2014

210-01 General Botany

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BIOL 210 General Botany
Fall 2014
Syllabus

Class time: Mon, Wed, Fri 9:00-9:50 (Quizzes on Fri)
Location: Albers 107
Credit: 2 credit hours
Instructor: Dr. Kathryn Morris, 304A Albers Hall, 745-3554, morrisk10@xavier.edu
Office Hours: Mon 4:30-5:30, Fri 10:00-11:00 or by appointment
Text: Biology of Plants, Raven et al., 8th ed.
Other Books: The Botany Coloring Book, Paul Young
Skype: (kbar) I will be available on Skype during office hours, and most other times throughout the semester. Anytime you see me online you are welcome to chat (text or video). Often, my computer will be online even though I may be away from my computer or talking with someone else, so please do not be offended if I do not reply to you immediately. I am not ignoring you, and will get back to you as soon as possible.

In this course you will have the pleasure of learning about a fascinating group of organisms that we depend on for most things throughout our lives, the plants. These amazing organisms are specialized to find food and water, avoid predators, and even reproduce, all while remaining in the same place for most of their lives. Botany will help you in many careers, around the house, and in your everyday lives.

Special focus assignment: Throughout the semester we will delve into the topic of genetically modified (GM) crops through special readings and discussions where you will argue either for or against broader use of GM crops. We will begin by discussing the facts: how GM crops are created, whether or not they reduce herbicide/pesticide application, whether or not they have increased nutritional value, whether or not they are affordable for farmers in developing countries, etc... After we are all familiar with the facts we will begin to grapple with the moral and ethical implications of the use of GM crops, and how the use of GM crops impedes or affords social and environmental justice for various stakeholders. I hope that exploring these thorny issues, an understanding of which is integral to your Jesuit education, will both confuse and enlighten you.

SOME REMARKS ABOUT COURSE ORGANIZATION AND YOUR SUCCESSFUL INVOLVEMENT:

Fulfillment of curriculum requirements: This course fulfills an area requirement for the Biology major, is an upper division lecture/lab course available for the Biology minor, and is required to complete the Applied Biology major. It also is a required topic for those students, graduate or undergraduate, preparing to teach Biology at the secondary level. Accordingly, your numbers include sophomores, juniors, seniors, and graduate students.

Pre/corequisites: Completion of an introductory Biology course sequence for majors, such as BIOL 160-163 in our Xavier curriculum, is a prerequisite for this course. I build heavily on the knowledge base and the vocabulary developed in these introductory courses and assume that you have retained most of these basic concepts. If you have not, you may want to review your notes, handouts, or textbook from General Biology. With very rare exceptions, students in this course will also have successfully completed GENERAL CHEMISTRY I and II and will be able to use this Chemistry background to understand chemistry-based topics such as the structure and function of biomolecules and the processes associated with photosynthesis. Please note that the lab BIOL 211 is a required corequisite to be taken with this lecture.

Course format and participation: I will teach BIOL 211 primarily in a lecture format using PowerPoint slides. Taking notes during lecture is a valuable way for you to retain the course material so I will generally
not post complete lecture notes online. A set of personal notes is the result of your listening, reading, and writing and therefore involves many parts of your brain. While you are writing, filling in, revising, and possibly recopying your notes, TRUE LEARNING IS TAKING PLACE. I will post abbreviated lectures containing many of the figures in the lectures so that you can focus on understanding the material in class instead of on copying diagrams.

If you feel you are not a good note-taker, I offer the following advice about development of a good set of class notes:

1. Read the text to prepare for class. You will understand the topic in a broad sense and no “surprises” will confuse you during class. You’ll also know what is available in your text to help you clarify the concepts presented.

2. Avoid taking down a list of words or phrases that have no “connections” to each other. Review your notes promptly after class in order to link up ideas so they make sense.

3. If you know you’ve missed something, put a mark in the margin during class so you remember you have to fill in the missing ideas. Use a rereading of the text to fill in the gaps, or review your notes with a friend to make sure they are complete.

4. Finally, be sure to visit me well before an exam if these measures don’t work and you’re afraid your notes and the concepts they cover are still lacking. I will be glad to review them with you and to suggest how you can improve your note-taking skills.

Group interactions will be involved in the learning of some topics. Many of the topics we’ll cover in botany are complex, but I am confident that you can understand them all. It is important to ASK QUESTIONS if anything is not clear so that I know to spend more time on it. Remember that raising questions is at the heart of the scientific process.

**Preparation for class:** Botany has a vocabulary unique to itself (plasmodesmata, apical meristem, suberin) but also shares terminology with studies of cells and animal life forms (epidermis, ATPase, zygote). Therefore, an initial reading of the assigned text material before we consider a topic in class is ESSENTIAL to introduce these new terms in a helpful context. Such reading should also reassure you that you already have established a foundation of concepts that is applicable to plant study! I will not spend class time parroting the textbook back to you. Text pages I expect to cover for each class are listed in your class schedule. Reading passages vary in length because we will be spending extra time on complex topics. Longer passages often contain many photographs so actual time spent reading is not too cumbersome.

If you find yourself lost in class or unable to keep up with lecture, but have not put in the time to read over a topic before you come to class, you have not fulfilled your own responsibilities as a student. Your first move to continue your growth as an independent learner is to help yourself by taking seriously this universal advice to READ IT FIRST with focused attention.

**Review:** I will be glad to conduct review sessions outside of class IF requested by class members. I encourage you to come by my office during office hours or at another appointment time if that would be helpful to you. I also encourage you to contact me by e-mail or Skype with particular questions for clarification.

**Study groups:** I also strongly encourage you to form STUDY GROUPS on your own. Educational research has shown that such cooperative efforts among students are a very positive contributor to success, in science studies in particular. Welcoming fellow students into a study group is also a way to reflect the "men and women for others" that is a Jesuit inspiration, and represents a choice that is counter to the competitive message our society constantly reinforces.
PRACTICAL POLICIES FOR GOVERNING THIS CLASS;

Attendance: I hope that this course and its subject matter will receive a reasonable portion of your time and attention this semester. At the minimum, I expect you to attend ALL classes – class attendance should not be considered optional. I do not take attendance for students enrolled in the class for credit, but I do make a mental note of who attends. Regular attendance earns you special privileges and special treatment, such as rounding up if your final course grade lands between grades. If you do not attend class regularly, you do not earn special treatment. In the case of truly excessive absences, I reserve the right to deduct up to 10 points from your class total (at my own discretion). Please notify me as soon as possible if you anticipate a necessary absence or have missed class because of illness.

I also expect you to be respectful of your peers and of me. Turn off your cell phone. Avoid texting, Facebooking, looking at Tumblr, or otherwise browsing the internet. If you are smiling at your crotch, I know you are not doing something related to the class. If you are holding your phone in front of your face and scrolling with your thumb, I know you are not doing something related to the class. The only acceptable use of wireless-enabled devices is to take notes, look up supporting materials, or to make sound recordings of the lecture. I reserve the right to ban technology that interferes with the learning environment.

Academic Honesty: Science is collaborative, and seldom does any scientist work alone. You may work with others on homework, but make sure you are benefiting intellectually from the collaboration—not simply copying.

Otherwise the policy is simple: don’t cheat. Demonstrate integrity. You or someone you love is paying a lot of money for you to attend Xavier. The value of your education decreases whenever you or one of your peers cheats to earn grades or a degree. Cheating hurts other students and harms the reputation of the university. Therefore, the penalty for intentional academic dishonesty in this course is a failing grade. Per university policy, academic dishonesty will be reported to the Dean’s office. It is your responsibility to educate yourself about what constitutes academic dishonesty.

Grading: Your grade in General Botany will be based largely on your mastery of concepts covered in class, and you will have many opportunities to develop and demonstrate such mastery. You may have heard of this model before as Standards Based Grading (SBG). This model is different from the traditional grading model you are probably used to and I will spend time in the first class session explaining how it will work.

SBG provides many big benefits for you! Here’s a quick preview.

1. You start the semester with a detailed list of Standards that describe exactly what you need to know to do well in the class! Students using SBG say that the Standards help them know exactly how to prioritize studying.
2. You have many, many, many opportunities to demonstrate mastery of Standards, and only your two highest grades for each Standard count! Students using SBG say that this removes a lot of test taking anxiety and allows them to focus on learning the material.

Quizzes: In order to have so many opportunities to demonstrate mastery of Standards, we will have a quiz each Friday. Each quiz will contain questions assessing the most recent Standards covered in class, as well as questions for any old Standards that you have not yet mastered. Big benefits for you!

1. This is good for you because it means that each quiz focuses on the most recent material so you have a small amount of material to study!
2. Also, every quiz includes chances for you to improve your mastery level of ‘old’ Standards! No matter you many attempts it takes you to master a Standard, once you begin, your level of mastery can never go down!

Final Quiz: Since you will have chances during the weekly quizzes to demonstrate mastery of every Standard covered in the course, there will be no new material on the final exam. Big benefits for you!

1. No new material on the final!
2. If you have kept up with the course material during the semester and already attempted to demonstrate mastery of each standard, you will enter the final with a course grade that cannot go down!

3. This means that if your course grade is at a level you are happy with before the final, you may even be able to skip the final!

I hope that you are as excited about SBG as I am, and I’ll explain how we’ll make this amazing system work in class.

Your final numerical grade will be calculated from the following distribution. Assignments should be submitted on time. Assignments submitted late within 24 hours of the due date will be given 75% credit, and assignments submitted late within 48 hours of the due date will be given 50% credit. Assignments will not be accepted more than 48 hours late. It is up to you to record the due dates for each assignment on your calendar now so that you will not miss deadlines. Most assignments will be submitted through Canvas so you should plan to submit your assignments several hours before the due date in case of technical difficulties. It is your responsibility to ensure that assignments are submitted correctly and on time. An e-mail to me two minutes after the assignment is due saying that your computer isn’t working does NOT get you an extension.

<table>
<thead>
<tr>
<th>Mastery of Standards:</th>
<th>70 %</th>
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<tbody>
<tr>
<td>Unit 1: Foundation</td>
<td>20 %</td>
</tr>
<tr>
<td>Unit 2: Organismal</td>
<td>40 %</td>
</tr>
<tr>
<td>Unit 3: Development</td>
<td>20 %</td>
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<tr>
<td>Unit 4: Energetics</td>
<td>20 %</td>
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</tbody>
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<table>
<thead>
<tr>
<th>GMO Assignment:</th>
<th>30 %</th>
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</thead>
<tbody>
<tr>
<td>Questionnaire 1:</td>
<td>15 %</td>
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<tr>
<td>Questionnaire 2:</td>
<td>15 %</td>
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<tr>
<td>Discussion Participation:</td>
<td>15 %</td>
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<tr>
<td>Questionnaire 3:</td>
<td>15 %</td>
</tr>
<tr>
<td>Final Essay:</td>
<td>40 %</td>
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I will not grade on a curve. The grading scale will be:

A = 93-100, A- = 90-93, B+ = 87-90, B = 83-87, B- = 80-83, C+ = 77-80, C = 73-77, C- = 70-73,
D+ = 67-70, D = 63-67, D- = 60-63, F = below 60

For education students: this course’s content addresses the following standards in the NSTA Reporting Standards for Science: 2a, 3a, 3b.