—but go prepared (at least as prepared as you possibly can be). If you need to ask about advising for classes, but you’ve done nothing to prepare for that discussion, then the meeting will be less productive than it could be and a poor use of your time and the professor’s time. Everyone (students and professors alike) is too busy for that. Be prepared!

- Professors have heard it all before. Often, students never come by during office hours until they’ve messed up an assignment and are trying to salvage their grade. They sometimes come up with the most amazing excuses for why they don’t have their paper done or why they were late for class or whatever. Just know that professors have heard all of those excuses hundreds of times and they are rarely impressed by them. It’s much better to just be honest about the problem. Coming to professors with flimsy excuses about why you don’t have an assignment done probably won’t work. But, if you’ve already established a dialogue with your professor instead of waiting until crisis time to talk with him or her, then it is much easier for the professor to be sympathetic to a problem.

- Requesting an extra credit assignment. Some professors use extra credit to motivate students to perform well—and that is all well and good when it is built into the course plan. But sometimes, students who have screwed up on an exam or assignment go to their professors asking for an additional extra credit assignment to make up for their poor performance. If you are one of those students, don’t make that request with very high hopes. First of all, there is the basic issue of fairness: if one student is afforded extra credit, then all students in the course must be given the same opportunity—this may not be possible if you make the request late in the semester. You should also realize that your request for an additional extra credit assignment is also an implicit request for an unplanned increase in the workload of your professor, which may be quite considerable if all of the students in the course take advantage of the additional extra credit assignment. More importantly, the information in the course is there because it is important for you to know and the extra credit assignment requested may not be a good substitute. And then, there is the time management issue: you are obviously already struggling to satisfactorily fulfill your assignments on time and you want to take on more work? The best use of your time is simply to learn the material when you are expected to. And by the way, one of the traits employers are looking for in university graduates is the ability to produce high-quality work on a deadline.

MANAGE YOUR TIME

One of the biggest challenges facing all of us, but especially new students, is time management. With what on the surface seems like a lot of “free time,” it is easy to overlook how much time needs to be planned into your schedule for studying and other work. In addition, it is very healthy to make time for extracurricular activities and time to enjoy the social life that comes with a university. Here are some tips for getting started managing your time.

- Get a calendar and plan out your semester. In addition to blocking out class time and work schedules, reserve specific times for studying, extracurricular activities, and “rest-and-relaxation.”

- Use the “3 for 1” rule. For every one hour in class, you should spend at least three hours studying for that class. In other words, if your course load is 15 credit hours for the semester, you should spend an additional 45 hours per week studying and working on course assignments.

- Get involved in extracurricular activities. If you make good use of your time, you’ll have time to engage in lots of things on campus that will enhance your university experience—sports, theater, choirs, student government, fraternities or sororities, or a myriad of student organizations. In biology alone, you can choose to join Phi Sigma, Alpha Delta Epsilon (AED), American Medical Student Association, Pre-Pharm Society, Pre-Vet Society, Medical Technologist Student Association, Marine Ecology Research Society (MERS), Fisheries Club, and UWF Student Affiliate of the American Society for Microbiology—check out the bulletin boards in Building 58. Participation in extracurricular activities gives you the opportunity to develop leadership, networking, and social skills—important qualities employers, graduate schools, medical schools, etc., will be
looking for in university graduates. Getting your studying done in a timely manner means that you’ll have plenty of time for other activities without them negatively impacting your academic work.

- **Make time for fun!** Balance between your academic life and social life is very important. Studying is hard work and it is necessary to periodically take a break to relax and “re-charge your batteries.” The best way to go about that is to “enjoy life” through non-academic activities and the university and the surrounding communities offer an abundance of opportunities for that. This is where you will make life-long friends as well as refine your networking and social skills and explore new recreational activities. Have some fun – just don’t get carried away! Remember: the key is balance!

- **Get enough sleep.** Working for long periods of time with minimal sleep is sometimes seen as a badge of honor, but sleep is important for two reasons. First, when you are well-rested, your mind is more alert which permits you to think clearly and make fewer mistakes – very important when you’re studying, working on assignments, and taking exams. Second, sleep facilitates memory retention. As you learn, your brain initially stores information in short-term memory and then transfers it into long-term memory. The conversion of information from short-term memory to long-term memory largely occurs during sleep when you are young. When you skimp on sleep, you are also skimping on the amount of time your brain has to create long-term memories, which is where you want all that information you’re learning to be stored. So, a good night’s sleep is an important part of the education process, just as long as you don’t sleep through class!

**Effective Study Habits**

You must study in order to perform well at university, but it is important to recognize that some study habits are actually counter-productive. You want to get into good study habits that make your study time truly effective. Unfortunately, there is no “one size fits all” approach to studying; everyone has a particular way in which he or she learns best. Here are some tips that you can pick and choose from to help you get the most out of your study time.

- **Find an appropriate place to study.** Your room may not be the best place to study; there are lots of distractions in your room, especially if you have a roommate. Find someplace that you can go on a consistent basis that is neutral and provides a minimum of distraction – the library is one good option.

- **Find an appropriate time to study.** Are you a morning person or a night owl? Select a time when you are most alert and able to do your best work. For most students, really late-night studying means less retention of the material and sloppy work on assignments.

- **Dedicate specific time to studying.** This is important – plan study time into your weekly calendar and stick to it. You’ll get a lot more done that way.

- **Look ahead and start studying early.** Procrastination is your enemy. Cramming a week’s worth of material into one night of study means less retention of the material and sloppy work. When you cram information, you are largely relying on short-term memory. The problem is that your brain can only hold so much material in short-term memory and the amount of information required on an exam usually exceeds that limit. The syllabus should have all of the assignments listed for the semester – get started early!

- **Study in shorter bursts over a longer period of time.** You will retain knowledge better and longer if you don’t cram the night before a test. Studying for an hour or so everyday for a week is much better than studying for four hours the night before a test. Plan it into your schedule!

- **Avoid multitasking when you are studying.** The ability to perform multiple tasks simultaneously is often viewed as the height of efficiency. But, there are several studies demonstrating that the quality of the work suffers when you multitask, especially as the complexity of the tasks increase. When you’re studying, you want to give your undivided attention to the material in order to maximize learning and retention.

- **Finish studying for an exam two nights before the exam.** Use the night before the exam to do a final review of the material and then relax and get a good night’s sleep. Being fresh and alert is much better than being tired when you’re formulating your responses to exam questions. If you are exhausted when you take an exam, you are more likely to mis-read or mis-interpret questions. It is much more important to be relaxed and thinking clearly during an exam than it is to try to cram a few more bits of information into your short term memory just before the exam.

- **Identify the most important material from lectures and readings.** This is difficult and some possible approaches are presented in the next two sections.

- **Outline your notes from class.** Outlines can help you organize your notes and see connections in the material that you’re studying. For some students, the simple act of writing the outline is a great memory aid.

- **Learn the lingo.** Every discipline has a specific body of terms that allows its practitioners to communicate precisely and concisely with each other. In every course you take, you will be adding to your vocabulary. Usually, this is the hardest part about introductory courses because you are just starting to build your vocabulary and the number of new terms seems endless. Many textbooks, especially introductory texts, contain a glossary that defines discipline-specific terms to help you out. And sometimes, professors use plain, old, standard English words that you may not have heard very often in the past; a dictionary can be a valuable reference to have handy.

- **Consider using note cards to help organize your notes.** Using index cards to create flash cards is a good way to study definitions, names, dates, etc.

- **Consider creating pneumonic devices to recall several related items.** For example, ROY G. BIV is commonly used by students to recall the colors of light (i.e., Red, Orange, Yellow, Green, Blue, Indigo, and Violet).

- **Consider creating flow charts and diagrams.** Drawing charts and diagrams can help you visualize the material, see connections among the various pieces of information, and recall the steps in the processes that you are studying.

- **How did your high school teachers help you study?** In high school, teachers often use various drills to help students learn material. Recall which ones worked best for you and consider adapting them for your personal use.

- **Do not throw away your notes.** The same material may come up on later tests. Also, remember that you are here for an
Join or form a study group. Study groups allow you to divide up the material and teach it to each other. The old adage is true: nothing helps you learn material better than when you have to explain it to someone else. However, it is best not to let your study group get too big. If a study group gets much larger than four or five participants, it can be hard to keep everyone on track during study sessions.

Take advantage of reviews offered by the professor. You can clarify points about which you are confused. You can also get a feel for how your professor asks questions and what the professor looks for in an answer. Review sessions work best if you have already studied the material so that you can ask about your weak points. Consequently, the review session should be used to supplement your studying, not as a replacement or starting point for your studying.

Effective Note Taking

It would seem that taking notes in class is easy, but many students have a hard time organizing the material from class into a form that is easily understood. Notes should not be a verbatim record of what was said in class (many professors will let you use a voice recorder for that, if you wish); instead, notes should be key words and phrases to help you recall what was said in class. Again, different students prefer different strategies, so pick and choose from the following techniques to find the ones that work best for you or develop your own effective approaches.

Learn to discern what material you’re responsible for knowing. Here’s the paradox: not everything said in class is important; at the same time, you can be legitimately tested on anything said in class. Your job is to figure out what is important and what is not important. It is not an easy skill to master, but one you’ll get better at as time goes on. And remember, each professor is different. That said, there are some clues to listen for during a lecture such as “this will be on the test” (you wouldn’t believe how many students ignore this statement), “this is important,” “this is key,” “this might make a good test question,” “you need to know this,” or “this is how you can distinguish between” this and that. If you hear these statements, or other similar statements, during class, be sure to make a note to study that topic!

Learn to listen well to class lectures. Listen not only to what is said, but to what is meant by what is said. In other words, don’t just be a scribe during class – think! Often an important concept that was explained in detail in an earlier lecture will be mentioned in a subsequent lecture without going into detail because you are expected to already know it – but, how does it apply to the current topic? Remember, many lectures build on previous lectures and part of your job is to synthesize material.

Especially note anything the professor writes on the board...or projects onto the screen...or videos shown. The professor would not include things like these unless they were important. If the professor spends several minutes of class time discussing a topic or devotes several slides to a particular subject, it’s a good bet that the material will show up on an exam.

Put your notes in outline form as you take them. Some professors will be obviously lecturing from an outline. With other professors, their outline may not be obvious. If you listen well, however, you should be able to hear the major points of the outline. Organizing your notes this way will help you come test time.

Leave a wide margin on the page as you take notes. If the professor indicates that a topic or point is particularly important, you can note that in the margin. You can also go back later when you review your notes and indicate major points, terms, people, dates, etc., in the margin to help you study.

Review your notes as soon as possible after class. Look over your notes to make sure they make sense to you and expand your notes with additional explanation if you need to. This helps to avoid situations where you jot down a note in class that makes perfect sense at the time, but when you go back to study the material, you can’t recall the significance of the note.

Write out major points in the margin. Take major points and place them in the margin that you left in your notes. Any important names, dates, etc., can also be moved to the margin to facilitate studying.

Retype your notes in outline form. Some people find retyping their notes to be helpful for reinforcing their memory and improving retention of the material. Plus, if you are hurriedly taking notes in class, retyping the notes makes them clearly legible for future study.

Synthesize the outline into one easy paragraph that covers the material. If you do this, it will become very clear whether or not you understood the lecture. If you struggle with this step, you might need to do more review of the material.

Identify anything you don’t understand and find the answer. Look up the topic in the textbook – the index at the back of the book is truly a beautiful thing for locating topics in the text! Here’s an interesting fact you may not know: for many students, the physical act of searching out the answer on their own often aids memory retention. Alternatively, ask your professor. No matter how you do it, find the answers to your questions!

Reading Assignments

You will have reading assignments in almost every one of your courses. Sometimes the reading is an integral part of the actual class discussion, and sometimes it is used as background reading or supplemental reading. Either way, you should take the reading seriously and try your best to get the most out of it.

If it’s assigned, then read it. Obvious enough, isn’t it?

Even if you’ve read it before, read it again. Although you may be familiar with the material, you’ve probably changed since the last time you read it. That means you have a new perspective. That new perspective may illuminate the reading in ways you don’t expect. Plus, refreshing yourself will better prepare you for class discussion.

Outline the main points of the reading. The main point of each paragraph is usually in the first sentence or two and the main point of each section is usually in the first paragraph. Writing these points out will help you understand the reading.

Be prepared with questions and thoughts for class discussion. You’ll avoid that embarrassing silence when you’re called upon and forced to come up with something on spot. But more
importantly, it will make the class more interesting. A lively classroom discussion requires preparation by everyone.

- Readings are viable test material. Even if the professor does not deal with readings in class, the material may show up on an exam. Some professors will assign readings and then never mention them in class. Usually that’s because the professor is using the reading as background material that he or she then builds on in lecture. The information in assigned readings is always potential test material.

**WRITING PAPERS**

One major mode of evaluating your work in college is your ability to write papers. While not all of your courses will have this requirement, many of them will. It is important that you learn to express yourself well in writing. Here are a few writing tips.

- Every professor has his or her unique requirements for writing papers. Try to give the professor what he or she wants. Some professors like certain styles that others don’t like. Closely follow any directions for the paper that the professor provides.

- If you are given a specific topic to write about, then make sure your writing is directly related to that topic. Often students will write a very good paper – on the wrong topic. Make sure you understand the topic and stick to it.

- If you are able to choose your own topic, then find one early in order to give yourself plenty of time. Talk to the professor about a possible topic to make sure it fits the assignment.

- Use proper style for the paper. The professor will usually tell you if there is a particular style you should use. If the professor specifies a particular style, part of your grade will probably assess your ability to conform to that format. The ability to adapt to different writing formats is an important job skill to learn. After you graduate and move onto a job or additional education, you will probably be writing letters, memoranda, reports, papers, or articles that must conform to the standards that prevail in that place. Knowing and rigidly adhering to only one format can be limiting to your future prospects.

- If the professor does not specify a particular style, then it is important that you are consistent throughout the paper. There are a number of style manuals that will help you out; these are usually available in the library or bookstore.

- Always, always, always write a first draft. If you hand in a first draft for a grade, chances are the grade you receive won’t be very good. Write your first draft early enough that you have plenty of time to rework it, edit it, and make it better.

- Many professors will look over a first draft and give you editing ideas. Many, but perhaps not all, professors. If the professor doesn’t offer to do this, then ask. Professors with large classes will probably not have time to do a lot of editing, which means you may have to look elsewhere — such as the UWF Writing Lab.

- Always use proper grammar and spelling. It is such an important aspect of writing, and yet many students turn in papers with numerous spelling and grammatical mistakes. Even worse, some students try to save space in text messages and tweets. That is truly unacceptable for university work.

- Don’t plagiarize! Always cite all of your sources and give others credit for their work. Plagiarism is taking someone else’s work and claiming credit for it as your own work; in other words, you are stealing someone else’s intellectual property. The UWF Library has a web page that defines plagiarism and gives tips on how to avoid such unethical conduct – check it out (URL: www.library.uwf.edu/Tutorials/module_plagiarism/default.htm).

- Avoid excessive use of quotations. A paper that is essentially a string of quotations avoids the problem of plagiarism, but demonstrates a severe lack of critical thinking – not exactly the message you want to give your professor. A few quotations can be an excellent way to emphasize specific points, but you really want to demonstrate your ability to synthesize and interpret the material in your paper.

- Read your paper out loud to see if the sentence structure makes sense. Many sentence structure problems can be alleviated if you would just take the time to do this step. Reading the paper aloud will let you know whether the paper “sounds right.” If it doesn’t sound right, then it probably isn’t.

- Ask a friend to read the final draft. After you’ve worked on a paper for a while and read through it several times, it is not uncommon to become “blind” to some problems in your paper because you know what it’s supposed to say even though it doesn’t really say what you mean. Even if your friend is in a totally different major, “fresh eyes” can pick up spelling mistakes, grammatical errors, circular logic, or confusing passages in your text – all important things to correct before you turn in your paper.

- Don’t procrastinate until the last minute. It’s a simple statement, but many students wait until the night before the paper is due and try to whip it out in one night. Except in rare cases, this usually doesn’t work out very well. Start early. Plan well.

**EXAMS**

Exams are one method that is traditionally used to assess your mastery of the course material. The way information is requested from you can take several forms: multiple choice questions, true/false statements, matching terms with definitions or properties, drawing and labeling diagrams, fill-in-the-blank statements, short-answer questions, essays, and even crossword puzzles. Large introductory courses often rely on multiple choice questions with the answers recorded on scantrons to facilitate grading. Exams in most of your courses, however, will often use a combination of question formats. Here are some tips about exams.

- Most professors will tell you what question formats to expect on their exams. If they don’t tell you, ask – knowing the test format ahead of time can alleviate some testing anxiety. Nonetheless, you should be prepared to provide the information requested without regard to the question format.

- Professors design questions to test not only your ability to recall facts, but also your ability to think critically. Students sometimes complain that exam questions are “tricky,” when, in fact, the professor is testing your ability to make critical distinctions. Always give the most accurate, and hence the best, answer for each test question.

- Read each question carefully and understand what is being asked for before you answer the question. If you are asked to write out an answer, be sure to fully address the question in your
response; but beware, some professors are great fans of brevity and conciseness and will dock you if you include extraneous material in your answer.

- Essay questions require you to present your answer in standard prose. In other words, you are expected to compose complete sentences organized into paragraphs that demonstrate your knowledge of the topic and your critical thinking ability. Simple lists are not acceptable. Even if you present a diagram as part of your answer, you need to explain the features of the diagram and how they interact to demonstrate your understanding of the material.

- Get to the testing site a few minutes early. If you need to use the restroom or get a drink of water, now is the time. Try to find a seat so that you are not sitting right next to someone else so that you don’t feel cramped while taking the exam. Take a deep breath and relax until the exam starts.

- Before the exam begins, place all of your notes, papers, and paraphernalia in a bag or notebook so that they are not visible and place them under your seat out of view. Or better yet, don’t even bring them to the exam.

- Before the exam begins, turn off and put away your cell phone and all electronic devices. Sending, receiving, or responding to phone calls, text messages, tweets, etc., during an exam is improper behavior and is a legitimate reason for the professor to terminate your exam. Also, turning off electronic equipment to prevent unnecessary distractions during the exam is a basic common courtesy toward the other students taking the exam.

- Bring several pencils and an eraser to the exam. Be sure the pencils are sharp and ready to use before the exam begins. Some classrooms have pencil sharpeners, but other do not; it is best not to count on one being available.

- If a scantron is used to record your answers, be sure that you use a No. 2 black lead pencil to fill it out; the scantron reader will record all of your responses as incorrect if you use anything else. Also, if you decide to change an answer on the scantron, always completely erase your initial response so that the scantron reader properly records your answer.

- Once the exam begins, do not expect to leave the testing room without surrendering (and terminating) your exam. The time to use the restroom or get a drink of water is either before or after, but not during, the exam.

- Once the exam begins, keep your eyes on your own test. If you need to look up to relieve eye strain, make it clear that you are not trying to scope out someone else’s exam. Attempting to view a classmate’s exam is improper behavior and is a legitimate reason for the professor to terminate your exam and give you a failing grade.

- If time allows at the end of the exam period, go back and make sure that your answers accurately address each test question.

- An exam is your opportunity to show how brilliant you have become through all your hard studying by demonstrating your mastery of the course material, so don’t compromise your achievements by giving the exam proctors any reason to even suspect cheating on your part.

**Honor Code**

The Student Government Association (SGA), with the whole-hearted support of the Faculty Senate, is working to establish an honor code at the University of West Florida. The current draft states:

> As Argonauts we act with integrity.
> 
> We do not lie, cheat, steal, or tolerate those who do.

It’s a simple statement, but an important one, and a very high standard. In fact, when it becomes embedded into the UWF culture, it will put the University of West Florida among an elite group of universities nationwide.

If you haven’t planned your time well, it may be tempting to cheat on a test or plagiarize a paper. For some students, cheating is an attempt to avoid the embarrassment of receiving a poor grade. Other students are desperately trying to avoid academic probation, or worse. Some students even rationalize that since “anything goes” in the cut-throat, real world, why not cheat while in university to get a good grade and maintain a high grade point average (GPA) so that you can get a good job after you graduate?

Here’s why you should not cheat: First, you’re demonstrating that you are untrustworthy and have no integrity. Second, you’re cheating yourself out of your own education – what you don’t learn, you don’t know. Third, you’re cheating your future employer who will hire you based on the fact that you completed your degree which is supposed to mean that you have been well-educated in your field of study and who then has the added expense of providing you with additional training just to bring you up to the minimum standards (assuming they decide to keep you) – not a great way to start off your career. And fourth, you are cheapening the value of the degree earned by every UWF graduate – past, present, and future – in the eyes of employers, graduate schools, medical schools, etc., thereby negatively impacting the future prospects of everyone who holds a degree from the University of West Florida.

**Available Resources**

The University of West Florida provides many services to help you during your stay at the university. Here is the contact information for some of the services that you may wish to take advantage of:

- University Advising Center
  Building 18
  Telephone: 850.474.3170
  URL: [www.uwf.edu/advising/](http://www.uwf.edu/advising/)

- Counseling and Wellness Center
  Building 19
  Telephone: 850.474.2420
  URL: [www.uwf.edu/csw/](http://www.uwf.edu/csw/) or [www.uwf.edu/shwe](http://www.uwf.edu/shwe)

- Learning Center
  Building 58, Room 151
  Telephone: 850.474.3176 or 850.474.3488
  URL: [www.uwf.edu/student success/](http://www.uwf.edu/student success/)

- Writing Lab
  Building 51
  Telephone: 850.474.2029
  URL: [www.uwf.edu/writelab/](http://www.uwf.edu/writelab/)
Good Luck!

Hopefully, some of these suggestions will be helpful to you as you begin your studies here at the University of West Florida. There are a lot of academic standards to be met, but with a few good skills and discipline, it is possible to not only survive, but to thrive. We have a lot to offer you here at UWF, but you have to actively engage in our community of scholars. I hope your time at UWF proves to be exciting, enjoyable, and satisfying. Do your best work. Rise to the challenge!