

1-2-3 Survival Packet

Course Syllabus:

Plants, Parasites, and People

Plant Pathology / Botany 123

Spring 2004

Course Instructors	Teaching Assistants
<p>Prof. Andrew Bent 886C Russell Labs 265-3034 afb@plantpath.wisc.edu</p>	<p>Ashley Valentine 370 Nutritional Sciences 265-5820 arvalent@wisc.edu</p>
<p>Brian Manske 295A Russell Labs 263-2949 bfm@plantpath.wisc.edu</p>	<p>Jian Yao 885 Russell Labs 265-2060 yao@plantpath.wisc.edu</p>
	<p>Frances Yap 684 Russell Labs 265-3056 mny@plantpath.wisc.edu</p>

Drop-In Help Hours and Office Hours:

- A TA will be available Mon and Wed. right after class, from 11:55-12:15 (and longer if needed), Mondays in room 295 Russell Labs and Wednesdays in room 184 Russell Labs, as well as Thursdays from 12:00 – 1:00 in room 295.
- Please contact any of the instructors or your TA if you would like to make an appointment to meet for other office hours. Brian Manske in particular is available to assist you. Brian's office hours will be posted on his door and on the course web site. Feel free to drop in and talk to Brian, or e-mail questions to him at any time.

Course website: Logon to My UW to access the Learn@UW site or login with your net ID at this address: <https://uwmad.courses.wisconsin.edu/>

Course email: pp123-spring2004@lists.students.wisc.edu

This is directed to all students enrolled in PP/Bot123 this spring, plus instructors and TAs.

Lab section email: pp123-secXXX@lists.students.wisc.edu

Replace XXX with the appropriate lab section number.

Laboratory Sections

All labs meet in room 295 Russell Labs.

Section Number	Day	Time	Instructor/TA
301	T	9:30-10:45	Brian Manske
302	T	1:00-2:15	Frances Yap
303	W	1:20-2:35	Frances Yap
304	W	3:30-4:45	Jian Yao
305	R	9:30-10:45	Ashley Valentine
306	R	1:00-2:15	Jian Yao
307	R	2:30-3:45	Ashley Valentine

Course Overview and Expectations

1. Course Objectives

The major objectives of this course are for you to learn core concepts of biology, and to **think critically about scientific issues that affect your lives**. The interactions between plants, microbes, and people impact our lives in many ways, and are rich with examples of fascinating biology. We will explore historical examples and analyze current issues. We hope to improve your understanding not only of biological systems, but also of the scientific process, and of distinctions between fact, hypothesis, and opinion. Writing skills are emphasized.

2. Course Topics

Unit 1 will address plants, pathogens, diseases and how we control them. We will start to learn about the scientific process, investigate pesticide risks/benefits/alternatives, and examine how plants and microbes are used as sources of drugs for humans.

Unit 2 will explore how evolution works for us and against us in the fight against human and crop diseases. We will learn how DNA and genes work, how plant breeding has been and continues to be used, and how new genetic engineering methods are being used to modify agricultural practices.

Unit 3 will focus on global and local environmental issues involving plants, parasites, and people. These will include population growth and food security; climate change; biodiversity; nutrient cycles/nutrients as pollutants; and ways in which farming practices mesh with environmental/agricultural philosophy and politics. Our goals will be to understand the biological “facts” that underlay these issues, the human needs involved, and possible solutions that address both our desires and the biological realities of these situations.

3. Course Format

Lectures. The sessions on MW at 11:00am will be devoted to lectures with student participation. You will at times be asked to solve problems or answer questions in groups during lecture. We strongly encourage you to ask questions during lectures. **There is no such thing as a dumb question in this class!** If you are wondering about something, others probably are as well. This is *your* class -- please play an active role in learning by asking questions and letting us know if you don't understand the material. **You are required to come to class.**

Lab Sections. Lab sessions are a central part of this class. The 75-minute lab sections will meet Tuesdays, Wednesdays, or Thursdays in Room 295 Russell Laboratories. You must register for **one** lab section and are required to attend that section each week. In these sessions we will conduct experiments that illustrate principles from the lectures, and we will discuss lecture material and the experiments. New material will also be presented and learned. Read the appropriate material in the lab manual (*Biology Brought to Life*) or other assigned resources, and come to lab sessions well-prepared.

Teamwork. A major part of science is the ability to work with colleagues and peers. In this course, both the lecture and lab utilize cooperative learning techniques to help you learn the material better. During the third week of class, you will be assigned a team of 3-5 students to work with in your lab section throughout the semester.

4. Assignments

Reading. Required reading will be assigned from:

- Textbook: *Essential Biology with Physiology* (Campbell, Reece & Simon)
- Lab manual: *Biology Brought to Life* (Handelsman, Houser & Kriegel)
- Internet readings and other handouts

Both books are available at the University Bookstore. The syllabus lists the appropriate readings for each lecture. The reading is designed to reinforce and supplement the lectures, and some **exam questions will be based on the reading material**. Always read the designated readings before each lecture, and the assigned section of the lab manual before each lab.

Exams. Three exams will be given. One or more exams will have a take-home section to be worked on in groups outside of class (20% of each exam grade), in addition to an in-class, closed-book section (80% of each exam grade). Exams 1 and 2 will be held during the scheduled lecture time in room 184 Russell Labs. Exam 3 will be held during the summary period on Thursday, May 13, at 12:25 pm (location to be announced). A review session will be held prior to each exam. Study questions and more details about exam format will also be provided prior to each exam.

Lab Reports. You will be expected to write a one-page report of most of the experiments conducted in lab. Work with your team members for the experimentation, but write your lab report individually, in your own words. See page 8 for details.

Science News Portfolio. You will spend time throughout the semester reading and analyzing how the news media reports current information about scientific matters that relate to our “example” subjects (plants, parasites and people, food and food production, genetic engineering, ecology and the environment...). The sections of your Science News Portfolio are described on page 9.

Group Presentation. Your four-person lab group will be assigned an article about genetic engineering. Your group will be responsible for preparing an informative and critical presentation about the topic (not just the article). Details of this assignment will be provided.

Discussion/Participation. Five percent of your grade will be based on in-class participation. This will be evaluated in lab by your TA/instructor and in lecture through in-class quizzes, group exercises, attendance, and individual participation.

5. Course Website

The course website (accessed through My UW or at <https://uwmad.courses.wisconsin.edu/>) will serve as an important resource throughout the semester. The website will contain copies of the course syllabus, this survival packet, instructions and handouts for lecture and lab, links to web-based reading materials, exam study questions, answer keys, and other important resources. The *Essential Biology with Physiology* textbook also comes with a CD and website that provide many useful study tools.

6. **The Teaching Staff Available to You**

You have access to a number of special resources in this course. The TAs have completed an intensive summer training program that makes them particularly well-prepared to teach this course. The professor, instructors, and TAs enjoy teaching this course and enjoy helping students. We want to help every student be challenged, stimulated, and successful. Please make use of the special staff available to you.

Grading

Grades will be based on exams, lab reports, a science news portfolio, and participation in lab sections, as follows:

Lecture	60%
Exam 1	20%
Exam 2	20%
Exam 3	20%
Lab	35%
Lab Reports	22%
<i>Pets (preliminary)</i>	2%
<i>Pets (final)</i>	6%
<i>Ice Nucleation</i>	2%
<i>Koch's Postulates</i>	4%
<i>Genetic Vulnerability</i>	4%
<i>Antagonism</i>	4%
Science News Portfolio	8%
Group Presentation	5%
Discussion/Participation	5%
Total:	100%

This course is not graded on a curve since our goal is for every student to get an A. Numerical averages at the end of the semester will be translated into letter grades as follows:

A	92-100
AB	88-91
B	82-87
BC	78-81
C	70-77
D	60-69
F	Below 60

If you receive a grade below a 60% on any test, please make an appointment to see one of the instructors.

Format of Exams

1. In-class exams

Prior to each exam, you will be supplied with study questions, and a review session will be held in the evening. Most of the exam questions will be short-answer or short-essay questions and multiple choice questions, similar to the study questions. You are expected to draw on material from class, the readings, and/or the lab in your answers. In-class exams will be completed individually, without access to notes or books.

2. Take-home component of exams

One week before the in-class exam, you will be given a series of exam questions to take home. **You are required to work on these questions with at least one other student from the class.** You will be asked to provide a list of the students you worked with. Although it is important that you discuss the question, the members of your group do not need to agree on the answer. After the discussion, you must **write your own answer independent from your colleagues.** Be creative and original. Take-home exams that are not done as part of a group will be penalized. **The take-home exam questions are due at the beginning of the in-class exam.**

3. Exam tips

The key to success on the exams in this class is to think and write logically. Build logical arguments based on information, concepts, and **reasoning**. Reasoning means showing the connections between your ideas, and justifying conclusions with relevant supporting information. A simple guideline: make a claim, then support it with evidence.

Format of Lab Reports

All reports must be typed and must not exceed one page. Include the following:

Title

The title should be brief, clear, and descriptive. It introduces your reader to the topic of your report, so make sure it is informative and interesting so your reader is encouraged to read further. Be creative.

Hypothesis

State your hypothesis clearly and concisely. Remember that a hypothesis is not a prediction; it is a statement or postulate about how the world works. You should be able to make predictions based on your hypothesis. You and your team members should have the same (or very similar) hypotheses.

Treatments and Controls

List your treatments and controls. Explain why you chose to include each control. This is very important for thinking through the design and interpretation of your experiment. You cannot receive full credit for this section of the lab report without a clear explanation of the purpose served by the control or the variable that is eliminated by it.

Results

State briefly what you observed or measured. If you are describing your observations in words, be complete and detailed. If you are reporting measurements, be sure to include an explanation of how the measurement was made and what units you are using to measure (% plant tissue eaten, root length in cm, # of organisms, etc.).

Conclusion

Explain why your results support or refute your hypothesis. If the results are inconclusive, explain why and suggest further experiments that would test the hypothesis more directly. In scientific research we do not *prove* hypotheses to be correct; we simply develop evidence that supports them or refutes them.

Important: Be sure to explain the connections between the experiment you performed and our larger course subjects (agriculture/environment/human society).

Key Question

Choose a key question from the lab manual that interests you and answer it (unless your instructor assigns a particular question to be answered). Simplistic answers such as "yes" or "no" are not acceptable. Be thoughtful, explain and defend your answer, but be brief and to the point.

NOTE: Your lab reports are due at the beginning of the lab section you attend. There is a significant penalty for late completion of lab reports (number grade reduced by 25% if turned in late but within 24 hr of original due date/time. A grade of zero will be entered for lab reports not hand-delivered to an instructor within 24 hr. of the start time of your lab section).

Format for Science News Portfolio

SCIENCE PRESS PORTFOLIO
PLANT PATHOLOGY / BOTANY 123
SPRING 2004

Unit I: Science Press Worksheets

Complete two Science Press Worksheets based on current science news

Unit II: Bias in the Media

Compare and contrast two science news articles on the same topic that differ in opinion.

Unit III: Be a Journalist

Write your own newspaper article about a class topic, and write a reflective essay.

Science News Portfolio Unit I: Science Press Worksheets

Instructions: During the weeks of Jan. 26 and Feb. 9, choose an article from the *New York Times Science Times* or from the set of links to internet articles presented at the web site for your *Essential Biology with Physiology* textbook. For each article, complete the following table and answer all the questions below. Type your answers into this form, then print it out and hand in the hard copy. Handwritten or emailed worksheets will not be accepted. You will be graded on the logic, clarity, and depth of your answers. Keep your answers brief and to the point. The completed worksheet should not exceed 2 pages. Worksheets are due in lab during the weeks of Feb. 2 and Feb. 16. A similar exercise will form the take-home segment of Exam I, using articles that we assign.

Your Name	
Lab Session Number	
Article Title	
Author	
Source (periodical name)	
Publication Date	
Today's Date	

1. Summarize the article in your own words. What were the main point(s)?
2. Did the author seem to have a position, opinion, or bias toward one viewpoint? Explain.
3. What evidence was convincing? Why?
4. What further experiments or information gathering do you think should be done? Why?
5. How does the article relate to material we have learned in class?
6. Choose one:
 - (a) write the title of a follow-up article that could appear in the future
 - (b) explain how the article is relevant to your life

Science News Portfolio Unit II: Bias in the Media

You will receive references to several pairs of articles. Each pair offers two contrasting views on a controversial, biology-related topic. Select one pair of articles to analyze, then write an essay that compares and contrasts the two authors' viewpoints. Your essay should be no longer than 2 pages. Your essay is due in your lab section March 29. You will be graded on the logic of your arguments, the accuracy of your claims and/or your justification of your claims, and the depth of your analysis. Also include your Unit I assignments. Keep all of these documents in your portfolio after they are returned to you.

Address the following points in your essay:

1. Which view do you think is more accurate, and why?
2. Which do you believe, and why?
3. Briefly note instances in which experimentally-based evidence was presented.
4. Briefly note instances in which opinions or beliefs were presented that are not based on the results of scientific inquiry.
5. Suggest any additional information that would persuade you to change your views on this topic.

Science News Portfolio Unit III: Journalist

Essay 1: Reflective essay.

In this assignment, you will analyze your progress since the beginning of the semester in interpreting scientific news articles. Select one of your articles from Unit I and/or a topic that we learned about in class this semester. Explain any shift in your reaction, perception, or attitude since the first weeks of class. What changed your mind? Why? Your essay should be no longer than 2 pages. Due in lab: week of May 3.

Essay 2: Write an article for *New York Times Science Times*.

Below is a list of topics that have been discussed during class this semester. Select one topic that you feel should be covered in a popular news journal, such as *NYTST*. Research the topic, then write your own 1-2 page article. Imagine that your audience is college educated, but does not necessarily have a scientific background. In your article, be sure to discuss any experimental evidence, real-world applications, and justification for its print (why your article is newsworthy). Remember that the first paragraph of a newspaper article is critical: it needs to “hook” the reader with an interesting slant, and it should be a quick overview of the main idea of the paper. A general rule of thumb is that the first paragraph should be very brief and should state who, where, why, when, what, and how. Due at the beginning of Exam 3, May 13.

Notes:

1. You are welcome to identify a topic of your own, but it needs to be approved by your TA before you submit it. The topic should relate to course material.
2. Your article can be biased or balanced – you choose!

Possible topics for NYTST article: (pick one)

- Pesticide use
- Drugs from plants or microbes
- Evolution/Creationism
- Plant genetic engineering (pick a sub-topic you have not already covered)
- Population growth
- Farming methods/approaches
- Food trends (pick a topic clearly related to themes of this course)
- Global warming
- Biodiversity
- Nutrient cycles/nutrient pollution

Grading Scheme (rubric) for NYTST article:

Newsworthy: A catchy title and introductory paragraph grab the reader’s attention.

Clarity and Organization: Writing is clear, organized, concise, and creative.

Relevance:

- It is clear how the topic could apply to a NYTST reader's life.
- The topic relates to class.

Position and Justification (You are the "author")

- Author's position on the topic is clear.
- Author's position is justified with evidence.

If author's position is balanced:

- Both sides of the argument are presented fairly, with adequate evidence.
- Author doesn't contradict herself/himself.

If author's position is biased toward one argument:

- Both sides of the argument are presented.
- Rationale is provided as to why one side of the argument is stronger than the other, with evidence.

Tips for Doing Your Best in this Course

1. **Come to class.** Attendance in lecture and lab is required. Most of the questions on the exams are based on the lecture material. Reading someone else's notes just isn't the same as being part of the lecture firsthand. If you must miss a lecture, let your TA know and be sure to get the notes from someone else in the class.
2. **Ask questions.** If you are confused, ask questions. Even if you are not confused, ask questions. Science is about asking questions. The very process of formulating a question helps clarify ideas.
3. **Work as a team member.** Several assignments, including take-home exams, lab experiments, and genetic engineering presentations, require a concerted team effort. You will depend on your team, and your team will depend on you.
4. **Turn in all lab reports, and get them in on time.** Lab reports will help your grade. You cannot pass this course without a good grade in the lab section. Your lab reports are due at the start of your lab section for the week they are due. Avoid the grading penalty associated with late lab reports.
5. **Keep up with the work.** This course is quite manageable if you keep on top of the readings, lab reports, lecture material, and papers. If you let things pile up, you won't be able to do your best.
6. **Ask for help.** All of the instructors are here to help you do your best in the course. Please let us help. If you cannot make it to our regularly scheduled office hours, contact us to set up another time. If you have any special needs such as a physical or learning disability that we can help you with, please let us know. Our goal is for **all** students to do their personal best in this course.

Keep this copy for yourself.

Plants, Parasites, and People
Plant Pathology/Botany 123

Expectations for Students Participating in a Cooperative Classroom

Learning in a cooperative environment should be stimulating, demanding, and fair. Because this approach to learning is different from the competitive classroom structure that many other courses are based on, it is important for us to be clear about mutual expectations. Below are our (the instructors') expectations for students in this class. This set of expectations is intended to maximize debate and exchange of ideas in an atmosphere of mutual respect while preserving individual ownership of ideas and written words. If you feel you do not understand or cannot agree to these expectations, you should discuss this with your instructor and classmates.

1. Students are expected to work cooperatively with other members of the class and show respect for the ideas and contributions of other people.
2. When working as part of a group, students should strive to be good contributors to the group, to listen to others in the group and try not to dominate, and to recognize the contributions of others. Students should try to ensure that everyone in the group makes a contribution, and recognize that everyone contributes in different ways to a group process.
3. Students should conduct experiments, discuss group exams, and develop projects as part of a group, but write lab reports, exams, and papers alone and not copy from anyone else. If you use material from published sources, you must provide appropriate attribution.

I have read and understood the expectations of students in this class. If I am uncertain about appropriate behavior in the class I will ask one of the instructors for clarification.

Signed,

Write signature here

Print your name here

Sign this copy and give it to your TA by January 29, 2004.

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