

OAKTON COLLEGE
COURSE SYLLABUS

BIO 109 - 002
Plants and Society

Fall 2024
August 19 – December 11, 2024

MW 11 AM – 12: 15 PM
DP / Lee - Room 160

IAI General Education: [L1 901: Plants and Society](#)

Professor: Paul Gulezian, Ph.D.
Email: pgulezian@oakton.edu
Office: Room 301, DP/Lee

Office Hours:
MW 4:45 – 6:15 pm & T 12:30 – 2 pm
and by appointment

I.	<u>COURSE PREFIX</u>	<u>COURSE NUMBER</u>	<u>COURSE NAME</u>	<u>CREDIT</u>	<u>LECTURE</u>	<u>LAB</u>
	BIO	109	Plants and Society	3	3	0

II. PREREQUISITE: None.

Recommended: One year of high school biology.

III. COURSE (CATALOG) DESCRIPTION:

Course focuses on biological aspects of the plant kingdom and connections to human beings, with topics ranging from sub-cellular processes to ecological roles. Content includes structural and physiological adaptations, present and past diversity, reproduction, genetics and evolution, ecological interactions, and importance to human agriculture, medicine, general welfare and society.

IV. LEARNING OBJECTIVES:

After successfully completing this course, the student should be able to:

1. Analyze data and observations obtained from laboratory experiments and field studies performed using scientific methods.
2. Explain cellular and sub-cellular processes of plants.
3. Compare and contrast the functions of the different types of plant tissues.
4. Explain photosynthesis, growth and development, and reproduction in plants.
5. Evaluate the role of mitosis, meiosis, DNA replication, selection, and adaptation in the evolutionary history of plants.

6. Explain the process, mechanisms, and evidence for biological evolution.
7. Select the correct phylogenetic group for local observed plants found during field trips in Northeastern Illinois
8. Evaluate the important interactions between plants and different animal groups, including pollination and seed dispersal.
9. Assess the importance of plants in diverse ecosystems and also their importance to human welfare and society.
10. Compile a list of explicit examples of how plants have been domesticated or used by people for food, medicine, and materials, both in historical and contemporary times.

BIOLOGY DEPARTMENT LEARNING OUTCOMES

Biology department courses help students develop the following skills:

1. Critical Thinking

- Defend a position with evidence or a rationale
- Determine an appropriate solution to a problem
- Analyze a problem and/or solution(s) to a problem
- Analyze concepts and ideas

2. Written Communication

- Select appropriate content in written work for a given audience/situation
- Integrate appropriate sources into one's own written work for a given audience/situation
- Develop appropriate content and form in written work for a given audience/situation
- Organize written content appropriately for a given audience/situation

3. Oral Communication

- Select appropriate content for an oral presentation and for a given audience/situation
- Organize oral content appropriately for a given audience/situation
- Integrate appropriate sources into oral presentation for a given audience/situation
- Demonstrate effective verbal and non-verbal skills during an oral presentation

4. Information Literacy

- Access appropriate information sources for a topic
- Critique information sources for a topic
- Select appropriate information resources for a topic

5. Quantitative Literacy

- Compute quantitative information
- Interpret quantitative information

6. Responsibility

- Demonstrate personal responsibility and ethical conduct in one's academic, civic, and global life
- Analyze perspectives as they relate to cultural diversity

7. Collaboration

- Collaborate with people of diverse backgrounds and abilities
- Develop a solution to a problem through group work
- Defend a position with evidence through group work

IV. ACADEMIC INTEGRITY AND STUDENT CONDUCT:

Students and employees at Oakton College are required to demonstrate academic integrity and follow Oakton's Code of Academic Conduct. This code prohibits:

- cheating,
- plagiarism (turning in work not written by you, or lacking proper citation),
- falsification and fabrication (lying or distorting the truth),
- helping others to cheat,
- unauthorized changes on official documents,
- pretending to be someone else or having someone else pretend to be you,
- making or accepting bribes, special favors, or threats, and
- any other behavior that violates academic integrity.

There are serious consequences to violations of the academic integrity policy. Oakton's policies and procedures provide students a fair hearing if a complaint is made against you. If you are found to have violated the policy, the minimum penalty is failure on the assignment and a disciplinary record will be established and kept on file in the office of the Vice President for Student Affairs for a period of 3 years.

Please review the Code of Academic Conduct **and** the Code of Student Conduct, both located online at <https://www.oakton.edu/pdfs/student-handbook.pdf>

VI. OUTLINE OF TOPICS:

Lecture Outline:

Unit I – Introduction to Plants, Structure and Function, Reproduction, and Evolution

- a. Introduction: Characteristics of Life, Scientific Method, Connections to People (Week 1; Ch. 1)
- b. Cell Structure and Function (Week 2; Ch. 2-3)
- c. Photosynthesis and Physiology (Weeks 2-3; Ch. 4)
- d. Reproduction: Flowers (Week 3; Ch. 5)
- e. Reproduction: Fruits and Seeds (Weeks 3-4; Ch. 6)
- f. Genetics, Systematics, and Evolution (Week 4; Ch. 7-8)
- g. Plant Diversity (Optional; Ch. 9)

Unit II – Plants as a Source of Food

- a. Human Nutrition (Week 5; Ch. 10)
- b. Origins of Agriculture (Week 6; Ch. 11)
- c. Grasses (Weeks 6-7; Ch. 12)
- d. Legumes (Week 7; Ch. 13)
- e. Starchy Staple Crops (Weeks 7-8; Ch. 14)
- f. Feeding a Growing Human Population (Week 8; Ch. 15)

Unit III – Plants as a Source of Medicine and Materials

- a. Stimulating Beverages (Week 9; Ch. 16)
- b. Materials: Cloth, Wood, and Paper (Week 10; Ch. 18)
- c. Medicinal Plants (Week 11; Ch. 19)
- d. Psychoactive Plants (Week 12; Ch. 20)

Unit IV – Ecology, Conservation, Restoration, and Field Work

- a. Plant Ecology (Weeks 13-14, Ch. 26)
- b. Conservation and Restoration (Weeks 14-15, Ch. X)
- c. Field Study and/or Review (Outdoors) (Week 16)

VII. METHODS OF INSTRUCTION:

The course will be presented via about three hours of lecture/discussion each week. The course will also feature audio-visual media, class discussion, quizzes, exams, field study experiences (outdoor labs), readings, and plant species classification.

VIII. COURSE PRACTICES REQUIRED:

Students are expected to:

- **Attend** all lectures and discussion periods...this is critical!
- **Participate** in class discussion...otherwise our time together will become too lecture heavy. I count on you all to ask questions (there is no such thing as a stupid question – that is definitely true!), answer my questions to the best of your ability, and add your knowledge to the class!
- **Read** assigned materials as scheduled (skim slides before session)
- Take thorough **notes** in lecture and discussions
- Be **respectful** of others: language, distractions, cell phone usage, etc.
- **Cell phone policy:** Phones need to remain **out of sight and out of hands while class is in session** unless I have asked students to use them for calculations or other relevant purposes. Students who need to be in contact with family members for personal reasons should simply excuse themselves from class if they need to talk or text for personal reasons.
- This course *potentially* involves being **outside in the woods for field ecology labs**. There are no officially scheduled labs, as this is a non-lab course, but I may devote some of our lecture time to outdoor “labs” to enhance our learning together. On days when we are outside for lab, students should come properly dressed for comfort and safety. This means students should wear/bring: **pants** (no matter how hot it is...there is poison ivy in the woods), **sturdy shoes or boots**, a **hat**, **field notebook**, and perhaps **insect spray and sunscreen**, according to personal needs/desires.

IX. INSTRUCTIONAL MATERIALS:

Text: Estelle Levetin and Karen McMahon. *Plants and Society* (9th edition). McGraw-Hill Education, 2024. ISBN: 9781266710414 (E-text)

Slides: written by Dr. Gulezian and posted to D2L.

Optional text:

Gulezian, Paul Zorn. *A Field Guide to the Biodiversity of the Chicago Region*, 4th Ed, Van-Griner, 2025. Available at: <https://store2.van-griner.com/product/a-field-guide-to-the-biodiversity-of-the-chicago-region/>

Direct Digital Access (DDA) Statement: Some Oakton course sections (including this course) have been designated as a Direct Digital Access (DDA) section. Students in those sections pay a course fee during registration which gives them access to the E-text and online homework platforms. They do not need to purchase these materials separately. If you are unsure if your section is a DDA section, contact your chair or coordinator.

If a Direct Digital Access (DDA) fee has been charged as part of tuition and fees, viewable on myOakton, students have the option to opt-out of the e-book(s) and fee(s). Please email ddaoptout@oakton.edu for more information.

Optional print version of the textbook: You also have the option of purchasing a low-cost loose-leaf print version of the text that would accompany your DDA electronic textbook access. You must be in the DDA program to get this printed material, should you want it. In other words, if you want this optional printed version don't "opt out." The cost is roughly \$50. You can secure this printed version via the Oakton bookstore.

X. METHODS OF EVALUATING STUDENT PROGRESS:

- attendance at all class sessions
- satisfactory classroom and field work participation
- submission of all written assignments on time and in proper format
- attainment of passing grades on examinations, quizzes, and homework assignments

Policies on Missed Exams/Quizzes/Labs and Late Work:

- 1) **Makeup Exam Policy/Optional Cumulative Final:** If you miss an exam, you will not have an opportunity to make up the exam. Part of being a responsible student is making sure you are able to attend (and be adequately prepared for) evaluations of your learning, skills, and content knowledge. However, missing a single exam due to unforeseen circumstances or a known prior conflict will not necessarily hurt your overall grade because an optional cumulative final exam is offered during the last week of the course. The optional final is worth the same amount of points as one of the four semester exams (100 points) and replaces the lowest prior exam grade (whether a 0 or not). NOT TAKING the optional final exam cannot hurt a student's overall course grade, as only 4 exam grades (total of 400 points) count towards the final course grade.
- 2) **Assignment Due Dates and Late Assignment Policy:** Assignments have an explicit due date included on the assignment document provided to students. If you fail to turn in an assignment on the day and time it is due (uploaded to D2L), a late assignment submission will be accepted for an additional week for partial credit, with 25%-50% of the points deducted, depending on the assignment. It is almost always better to submit a late assignment for partial credit than to not submit an assignment at all.

- 3) **Lab Report Extensions:** Life happens. I get it! In an attempt to be compassionate about all of the responsibilities that we are all balancing in our lives, each student will be allowed two (2) extensions on an assignment (excluding exams) during the term. To use an extension, the student must contact the professor and receive confirmation of the extension BEFORE the due date/time for that assignment. Notice of need of an extension is appreciated at least 24 hours before the deadline. Extensions will be for an additional 24-48 hours except in rare cases with the consent of the professor.
- 4) **Attendance/Participation:** There are 2 points available for each lecture/discussion session. To earn the point, a student needs to be present AND participate in class. I track who answers questions and engages in class discussion each day. There are about 30 scheduled class sessions, and the points total for attendance/participation points is about 60 points overall.

Grading Scale:

A - 90-100% B - 80-89% C - 70-79% D - 60-69% F - 0-59%

The standard grading scale may be adjusted at the end of the course at the discretion of the professor.

Grades will be assigned based on a points system. The final number of points for the course will not be known until the end of the term, as it depends on the number of assignments and quizzes given during the term. The number, schedule, and kind of assignments may change during the course, but reasonable advance notice will be given for any changes.

The following is a good estimate of the point distribution:

Exams (4 @ 100 pts each)	400 (~63%)
Unit Assignments (4 @ 40-50 pts each)	180 (~28%)
(Documentary Analysis (1 @ 40 pts))	Potential EC
<u>Class Participation</u> (30 @ 2 pts each)	<u>60 (~9%)</u>
Total: ~640 points (100%)	

XI. OTHER COURSE INFORMATION:

1. This is an **Environmental Studies Concentration (ESC)** class! To learn more about the ESC, and why it may be a good fit for you, visit: www.oakton.edu/esc/ . I am one of the founding Co-Coordinator of the ESC (though I no longer serve in that role), so please come to me with any questions about the program overall or specific ESC courses.
2. **Disability and Academic Accommodations:** Oakton College values equity and the diversity of learners and community members we serve. We strive to make all learning experiences as accessible as possible. If you encounter a course, program or activity that is not accessible, or you wish to request disability-related accommodations, please contact the Access and Disability Resource Center at accessdisability@oakton.edu or 847-635-1489.

3. **Dignity and Worth of All Individuals:** Oakton College is committed to maintaining a campus environment emphasizing the dignity and worth of all members of the community, and complies with all federal and state Title IX requirements.

Oakton College is committed to combatting sexual misconduct. As a result, college faculty and staff members are required to report any instances of sexual misconduct, including harassment and sexual violence, to the Title IX Coordinator so that all parties involved may be provided appropriate resources and support options. There are two important exceptions to this requirement:

- 1) A list of the college's Confidential Advisors who, as counselors and medical professionals, do not have this reporting responsibility and can maintain confidentiality, can be found here:
<https://www.oakton.edu/life-at-oakton/health-and-wellness/counseling.php>
- 2) An important exception to the reporting requirement exists for academic work. Disclosures about sexual misconduct that are shared as part of an academic project, classroom discussion, or course assignment, are not required to be disclosed to the college's Title IX office.

Students who have been subjected to any form of sexual misconduct, are encouraged to access these resources:

- Office of Student Affairs: 847-635-1745
- SHARE @ the Wellness Center: 847-635-1885 (8:30 AM TO 5 PM M-F) and 847-635-1880 (after business hours to reach the Counselor on Call)
- Oakton's Title IX webpage: <https://www.oakton.edu/about/policies-and-legal-notice/title-ix.php>

If there is a safety concern, please contact Oakton Police Department, 847-635-1880.

Other reporting information is available here:

https://cm.maxient.com/reportingform.php?OaktonCC&layout_id=2

Resources and support for:

- Pregnancy-related and parenting accommodations can be found at:
<https://www.oakton.edu/about/policies-and-legal-notice/title-ix2/pregnancy-and-parenting.php>
- Resources and support for LGBTQ+ students can be found at:
<https://www.oakton.edu/life-at-oakton/diversity-at-oakton/lgbtqia2-at-oakton/>

3. **Electronic video and/or audio recording** is not permitted during class unless the student obtains written permission from the instructor. In cases where recordings are allowed, such content is restricted to personal use only. Any distribution of such recordings is strictly prohibited. Personal use is defined as use by an individual student for the purpose of studying or completing course assignments.

For students who have been approved for audio and/or video recording of lectures and other classroom activities as a reasonable accommodation by Oakton's Access Disabilities Resource Center (ADRC), applicable federal law requires instructors to permit those recordings. Such recordings are also limited to personal use. Any distribution of such recordings is strictly prohibited.

Violation of this policy will result in disciplinary action through the Code of Student Conduct.

4. **Oakton Emergency Building Closures.** When an Oakton building is closed due to an emergency (e.g., weather-related closings), that doesn't mean instruction stops. Students should check for communications from their instructor via D2L, other learning environments such as myMathlab, or via email or text. If you don't receive communication from your instructor within 24 hours of building closure, please contact them.
5. **Religious Observances and Missed Classes:** Any student who is unable, because of his or her religious beliefs, to attend classes or participate in any required exam or work on a particular day shall be excused from that exam or work requirement and shall be provided with an opportunity to make up any requirement that he or she may have missed on that day, provided that he or she notifies the faculty member or instructor at least two weeks in advance of any anticipated absence, and provided that the make-up exam, study, or work does not place an unreasonable burden upon the institution.
6. **Pregnancy:** If you are pregnant or become pregnant during the semester, you have the option to meet with me to discuss accommodations that may be necessary in the event that you may miss classes, labs, and exams. It may not be possible to grant accommodations after the fact, so it is better to prepare in advance for any possible scenarios.

7. **Policy on Children in Class:**

Currently, the college does not have a formal policy on children in the classroom. What follows is my own personal commitment to students who are parents:

I ask all students in class to work with everyone to create a welcoming atmosphere that is respectful of all forms of diversity, including diversity in parenting status.

All exclusively breastfeeding babies are welcome in class (lecture room) as often as is necessary.

For older children or babies, I realize that unforeseen disruptions in childcare plans often put parents in the position of having to miss class to stay home with a child. While this is not meant to be a long-term solution, it is acceptable to occasionally bring a child to class (lecture room) in order to cover gaps in care. Children should not be brought to outdoor or indoor labs during which the child's safety would be at risk. Please communicate with me ASAP if you are considering bringing a child to a particular class.

In all cases in which children and babies come to class, I ask that the parent sit close to the door so that if the child needs special attention and is disrupting learning for other students, the parent may step outside until the child's needs have been met.

Finally, I realize that often the most difficult barrier to completing coursework as a parent is the exhaustion many parents feel in the evening once children have finally gone to bed. While I maintain the same high expectations for all students regardless of parenting status, I am happy to work with any parent who needs more flexibility in figuring out how to meet the work requirements of the course. Please reach out to me and we will figure something out to help with school/parenting balance.

8. Academic calendar Fall 2024

August 19 - Fall semester classes begin.

September 2 - Labor Day holiday. College closed, no classes meet. *(No Monday class)*

September 16 - Last day to withdraw from 16-week courses with course dropped from record.

October 21 - Last day to withdraw with a “W” on transcript from 16-week courses.

October 23 – College Learning Day. College closed, no classes meet. *(No Wednesday class)*

November 11 – Veterans’ Day. College closed. *(No Monday class)*

November 12 – 14 – Priority registration opens for spring 2023 semester.

November 15 - Open registration for spring 2023 semester.

November 28 - 29 - Thanksgiving Recess. College closed.

December 10-11 - Evaluation Days.

December 11 - Last day of student attendance.

XII. DETAILED WEEKLY TOPICAL OUTLINE / SCHEDULE:

Societal Relevance Topics highlighted in Blue

Science Skills Process highlighted in Yellow

Additional Topical Emphasis in Green, including Molecular Biology, Genetics and Heredity

Unit I – Introduction to Plants, Structure and Function, Reproduction, and Evolution

Week 1:

- Class Welcome and Introductions
- Intro: Plants as the Basis of Life, Connections to People (Ch. 1)

IMPORTANT TOPICS COVERED:

Plants as masters of biochemistry as an evolutionary survival strategy; secondary compounds including terpenes, phenolics, alkaloids, and glycosides; Indigenous perspectives of plants as teachers and bearers of gifts (Potawatomi-North America, Aymara-South America, Ewe-West Africa (Ghana and Togo)); Anishinaabe Creation Myth – Skywoman Falling (Robin Kimmerer); Traditional Ecological Knowledge (TEK) and breaking the myth of purely “Western science”

Week 2:

- Intro continued (Ch. 1)
- Cell Structure and Function (Cell and Molecular Biology) (Ch. 2-3)
- Photosynthesis and Physiology (Cell Biology and Biochemistry) (Ch. 4)

IMPORTANT TOPICS COVERED:

Plant cell structure and function; diffusion and osmosis; mitosis; plant tissue types (vascular, ground, dermal); xylem and phloem transport; photosynthesis metabolic processes; cell respiration; electron transport systems; photosystems; oxidation and reduction reactions; sugarcane production, colonialism, and the Trans-Atlantic enslaved people trade

Unit 1 Assignment – “The Overstory” Chapter Excerpt – Assigned beginning of Week 2, Due beginning of Week 4.

- PDF of Patricia Westerford chapter from *The Overstory* by Richard Powers, in D2L

Students read and critically analyze a chapter from Richard Powers’ novel *The Overstory* to explore themes around plant survival and adaptations, relationships with other species in ecosystems, humanity’s propensity to ‘plant blindness’, scientific research/inquiry, biodiversity, life/death. A class discussion follows the written analysis students submit. As part of the analysis, students use the chapter excerpt as a starting point to explain foundational biological concepts that appear in the excerpt, including but not limited to: molecular biology, genetics, heredity, plant interactions with fungi and animals, plant communication, plant biochemical defenses, natural selection, adaptation, and macroevolution. Students find appropriate peer-reviewed scientific journal articles that investigate topics introduced in the chapter to substantiate the real-world scientific basis for information presented in the novel.

Week 3:

- Photosynthesis and Physiology continued (Ch. 4)
- Reproduction: Flowers (Ch. 5)

IMPORTANT TOPICS COVERED:

Angiosperm structure and function (flowers); meiosis; pollination; double fertilization; co-evolution with animals as pollinators

Week 4:

- Reproduction: Fruits and Seeds (Ch. 6)
- Genetics, Heredity, Systematics, and Evolution (Ch. 7-8)

IMPORTANT TOPICS COVERED:

Fruit and seed development, structure, and function; types of fruits; co-evolution with animals as seed dispersers; plant hormones and reproduction; Mendelian genetics and heredity using pea plants; mutation, natural selection; reproductive isolation; gene flow; adaptation; allele frequency change (microevolution); speciation (macroevolution)

Unit II – Plants as a Source of Food

Week 5:

- Human Nutrition (Ch. 10)
- Origins of Agriculture (Ch. 11)

IMPORTANT TOPICS COVERED:

Macronutrients (carbohydrates, fats/lipids, proteins); micronutrients (vitamins and minerals); nutritional recommendations; hunter/gatherer societies; agricultural societies; domestication of plants; artificial selection; archaeological evidence of agriculture; Indigenous Andean agriculture case study

Week 6:

- Origins of Agriculture continued (Ch. 11)
- Grasses (Ch. 12)

IMPORTANT TOPICS COVERED:

Domestication of grass species as humanity's staple grain crops; grass fruit (grain) anatomy; wheat; maize/corn; rice; grasses as a source of biofuels; cellulosic ethanol production; algae as a source of biofuels

Unit 2 Assignment - Economies and Ecologies – Assigned beginning of Week 6, Due beginning of Week 8.

- <https://emergencemagazine.org/essay/the-serviceberry/>
- PDF of excerpt from *Less Is More* by Jason Hickel in D2L

Students read and critically analyze Robin Kimmerer's essay "*The Serviceberry: An Economy of Abundance*" and an excerpt on the development of capitalism, colonialism, and privatized industrial agricultural production from the book *Less is More* by economic anthropologist Jason Hickel. The assignment is a Q&Q (Quotation & Questions) Article Response where students write a response in which they highlight specific passages of interest from the article readings, try to explain them in their own words, make connections to other ideas/facts from class, and generate critical questions about the passages for the following class discussion. As part of this analysis, students interpret historical data, make hypotheses about the best explanations given observed data, and make predications about how the historical data informs contemporary economic and agricultural systems.

Week 7:

- Legumes (Ch. 13)
- Starchy Staple Crops (Ch. 14)

IMPORTANT TOPICS COVERED:

Legume crops as a source of high-quality protein; nitrogen fixation and symbiosis with *Rhizobium* bacteria; the nitrogen cycle; peanuts, soy beans, alfalfa, forage crops, cover crops, crop rotation, George Washington Carver's plant science innovations; modified stem and storage root crops; potato, cassava, sweet potato, taro, banana/plantain

Week 8:

- Feeding a Growing Human Population (Ch. 15)
- Regenerative Agriculture

IMPORTANT TOPICS COVERED:

Plant breeding for crop improvement; GMOs and biotechnology; high-input industrial monoculture; low-input traditional polyculture; soil science; desertification; irrigation; soil conservation; regenerative agriculture, organic agriculture; permaculture

Unit III – Plants as a Source of Medicine and Materials

Week 9:

- Stimulating Beverages (Ch. 16)

IMPORTANT TOPICS COVERED:

Caffeine and caffeine-like alkaloids; coffee, tea, and cacao (chocolate) production; fair trade programs for coffee and chocolate; chocolate production and child labor/slavery; cacao farmers case study from Okotokrom, Ghana; coffee and colonialism/capitalism

Week 10:

- Materials: Cloth, Wood, and Paper (Ch. 18)
- Medicinal Plants (Ch. 19)

IMPORTANT TOPICS COVERED:

Textiles and clothes woven from plant fibers; cotton; flax; hemp; cotton, slavery, and capitalism; wood and wood products; hardwoods; softwoods; paper; connection between botany and medicine; ethnobotany; traditional ecological knowledge (TEK)

Unit 3 Assignment - Tracing the Threads of an Outfit Assignment – Assigned beginning of Week 10, Due beginning of Week 12.

Students research the biological, social, cultural, environmental, and political impacts and implications of one of their daily clothing outfits and investigate a traditional cultural outfit from one of their ancestors' ethnic groups and make presentations to the class. As part of this analysis and presentation, students develop their understanding of traditional methods of agriculture to produce fibers for clothing and textile production, and communicate this knowledge to their classmates through critical appraisal of different sources. This is an information literacy assignment in addition to a way to help students develop their understanding of the cultural and societal connections to plants.

Week 11:

- Medicinal Plants continued (Ch. 19)
- Psychoactive Plants (Ch. 20)

IMPORTANT TOPICS COVERED:

Active medicinal compounds in plants including alkaloids and glycosides; purple foxglove; willow trees; cinchona tree; malaria; cancer therapies; psychoactive compounds affecting the central nervous system; stimulants, hallucinogens, and depressants; neurotransmitters; mesolimbic dopamine system; tolerance

Week 12:

- Psychoactive Plants continued (Ch. 20)
- Brief Class Presentations

IMPORTANT TOPICS COVERED:

Opium poppy; morphine/heroin; marijuana; THC and CBD; coca plant; cocaine; tobacco; nicotine; peyote cactus, mescaline; drug policy in the United States

Unit IV – Ecology, Conservation, Restoration, and Field Work

Week 13:

- Plant Ecology (Ch. 26)

IMPORTANT TOPICS COVERED:

Ecosystems; biomes; ecological succession; disturbance; energy flow; community ecology; species diversity; keystone species; foundation species; biogeography; productivity

Week 14:

- Plant Ecology continued (Ch. 26)

IMPORTANT TOPICS COVERED:

Ecological interactions; competition; predation; parasitism; mutualism; evolutionary effects of ecological interactions (e.g. character displacement); trophic cascades

Unit 4 Assignment - Cultural Relativism and the Coca Leaf – Assigned beginning of Week 14, Due beginning of Week 16.

<https://www.sapiens.org/culture/coca-cocaine-legality/>

- PDF of “Defoliating the World” by Hannah Meszaros Martin in D2L

Students read and critically analyze two readings about how humans view the coca plant through different cultural lenses and explore the concept of ecocide in the context of US-sponsored anti-cocaine aerial fumigation campaigns in South America. The written responses inform a subsequent class discussion. As part of the written analysis paper, students review historical data of various kinds that appear in the Hannah Martin journal article, and make conclusions about the ecosystem, economic, and human societal impacts of anti-narcotics drug policy in the Western Hemisphere.

Week 15:

- Conservation and Restoration (Ch. X)
- Field Study and/or Review (Outdoors)

IMPORTANT TOPICS COVERED:

Forests; ecosystem services; mangroves; forestry techniques; tropical forests; national parks; land trusts; biodiversity hotspots; species reintroductions; ecological restoration techniques

Week 16:

- Field Study (Outdoors) and/or Review

Potential Field Study Topics:

1. Native Plants and Ethnobotany
2. Tree Diversity and Statistics
3. Ecological Restoration with the Naturalist

Exam Schedule:

Exam 1: Beginning of Week 5 (Sept 16) (Unit I)

Exam 2: Beginning of Week 9 (Oct 14) (Unit II)

Exam 3: Beginning of Week 13 (Nov 13) (Unit III)

Exam 4: Beginning of Week 17 (Dec 11) (Unit IV)

Optional Final Exam: End of Week 17 (Dec 9) (Units I – IV)