

Term Information

Effective Term Spring 2025

General Information

Course Bulletin Listing/Subject Area Molecular Genetics
Fiscal Unit/Academic Org Molecular Genetics - D0340
College/Academic Group Arts and Sciences
Level/Career Undergraduate
Course Number/Catalog 1103
Course Title Plants & Society: An Introduction to Plant Biology
Transcript Abbreviation Plants & Society
Course Description Plants and their relationships to humans and the biosphere, how plants adapt to changing environments and are critical to a collective response to the changing climate, plant anatomy, plant cell biology, plant genetics, and plant biotechnology.
Semester Credit Hours/Units Fixed: 4

Offering Information

Length Of Course 14 Week
Flexibly Scheduled Course Never
Does any section of this course have a distance education component? No
Grading Basis Letter Grade
Repeatable No
Course Components Laboratory, Lecture
Grade Roster Component Lecture
Credit Available by Exam No
Admission Condition Course No
Off Campus Never
Campus of Offering Columbus, Lima, Mansfield, Marion, Newark, Wooster

Prerequisites and Exclusions

Prerequisites/Corequisites None
Exclusions Molgen 1101, Biology 1101, 1113, 1113H, 1114, 1114H
Electronically Enforced Yes

Cross-Listings

Cross-Listings

Subject/CIP Code

Subject/CIP Code 26.0804
Subsidy Level General Studies Course
Intended Rank Freshman, Sophomore, Junior, Senior

Requirement/Elective Designation

Natural Sciences

Course Details

Course goals or learning objectives/outcomes

- See attached syllabus

Content Topic List

- Plants in the modern world
 - Plants and climate change
 - Introduction to life
 - The plant cell
 - Plant structure and growth
 - Plant metabolism: photosynthesis
 - Plant nutrition
 - Plant flowering and reproduction
 - Mendelian genetics
 - Plant biotechnology

Sought Concurrence

No

Attachments

- Molgen_1103_GE Foundations_Syllabus.docx: Original Syllabus
(Other Supporting Documentation. Owner: Cole, Susan Elizabeth)
- Cover Letter for 1103 revision 022224.docx: Response to revision
(Other Supporting Documentation. Owner: Cole, Susan Elizabeth)
- Revision _GE Foundations_Syllabus_MG1103.docx: Syllabus for first revision
(Other Supporting Documentation. Owner: Cole, Susan Elizabeth)
- Cover Letter for 1103 request.docx: Original Cover letter
(Other Supporting Documentation. Owner: Cole, Susan Elizabeth)
- Cover Letter for 1103 revision 071524.docx: Cover letter for second revision
(Other Supporting Documentation. Owner: Cole, Susan Elizabeth)
- MOLGEN1103_GE Foundations_Syllabus_v3_080124.docx: Syllabus for second revision
(Other Supporting Documentation. Owner: Cole, Susan Elizabeth)
- MG1103_ge-foundations-submission v3.pdf: GE foundations
(Other Supporting Documentation. Owner: Cole, Susan Elizabeth)
- Concurrence request Molgen 1103 - Sent • cole.354@osu.edu.pdf: Email request CFAES concurrence
(List of Depts Concurrence Requested From. Owner: Cole, Susan Elizabeth)
- CFAES concurrence Molgen 1103 - Inbox • cole.354@osu.edu.pdf: Concurrence from CFAES
(Concurrence. Owner: Cole, Susan Elizabeth)
- Cover Letter for 1103 revision 3.docx: Cover letter revision 3
(Cover Letter. Owner: Cole, Susan Elizabeth)
- MOLGEN1103_GE Foundations_Syllabus_v4 submitted.docx: Syllabus for revision 3
(Syllabus. Owner: Cole, Susan Elizabeth)

Comments

- Please see Subcommittee feedback email sent 09/11/2024. *(by Hilty, Michael on 09/11/2024 02:40 PM)*
- Updates to reflect that the 1 credit experiential learning portion is a lab.
While the class is an update of MolGen1101 for the GEN, the reduction in credit hours led us to request a new course number. At this time we are only seeking approval for the GEN Foundation in Natural Sciences, and no longer requested approval for the Legacy GE
Concurrence sought with CFAES *(by Cole, Susan Elizabeth on 08/05/2024 12:38 PM)*
- Please see Subcommittee feedback email sent 4/15/24. *(by Neff, Jennifer on 04/15/2024 09:46 AM)*

COURSE REQUEST
1103 - Status: PENDING

Last Updated: Vankeerbergen, Bernadette
Chantal
09/30/2024

Workflow Information

Status	User(s)	Date/Time	Step
Submitted	Cole, Susan Elizabeth	01/05/2024 11:41 AM	Submitted for Approval
Approved	Cole, Susan Elizabeth	01/05/2024 11:41 AM	Unit Approval
Approved	Vankeerbergen, Bernadette Chantal	01/24/2024 12:37 PM	College Approval
Revision Requested	Neff, Jennifer	02/13/2024 10:25 AM	ASCCAO Approval
Submitted	Cole, Susan Elizabeth	02/27/2024 11:25 AM	Submitted for Approval
Approved	Cole, Susan Elizabeth	02/27/2024 11:25 AM	Unit Approval
Approved	Vankeerbergen, Bernadette Chantal	03/07/2024 05:19 PM	College Approval
Revision Requested	Neff, Jennifer	04/15/2024 09:46 AM	ASCCAO Approval
Submitted	Cole, Susan Elizabeth	08/05/2024 12:38 PM	Submitted for Approval
Approved	Cole, Susan Elizabeth	08/05/2024 12:38 PM	Unit Approval
Approved	Vankeerbergen, Bernadette Chantal	08/08/2024 03:26 PM	College Approval
Revision Requested	Hilty, Michael	09/11/2024 02:40 PM	ASCCAO Approval
Submitted	Cole, Susan Elizabeth	09/23/2024 09:29 AM	Submitted for Approval
Approved	Cole, Susan Elizabeth	09/30/2024 03:07 PM	Unit Approval
Approved	Vankeerbergen, Bernadette Chantal	09/30/2024 03:30 PM	College Approval
Pending Approval	Jenkins, Mary Ellen Bigler Hanlin, Deborah Kay Hilty, Michael Neff, Jennifer Vankeerbergen, Bernadette Chantal Steele, Rachel Lea	09/30/2024 03:30 PM	ASCCAO Approval



September 20th, 2024

Susan E. Cole
209 Biological Sciences Building
484 W. 12th Ave.
Columbus, OH 43210

Dear Members of the ASCC,

614-292-3276 Phone
614-292-4466 Fax

cole.354@osu.edu

We thank the committee for their input on the The Department of Molecular Genetics course MOLGEN 1103 "Plants & Society: An Introduction to Plant Biology". In this letter we outline the changes made in response to the second round of review and after consultation with Christopher Hadad.

- *The Subcommittee would like additional information surrounding the activities that will be taking place during the laboratory sessions. Specifically, they would like a brief explanation of what students will be expected to complete during each laboratory session and how students will be assessed within the laboratory. In the GEN Foundation application form, there is mention underneath ELO 2.1 that laboratories will consist of significant amounts of discussion. While, of course, discussion is a very valuable and pedagogically important aspect of course design, the Subcommittee worries that the course will not generate enough quantifiable material for when the course is assessed as part of the University's assessment of the GEN Foundation: Natural Sciences category. Will students be assessed based upon a rubric during these discussions? Will there be additional activities that will assess student learning?*

For the 10/14 experiential laboratories, brief activity descriptions were included in the syllabus submitted with revision 2 (pages 15-17). In the most recently revised version of the syllabus they appear on pages 16-18.

Additional details regarding assessment are included on pages 6-7 (highlighted in green), demonstrating that significant quantifiable material will be collected for assessment.

- Assessment expectations of the plant noticing journal and the lab activity writeups connected to the experiential learning lab sections are included on pages 6-7.
- Four additional lab sessions (weeks 2,3,7,and 11) use active learning and discussion to help meet other learning goals (ELO 2.1-2.3). Which ELOs are engaged in each lecture and lab session is clearly highlighted throughout. For the lab sessions devoted to ELOs 2.1-2.3, specific plans for assessment of those outcomes in included on page 7 (Scientific Method mini project, Plants as Energy, Science in the Public Press).
- *The Subcommittee would like additional information, as noted in the course syllabus, surrounding the space in which the laboratory activities will be taking place. Does the department have available space for this work? If not, there is concern that the appropriate space may potentially be difficult to secure.*

While this strikes us more as a scheduling issue than a curricular issue, we can confirm that we have space under departmental scheduling control that will be used. This space in Jennings Hall was used for the lab in MolGen 1101 (the class this course is replacing) and in fact was always intended to be used for the experiential learning sessions even when we mistakenly called them "recitations".

- *The Subcommittee would like the page numbers of the required readings to be placed within the course calendar (as found on pages 11-13) on the syllabus. This will allow students an accurate understanding of their workload for each week of the course.*

This information was available in the Syllabus submitted with revision 2; we apologize that it was not clearly communicated.

- For lecture meetings, the chapter containing the material covered in that lecture was shown as a number in parentheses for each individual lecture. For the revised syllabus we have included the



word "Chap." before each Chapter number (highlighted in green in the revised syllabus) to make sure students clearly understand where the relevant material is covered in the textbook.

- For the lab sessions readings and videos are online and are linked on the lab syllabus (pages 14-15) for review by the panel or by students
- *The Subcommittee asks that the concurrence response from the College of Food, Agricultural, and Environmental Sciences be uploaded as part of the revision when submitted. Right now, the Subcommittee has only been provided with the email requesting concurrence and does not have access to the response from CFAES.*

Concurrence was received over the summer and has been submitted

- *On page 2 of the syllabus, there is a slight error in the credit hour expectations for this course. For "laboratory" parts of courses, the expectation for credit hours is for every 2 hours of in-class laboratory, there is only 1 hour of out-of-class work expected to earn a letter grade of "C". In other words, for a 4-credit hour course, students can expect 6 hours of out-of-classroom work for the 3 credits of lecture, and 1 hour of out-of-classroom work for the laboratory experience for the 1 credit of laboratory. Therefore, students should expect 7 hours of work per week instead of 8.*

This has been updated on page 2 and highlighted in green.

- *The Subcommittee asks that a cover letter be submitted that details all changes made as a result of this feedback.*

We hope this round of revisions clarifies any concerns

Sincerely,

Susan E Cole

Susan Cole, Ph.D.
Professor and Chair of Molecular Genetics

MOLGEN 1103

Plants & Society: An Introduction to Plant Biology

Course information

Instructor:

- Iris Meier, Professor, Department of Molecular Genetics, College of Arts and Sciences
- Norman Groves, Postdoctoral Scholar, Department of Molecular Genetics, College of Arts and Sciences

Email: meier.56@osu.edu & groves.146@osu.edu

Credits: 4

Day and Time: Mon/Wed/Fri, 1 Hour Lecture. TBD, 2-hour Lab

Section: GE Foundations: Natural Sciences

Location: TBD

Prerequisites: None

Course Description

This course is a 4-credit-hour lecture and lab course focusing on the basic principles of plant biology. It is a survey course, covering plant anatomy, plant cell biology, plant genetics, and plant biotechnology. Students will be introduced to the scientific method and will practice formulating a hypothesis and testing it in an experiment. They will be introduced to the fundamental chemical foundations of all living organisms, to understanding the body plans of organisms, to the nature of all life's genetic material, and to the process of photosynthesis, the core energy conversion step that transforms inorganic carbon dioxide, water and minerals into living matter. Each week, a "Plants and people" lecture will lead up to the science covered during that week by illustrating its relevance for human culture and nature, both through the centuries and in our contemporary world. In addition to covering the foundations of plant biology, students will experience and contextualize the science within broader society in the lab sections. Together, students will better appreciate the human impacts on plants, and how plants impact human life. Students will also learn how plants adapt to changing environments, and how plants are critical to a collective response to the changing climate.

Course Content, Format, and Delivery:

This course consists of lectures on plant biology, readings and videos on related topics, demonstrations, and group discussions.

The first lecture every week will be a "Plants and People" lecture, a lecture which contextualizes the science being covered that week within history and culture. These lectures will feature the stories behind the science, and tie into how plant biology impacts our everyday lives. The second and third lectures every week will be plant biology lectures, lectures which delve into the plant anatomy, plant cell biology, plant genetics, and plant biotechnology topics which undergird the course.

Students have assigned readings and videos to review weekly. These are designed to be companions to the lab sections and will cover a topic related to what is being covered in lecture that week. Students will read or watch the assigned materials and do weekly assignments prior to the lab. The lab sections will

feature experiences, demonstrations and discussions of scientific topics and **will conclude with a written document for evaluation**. These topics include: how experiments are designed and analyzed, how science is reported in popular media, how scientists can see how individual genes are expressed, and a discussion on genetically modified organisms and their role in society.

Weekly Expectations:

State of Ohio standards state that for every hour in lecture, 2 hours of coursework are expected outside of class. For every 2 hour lab, one additional hour of work is expected outside of class. Students should expect that this course will require 7 hours of work outside of the classroom per week.

Every week, students will receive selected readings and videos to prepare for the lab. Prior to the lab, students will turn in a **question-guided** reflection on the week’s readings and videos (**7.5** points/week). For a full breakdown of points for the course see page 6-7.

See the Course Calendar (page 11-12) for the weekly topics covered in Lecture and lab. See the Lab Calendar (Page 13-14) for the themes for the weekly labs, and assigned reading and media associated with each week’s theme.

Course Goals / Rationale

Goals and Expected Learning Outcomes (ELOs) for GE Foundations

1. Goal 1: Successful students will engage in theoretical and empirical study within the natural sciences while gaining an appreciation of the modern principles, theories, methods, and modes of inquiry used generally across the natural sciences.
2. Goal 2: Successful students will discern the relationship between the theoretical and applied sciences while appreciating the implications of scientific discoveries and the potential impacts of science and technology.

ELOs related to Goals 1	Course activities and assignments to meet these ELOs
<p>ELO 1.1 Explain basic facts, principles, theories, and methods of modern natural sciences, and describe and analyze the process of scientific inquiry</p>	<p>In the course lectures, students will:</p> <ul style="list-style-type: none"> • Learn the origins of botany, and how the scientific method and taxonomy have expanded our knowledge of plant life all around us • Learn core concepts in plant anatomy, plant physiology, and plant cell biology, including the scientific approaches that have led to this knowledge. <p>In the course activities, such as class discussions following the course lectures, readings, watching and reviewing videos, students will:</p> <ul style="list-style-type: none"> • critically investigate environmental impact on plants and humans. • logically recognize interdependence between them. • consider the effectiveness of various scientific strategies for communicating these topics. <p>In the lab activity for weeks 3 and 4, students will:</p>

	<ul style="list-style-type: none"> • learn to ask scientific questions and design an experiment. • Learn to interpret scientific data and judge their robustness and relevance
<p>ELO 1.2 Identify how key events in the development of science contribute to the ongoing and changing nature of scientific knowledge and methods</p>	<p>Students will learn foundational knowledge in plant biology in lectures throughout the course of the semester. Some of the topics covered will include:</p> <ul style="list-style-type: none"> • How botany and plant biology became scientific disciplines, covering from plant gathering and farming through modern plant biology and plant biotechnology. • Discussion of the historical roots of plant genetics, and how the knowledge learned there was key to broad scientific knowledge. • Discussion of biomolecules isolated from plants for use in medicine, materials, cosmetics, and biofuels. • How plant hormones control plant growth and responses, and how plant hormone effects have been discovered and observed. • Discussion of modern genetic engineering techniques, including how these techniques are used to advance scientific inquiry. <p>Students will engage in experiences and discussions related to scientific advancements as a part of the lab portion of the course. Students will learn:</p> <ul style="list-style-type: none"> • How to design and analyze experiments • How plants respond to their environment, and the role plant hormones play in these responses, through demonstration of these responses, and exposure to plants deficient in some of these responses. • How published science is communicated, and how scientific research gets interpreted by the popular press • Examination of plant inheritance, through examining kernel color in corn cobs. Discussion of plant breeding, compared to genetically modified organisms (GMOs) produced via modern plant biotechnology techniques. • Examination and discussion of cutting-edge science attempting to address the needs of modern society.
<p>ELO 1.3 Employ the processes of science through exploration, discovery, and collaboration to interact directly with the natural world when feasible, using appropriate tools, models and analysis of data</p>	<p>As a part of the lab students will conduct hands-on experiments or activities several times throughout the semester. Activities will include:</p> <ul style="list-style-type: none"> • Students will observe plant life around them through keeping a “plant noticing journal”, that will be checked and discussed throughout the semester (Week 1, Week 5, Week 8, Week 12, Week 14). • In Week 2, students will be exposed to historic observations of plant species, and will do their own observations as a part of a tour of the Biological Sciences Greenhouse. • In two labs, Biomolecules will be extracted from plants, in Week 5 (Coffee Extraction) and Week 9 (Marigold extraction). • Students will analyze and record inheritance of traits through observing corn kernel color (Week 12).

	<ul style="list-style-type: none"> • Students will analyze plant response to the environment, as shown in a variety of plant species and plant responses (Week 8). • Students will analyze differential gene expression, by working with plants that express a reporter gene, tied to a single gene promoter (Week 13). • Students will gain an appreciation for how plant materials and extracts are ubiquitous in their lives, by creating an object out of plant materials, and describing the origin of each material in their creation (Week 6) • Students will be exposed to the methodology of transgenic plants in Week 14, and gain an appreciation for how transgenic plants can be used to study problems, and solve them.
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ELOs related to Goals 2	Course activities and assignments to meet these ELOs
<p>ELO 2.1 Analyze the inter-dependence and potential impacts of scientific and technological developments</p>	<p>The lectures in the course will cover several topics in scientific impacts, including:</p> <ul style="list-style-type: none"> • How plants become a source of energy, and a storage for carbon • How plants can be processed to be used as fuel • How plant engineering has been used to produce better crop yields, and allow plants to adapt to different climates • How medicinal compounds have been extracted from plants, and how technological advances have changed how these products are produced • How plant breeding has been used to generate new and/or altered crops • How plants interface and impact the broader environment <p>In lab/workshop, students will discuss and experience the impacts of scientific advancements, including:</p> <ul style="list-style-type: none"> • Discussion of how biofuels compare to fossil fuels, and how end uses for plants compete for land and crop usage • Discussion on the impacts of Genetically Modified Organisms (GMOs) • Discussion of how plants are being engineered to address climate change-related impacts, and exposure to transgenic plants
<p>ELO 2.2 Evaluate social and ethical implications of natural scientific discoveries</p>	<p>The lectures in the course will cover societal impacts of plants, including:</p> <ul style="list-style-type: none"> • How plants have historically been used as medicine and materials • How crops have been involved in empires and colonization, and the impacts that has had on plant cultivation and broader society. • How plant breeding has changed plant life, and how those plants have in turn impacted our everyday lives. • How cutting-edge plant biotechnologies can further be used to engineer plants for broad use. <p>In lab, students will discuss the ethical implications of scientific advancements, including:</p>

	<ul style="list-style-type: none"> • How cultivation of crops for export worldwide impacts those societies that cultivate the crops • How climate change impacts plant cultivation, and how that interplays with demands on farming • How plants can be used as sources for fuel and specialized materials, and costs/benefits associated with using plants for purposes outside of the food system • Potential ethical issues with trademarking of genetic material, and trademarking of seed crops
<p>ELO 2.3 Critically evaluate and responsibly use information from the natural sciences</p>	<p>In lab students will learn how to critically evaluate scientific reporting, including:</p> <ul style="list-style-type: none"> • Discussion of how to design experiments and interpret their results (Weeks 3-4) • Discussion of how scientific advances get reported, then communicated through the popular press, and how to critically review scientific reporting (Week 11)

Communication

The best way to contact us outside of class time is through email or the Carmen Inbox. We expect that you should email us only from your OSU email or the Carmen Inbox. Email can also be used to schedule individual Zoom meetings to talk. You can generally expect a reply to emails within 24 hours on weekdays. We expect that you are checking your Buckeyemail email and your Carmen Inbox regularly. It is recommended that you use Buckeyemail for communication regarding grades or other private matters, as the Carmen Inbox is not as secure of a platform.

Carmen (carmen.osu.edu) is used for general communication through announcements. Carmen is where the most up-to-date schedule, assignment information, grades and feedback, readings, due dates for assignments, reference documents and general course content components are posted. Grades will also be posted to Carmen.

Course Web Platforms and Technology

Carmen: carmen.osu.edu (<http://carmen.osu.edu/>)

Our course page on Carmen will contain all course documents. Students will upload assignments to specified Carmen drop boxes.

Microsoft One Drive: office365.osu.edu (<http://office365.osu.edu/>)

One Drive can be used as a cloud-based backup for your work. Uploading important files in case of a hard drive failure is a way to prevent lost work. One Drive will be used in this class as a way of sharing large files that do not easily upload to Carmen.

Other: a mobile device (smartphone or tablet)

For help with your password, university email, Carmen, or any other technology issues, questions, or requests, contact the Ohio State IT Service Desk. Standard support hours are available at ocio.osu.edu/help/hours, and support for urgent issues is available 24/7.

- Self-Service and Chat support: ocio.osu.edu/help
- Phone: 614-688-4357(HELP)F
- Email: servicedesk@osu.edu
- TDD: 614-688-8743

Requirements and Evaluation

Your performance will be evaluated on the quality of your work, your understanding of the basic skills and concepts covered, your resourcefulness, initiative, active participation in all class activities and overall rigor as a student.

Grading and Class work / Assignments

Weekly Lab preparation and lab activities	280 points
Exam I	240 points
Exam II	240 Points
Final	240 points
TOTAL	1000 points

Assignments turned in late will be given half credit. If there are extenuating circumstances that will cause a project to be late, please communicate with us ahead of time and we will work on a case-by-case basis to make adjustments to this late policy.

Weekly reading reflections (lab preparation):

Weekly readings and required videos must be read/watched prior to each lab or workshop. All assigned readings and videos are linked in the lab schedule (page 14-15) of the syllabus and will be linked via Carmen as well. Prompts for your weekly reflections will be available on Carmen on the Monday of each week. Completion of the readings/videos and your responses will contextualize lecture material within the broader impacts of plant biology in the world, and prepare you for science experiences and demonstrations in the labs.

Weekly Lab Activities:

Lab activities will connect the foundations of plant biology presented in class to your own, hands-on experiences, helping you contextualize concepts from the lectures within in the broader world. Lab activities will let you engage in the thought processes and techniques scientists use to make discoveries and advancements in our collective scientific knowledge. Together, these activities will be worth 280 points across the semester.

- *Plant noticing Journal (35 pts total):* In week 1 of the lab, students will start a journal in which they log aspects of their everyday life which include plant life. These include plants they spot on campus, plants in their meals, and materials they use that are derived from plants. This journal will be ongoing throughout the semester, and will be assessed based on completion 4 times during the semester (see lab calendar for details).
- *Weekly Reading Assignments (7.5 pts/week, 105 total):* Assessed by weekly assignment, answering questions related to the reading and videos assigned for that week's lab topic.
- *Lab activities (10pts/week, 140 total):* Students will work in pairs and will write a short description of the lab process including their observations and conclusions. These will be assessed based on accuracy, attention to detail, and connections made between the lab topic and the lab activity.
- *Examples and specific cases:*

- *Scientific Method mini project (weeks 3 and 4)* In week 3, students will be presented with an example of plant biology experiments. Comprehension of the experiments will be based on a document in which students will have to describe 5 different aspects of experimental design: a) Hypothesis to be tested, b) Experiment testing the hypothesis, c) list of possible outcomes, d) interpretation of the results, e) decision of which possible outcomes verify or falsify the hypothesis. In week 4, students will design their own experiment, and describe how it meets each of the aspects of experimental design listed above. This activity will be done in small groups to facilitate discussion and feedback throughout the process.
- *Plants as energy (week 7)*: In addition to the weekly media assignments, this lab will start by covering different biofuels, their production process, and their benefits and drawbacks. Students will work together in small groups to respond to prompts related to different forms of alternative energy production. After group work, individual group members will report out to the full group providing material to spur larger group discussions. The document produced by each group will be submitted at the end of class for assessment based on depth of comprehension and breadth of discussion.
- *Science in the Public Press (week 11)* Students will be presented 3 articles covering the same research: the original peer reviewed article, a “news and views” – style summary of the research, and an article in popular press. After discussion, students will submit a short write up contrasting the coverage of a scientific topic for different audiences.

Exams:

There will be 3 exams throughout the semester, with the last one held during the scheduled final exam period. Each exam will be focused on a subset of lectures, but you should expect that material from earlier lectures provides foundational knowledge that will be incorporated in later exams. Exams are 55 minutes long, administered in person. They will typically be a combination of multiple choice, multiple select, and short essay questions.

Grading Scale

A (93–100): 465-500 points

A- (90–92.9): 450-464 points

B+ (87–89.9): 435-449 points

B (83–86.9): 415-434 points

B- (80–82.9): 400-414 points

C+ (77–79.9): 385-399 points

C (73–76.9): 365-384 points

C- (70–72.9): 350-364 points

D+ (67–69.9): 335-349 points

D (60–66.9): 300-334 points

E (59.9–0): 0-299 points

Attendance Policy for Lab Sections:

Attendance will be taken every Lab session. If you miss a class, for whatever reason, it is your responsibility to get ALL the information you missed from the instructor, or your classmates as soon as possible, and continue to complete all exercises, homework and projects on time.

Texts / Readings / Screenings:

Required Reading: Botany: An Introduction to Plant Biology 7th edition (2019) James D. Mauseth. ISBN: 9781284157352. Textbook will be made available through the OSU Bookstore and Carmen Books.

Lecture material will be based primarily (but not entirely) on the required text. Additional short texts or diagrams for material not covered by the book will be distributed ahead of class on Carmen.

Articles, Videos, and Audio discussions as listed below will be associated with each week of the course. You will be expected to watch and read these materials prior to each week's Lab.

Academic integrity policy

It is the responsibility of the Committee on Academic Misconduct to investigate or establish procedures for the investigation of all reported cases of student academic misconduct. The term "academic misconduct" includes all forms of student academic misconduct wherever committed; illustrated by, but not limited to, cases of plagiarism and dishonest practices in connection with examinations. Instructors shall report all instances of alleged academic misconduct to the committee (Faculty Rule 3335-5-487). For additional information, see the Code of Student Conduct <http://studentlife.osu.edu/csc/>.

If we suspect that a student has committed academic misconduct in this course, we are obligated by university rules to report my suspicions to the Committee on Academic Misconduct. If COAM determines that you have violated the university's *Code of Student Conduct* (i.e., committed academic misconduct), the sanctions for the misconduct could include a failing grade in this course and suspension or dismissal from the university.

If you have any questions about the above policy or what constitutes academic misconduct in this course, please contact us.

Other sources of information on academic misconduct (integrity) to which you can refer include:

- Committee on Academic Misconduct web page (go.osu.edu/coam)
- *Ten Suggestions for Preserving Academic Integrity* (go.osu.edu/ten-suggestions)

Student Services and Advising

University Student Services can be accessed through BuckeyeLink. More information is available here: <https://contactbuckeyelink.osu.edu/>

FOR UNDERGRAD COURSES: <http://advising.osu.edu>

Copyright for instructional materials

The materials used in connection with this course may be subject to copyright protection and are only for the use of students officially enrolled in the course for the educational purposes associated with the course. Copyright law must be considered before copying, retaining, or disseminating materials outside of the course.

Your mental health

As a student you may experience a range of issues that can cause barriers to learning, such as strained relationships, increased anxiety, alcohol/drug problems, feeling down, difficulty concentrating and/or lack of motivation. These mental health concerns or stressful events may lead to diminished academic

performance or reduce a student's ability to participate in daily activities. The Ohio State University offers services to assist you with addressing these and other concerns you may be experiencing. If you or someone you know are suffering from any of the aforementioned conditions, you can learn more about the broad range of confidential mental health services available on campus via the Office of Student Life's Counseling and Consultation Service (CCS) by visiting ccs.osu.edu or calling 614--292--5766. CCS is located on the 4th Floor of the Younkin Success Center and 10th Floor of Lincoln Tower. You can reach an on call counselor when CCS is closed at 614--292--5766 and 24 hour emergency help is also available 24/7 by dialing 988 to reach the Suicide and Crisis Lifeline.

Accessibility accommodations for students with disabilities

The university strives to maintain a healthy and accessible environment to support student learning in and out of the classroom. If you anticipate or experience academic barriers based on your disability (including mental health, chronic, or temporary medical conditions), please let me know immediately so that we can privately discuss options. To establish reasonable accommodations, I may request that you register with Student Life Disability Services. After registration, make arrangements with me as soon as possible to discuss your accommodations so that they may be implemented in a timely fashion.

If you are ill and need to miss class, including if you are staying home and away from others while experiencing symptoms of a viral infection or fever, please let me know immediately. In cases where illness interacts with an underlying medical condition, please consult with Student Life Disability Services to request reasonable accommodations. You can connect with them at slds@osu.edu; 614-292-3307; or slds.osu.edu.

Religious accommodations

Ohio State has had a longstanding practice of making reasonable academic accommodations for students' religious beliefs and practices in accordance with applicable law. In 2023, Ohio State updated its practice to align with new state legislation. Under this new provision, students must be in early communication with their instructors regarding any known accommodation requests for religious beliefs and practices, providing notice of specific dates for which they request alternative accommodations within 14 days after the first instructional day of the course. Instructors in turn shall not question the sincerity of a student's religious or spiritual belief system in reviewing such requests and shall keep requests for accommodations confidential.

With sufficient notice, instructors will provide students with reasonable alternative accommodations with regard to examinations and other academic requirements with respect to students' sincerely held religious beliefs and practices by allowing up to three absences each semester for the student to attend or participate in religious activities. Examples of religious accommodations can include, but are not limited to, rescheduling an exam, altering the time of a student's presentation, allowing make-up assignments to substitute for missed class work, or flexibility in due dates or research responsibilities. If concerns arise about a requested accommodation, instructors are to consult their tenure initiating unit head for assistance.

A student's request for time off shall be provided if the student's sincerely held religious belief or practice severely affects the student's ability to take an exam or meet an academic requirement and the student has notified their instructor, in writing during the first 14 days after the course begins, of the date of each absence. Although students are required to provide notice within the first 14 days after a course begins, instructors are strongly encouraged to work with the student to provide a reasonable accommodation if a request is made outside the notice period. A student may not be penalized for an absence approved under this policy.

If students have questions or disputes related to academic accommodations, they should contact their course instructor, and then their department or college office. For questions or to report discrimination or harassment based on religion, individuals should contact the Office of Institutional Equity.

Policy: [Religious Holidays, Holy Days and Observances](#)

Accessibility of course technology

This online course requires use of Carmen Canvas (Ohio State's learning management system) and other online communication and multimedia tools. If you need additional services to use these technologies, please request accommodations with your instructor.

- [Canvas accessibility \(go.osu.edu/canvas-accessibility\)](http://go.osu.edu/canvas-accessibility)
- Streaming audio and video
- Carmen Zoom accessibility (go.osu.edu/zoom-accessibility)
- Collaborative course tools

Statement on Title IX

Title IX makes it clear that violence and harassment based on sex and gender are Civil Rights offenses subject to the same kinds of accountability and the same kinds of support applied to offenses against other protected categories (e.g., race). If you or someone you know has been sexually harassed or assaulted, you may find the appropriate resources at <http://titleix.osu.edu> or by contacting the Ohio State Title IX Coordinator at titleix@osu.edu

Commitment to a diverse and inclusive learning environment

The Ohio State University affirms the importance and value of diversity in the student body. Our programs and curricula reflect our multicultural society and global economy and seek to provide opportunities for students to learn more about persons who are different from them. We are committed to maintaining a community that recognizes and values the inherent worth and dignity of every person; fosters sensitivity, understanding, and mutual respect among each member of our community; and encourages each individual to strive to reach his or her own potential. Discrimination against any individual based upon protected status, which is defined as age, color, disability, gender identity or expression, national origin, race, religion, sex, sexual orientation, or veteran status, is prohibited.

Land Acknowledgement

We would like to acknowledge the land that The Ohio State University occupies is the ancestral and contemporary territory of the Shawnee, Potawatomi, Delaware, Miami, Peoria, Seneca, Wyandotte, Ojibwe and Cherokee peoples. Specifically, the university resides on land ceded in the 1795 Treaty of Greenville and the forced removal of tribes through the Indian Removal Act of 1830. I/We want to honor the resiliency of these tribal nations and recognize the historical contexts that have and continue to affect the Indigenous peoples of this land.

More information on OSU's land acknowledgement can be found here:

<https://mcc.osu.edu/about-us/land-acknowledgement>

Course Calendar (Subject to change to support course learning objectives)

Week	Plants and People Lecture	Plant Biology Lecture 1 (Chapter)	Plant Biology 2 (Chapter)	Lab/Workshop Topic (2h)
1	Aug 21 (W): Why Study Plants? (ELO 1.1, ELO 1.2)	Aug 23 (F): Intro to Botany; scientific method (Chap. 1) (ELO 1.1, ELO 1.2)	N/A	Plant Blindness and the world around us & Begin a “plant noticing journal” (ELO 1.3)
2	Aug 26 (M): Plants & People through the millennia: From gathering to farming (ELO 1.1, ELO 1.2, ELO 2.1)	Aug 28 (W): Plant Life and Plant Anatomy (Chap. 2) (ELO 1.1, ELO 1.2)	Aug 30 (F): Plants as Food, Materials, and Medicine (Chap. 3) (ELO 1.1, ELO 1.2, ELO 2.2)	Biological diversity – Macro and Micro: Tour of the Biological Sciences Greenhouse. Plant descriptions and identification. (ELO 1.1, ELO 1.2, ELO 1.3)
3	Sep 2 (M): <u>No Class: Labor Day</u>	Sep 4 (W): Intro to life: the plant cell (Chap. 4) (ELO 1.1, ELO 1.2)	Sep 6 (F): Intro to life: Growth and Division (Chap. 5) (ELO 1.1, ELO 1.2)	Scientific method 1: How experiments are structured and analyzed. (ELO 1.1, ELO 1.2, ELO 2.3)
4	Sep 9 (M): From where comes our oxygen: Time travels with a Paleobotanist (ELO 1.1, ELO 1.2)	Sep 11 (W): Plant body plan, plant organs: Tissues & Stems (Chap. 6) (ELO 1.1, ELO 1.2)	Sep 13 (F): Plant organs: Leaves (Chap. 7) (ELO 1.1, ELO 1.2)	Scientific method 2: How to design your own experiment. (ELO 1.1, ELO 1.2, ELO 2.3)
5	Sep 16 (M): Roots and shoots and flowers and fruits: What exactly are we eating? (ELO 1.1, ELO 1.2)	Sep 18 (W): Plant organs: Roots (Chap. 8) (ELO 1.1, ELO 1.2)	Sep 20 (F): Secondary Growth (Chap. 9) (ELO 1.1, ELO 1.2)	Plant growth in diverse environments: A study in Coffee Environmental and processing impacts on chemical compounds (ELO 1.3, ELO 2.2)
6	Sep 23 (M): A roof over our head: Wood and other materials	Sep 25 (W): <u>Exam I</u>	Sep 27 (F): Photosynthesis I (ELO 1.1, ELO 1.2)	Plants as Materials: Creating with and through plants (ELO 1.3, ELO 2.2)

	(ELO 1.1, ELO 1.2, ELO 2.1)			
7	Sep 30 (M): Plants and energy: from bogs and seams to modern life. (ELO 1.1, ELO 1.2, ELO 2.1)	Oct 2 (W): Photosynthesis II (ELO 1.1, ELO 1.2)	Oct 4 (F): Mineral nutrition and transport I (Chap. 13) (ELO 1.1, ELO 1.2)	Plants as energy: A cost vs benefit analysis of Biofuels (ELO 2.1, ELO 2.2)
8	N/A	Oct 7 (M): Mineral nutrition and transport II (Chap. 14) (ELO 1.1, ELO 1.2)	Oct 9 (W): Plant signaling and growth response, hormones (Chap. 15) (ELO 1.1, ELO 1.2)	Plant response to the environment vs “Plant Behavior” (ELO 1.2, ELO 1.3)
9	Oct 14 (M): Plants and medicine: How tree bark cures cancer (ELO 1.1, ELO 1.2, ELO 2.1)	Oct 16 (W): Plant signaling and growth response, hormones 2 (Chap. 15) (ELO 1.1, ELO 1.2)	Oct 18 (F): Secondary metabolites (ELO 1.1, ELO 1.2)	Plants as Medicine: Isolation of biomolecules from plants (ELO 1.3, ELO 2.1)
10	Oct 21 (M) The Columbian Exchange: How humble plants have shaped great empires. (ELO 1.1, ELO 1.2, ELO 2.1)	Oct 23 (W): Plant organs: Flowers (Chap. 10) (ELO 1.1, ELO 1.2)	Oct 25 (F): Plant organs: Fruits and seeds (Chap. 10) (ELO 1.1, ELO 1.2)	Floral diversity & flower pollination. Investigation of floral mutants and vegetative to floral transition (ELO 1.2, ELO 1.3, ELO 2.3)
11	Oct 28 (M) A Monk in the Garden: The life and work of Gregory Mendel (ELO 1.1, ELO 1.2)	Oct 30 (W): <u>Exam II</u>	Nov 1 (F): Cell Division: Mitosis, Meiosis, life cycles (Chap. 12) (ELO 1.1, ELO 1.2)	Science in the public press: From news article to press release to scientific paper (ELO 1.2, ELO 2.3)
12	Nov 4 (M): Form and Function: How genetic selection has changed plants (ELO 1.1, ELO 1.2, ELO 2.1)	Nov 6 (W): Patterns of inheritance (Chap. 17) (ELO 1.1, ELO 1.2, ELO 2.1)	Nov 8 (F): The molecular basis of inheritance (Chap. 16) (ELO 1.1, ELO 1.2, ELO 2.1)	Plant Breeding: How desirable traits are selected. Interpreting a genetic cross (ELO 1.2, ELO 1.3)

13	Nov 11 (M): <u>No Class: Veteran's Day</u>	Nov 13 (W): Genetic Frontiers (Chap. 16) (ELO 1.2, ELO 2.1, ELO 2.2)	Nov 15 (F): Evolution (Chap. 18) (ELO 1.1, ELO 1.2, ELO 2.1, ELO 2.2)	Visualizing gene expression in plants (ELO 1.2, ELO 1.3)
14	Nov 18 (M): Plants & The Environment (EEOB Guest Lecture) (ELO 1.1, ELO 1.2)	Nov 20 (W): Plant Genetic Engineering (ELO 1.2, ELO 2.1, ELO 2.2)	Nov 22 (F): Plant Biotechnology: Theory (ELO 1.2, ELO 2.1, ELO 2.2)	Genetically Modified Organisms: Future potential, challenges and possible risks. Investigation and analysis of genetically modified <i>Arabidopsis thaliana</i> . (ELO 1.2, ELO 1.3, ELO 2.1, ELO 2.2, ELO 2.3)
15	Nov 25 (M): Plant Biotechnology: Applications (ELO 1.1, ELO 1.2, ELO 2.1, ELO 2.2)	Nov 27 (W): <u>No Class- Thanksgiving</u>	Nov 29 (F): <u>No Class- Thanksgiving</u>	
16	Dec 2 (M): Plants and People: Together into the Future (ELO 1.1, ELO 1.2, ELO 2.1, ELO 2.2)			

Weekly Lab Topics and Assigned Readings and Media

Weekly Lab sections will include a discussion of the science theme covered in that week's lectures. Every week, there will be assigned readings and videos in preparation for Lab. A weekly reflection must be turned in prior to Lab, which will ask questions based on that week's theme and assigned media. You must watch or read ALL of the assigned material to be prepared for Lab, and submit the weekly reflection (5 points/week).

Week	Theme	Readings	Videos
1	Plants in Society	Plant Blindness	What is Plant Blindness?
2	Plant Diversity	Naming Plants to Save Them ; What we know, what we don't, and how we find out	Why is Biodiversity Important?
3	Plant Domestication	Modern Tomatoes are very different from their wild ancestors	The Origin of our Food Crops ; Corn shouldn't be food, but is
4	Experimental Design	A Tale of Two Scientists	Oxygen
5	Environmental impacts on plants	What climate change means for the future of Coffee	TEDx Talk on Coffee ; Why Single-Origin Coffee is So Expensive ; The Global Coffee Crisis is Coming
6	Plants as Materials	The wonder material we need but is running out	The Dark Truth about Rubber ; The War for the Amazon's most valuable trees ; Natural Rubber from Dandelions
7	Plants as Fuel	The Guardian on Biofuels ; How corn ethanol for biofuel fed climate change	Is Algae the Fuel of the Future? ; The Problem with Biofuels
8	Plant Signaling and Behavior	Marcuso Interview ; The Mystery of the Mimic Plant	TED talk Marcuso 2010 ; Plant memory ; Can this plant actually see?
9	Plant Metabolites and Medicine	Building a Better Drug ; Just The Tonic	The hidden history of Gin and Tonic
10	Flowers & Reproduction	The Hidden Environmental Cost of Valentine's Day ; The Real Story Behind "Tulip Mania"	Orchids: These Flowers are Pretty Sus ; The Rose Capital of the World ; A time-lapse of flowers blooming
11	Science Communication	Three documents: an original science paper; a university press release;	none

		and the newspaper article derived from it. To be selected from recent topics before class.	
12	Plant Breeding and Plant Genetics	<u>The Green Revolution: Norman Borlaug and the Race to Fight Global Hunger ; Norman Borlaug: Wheat Breeder who averted famine with a Green Revolution</u>	<u>The Science of the world's most colorful corn ; Apple Breeding at the University of Minnesota</u>
13	Plant Biotechnology	<u>How Restriction Enzymes Changed Biology</u>	<u>CRISPR: Gene Editing and Beyond ; Promoters and Enhancers</u>
14	Genetically Modified Organisms	<u>The Next Green Revolution ; Second Revolution ahead for Green Revolution Grains</u>	<u>Harnessing Plants Initiative ; How supercharged plants could slow climate change</u>

Weeks in Bold are Experiential weeks, such as labs or other hands-on activities. Other weeks are a combination of demos, lectures, and discussions.

Week 1: Topic – Plant Blindness and the world around us

Students will bring foraged material from around campus to class, and start a “Plant Noticing Journal” reporting on real world observations of plants around them (ELO 1.3)

Week 2: Topic – Biological diversity – Macro and Micro

Botany and how plant diversity has been identified, observed, and categorized. Students will be given a guided tour of the Biological Sciences Greenhouse, focusing on biological diversity. Students will complete a detailed description of a chosen plant species in the greenhouse, including observations on the species’ anatomy & appearance. Students will then use modern phone apps to identify species and report their findings. (ELO 1.1, ELO 1.2, ELO 1.3)

Week 3: Topic – The Scientific Method pt 1 – How experiments are structured and analyzed

Lecture on the scientific method, how experiments are structured etc. Students are given examples of experiments, and discuss how they are structured. Classical Plant Biology experiments will be used as examples for the class. (ELO 1.1, ELO 1.2, ELO 2.3)

Week 4: Topic – The Scientific Method pt 2 – How to design an experiment

Students design experiments in lab, share them, and discuss expected outcomes etc. A focus will be on picking and testing hypotheses. (ELO 1.1, ELO 1.2, ELO 2.3)

Week 5: Topic – Plant Growth in Diverse Environments – A study in Coffee

How coffee is cultivated, harvested, and prepared, with a focus on how varied environments change the chemical makeup of coffee. Coffee is brewed in class, and connections are made regarding how the roasting process chemically changes the coffee bean, and how varied brewing methods extract different classes of chemical compounds. (ELO 1.3, ELO 2.2)

NOTE: Check-in #1 for Plant Noticing Journal (ELO 1.3)

Week 6: Topic – Plants as Materials – Creating with and through plants

How plants are used as materials (as raw materials, or processed/extracted materials). Students bring an object they have created through plant-based materials, then describe how the materials that went into their object were created or extracted. (ELO 1.3, ELO 2.2)

Week 7: Topic – Plants as Energy – A cost vs benefit analysis of Biofuels

Lecture on how different types of biofuels are made, and how these fuels impact the food system. Informed by the reading and watching of the week, students will lead a discussion on plants as fuels, and the benefit and drawbacks of each fuel type. (ELO 2.1, ELO 2.2)

Week 8: Topic – Plant Response to the Environment

Different types of plant responses to the environment: Response to light, gravity, and touch. Students are then walked through demonstrations of each phenomenon. Informed by the reading and watching of the week, students will lead a discussion on if these responses are active or passive, and if plants “think” and decide these responses. (ELO 1.2, ELO 1.3)

NOTE: Check-in #2 for Plant Noticing Journal (ELO 1.3)

Week 9: Topic - Plants as Medicine – Isolation of Biomolecules from plants

History of medicines from plants or plant extracts. Students will isolate Lutein from Marigolds. (ELO 1.3, ELO 2.1)

Week 10: Topic – Floral Diversity and Flower Pollination

General floral structure, and differences in floral structure. Students will examine *Arabidopsis thaliana* floral mutants and investigate how plants make transition from vegetative to floral growth. (ELO 1.2, ELO 1.3, ELO 2.3)

Week 11: Topic – Science in the Public Press

Students will read and discuss (3) articles: A primary research publication, a news and views paper on the same study, and a news story on the same study. Students will examine the similarities and differences between the articles, and discuss what details from the initial study are omitted or included from the news report. (ELO 1.2, ELO 2.3)

Week 12: Topic – Plant Breeding – How desirable traits are selected

Plant breeding and the Green Revolution. Students will examine corn cobs with different color kernels, and compare the inheritance of the color trait to Mendelian segregation. (ELO 1.2, ELO 1.3)

NOTE: Check-in #3 for Plant Noticing Journal (ELO 1.3)

Week 13: Topic – Gene expression in plants

Gene regulation, and how gene expression is studied. Students will work with *Arabidopsis thaliana* plants that express promoter-GUS fusions, to visualize expression of a single gene in plants. Students will prepare tissue for the staining, then image pre-prepared samples to see in what tissues a particular gene is expressed. (ELO 1.2, ELO 1.3)

Week 14: Topic – Genetically Modified Organisms

Gene editing technologies, and examples of experimental questions & world challenges GMOs are being used to answer or address. Students will be presented with genetically modified *Arabidopsis thaliana* plants and examine how scientists use biotechnology to both study problems and help address them. (ELO 1.2, ELO 2.1, ELO 2.2, ELO 2.3)

NOTE: Final Check-in (#4) for Plant Noticing Journal. (ELO 1.3)

GE Foundation Courses

Overview

Courses that are accepted into the General Education (GE) Foundations provide introductory or foundational coverage of the subject of that category. Additionally, each course must meet a set of Expected Learning Outcomes (ELO). Courses may be accepted into more than one Foundation, but ELOs for each Foundation must be met. It may be helpful to consult your Director of Undergraduate Studies or appropriate support staff person as you develop and submit your course.

This form contains sections outlining the ELOs of each Foundation category. You can navigate between them using the Bookmarks function in Acrobat. Please enter text in the boxes to describe how your class meets the ELOs of the Foundation(s) to which it applies. Because this document will be used in the course review and approval process, you should use language that is clear and concise and that colleagues outside of your discipline will be able to follow. Please be as specific as possible, listing concrete activities, specific theories, names of scholars, titles of textbooks etc. Your answers will be evaluated in conjunction with the syllabus submitted for the course.

Accessibility

If you have a disability and have trouble accessing this document or need to receive the document in another format, please reach out to Meg Daly at daly.66@osu.edu or call 614-247-8412.

GE Rationale: Foundations: Race, Ethnicity, and Gender Diversity (3 credits)

Requesting a GE category for a course implies that the course fulfills **all** the expected learning outcomes (ELOs) of that GE category. To help the reviewing panel evaluate the appropriateness of your course for the Foundations: Race, Ethnicity, and Gender Diversity, please answer the following questions for each ELO.

A. Foundations

Please explain in 50-500 words why or how this course is introductory or foundational for the study of Race, Ethnicity and Gender Diversity.

Course Subject & Number: _____

B. Specific Goals of Race, Ethnicity, and Gender Diversity

GOAL 1: Successful students will engage in a systematic assessment of how historically and socially constructed categories of race, ethnicity, and gender, and possibly others, shape perceptions, individual outcomes, and broader societal, political, economic, and cultural systems.

Expected Learning Outcome 1.1: Successful students are able to describe and evaluate the social positions and representations of categories including race, gender, and ethnicity, and possibly others. Please link this ELO to the course goals and topics and indicate *specific* activities/assignments through which it will be met. (50-700 words)

Expected Learning Outcome 1.2: Successful students are able to explain how categories including race, gender, and ethnicity continue to function within complex systems of power to impact individual lived experiences and broader societal issues. Please link this ELO to the course goals and topics and indicate *specific* activities/assignments through which it will be met. (50-700 words)

Course Subject & Number: _____

Expected Learning Outcome 1.3: Successful students are able to analyze how the intersection of categories including race, gender, and ethnicity combine to shape lived experiences. Please link this ELO to the course goals and topics and indicate *specific* activities/assignments through which it will be met. (50-700 words)

Expected Learning Outcome 1.4: Successful students are able to evaluate social and ethical implications of studying race, gender, and ethnicity. Please link this ELO to the course goals and topics and indicate *specific* activities/assignments through which it will be met. (50-700 words)

Course Subject & Number: _____

GOAL 2: Successful students will recognize and compare a range of lived experiences of race, gender, and ethnicity.

Expected Learning Outcome 2.1: Successful students are able to demonstrate critical self- reflection and critique of their social positions and identities. Please link this ELO to the course goals and topics and indicate *specific* activities/assignments through which it will be met. (50-700 words)

Expected Learning Outcome 2.2: Successful students are able to recognize how perceptions of difference shape one’s own attitudes, beliefs, or behaviors. Please link this ELO to the course goals and topics and indicate *specific* activities/assignments through which it will be met. (50-700 words)

Course Subject & Number: _____

Expected Learning Outcome 2.3: Successful students are able to describe how the categories of race, gender, and ethnicity influence the lived experiences of others. Please link this ELO to the course goals and topics and indicate *specific* activities/assignments through which it will be met.

GE Rationale: Foundations: Social and Behavioral Sciences (3 credits)

Requesting a GE category for a course implies that the course **all** expected learning outcomes (ELOs) of that GE category. To help the reviewing panel evaluate the appropriateness of your course for the Foundations: Social and Behavioral Sciences, please answer the following questions for each ELO.

A. Foundations

Please explain in 50-500 words why or how this course is introductory or foundational in the study of Social and Behavioral Sciences.

Course Subject & Number: _____

B. Specific Goals of Social and Behavioral Sciences

GOAL 1: Successful students will critically analyze and apply theoretical and empirical approaches within the social and behavioral sciences, including modern principles, theories, methods, and modes of inquiry.

Expected Learning Outcome 1.1: Successful students are able to explain basic facts, principles, theories and methods of social and behavioral science. Please link this ELO to the course goals and topics and indicate *specific* activities/assignments through which it will be met. (50-700 words)

Expected Learning Outcome 1.2: Successful students are able to explain and evaluate differences, similarities, and disparities among institutions, organizations, cultures, societies, and/or individuals using social and behavioral science. Please link this ELO to the course goals and topics and indicate *specific* activities/assignments through which it will be met. (50-700 words)

Course Subject & Number: _____

GOAL 2: Successful students will recognize the implications of social and behavioral scientific findings and their potential impacts.

Expected Learning Outcome 2.1: Successful students are able to analyze how political, economic, individual, or social factors and values impact social structures, policies, and/or decisions. Please link this ELO to the course goals and topics and indicate *specific* activities/assignments through which it will be met. (50-700 words)

Expected Learning Outcome 2.2: Successful students are able to evaluate social and ethical implications of social scientific and behavioral research. Please link this ELO to the course goals and topics and indicate *specific* activities/assignments through which it will be met. (50-700 words)

Course Subject & Number: _____

Expected Learning Outcome 2.3: Successful students are able to critically evaluate and responsibly use information from the social and behavioral sciences. Please link this ELO to the course goals and topics and indicate *specific* activities/assignments through which it will be met. (50-700 words)

GE Rationale: Foundations: Historical or Cultural Studies (3 credits)

Requesting a GE category for a course implies that the course fulfills the expected learning outcomes (ELOs) of that GE category. To help the reviewing panel evaluate the appropriateness of your course for the Foundations: Historical and Cultural Studies, please answer the following questions for each ELO. Note that for this Foundation, a course need satisfy either the ELOs for Historical Studies or the ELOs for Cultural Studies.

A. Foundations

Please explain in 50-500 words why or how this course is introductory or foundational in the study of History **or** Cultures.

Course Subject & Number: _____

B. Specific Goals of Historical *or* Cultural Studies

Historical Studies (A) Goal: Successful students will critically investigate and analyze historical ideas, events, persons, material culture and artifacts to understand how they shape society and people.

Expected Learning Outcome 1.1A: Successful students are able to identify, differentiate, and analyze primary and secondary sources related to historical events, periods, or ideas. Please link this ELO to the course goals and topics and indicate *specific* activities/assignments through which it will be met. (50-700 words)

Expected Learning Outcome 1.2A: Successful students are able to use methods and theories of historical inquiry to describe and analyze the origin of at least one selected contemporary issue. Please link this ELO to the course goals and topics and indicate *specific* activities/assignments through which it will be met. (50-700 words)

Course Subject & Number: _____

Expected Learning Outcome 1.3A: Successful students are able to use historical sources and methods to construct an integrated perspective on at least one historical period, event or idea that influences human perceptions, beliefs, and behaviors. Please link this ELO to the course goals and topics and indicate *specific* activities/assignments through which it will be met. (50-700 words)

Expected Learning Outcome 1.4A: Successful students are able to evaluate social and ethical implications in historical studies. Please link this ELO to the course goals and topics and indicate *specific* activities/assignments through which it will be met. (50-700 words)

Course Subject & Number: _____

Cultural Studies (B) Goal: Successful students will evaluate significant cultural phenomena and ideas to develop capacities for aesthetic and cultural response, judgment, interpretation, and evaluation.

Expected Learning Outcome 1.1B: Successful students are able to analyze and interpret selected major forms of human thought, culture, ideas or expression. Please link this ELO to the course goals and topics and identify the *specific* activities/assignments through which it will be met. (50-700 words)

Expected Learning Outcome 1.2B: Successful students are able to describe and analyze selected cultural phenomena and ideas across time using a diverse range of primary and secondary sources and an explicit focus on different theories and methodologies. Please link this ELO to the course goals and topics and indicate *specific* activities/assignments through which it will be met. (50-700 words)

Course Subject & Number: _____

Expected Learning Outcome 1.3B: Successful students are able to use appropriate sources and methods to construct an integrated and comparative perspective of cultural periods, events or ideas that influence human perceptions, beliefs, and behaviors. Please link this ELO to the course goals and topics and indicate *specific* activities/assignments through which it will be met. (50-700 words)

Expected Learning Outcome 1.4B: Successful students are able to evaluate social and ethical implications in cultural studies. Please link this ELO to the course goals and topics and indicate *specific* activities/assignments through which it will be met.

GE Rationale: Foundations: Writing and Information Literacy (3 credits)

Requesting a GE category for a course implies that the course fulfills **all** expected learning outcomes (ELOs) of that GE category. To help the reviewing panel evaluate the appropriateness of your course for the Foundations: Writing and Information Literacy, please answer the following questions for each ELO.

Course Subject & Number: _____

A. Foundations

Please explain in 50-500 words why or how this course is introductory or foundational in the study of Writing and Information Literacy.

B. Specific Goals of Writing and Information Literacy

GOAL 1: Successful students will demonstrate skills in effective reading, and writing, as well as oral, digital, and/or visual communication for a range of purposes, audiences, and context.

Expected Learning Outcome 1.1: Successful students are able to compose and interpret across a wide range of purposes and audiences using writing, as well as oral, visual, digital and/or other methods appropriate to the context. Please link this ELO to the course goals and topics and indicate *specific* activities/assignments through which it will be met. Explain how the course includes opportunities for feedback on writing and revision. Furthermore, please describe how you plan to insure sufficiently low instructor-student ratio to provide efficient instruction and feedback. (50-700 words)

Course Subject & Number: _____

Expected Learning Outcome 1.2: Successful students are able to use textual conventions, including proper attribution of ideas and/or source, as appropriate to the communication situation. Please link this ELO to the course goals and topics and indicate *specific* activities/assignments through which it will be met. Is an appropriate text, writing manual, or other resource about the pedagogy of effective communication being used in the course? (50-700 words)

Expected Learning Outcome 1.3: Successful students are able to generate ideas and informed responses incorporating diverse perspectives and information from a range of sources, as appropriate to the communication situation. Please link this ELO to the course goals and topics and indicate *specific* activities/assignments through which it will be met. (50-700 words)

Course Subject & Number: _____

Expected Learning Outcome 1.4: Successful students are able to evaluate social and ethical implications in writing and information literacy practices. Please link this ELO to the course goals and topics and indicate *specific* activities/assignments through which it will be met. (50-700 words)

GOAL 2: Successful students will develop the knowledge, skills, and habits of mind needed for information literacy.

Expected Learning Outcome 2.1: Successful students are able to demonstrate responsible, civil, and ethical practices when accessing, using, sharing, or creating information. Please link this ELO to the course goals and topics and indicate *specific* activities/assignments through which it will be met. (50-700 words)

Course Subject & Number: _____

Expected Learning Outcome 2.2: Successful students are able to locate, identify and use information through context appropriate search strategies. Please link this ELO to the course goals and topics and indicate *specific* activities/assignments through which it will be met. (50-700 words)

Expected Learning Outcome 2.3: Successful students are able to employ reflective and critical strategies to evaluate and select credible and relevant information sources. Please link this ELO to the course goals and topics and indicate *specific* activities/assignments through which it will be met. (50-700 words)

Course Subject & Number: _____

GE Rationale: Foundations: Literary, Visual, or Performing Arts (3 credits)

Requesting a GE category for a course implies that the course fulfills **all** expected learning outcomes (ELOs) of that GE category. To help the reviewing panel evaluate the appropriateness of your course for the Foundations: Literary, Visual, and Performing Arts, please answer the following questions for each ELO.

A. Foundations

Please explain in 50-500 words why or how this course is introductory or foundational in the study of Literary, Visual, or Performing Arts.

B. Specific Goals

Goal 1: Successful students will analyze, interpret, and evaluate major forms of human thought, cultures, and expression; and demonstrate capacities for aesthetic and culturally informed understanding.

Expected Learning Outcome 1.1: Successful students are able to analyze and interpret significant works of design or visual, spatial, literary or performing arts. Please link this ELO to the course goals and topics and indicate *specific* activities/assignments through which it will be met. (50-700 words)

Course Subject & Number: _____

Expected Learning Outcome 1.2: Successful students are able to describe and explain how cultures identify, evaluate, shape, and value works of literature, visual and performing art, and design. Please link this ELO to the course goals and topics and indicate *specific* activities/assignments through which it will be met. (50-700 words)

Expected Learning Outcome 1.3: Successful students are able to evaluate how artistic ideas influence and shape human beliefs and the interactions between the arts and human perceptions and behavior. Please link this ELO to the course goals and topics and indicate *specific* activities/assignments through which it will be met. (50-700 words)

Course Subject & Number: _____

Expected Learning Outcome 1.4: Successful students are able to evaluate social and ethical implications in literature, visual and performing arts, and design. Please link this ELO to the course goals and topics and indicate *specific* activities/assignments through which it will be met. (50-700 words)

Goal 2: Successful students will experience the arts and reflect on that experience critically and creatively.

Expected Learning Outcome 2.1: Successful students are able to engage in informed observation and/or active participation within the visual, spatial, literary, or performing arts and design. Please link this ELO to the course goals and topics and indicate *specific* activities/assignments through which it will be met. (50-700 words)

Course Subject & Number: _____

Expected Learning Outcome 2.2: Successful students are able to critically reflect on and share their own experience of observing or engaging in the visual, spatial, literary, or performing arts and design.

Please link this ELO to the course goals and topics and indicate *specific* activities/assignments through which it will be met. (50-700 words)

GE Rationale: Foundations: Natural Science (4 credits)

Requesting a GE category for a course implies that the course fulfills **all** expected learning outcomes (ELOs) of that GE category. To help the reviewing panel evaluate the appropriateness of your course for the Foundations: Natural Sciences, please answer the following questions for each ELO.

A. Foundations

Please explain in 50-500 words why or how this course is introductory or foundational in the study of Natural Science.

Course Subject & Number: _____

B. Specific Goals for Natural Sciences

GOAL 1: Successful students will engage in theoretical and empirical study within the natural sciences, gaining an appreciation of the modern principles, theories, methods, and modes of inquiry used generally across the natural sciences.

Expected Learning Outcome 1.1: Successful students are able to explain basic facts, principles, theories and methods of modern natural sciences; describe and analyze the process of scientific inquiry. Please link this ELO to the course goals and topics and indicate *specific* activities/assignments through which it will be met. (50-700 words)

Expected Learning Outcome 1.2: Successful students are able to identify how key events in the development of science contribute to the ongoing and changing nature of scientific knowledge and methods. Please link this ELO to the course goals and topics and indicate specific activities/assignments through which it will be met. (50-700 words)

Course Subject & Number: _____

Expected Learning Outcome 1.3: Successful students are able to employ the processes of science through exploration, discovery, and collaboration to interact directly with the natural world when feasible, using appropriate tools, models, and analysis of data. Please explain the 1-credit hour equivalent experiential component included in the course: e.g., traditional lab, course-based research experiences, directed observations, or simulations. Please note that students are expected to analyze data and report on outcomes as part of this experiential component. *(50-1000 words)*

Course Subject & Number: _____

GOAL 2: Successful students will discern the relationship between the theoretical and applied sciences, while appreciating the implications of scientific discoveries and the potential impacts of science and technology.

Expected Learning Outcome 2.1: Successful students are able to analyze the inter-dependence and potential impacts of scientific and technological developments. Please link this ELO to the course goals and topics and indicate *specific* activities/assignments through which it will be met. (50-700 words)

Expected Learning Outcome 2.2: Successful students are able to evaluate social and ethical implications of natural scientific discoveries. Please link this ELO to the course goals and topics and indicate *specific* activities/assignments through which it will be met. (50-700 words)

Course Subject & Number: _____

Expected Learning Outcome 2.3: Successful students are able to critically evaluate and responsibly use information from the natural sciences. Please link this ELO to the course goals and topics and indicate *specific* activities/ assignments through which it will be met. (50-700 words)

Course Subject & Number: _____

GE Rationale: Foundations: Mathematical and Quantitative Reasoning (or Data Analysis) (3 credits)

Requesting a GE category for a course implies that the course fulfills **all** expected learning outcomes (ELOs) of that GE category. To help the reviewing panel evaluate the appropriateness of your course for the Foundations: Mathematical and Quantitative Reasoning (or Data Analysis), please answer the following questions for each ELO.

A. Foundations

Please explain in 50-500 words why or how this course is introductory or foundational in the study of Mathematical & Quantitative Reasoning (or Data Analysis).

B. Specific Goals for Mathematical & Quantitative Reasoning/Data Analysis

Goal: Successful students will be able to apply quantitative or logical reasoning and/or mathematical/statistical analysis methodologies to understand and solve problems and to communicate results.

Expected Learning Outcome 1.1: Successful students are able to use logical, mathematical and/or statistical concepts and methods to represent real-world situations. Please link this ELO to the course goals and topics and indicate *specific* activities/ assignments through which it will be met. (50-700 words)

Course Subject & Number: _____

Expected Learning Outcome 1.2: Successful students are able to use diverse logical, mathematical and/or statistical approaches, technologies, and tools to communicate about data symbolically, visually, numerically, and verbally. Please link this ELO to the course goals and topics and indicate *specific* activities/assignments through which it will be met. (50-700 words)

Expected Learning Outcome 1.3: Successful students are able to draw appropriate inferences from data based on quantitative analysis and/or logical reasoning. Please link this ELO to the course goals and topics and indicate *specific* activities/assignments through which it will be met. (50-700 words)

Course Subject & Number: _____

Expected Learning Outcome 1.4: Successful students are able to make and evaluate important assumptions in estimation, modeling, logical argumentation, and/or data analysis. Please link this ELO to the course goals and topics and indicate *specific* activities/assignments through which it will be met. (50-700 words)

Expected Learning Outcome 1.5: Successful students are able to evaluate social and ethical implications in mathematical and quantitative reasoning. Please link this ELO to the course goals and topics and indicate *specific* activities/assignments through which it will be met. (50-700 words)

Monday, August 5, 2024 at 12:36:59 Eastern Daylight Time

Subject: Contingency request Molgen 1103
Date: Monday, August 5, 2024 at 12:28:23 PM Eastern Daylight Time
From: Cole, Susan
To: Osborne, Jeanne
Attachments: MOLGEN1103_GE Foundations_Syllabus_to CFAES.docx

Dear Dr. Osborne,

The department of Molecular Genetics is converting an existing course (MolGen 1101, “Introduction to Plant Biology: Plants, People, and the Environment” originally 5 credits, Legacy GE) into a 4-credit hour, experiential course to meet the GEN Foundation: Natural Sciences requirement. Because of the reduction in credit hours, we were requested to use a new course number to prevent confusion. The revised course will be called MolGen 1103: “Plants and Society, An Introduction to Plant Biology”. As this makes this technically a “new” course request, we are reaching out to the College of Food, Agricultural, and Environmental Science to seek concurrence with the appropriate departments within the college, as this course intersects with material that the college teaches.

I have attached the syllabus for the class, and would appreciate it if you could circulate to any appropriate departments.

All the best,

Susan Cole

Professor and Chair

Department of Molecular Genetics

Friday, September 20, 2024 at 14:56:36 Eastern Daylight Time

Subject: RE: Contingency request Molgen 1103
Date: Tuesday, August 20, 2024 at 10:47:20 AM Eastern Daylight Time
From: Osborne, Jeanne
To: Cole, Susan
Attachments: image001.png

Dear Susan,

On behalf of the College of Food, Agricultural, and Environmental Sciences, please accept concurrence for the proposal for MOLGEN 1103, 'Plants and Society: An Introduction to Plant Biology', which is a revision to MOLGEN 1101. This proposal has been reviewed by academic units within the CFAES; and the School of Environment and Natural Resources, and the Departments of Horticulture and Crop Science and Plant Pathology responded with concurrence. There is overlap of the content of this course with courses taught in the Department of Horticulture and Crop Science; however, as a revision to an existing and approved course, the Department supports the proposal.

The CFAES supports this proposal. Please let me know if you have any questions or need additional information.

Take care,

Jeanne



Jeanne M. Osborne | *Pronouns: She, Her, Hers*

Assistant Dean for Academic Affairs
College of Food, Agricultural, and Environmental Sciences
100E Agricultural Administration, 2120 Fyffe Rd.
Columbus, OH 43210
Tel: 614-292-1734
Fax: 614-292-1218
e-mail: Osborne.2@osu.edu

'Unexpected kindness is the most powerful, least costly, and most underrated agent of human change' (Bob Kerrey)

From: Cole, Susan <cole.354@osu.edu>
Sent: Monday, August 5, 2024 12:28 PM
To: Osborne, Jeanne <osborne.2@osu.edu>
Subject: Contingency request Molgen 1103

Dear Dr. Osborne,

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I have attached the syllabus for the class, and would appreciate it if you could circulate to any appropriate departments.

All the best,

Susan Cole

Professor and Chair

Department of Molecular Genetics