BIOLOGY 107: PLANTS & SOCIETY  
(4 credit hours)

Dr. Fredric Miller  
fmiller@jjc.edu  
815-280-2740

I. GENERAL COURSE DESCRIPTION

Plants & Society-Bio107 emphasizes scientific inquiry through selected concepts in plant biology, such as organization, function, heredity, evolution, and ecology. Topics will include a survey of plant diversity and related groups including cyanobacteria, algae and fungi, plant anatomy and physiology, reproduction and growth, genetics, evolution, ecology and economic importance and interrelationship between plants and humans.

Extensive use of the college’s herbarium collection, horticulture land lab, and natural areas will supplement the learning experience. This a practical course for those fascinated by plant life.

II. GENERAL OBJECTIVES

A. The student should be able to demonstrate satisfactorily the retention of the main ideas in the text, assigned readings, lectures, homework assignments, and laboratory exercises.

B. This semester we will learn more than just biology and the universal principles that make living things alive. As we discover the concepts of biology in this class together we will be using important skills necessary for success in your professional and personal life. The basic skills we will refer to regularly are considered Life Skills. Life Skills are basic and higher order thinking processes and activities that, no matter how much technical information you know or do not know, will improve your ability to cope and succeed in life's many challenges. You will find that it is just as important to know how to think as it is what to think.

C. To promote multi-cultural awareness, highlight the contributions women, minorities, men and other cultures have made to science and biology, illustrate that science functions within a social context, and create opportunities for respectful dialogue among all students.

III. INTERNATIONAL MODULE COMPONENT (INDIA)

As a student in Biol-107: Plants and Society, you will have the opportunity to participate in an internationalization program focusing on India. The module will integrate course subject matter with an emphasis on Indian culture, environmental issues, plant exploration and colonialism, international trade, and indigenous plants of economic importance.
Understanding global environmental issues, and food and fiber production will increase your awareness on the importance of good environmental stewardship and natural resource management. Issues such as water usage, crop production, groundwater and surface water pollution, and soil conservation are just a few of the possible topics that will be examined, researched, and addressed from a global perspective.

In order to facilitate your international experience, students in Bio-107 will be required to participate and complete the following assignments:

- **Pre and post quiz** on their general knowledge of India

- Through lectures and discussion groups, students will gain a better understanding of the importance of plant exploration, colonialism, and international trade on the discovery, development, and importance of economically important plants and related products.

- Over the course of the semester, the student will submit eight (8) current event reports on India (i.e. culture, trade, economics, food production, environment, politics, etc.)

- Compose a written paper or prepare an educational poster on a relevant topic regarding India and the Indian sub-continent. A short presentation of either the paper or poster will be given in class. Topics may include, but are not limited to global environmental issues that impact food production, conservation of natural resources, global warming, water management, and/or urbanization.

- Students will be divided into discussion groups (DQ) and will discuss one current event related to India. A brief (1-2 minute) synopsis will be given by the DQ leader for each group. The DQ leader will rotate each week. A student participation grade will be assigned for this portion of the project.

- Over the course of the semester, students will be required to prepare five (5) one (1) page plant information sheets on five (5) different plants native to India. The information sheets will focus on the cultural, economic and/or historical importance of the plant to India and its role in global trade.

**GUEST SPEAKER (S):** Guest speaker(s) will be utilized to help students better understand the culture, history, and current situation in China. Students will be expected to be engaging, attentive, and interactive with the guest speaker. In order to facilitate discussion and good questions, early in the semester a short historical treatise of India will be presented to students emphasizing the contribution of plants of economic and botanical importance and how these plants contributed to the cultural and economic development of the Indian sub-continent.

**PLANT EXPLORATION COMPONENT:** In order to introduce students to the topic of foreign exploration, a short lecture will be presented on both Colonialism and on Foreign Plant Exploration. Both of these presentations will help illustrate the impact that colonialism and foreign plant exploration have had on the distribution, development, cultivation, and utilization of common food and fiber plants.
IV. COURSE CONTENT

A. **Topics Covered:** See attached course outline.

B. **Text and other learning materials**


Chemical Splash Safety Goggles (labeled with the following code ANSI Z87) (Required)

Pencils (regular & basic colored set), ring binder, and calculator.

**Text and other learning materials for the International Component on India**


CIA World Fact Book Website

Other websites will be announced throughout the course

C. **Assignments:**

*Major topics and supporting subject matter is highlighted in the attached course outline below.* The student is responsible for locating and reading the corresponding information in their textbooks and other materials. Consult textbook table of contents and indices for specific page numbers. All reading material is required to enhance and highlight topics discussed during class. Do not underestimate the important role reading plays in your understanding of course material. Readings provide the detail and alternative perspectives that you need to better comprehend course material. Reading offers another exposure to course material that helps to solidify concepts in your mind. Relying only on a single source will make it very difficult to succeed in this course.
You are required to attend all scheduled lectures, discussions and laboratories. Labs are vital to your understanding of biological concepts. **Laboratories can not be made up so your attendance is a must.**

Occasional exercises will be assigned to augment lecture material. Additional information will be provided with these assignments.

**International Component.**
This is a required part of the course and will be approximately 25% of the final grade. Required components include the following:

- **Eight (8) current event reports** on India (i.e. culture, trade, economics, food production, environment, politics, etc.)
- **Written paper or educational poster** on a relevant topic regarding India and the Indian sub-continent. A short presentation of either the paper or poster will be given in class.
- **Discussion groups (DG) participation and leadership.** A student participation grade will be assigned for this portion of the project.
- **Five (5) Plant Information Fact Sheets** on five (5) different plants native to India. The information sheets will focus on the cultural, economic and/or historical importance of the plant to India and its role in global trade.
- **A participation grade for guest speaker(s)** will be assigned. Students will be expected to be engaging, attentive, and interactive with the guest speaker(s).

**Missed assignments and/or Make-Up Work:**
Late course work (i.e. exams, homework, quizzes, etc.) will be accepted up to seven (7) days after the original due date, but will be assessed a 10% late fee deduction from your final score or project grade. Course work submitted after seven (7) days will not be accepted and recorded as a zero.

D. **No Extra Credit Assignments:**
You and the instructor will be very busy meeting the demands of school, work, and home this year. Everyone must do high quality work the first time. There is little time available to do extra credit assignments in addition to your regular course work. **Therefore, there are NO extra credit assignments in my class will be offered in this course.**

E. **Examinations:**

*Exam questions will be derived from everything we discuss or do in class and laboratory and material you have read in the textbook and outside readings.* Each exam will be composed of multiple choice, multiple answer, short answer, and listing questions. If you cannot take an exam for any reason on the scheduled day, contact me **before** the exam day. We will discuss your situation and schedule an alternative exam date.
Exam questions on India will be integrated into all examinations and the final and will include material covered in lecture, discussion groups (DG), homework assignments, outside readings, and current events. Students will be advised in advance on the specific course material that will be included on individual exams and the final.

To pass exams you need to know the following:
1. How to take detailed, well organized notes.
2. How to study your notes and class material.
3. Concepts and terms on unit outlines in this syllabus.
4. PowerPoint chapter outlines, chapter review and summary material.
5. Student laboratory manual.
6. Hypotheses, predictions, methods, and results of experiments.
7. Associated biological structures with functions and vice versa.
8. Know evolutionary trends of concepts discovered in class.

F. Laboratory Safety. Potentially hazardous chemicals, microbes, and chemically treated preserved specimens will be encountered during laboratories. Students are required to protect themselves against harmful substances by federal and state laws. Additional handouts regarding laboratory safety procedures will be discussed before the first lab experiments.

Approved chemical splash safety goggles must be worn when handling chemicals or in close proximity of their use. Approved chemical splash safety goggles are available in the college bookstore. Students without the appropriate safety equipment will not be allowed to participate in the lab and will lose accompanying points.

V. GRADING
A. Approximate semester grades will be determined by the following criteria, point totals will vary depending on student needs and assignment requirements:

1. Lecture exams .......................................................... 350 (35%)
2. Final exam .............................................................. 100 (10%)
3. Laboratory reports ..................................................... 100 (10%)
4. International Project (Paper/Poster) ......................... 200 (20%)
5. Quizzes, 20 points each ........................................... 200 (20%)
6. Plant Fact Sheets (10 points each) ........................... 50 (5%)
Total points possible ...................................................... 1,000

B. Your final grade will be based on a percentage of total points possible. You are expected to keep an accurate record of all your assignment and exam grades. You can calculate your grade at anytime during the semester by using the equation provided and matching the percent grade to the letter scale below. Your instructor is willing to calculate your course grade at anytime, just ask.
(Your accumulated points divided by total points possible) x 100 = % grade

Percent Grade | Letter Grade
--- | ---
100-90% | A
89-80% | B
79-70% | C
69-60% | D
59-50% | F

C. **Exam Schedules:**
The dates and content for quizzes and exams will be announced well ahead of time. Exact dates will be decided based on the pace of the course and volume of material.

D. **Make-up Exams:**
*Students have one chance to make-up regularly scheduled exams.* Remember the opportunity to make-up an exam is the *second* chance you get and should not become a regular practice. The instructor has the right to limit the number of make-up exams a student can take in a semester. *You will be allowed to make up exams up to seven (7) days after the original test date. Any missed exams or quizzes will result in full point loss.* A missed exam will have a significant negative impact on your final course grade.

You can ask the instructor for clarifications of exam or quiz questions during the exam. If appropriate, clarifications will be made regarding word usage and sentence structure of the question. Dictionaries may be used during an exam or quiz for looking up non-biological terms. Academic Skills Center and Student Accommodations and Resources services are available.

VI. **ATTENDANCE POLICY**

A. **All absences are noted. You will be missed!**
If you miss a class, you are responsible for arranging to obtain missed class notes and assignments. Attendance is a requirement of the course. Ultimately, you are responsible for withdrawing from the course as you see the need. See the student handbook for additional college policy information.

B. Successful learning is accomplished in many different ways. Consistent attendance and active participation in the classroom increases your exposure to the course's subject matter. A diversity of classroom activities, coupled with outside readings and assignments, will insure better overall comprehension that will improve your exam performances. You will only get out of the course what you put in to it.

VII. **GENERAL INFORMATION**

A. **Any student that needs help with course material, study strategies or other concerns is encouraged to speak with the course instructor or meet with a tutor.** Tutors and other resources for the course are available through the college's Academic Skills Center (ASC) or Student Accommodations and Resources services.
**Resources (STAR)** located on the second floor in J-Building in rooms J-2013 and J-2025 respectively. They offer professional and peer tutoring in biology and other subject areas. For more information call the ASC at 815-280-2284 and STAR at 815-280-2230.

B. It is essential that a proper learning environment be maintained in the classroom so that all students have an opportunity to learn. You are responsible for arriving early enough for class so that you are ready to participate. Excessive talking, whispering, and late arrivals distract other students and the instructor. If the instructor feels that a student's conduct is disrupting the learning process the student will be asked to meet with the instructor privately to resolve the problem.

C. *Harassment of all kinds, directed at either gender, is not tolerated in the classrooms or on campus!* If you have any complaints, concerns, or questions about harassment and victim's rights, speak with the instructor or other college personnel. See the college's student handbook for additional information. You are entitled to a safe, nurturing learning environment.

D. Independent and cooperative learning assignments are used in this course. Cooperative learning assignments require input from other team members and usually results in a single team project or written report. Cooperative learning assignments and activities are done in class unless otherwise specified. Other projects, assignments and tests require individual, original work be done by the student. In these independent assignments students must work on their own. Evidence of collaboration in these cases is considered a form of academic misconduct. Academic misconduct includes cheating and plagiarism as defined in the JJC Student Handbook. Cases of academic misconduct will be handled accordingly by the instructor and/or other college staff.

**PERSONAL CHAPTER STUDY GUIDES: BIO-107**

**INSTRUCTIONS.** By following the procedures outlined below, students can develop their very own chapter review sheets. The review sheets can be useful in preparing for quizzes and exams. Studying the review sheets, the textbook, PowerPoint chapter outlines, and classroom notes will increase the chances of doing well in Biology 107. Develop a study guide for each chapter and keep them as part of your class notes.

1. **Selected Key Terms**
   Within each chapter of the textbook **key terms** are in bold print. Keep a list of the key terms and others encountered during lectures or readings. Prioritize the key terms, studying those that give you the most trouble.

2. **Chapter Concepts**
   At the beginning of each chapter are the learning concepts presented in the chapter. Review them after reading the chapter. Do you know them?
3. **Review Questions**
   At the end of each chapter are review questions. Write out answers to these questions. This is another opportunity to use key terms in your answers. If you feel that this exercise is a repeat of the chapter objectives, skip this part. HOWEVER, be sure to do the chapter concepts or review questions. Always write out the answers in complete sentences and actually do the writing. Do not deceive yourself into thinking you know the answers by a quick visual overview.

4. **Chapter Summaries**
   Read the Chapter Summaries at the end of each chapter before and after reading the chapters. Does everyone of them make sense to you? Go back and read over any concepts that are not clear.

5. **Learning Online**
   Visit the textbook’s webpage at [www.mhhe.com/botany](http://www.mhhe.com/botany) for other helpful learning opportunities including practice quizzes.

6. **Create Unit Mind Maps**
   Mind mapping will be demonstrated in class. Consider creating mind maps for the material you find most challenging. Include the use of colors and symbols to cue your memory of terms and concepts. Educational research supports the learning value of this approach.

7. **PowerPoint Outlines**
   PowerPoint outlines will be made available for each chapter covered in lecture and laboratory. The outlines will be available on the ANGEL distance learning course site.

8. **Chapter Quizzes**
   Chapter quizzes will be posted on the ANGEL distance learning course site. *You will have until the last day of classes at 4:00 pm to complete all quizzes.* Quizzes will emphasize key points and concepts from the chapter.

---

**IMPORTANT!!**
If you are a student with any type of disability, please see me in private so that appropriate accommodations can be made to foster a productive and enjoyable learning environment. All information will be kept in strict confidence!

**IMPORTANT DATES TO REMEMBER**

- 21 January 2011 – Martin Luther King Holiday
- 12 February 2011 – Lincoln’s Birthday
- 21-28 March 2011 – Spring Break
- 2 May 2011 – Last Day of Classes
- 5-9 May 2011 – Finals Week
<table>
<thead>
<tr>
<th>Week</th>
<th>Topics (Chapters)</th>
<th>Labs</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Plants in Our Lives (1, 10, 26)</td>
<td>Compound &amp; Dissecting Scopes</td>
</tr>
<tr>
<td>2</td>
<td>The Plant Cell &amp; Body (2 &amp; 3)</td>
<td>Winter Plant Study</td>
</tr>
<tr>
<td>3</td>
<td>Plant Physiology (4)</td>
<td>Wisconsin Fast Plant (<em>Brassica rapa</em>)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The Plant Body</td>
</tr>
<tr>
<td>5</td>
<td>History of India</td>
<td>Plant Taxonomy and ID</td>
</tr>
<tr>
<td></td>
<td>Colonialism</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Foreign Plant Exploration</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Systematics (8)</td>
<td>Plant Taxonomy and ID</td>
</tr>
<tr>
<td>7</td>
<td>Feeding Humanity (11 &amp; 15)</td>
<td>Corn Seedling Protein</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Electrophoresis Run and Stain</td>
</tr>
<tr>
<td>8</td>
<td>Taxonomy (8)</td>
<td>Photosynthesis and Transport</td>
</tr>
<tr>
<td>9</td>
<td>Feeding Humanity (11 &amp; 15)</td>
<td>Corn 3:1/Meiosis Beads</td>
</tr>
<tr>
<td>10</td>
<td>Plant &amp; Fungal Diversity (9 &amp; 23)</td>
<td>Seed Germination and Analysis</td>
</tr>
<tr>
<td>11</td>
<td>Native Plants</td>
<td>Native Seed Propagation</td>
</tr>
<tr>
<td>12</td>
<td>The Grasses (12)</td>
<td>Plant Diversity Survey I</td>
</tr>
<tr>
<td>13</td>
<td>The Legumes (13)</td>
<td>Plant Diversity Survey II</td>
</tr>
<tr>
<td>14</td>
<td>Starchy Staples (14)</td>
<td>Antibiotic Screening and Check for Phytochemical Activity</td>
</tr>
<tr>
<td>15</td>
<td>Stimulants, Herbs, Spices, and Fibers (16, 17 &amp; 18)</td>
<td>Sowing of Native Seeds</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Biology of Spring Flora</td>
</tr>
<tr>
<td>16</td>
<td>Medicinal, Psychoactive, and Poisonous Plants (19, 20 &amp; 21)</td>
<td>Biology of Spring Flora</td>
</tr>
<tr>
<td></td>
<td>Plant Ecology (26)</td>
<td></td>
</tr>
<tr>
<td>17</td>
<td><strong>Paper/Poster Presentations (India)</strong></td>
<td></td>
</tr>
<tr>
<td>17</td>
<td><strong>FINAL EXAMS</strong></td>
<td></td>
</tr>
</tbody>
</table>
Pre/Post-Test on international content for BIO 107
(circle if this is a pre or post-test)

Student name or ID number: ___________________________ Date: ______________

1. How does India compare in size to the United States? (1 pt.)
   a. smaller
   b. larger
   c. about the same
   d. much larger

2. What type of government does India have? (1 pt.)

3. List two (2) major issues, domestic or international issues that India is dealing with at the present time. (2 points)
   a. 
   b. 

4. What is the national language of India? (1 points)

5. Use the attached map of Southwest Asia to label the following: (15 pts.)
   a. Afghanistan     b. Bangladesh     c. China
   d. Bhutan           e. Burma           f. Pakistan
   g. Iran             h. Sri Lanka       i. Iraq
   j. Saudi Arabia    k. Somalia       l. Arabian Sea
   m. Bay of Bengal   n. India         o. Yemen

BONUS QUESTIONS: (3 points)
1. What is the capital of India?
   a. Bangalore
   b. Calcutta
   c. Mumbai
   d. New Delhi

2. What region is under dispute and constant threat of war between India and Pakistan?
   a. Bangladesh
   b. Bhutan
   c. Kashmir
   d. Madras

3. India was a colony of what European country?
   a. Belgium
   b. Britain
   c. France
   d. Germany