

## Term Information

Effective Term Autumn 2022

## General Information

Course Bulletin Listing/Subject Area Environment & Natural Resource  
Fiscal Unit/Academic Org Sch of Enviro&Natural Res - D1173  
College/Academic Group Food, Agric & Environ Science  
Level/Career Undergraduate  
Course Number/Catalog 2101  
Course Title Introduction to Environmental Science Laboratory  
Transcript Abbreviation IntroEnviroSciLab  
Course Description Introduction to environmental science and Earth systems; biodiversity and ecology; natural resources and sustainability; water and atmospheric sciences; scientific writing, communication and literacy; exploration of observational studies, laboratory instrumentation, techniques, and methods.  
Semester Credit Hours/Units Fixed: 1

## Offering Information

Length Of Course 14 Week, 12 Week, 8 Week, 7 Week, 6 Week, 4 Week  
Flexibly Scheduled Course Never  
Does any section of this course have a distance education component? Yes  
Is any section of the course offered 100% at a distance  
Grading Basis Letter Grade  
Repeatable No  
Course Components Laboratory  
Grade Roster Component Laboratory  
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 Prereq or concur: 2100  
Exclusions  
Electronically Enforced Yes

## Cross-Listings

Cross-Listings

## Subject/CIP Code

Subject/CIP Code 03.0101  
Subsidy Level General Studies Course  
Intended Rank Freshman, Sophomore, Junior, Senior

## Requirement/Elective Designation

Natural Sciences

## Course Details

### **Course goals or learning objectives/outcomes**

- 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.
- Employ the process of science through exploration, discovery, and collaboration to interact directly with the natural world when feasible, using appropriate tools, models, and analysis of data.

### **Content Topic List**

- Introduction
  - Scientific Method Lab - Origami Frogs
  - Human Populations Lab – Demographics and Population Growth
  - Ecology Lab – Backyard Bird Count
  - Water Resources Lab – Water Quality
  - Atmosphere Lab – Air Pollution
  - Energy Lab – Regional Renewable Energy Resources
  - Sustainability Lab – Ecological Footprint
- No

### **Sought Concurrence**

## Attachments

- CFAES QM Syllabus Review - ENR 2101 5\_26\_21.docx: QM Review  
*(Other Supporting Documentation. Owner: Fries, Sara Nicholson)*
- ENR2100+ENR2101 GE Application.docx: GE Application  
*(Other Supporting Documentation. Owner: Fries, Sara Nicholson)*
- ENR2101\_Online\_Assurance\_Form\_CFAES COL.pdf: Online Assurance  
*(Other Supporting Documentation. Owner: Fries, Sara Nicholson)*
- Laboratory Syllabus\_ENR2101\_final.docx: ENR 2101  
*(Syllabus. Owner: Fries, Sara Nicholson)*
- Responses to Panel Recommendations.docx: Response to Panel  
*(Other Supporting Documentation. Owner: Fries, Sara Nicholson)*

## Comments

- Please see Panel feedback email sent 09/21/2021. *(by Hilty, Michael on 09/21/2021 02:56 PM)*
- This course, combined with ENR 2100, an existing Natural Science GE course with submitted course change request to the new GE, will be a 3 + 1 credit hour Natural Science GE. Both courses must be taken to satisfy the Natural Science GE requirement. *(by Osborne, Jeanne Marie on 06/24/2021 04:32 PM)*

**COURSE REQUEST**  
2101 - Status: PENDING

Last Updated: Osborne, Jeanne Marie  
10/13/2021

**Workflow Information**

Status	User(s)	Date/Time	Step
Submitted	Fries, Sara Nicholson	06/08/2021 10:27 PM	Submitted for Approval
Revision Requested	Osborne, Jeanne Marie	06/09/2021 03:48 PM	Unit Approval
Submitted	Fries, Sara Nicholson	06/15/2021 03:16 PM	Submitted for Approval
Approved	Osborne, Jeanne Marie	06/24/2021 04:32 PM	Unit Approval
Approved	Osborne, Jeanne Marie	06/24/2021 04:33 PM	SubCollege Approval
Approved	Osborne, Jeanne Marie	06/24/2021 04:33 PM	College Approval
Revision Requested	Hilty, Michael	09/21/2021 02:56 PM	ASCCAO Approval
Submitted	Fries, Sara Nicholson	10/11/2021 09:22 PM	Submitted for Approval
Approved	Osborne, Jeanne Marie	10/13/2021 10:46 AM	Unit Approval
Approved	Osborne, Jeanne Marie	10/13/2021 10:47 AM	SubCollege Approval
Approved	Osborne, Jeanne Marie	10/13/2021 10:47 AM	College Approval
Pending Approval	Cody, Emily Kathryn Jenkins, Mary Ellen Bigler Hanlin, Deborah Kay Hilty, Michael Vankeerbergen, Bernadette Chantal Steele, Rachel Lea	10/13/2021 10:47 AM	ASCCAO Approval

Syllabus Review - QM Overview

Sch of Enviro&Natural Res

ENR

2101

Lower (2101)

<p style="text-align: center;"><b>General Standards</b></p> <p style="text-align: center;">Specific Review Standards</p>	Type	Points	Found	Consider Revising
<p><b>General Standard 1 – Course Overview and Introduction</b> The overall design of the course is made clear to the learner at the beginning of the course. The course overview and introduction set the tone for the course, let learners know what to expect, and provide guidance to ensure learners get off to a good start.</p>				
1.1 Instructions make clear how to get started and where to find various course components.	Essential	3	Found	No
a. School/Academic Area			Found	No
b. Course Number, Title, Level, and Credit Hour			Found	No
c. Instructor Name			Found	No
d. Instructor Contact Information.			Found	No
e. Office Hours (Location/Days/Times)			Found	No
1.2 Learners are introduced to the purpose and structure of the course.	Essential	3	Found	No
a. Primary goals of the academic unit/College/University			Found	No
b. Course Catalog description			Found	No
c. Explain how courses will achieve these goals			Found	No
1.3 Communication expectations for online discussions, email, and other forms of interaction are clearly stated.	Very Important	2	Found	No
1.4 Course and institutional policies with which the learner is expected to comply are clearly stated within the course, or a link to current policies is provided.	Very Important	2	Found	No
a. Academic Integrity (Academic Misconduct)			Found	No
b. Office of Disability Services Statement			Found	No
c. Diversity Statement			Found	No
d. Grievances statement			Found	No
e. Mental Health Statement			Found	No
f. <a href="http://ods.osu.edu">Statement of Student Rights http://ods.osu.edu</a>			Found	No
g. Intellectual Property			Found	No
i. Course Audio and Video Recording Video			Found	No
ii. Student Generated materials			Found	No
iii. Course materials	Found	No		
1.5 Minimum technology requirements for the course are clearly stated, and information on how to obtain the technologies is provided.	Very Important	2	Found	No
1.6 Computer skills and digital information literacy skills expected of the learner are clearly stated.	Important	1	Found	No
a. Courses that this course is a prerequisite			Found	No
b. Courses in other academic units (college, university)			Found	No
1.7 Expectations for prerequisite knowledge in the discipline and/or any required competencies are clearly stated.	Important	1	Not Found	No
<p><b>General Standard 2 – Learning Objectives (Competencies)</b> Learning objectives or competencies describe what learners will be able to do upon completion of the course. The learning objectives or competencies establish a foundation upon which the rest of the course is based.</p>				
2.1 The course learning objectives, or course/program competencies, describe outcomes that are measurable.	Essential	3	Found	No
2.3 Learning objectives or competencies are stated clearly, are written from the learner's perspective, and are prominently located in the course.	Essential	3	Found	No
2.4 The relationship between learning objectives or competencies and learning activities is clearly stated.	Essential	3	Found	No
2.5 The learning objectives or competencies are suited to the level of the course.	Essential	3	Found	No
<p><b>General Standard 3 – Assessment and Measurement</b> Assessments are integral to the learning process and are designed to evaluate learner progress in achieving the stated learning objectives or mastering the competencies. Assessment is implemented in a manner that corresponds to the course learning objectives or competencies and not only allows the instructor a broad perspective on the learners' mastery of content but also allows learners to track their learning progress throughout the course.</p>				
3.1 The assessments measure the achievement of the stated learning objectives or competencies.	Essential	3	Found	No
3.2 The course grading policy is stated clearly at the beginning of the course.	Essential	3	Found	No
a. Letter Grades/Grading Breakdown			Found	No
b. Late Work: Outline your policy for late work clearly			Found	No
c. Make-up Exams: Under what conditions will students be permitted to take a make-up exam?			Found	No

3.3 Specific and descriptive criteria are provided for the evaluation of learners' work, and their connection to the course grading policy is clearly explained.	Very Important	2	Found	No
3.4 The assessments used are sequenced, varied, and suited to the level of the course.	Very Important	2	Found	No
3.5 The course provides learners with multiple opportunities to track their learning progress with timely feedback.	Very Important	2	Found	No
<b>General Standard 4 – Instructional Materials</b> Instructional materials enable learners to achieve stated learning objectives or competencies. The focus of this Standard is on supporting the course objectives and competencies, rather than on qualitative judgments about the instructional materials.				
4.2 The relationship between the use of instructional materials in the course and completing learning activities is clearly explained.	Essential	3	Found	No
4.3 The course models the academic integrity expected of learners by providing both source references and permissions for use of instructional materials.	Very Important	2	Found	No
4.4 The instructional materials represent up-to-date theory and practice in the discipline.	Very Important	2	Found	No
4.5 A variety of instructional materials is used in the course.	Very Important	2	Found	No
<b>General Standard 5 – Learning Activities and Learner Interaction</b> Course activities facilitate and support learner interaction and engagement. Course components that promote active learning contribute to the learning process and to learner persistence.				
5.3 The instructor's plan for interacting with learners during the course is clearly stated.	Essential	3	Found	No
a. The university's official mode of communication is via university email.			Found	No
b. How do you expect students to address you, and how should they begin their emails?			Found	No
c. Exam proctoring – provide students with clear statements on the use of a proctoring service and provide them a chance to practice taking an exam with that proctoring service.			Not Found	No
5.4 The requirements for learner interaction are clearly stated.	Very Important	2	Found	No
a. Clearly state how long students can expect to wait until they receive an email response from you after they have contacted you via email.			Found	No
b. Remind students to avoid colors like red and green for accessibility reasons.			Found	No
<b>General Standard 6 – Course Technology</b> Course technologies support learners' achievement of course objectives or competencies. The technologies enabling the various course components facilitate rather than impede the learning process.				
6.3 A variety of technology is used in the course.	Important	1	Found	No
<b>General Standard 7 – Learner Support</b> The course facilitates learner access to institutional support services essential to learner success. It is important to ensure online learners know they have access to and are encouraged to use the services that support learners at the institution. In the Learner Support Standard, four different kinds of support services are addressed: technical support, accessibility support, academic services support, and student services support.				
7.1 The course instructions articulate or link to a clear description of the technical support offered and how to obtain it.	Essential	3	Found	No
7.2 Course instructions articulate or link to the institution's accessibility policies and services.	Essential	3	Found	No
7.3 Course instructions articulate or link to the institution's academic support services and resources that can help learners succeed in the course.	Essential	3	Found	No
7.4 Course instructions articulate or link to the institution's student services and resources that can help learners succeed.	Important	1	Found	No
<b>General Standard 8 – Accessibility* and Usability</b> The course design reflects a commitment to accessibility and usability for all learners. The course design reflects a commitment to accessibility, so that all learners can access all course content and activities, and to usability, so that all learners can easily navigate and interact with course components.				
8.6 Vendor accessibility statements are provided for all technologies required in the course.	Very Important	2	Found	No

Essential	13	63	13	0
Very Important	10	63	10	0
Important	4		3	0

63

62

Must have all Essential specific standards

39

13 / 13

Must have 85% of 63 which is

54

62



# SYLLABUS

## ENR 2101

Introduction to Environmental Science Laboratory  
AU22

GE Foundations, Natural Science: 1 credit

All Semesters: Online Sections

### COURSE OVERVIEW

ENR 2101 is an asynchronous virtual laboratory (100% online) that fulfills 1-credit of the General Education (GE) Category Foundations: Natural Science. It is intended to be taken with the 3-credit GE Foundations: Natural Science course titled "Introduction to Environmental Science Lecture" (ENR2100). Together the ENR2100 lecture (3 credits) and ENR2101 laboratory (1 credit) fulfill 4-credits of the General Education (GE) Category: Foundations, Natural Science.

ENR 2101 will utilize multiple online platforms supported by Ohio State. All content, including labs, slides, demonstrations, presentations, notes, videos, readings will be delivered through Carmen (<https://carmen.osu.edu>) or Ohio State Libraries (<https://library.osu.edu/>). Students will have free access to all course content for the entire semester.

ENR 2101 is asynchronous and self-paced to give students the ability to access and satisfy requirements within a flexible time frame. Labs are broken down into weekly modules and students are given 1 week (7 days) to complete each module. All assignments are open book. However, all course requirements must be completed independently by the enrolled student. All assignments and activities are completed using Carmen.

### Instructor

Instructor: Brian H. Lower (PhD), Kylienne A. Shaul (MS)

Teaching Associate: Ella M. Weaver (MENR)

Teaching Assistants: Listed on Carmen

Course Email: [ENR2100@osu.edu](mailto:ENR2100@osu.edu)

Phone: 614-292-2265 (SENR front desk)

Office Hours: Times posted on Carmen, we will meet by Zoom

## Course description

Introduction to environmental science and Earth systems; biodiversity and ecology; natural resources and sustainability; water and atmospheric sciences; scientific writing, communication and literacy; exploration of observational studies, laboratory instrumentation, techniques, and methods.

ENR 2101 fulfills 1-credit of the General Education (GE) Category Foundations: Natural Science. Students will engage in theoretical and empirical study within the natural sciences. Students will gain an appreciation of modern principles, theories, methods and modes of inquiry used generally across the natural sciences. Students will discern the relationship between science and technology, while appreciating the implications of scientific discoveries and the potential impacts of science and technology to address problems of the contemporary world.

## Course Prerequisites

To enroll in ENR 2101, students must be concurrently enrolled in ENR 2100 or have already completed ENR 2100.

Upon enrolling in this introductory college-level course, students are expected to have basic knowledge of the natural sciences as commonly taught at the pre-University level.

## Expected learning outcomes

### NEW GENERAL EDUCATION CURRICULUM

This course, in combination with ENR 2100, is a General Education (GE) Foundations, Natural Science course. ENR 2101 fulfills Natural Science GE Specific Goal 1 Natural Science and Expected Learning Outcome 1.3.

When this 1-credit ENR 2101 laboratory is taken in combinations with the 3-credit ENR 2100 lecture, together these 4-credits (i.e., 1-credit laboratory + 3-credit lecture) fulfills ALL Goals (i.e., Goals 1 and 2) and ALL Expected Learning Outcomes (i.e., ELOs 1.1, 1.2, 1.3, 2.1, 2.2, 2.3) for the Foundations, Natural Science GE category.

## ENR 2101 Fulfills

GOAL 1: Successful students will engage in theoretical and empirical study with 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 1.3: Successful students are able to employ the process of science through exploration, discovery, and collaboration to interact directly with the natural world when feasible, using appropriate tools, models, and analysis of data.

## PRIOR GENERAL EDUCATION CURRICULUM

The course does not fulfil any requirements outlined under the prior general education curriculum.

## HOW THIS COURSE WORKS

**Mode of delivery:** ENR 2101 is a 100% asynchronous online laboratory taught through Carmen (<https://carmen.osu.edu>). There are no required sessions when you must be logged into Carmen at a scheduled time. All course materials (i.e., journal articles, newspaper articles, book chapters, database access) will be free with no cost to the student.

**Pace of online activities:** This laboratory is divided into weekly modules. Students will complete one module per week (7 days). Students are expected to keep pace with weekly deadlines but may schedule their efforts freely within each week.

**Credit hours and work expectations:** This is a 1-credit-hour laboratory. According to [Ohio State policy](#), students should expect to spend 2 hours per week in this laboratory. A student's 2-hour-workweek includes direct instruction, taking notes, studying, readings, assignments, group work and completing labs.

**Attendance and participation requirements:** Because this is an online laboratory, your attendance is based on your online activity and participation. You are expected to log in to Carmen every week. During most weeks you will likely log in multiple times to complete your work. If you have a situation that might cause you to miss an entire week, please email [ENR2100@osu.edu](mailto:ENR2100@osu.edu) to discuss adjusted timelines.

## COURSE MATERIALS AND TECHNOLOGIES

### Textbook

None. Readings are sourced from the Ohio State Library and linked within the course for each week.

### Course technology

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

- **Self-Service and Chat support:** <http://ocio.osu.edu/selfservice>
- **Phone:** 614-688-HELP (4357)
- **Email:** [8help@osu.edu](mailto:8help@osu.edu)



- **TDD:** 614-688-8743

## BASELINE TECHNICAL SKILLS FOR ONLINE COURSES

- Basic computer and web-browsing skills
- Basic skills with Microsoft Word, Excel and PowerPoint
- Navigating Carmen: for questions about specific functionality, see the [Canvas Student Guide](#).

## REQUIRED EQUIPMENT

- Computer: current Mac (OS X) or PC (Windows 7+) with high-speed internet connection
- Microphone: built-in laptop or tablet mic or external microphone
- (Recommended) Webcam: built-in or external webcam, fully installed and tested
- Other: a mobile device (smartphone or tablet) to use for BuckeyePass authentication

## REQUIRED SOFTWARE

- [Microsoft Office 365](#): All Ohio State students are now eligible for free Microsoft Office 365 ProPlus through Microsoft's Student Advantage program. Full instructions for downloading and installation can be found [at go.osu.edu/office365help](http://go.osu.edu/office365help).

## CARMEN ACCESS

You will need to use [BuckeyePass](#) multi-factor authentication to access your courses in Carmen. To ensure that you are able to connect to Carmen at all times, it is recommended that you take the following steps:

- Register multiple devices in case something happens to your primary device. Visit the [BuckeyePass - Adding a Device](#) help article for step-by-step instructions.
- Request passcodes to keep as a backup authentication option. When you see the Duo login screen on your computer, click "Enter a Passcode" and then click the "Text me new codes" button that appears. This will text you ten passcodes good for 365 days that can each be used once.
- Download the [Duo Mobile application](#) to all of your registered devices for the ability to generate one-time codes in the event that you lose cell, data, or Wi-Fi service.

If none of these options meet the needs of your situation, you can contact the IT Service Desk at 614-688-4357 (HELP) and the IT support staff will work out a solution with you.

If you experience connection problems with Carmen then the very first thing that you should try is another web browser such as Firefox, Explorer, Chrome, and Safari. If you are having difficulty opening a document or viewing an image or any other issue associated with this class, then it is most likely a problem with your computer, Internet connection or Internet browser. While everything for this class has been thoroughly tested, if you experience a mistake, please let us know so that we can correct it.

# GRADING AND FACULTY RESPONSE

## How your grade is calculated

ASSIGNMENT CATEGORY	PERCENTAGE
15 – Weekly Participation Activities	30% (2% each)
14 – Laboratory Assignments	70% (5% each)
<b>Total</b>	<b>100%</b>

*\*See course schedule for due dates. Everything is due by 11:59PM on Sundays.*

## WEEKLY PARTICIPATION ACTIVITIES (15, 2% EACH, 30% TOTAL):

You will complete a total of 15 weekly participation assignments this semester (1 activity per week), all of which will be submitted on Carmen and due on Sundays at 11:59PM. Each assignment will be unique and worth 2% of your Final Grade for the course. Participation activities are conducted through the Carmen Discussion Board as a group discussion with your assigned lab group. These assignments are open-book, however, you must complete the work on your own without help from peers. A student who demonstrates good faith effort on all aspects of the weekly participation activity and demonstrated engagement in the activity will receive full credit.

Objectives of participation activities:

1. Communicate your experiment results to your team members.
2. Reflect on the experimental process.
3. Wrap up each lab through a reflective, metacognitive, or so what activity.
4. To serve as a formal weekly check-in that promotes and encourages peer-to-peer interaction.

For each weekly participation activity, you will be required to:

Participate in a weekly group discussion on Carmen through written, audio, or video posts. Respond to a structured prompt: For part 1 of each lab the activity will require you to share your data with your group members and reflect on a key component of the experimental process. For part 2 of each lab, the activity will serve to wrap up the lab. The wrap up activity will vary each week depending on the nature of the lab. Wrap up activities may include a reflection on the data analysis, conducting cursory research on a topic related to the lab, or sharing a component of your data analysis such as a graph.

## LABORATORY ASSIGNMENTS (14, 5% EACH, 70% TOTAL)

You will complete a total of 14 laboratory assignments over 7 labs this semester, all of which will be submitted on Carmen and due on Sundays at 11:59PM. Each lab will be conducted over two weeks and comprise of two related laboratory assignments. For example, Lab Assignment 1 and Lab Assignment 2 will both pertain to the first lab on the Scientific Method (see course schedule below). Within the first lab assignment, you will collect and report data. Within the second lab assignment you will summarize and analyze class data collected in the first lab assignment. Lab Assignment 1 will be due at the end of the first week while Lab Assignment 2 will be due at the end of the second week for each lab. Each assignment will be unique and worth 5% of your Final Grade for the course. Therefore, each lab will be worth 10% of your Final Grade (5% x 2 assignments = 10%) These assignments are open-book however, all work should be your own and copying or reusing previous work or the work of other's is not permitted. Collaborating or completing labs with your group members is permitted but not necessary to successfully complete the lab. Assignments will be available on Carmen for 7 days to accommodate all students. Readings, data sets, and instructional videos that are required for laboratory assignments will all be free and provided through Carmen.

Objectives of laboratory assignments:

1. Describe common instruments, equipment, techniques and methods used by scientists to collect data. Learn about protocols, operation, benefits and limitations of each.
2. Use described methods to collect data.
3. Use Microsoft Excel to analyze consolidated peer group data through calculations (i.e., mean, p-value, standard deviation, indices).
4. Summarize group results visually using tables and charts and textually using concise scientific language.

Each laboratory will consist of two parts (Part 1 and Part 2) that will be completed over two weeks. Part 1 should be completed by you, the student, on your own. Part 2 should be completed as part of your lab group.

Part 1 (1<sup>st</sup> week) - Learn about the lab procedure and how scientists have used the technique or methods by reading peer-reviewed literature and watching instructional videos provided by your instructor. Execute laboratory experiments at home, collect and report standardized data to your instructor via a Carmen assignment or quiz. Data and results will also be reported to your peer group via the week's participation activity.

Part 2 (2<sup>nd</sup> week) – Gather your lab group's data from the participation activity submitted for Part 1 of the lab. Consolidate this data in a Microsoft Excel lab template. Analyze grouped data by performing calculations with Microsoft Excel. Interpret and summarize results by creating tables, graphs, and answering short-answer questions. These questions will be based on data that your group collected. You will be asked to analyze data, and answer questions about the experiments that you conducted at home.

## Late policy

Assignments will be submitted on Carmen within a flexible time frame of 1 week. These can be completed at any time within the 1-week submission window. Students will be permitted to work 1-week ahead if they choose to do so. Submission after the due date for assignments will result in a **10% deduction per day from the overall grade. The submission window will automatically close after**

**10 days from the due date and will not reopen.** Submissions that are sent by email will not be accepted. All assignments must be submitted on Carmen.

Extenuating circumstances sometimes occur. Students who miss an assessment due to a legitimate reason (e.g., emergency, hospital visit, extended illness) should contact their instructor at [ENR2100@osu.edu](mailto:ENR2100@osu.edu) to request permission to make-up an assignment. The instructor will determine if an excuse is acceptable. If approved, the student will not be penalized -10% per day. If approved, the student must make up the missed assessment within a time frame specified by the instructor. Since this course has flexible due dates with assignments open for a period of days to weeks on [Carmen](#), acceptable excuses typically entail lengthy illness, extended hospitalization or other serious issues with official documentation.

The due date for each assignment is provided on Carmen on the very first day of the semester to help students plan their semester. It is the responsibility of the student to know the due date for all assignments. We do this to accommodate students' busy schedules. Students are expected to plan their semester accordingly. Technical glitches such as a bad internet connection, faulty internet browser, a computer that “crashes”, a battery that runs out of power, an obnoxious roommate, software malfunction, a flat tire, etc. are not acceptable excuses for missing a deadline. The instructor does not accept assignments by e-mail, and these will be deleted and not graded. Assignments should always be completed and/or submitted using [Carmen](#).

## Grading scale

Letter Grade	%	Mastery
A	93.00–100.0	Demonstrates complete mastery of all learning outcomes as demonstrated on assessments; participates in all aspects of the lab in a positive and timely manner.
A-	90.00–92.99	
B+	87.00–89.99	Demonstrates mastery of at least two learning outcomes as demonstrated on assessments; participates in all aspects of the lab in a positive and timely manner.
B	83.00–86.99	
B-	80.00–82.99	
C+	77.00–79.99	Demonstrates mastery of at least one learning outcome as demonstrated on assessments; participates in some aspects of the lab in a positive and timely manner. A minimum grade of “C-“ will be earned by a student making a good faith effort on all aspects of the lab and demonstrated engagement.
C	73.00–76.99	
C-	70.00–72.99	
D+	67.00–69.99	

D	60.00–66.99	Fails to meet mastery of any learning outcome such that student will not be successful in higher-level course; did not complete assessments; demonstrated lack of engagement, did not participate in lab, did not complete assessment in a timely fashion.
E	00.00–59.99	

## Instructor feedback and response time

- **Grading and feedback:** For assignments, you can expect a grade and feedback within 7 days.
- **Email (Preferred contact method):** Instructors check and reply to emails daily. Please email [ENR2100@osu.edu](mailto:ENR2100@osu.edu) as this is the email dedicated to the course. Please use your Ohio State email account to send emails to this account. We will reply to emails within **24 hours on days when class is in session at the university**.

## Fair assessment practices

We understand that grades are important to our students, and we strive to have clearly stated learning outcomes. We work hard to ensure that student grades are calculated in a fair and accurate manner. Things that we do to ensure that the assessments we administer are fair and accurate:

1. We use grading rubrics to score all laboratory assignments and participation activities. These rubrics provide clear grading expectations for varying levels of mastery. Students are able to see a grading rubric before they start working on an assignment so that performance expectations are clearly understood.
2. We evaluate the outcomes of assignments by checking all questions and all answers after an assignment closes to check for mistakes. Typically, we want to see that each question was answered correctly approximately 80% of the time. This 80% threshold indicates that a question was a fair assessment of the course material. If this threshold is not met, we do not count the question or we provide students with another opportunity to answer a new question.
3. We use different kinds of assessments, and each assessment type is weighted equally. We use laboratory assignments and participation activities to calculate a student's grade, and each is worth the same value for a student's Final Grade for the course. This has the impact of increasing a student's course grade by not weighing one assignment more than another.
4. We encourage students to do well on assessments by making all assignments open-book and allowing students to complete all assignments from anywhere.
5. We encourage students to do well on assessments by providing students an extended period of time (e.g., 7 days) to complete assignments.

6. We accept late assignments with a small penalty of -10% deduction per day late. This ensures that a student would not receive an automatic grade of 0% for missing an assignment.
7. We provide clearly stated learning outcomes for our modules that are aligned to course content and assessments so that students better understand why they are completing an activity.

If you have questions about these practices or how your grade is calculated throughout the semester, please contact your instructor at [ENR2100@osu.edu](mailto:ENR2100@osu.edu).

## OTHER COURSE POLICIES

### Academic integrity policy

#### POLICIES FOR THIS ONLINE COURSE

- **Assignments:** Your written assignments, including discussion posts, should be your own original work. In formal assignments, you should follow the provided course style to cite the ideas and words of your research sources. You are encouraged to ask a trusted person to proofread your assignments before you turn them in—but no one else should revise or rewrite your work.
- **Reusing past work:** In general, you are prohibited in university courses from turning in work from a past class to your current class, even if you modify it. If you want to build on past research or revisit a topic you've explored in previous courses, please discuss the situation with your instructor at [ENR2100@osu.edu](mailto:ENR2100@osu.edu).

#### OHIO STATE'S ACADEMIC INTEGRITY POLICY

Academic integrity is essential to maintaining an environment that fosters excellence in teaching, research, and other educational and scholarly activities. Thus, The Ohio State University and the Committee on Academic Misconduct (COAM) expect that all students have read and understand the University's [Code of Student Conduct](#), and that all students will complete all academic and scholarly assignments with fairness and honesty. Students must recognize that failure to follow the rules and guidelines established in the University's *Code of Student Conduct* and this syllabus may constitute "Academic Misconduct."

The Ohio State University's *Code of Student Conduct* (Section 3335-23-04) defines academic misconduct as: "Any activity that tends to compromise the academic integrity of the University or subvert the educational process." Examples of academic misconduct include (but are not limited to) plagiarism, collusion (unauthorized collaboration), copying the work of another student, and possession of unauthorized materials during an examination. Ignorance of the University's *Code of Student Conduct* is never considered an excuse for academic misconduct, so I recommend that you review the *Code of Student Conduct* and, specifically, the sections dealing with academic misconduct.

**If the instructor suspects that a student has committed academic misconduct in this lab, the instructor is obligated by University Rules to report 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 me.

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

- The Committee on Academic Misconduct web pages ([COAM Home](#))
- *Ten Suggestions for Preserving Academic Integrity* ([Ten Suggestions](#))
- *Eight Cardinal Rules of Academic Integrity* ([www.northwestern.edu/uacc/8cards.htm](http://www.northwestern.edu/uacc/8cards.htm))

## Copyright disclaimer

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.

## 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, Kellie Brennan, at [titleix@osu.edu](mailto:titleix@osu.edu)

## Your mental health

A recent American College Health Survey found stress, sleep problems, anxiety, depression, interpersonal concerns, death of a significant other, and alcohol use among the top ten health impediments to academic performance. Students experiencing personal problems or situational crises during the quarter are encouraged to contact Ohio State University Counseling and Consultation Service (614-292-5766; [www.ccs.osu.edu](http://www.ccs.osu.edu)) for assistance, support and advocacy. This service is free and confidential.

## Principles of Community

This course adheres to The Principles of Community adopted by the College of Food, Agricultural, and Environment Sciences. These principles are located on the Carmen site for this course, and can also be found at <https://go.osu.edu/principlesofcommunity>. For additional information on Diversity, Equity,

and Inclusion in CFAES, contact the CFAES Office for Diversity, Equity, and Inclusion (<https://equityandinclusion.cfaes.ohio-state.edu/>). If you have been a victim of or a witness to a bias incident, you can report it online and anonymously (if you choose) at <https://studentlife.osu.edu/bias/report-a-bias-incident.aspx>.

## ACCESSIBILITY ACCOMMODATIONS FOR STUDENTS WITH DISABILITIES

### Requesting accommodations

The university strives to make all learning experiences as accessible as possible. In light of the current pandemic, students seeking to request COVID-related accommodations may do so through the university's request process, managed by Student Life Disability Services. 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. SLDS contact information: [slds@osu.edu](mailto:slds@osu.edu); 614-292-3307; [slds.osu.edu](http://slds.osu.edu); 098 Baker Hall, 113 W. 12th Avenue.

**Several accessibility accommodations are already built into our course for all students (see list below).** We work to provide these accommodations to all students and want to make sure all students have a positive learning experience in our course. Please send documentation from SLDS to [ENR2100@osu.edu](mailto:ENR2100@osu.edu) in order to establish any further accommodations needed during the semester.

1. **Extended Time (1.5x or 2x) Assignments: SLDS-REGISTERED STUDENTS SHOULD EMAIL THEIR PLAN.** A student must send their completed SLDS paperwork to the instructor at [ENR2100@osu.edu](mailto:ENR2100@osu.edu). Once accommodations are verified, we will setup all assessments accordingly.
2. **Note Taking Assistance/Recording: PROVIDED TO ALL STUDENTS.** We provide all lab presentation slides via Carmen. Fully typed transcripts for lab presentations are provided via YouTube. Students can copy/paste the entire typed transcript anytime using any word



processing software (e.g., Microsoft Word) directly from YouTube for all videos. These transcripts serve as written notes for all lectures.

3. **Distraction Reduced Testing Space, Small Group Setting: PROVIDED TO ALL STUDENTS.** Students can take all assessments on Carmen from anywhere. Students who are registered with Office of Student Life Disability Services (SLDS) and require distraction reduced testing space should make their own accommodations.
4. **Closed-captioning and transcripts: PROVIDED TO ALL STUDENTS.** All required multimedia (e.g., videos, podcasts) are accompanied with closed captioning or transcripts that meet ADA requirements. Most times these features are provided by the content producer (e.g., The New York Times, PBS, NPR, Nature, National Geographic). However, you may find select transcripts produced by the course team and linked in Carmen.
5. **Flexible due dates for assignments: PROVIDED TO ALL STUDENTS.** All assignments are open on Carmen for a period of at least 7 days to accommodate students' busy schedules. Students can complete these assignments anytime while the window is open. Extenuating circumstances sometimes occur. Students who miss a due date for a legitimate reason (e.g., emergency, hospital visit, extended illness, unforeseen health issue, homelessness) should contact the instructor before the due date by email ([ENR2100@osu.edu](mailto:ENR2100@osu.edu)) to request additional time. The instructor will determine if an excuse is acceptable.

## LABORATORY SCHEDULE

Week	Topic	Assessment	Due Date
1	Introduction	Participation Activity 1	Sunday at 11:59PM
2	Scientific Method Lab - Origami Frogs	Participation Activity 2 Lab 1 Part 1	Sunday at 11:59PM
3		Participation Activity 3 Lab 1 Part 2	Sunday at 11:59PM
4	Human Populations Lab – Demographics and Population Growth	Participation Activity 4 Lab 2 Part 1	Sunday at 11:59PM
5		Participation Activity 5 Lab 2 Part 2	Sunday at 11:59PM
6	Ecology Lab – Backyard Bird Count	Participation Activity 6 Lab 3 Part 1	Sunday at 11:59PM
7		Participation Activity 7 Lab 3 Part 2	Sunday at 11:59PM
8	Water Resources Lab – Water Quality	Participation Activity 8 Lab 4 Part 1	Sunday at 11:59PM
9		Participation Activity 9 Lab 4 Part 2	Sunday at 11:59PM
10	Atmosphere Lab – Air Pollution	Participation Activity 10 Lab 5 Part 1	Sunday at 11:59PM
11		Participation Activity 11 Lab 5 Part 2	Sunday at 11:59PM
12	Energy Lab – Regional Renewable Energy Resources	Participation Activity 12 Lab 6 Part 1	Sunday at 11:59PM
13		Participation Activity 13 Lab 6 Part 2	Sunday at 11:59PM
14		Participation Activity 14	Sunday at 11:59PM

<b>Week</b>	<b>Topic</b>	<b>Assessment</b>	<b>Due Date</b>
		<b>Lab 7 Part 1</b>	
<b>15</b>	<b>Sustainability Lab – Ecological Footprint</b>	<b>Participation Activity 15 Lab 7 Part 2</b>	<b>Sunday at 11:59PM</b>

October 5, 2021

Dear ASC Curriculum Committee,

We thank the Natural and Mathematical Sciences Panel of the ASC Curriculum Committee for reviewing ENR2100 (3-credit lecture) and ENR2101 (1-credit lab). The panel provided excellent advice and insight about our course/lab combination for the new GE.

The panel listed 8 items that they would like us to address (shown in black-colored font below). Below we list these eight items and the actions (shown in blue-colored font) that we took to address these concerns.

Based on the panel's recommendations, we revised the syllabi for both ENR2100 (3-credit lecture) and ENR2101 (1-credit lab). We believe that we have adequately addressed all the committee's concerns listed below and in the syllabi. If the committee has additional concerns or questions, please let us know so we can keep working on these items until the committee is fully satisfied.

Sincerely,

School of Environment & Natural Resources (SENR)

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On Wednesday, September 15<sup>th</sup>, the Natural and Mathematical Sciences Panel of the ASC Curriculum Committee reviewed a course change proposal for ENR 2100 and 2101. The Panel did not vote on the proposal and would like the following 8 items addressed:

1. The Panel would like to ask the Department to consider all the permutations of the various student populations taking this course, such as students who may have transfer credit and/or AP/IB for the lecture and/or the laboratory, students that may not be taking the course for GE credit, students that may only enroll in 2101 to fulfill a lab credit, students who may be taking it in the next several years to fulfill the current GE, etc.

We recognize students will be enrolling in ENR2100 and/or ENR2101 in various patterns and for various requirements over the next several years. Students coming into the university with transfer or examination credit for ENR2100 will be able to enroll in ENR2101 should they need the lab course. Transfer credit for environmental science labs will be evaluated within the School of Environment and Natural Resources (SENR) to determine if it is eligible to receive credit for ENR2101. Students majoring in the School of Environment and Natural Resources (SENR) will only need ENR2100 as they will be taking it as part of their SENR core and not part of the GE beginning next fall. This is no change to how the majors are currently structured. Students completing the current GE will only be required to complete

ENR2100 to fulfill their Natural Science requirement. A student that chooses to take ENR 2100 and/or ENR2101 not as part of the GE is eligible to do so. The only prerequisite is for ENR2101, they must have credit or be enrolled in ENR2100. We will continue to ensure we have enough seats available for the various enrollment patterns.

2. The Panel would like to remind the Department that laboratory exercises each week should be the equivalent of two contact hours, or two hours a week. Please see page 18 of the ASC Curriculum and Assessment Services Operations Manual (under Definition of a Semester Credit Hour) for further information here: [https://ascas.osu.edu/sites/default/files/2021-09/2021-22\\_asc\\_curriculum\\_and\\_assessment\\_operations\\_manual.pdf](https://ascas.osu.edu/sites/default/files/2021-09/2021-22_asc_curriculum_and_assessment_operations_manual.pdf)

ENR2100 is currently taught at Ohio State as a 3-credit class, and we will continue teaching it in this manner in the new GE system. ENR2101 will be taught as a new 1-credit laboratory in the new GE system and students will spend 2-hours per week working as part of this laboratory. We have already piloted all components of our laboratory modules at Ohio State during autumn, spring and summer semesters with undergraduate students. Our pilot projects helped to determine how long it takes an undergraduate student to complete a laboratory module, test design elements and identify and fix technological bugs. During the development of our online laboratory, we consulted with faculty at Ohio State, staff at Ohio State Office's Distance Education and eLearning (ODEE) and companies that create virtual laboratory simulations (e.g., SimBio). Based on our pilot projects and consultation with experts in online education, we have developed and will teach weekly laboratory exercises that will be equivalent to two contact hours per week.

On pages 2-3 of our Laboratory Syllabus (ENR2101), we inform students that they should expect to spend 2 hours per week on each weekly laboratory module. On pages 2-3 in the section called "How This Course Works", we describe mode of delivery, pace of online activities, credit hours and work expectations, attendance and participation requirements. On [page 3 of the ENR2101 \(lab\) syllabus](#), we write:

**Credit hours and work expectations:** This is a 1-credit-hour laboratory. According to [Ohio State policy](#), students should expect to spend 2 hours per week in this laboratory. A student's 2-hour-workweek includes direct instruction, taking notes, studying, readings, assignments, group work and completing labs.

3. The Panel requests further clarification surrounding the data collection and analysis aspects of the laboratory portion of the course, as they currently are unsure what the requirements are and what the data collected is and what it will be used for within the laboratory experiments.

All labs are designed to accommodate all students and leverage software that is free to Ohio State students (e.g., Microsoft) and common materials found in a student's home or use of free online tools to produce data for analysis. Data analysis primarily utilizes Microsoft Excel to calculate common statistical measures (e.g., mean, median, standard deviation, quartiles), generate graphs and determine discipline-specific indices based on the focus of the lab. Analysis also asks students to identify and describe trends found in the data.

Below are examples of data collection and analysis for three different labs (scientific method, ecology, sustainability):

**Scientific Method Lab.** Students will practice using and identifying components of the scientific method through a simulated ecology experiment. Data collection: students fold three origami jumping frogs with 3-, 4-, and 5-inch paper. Students create a hypothesis relating frog size and jumping distance then jump each frog "species" 5 times, measuring the distance of each jump. Jump data is shared with the lab group via Carmen Discussions. Analysis: students gather the jump data from their peers and input it into a table in the lab's Microsoft Excel template. Students then calculate the mode, median, mean, and standard deviation for each frog "species" using the combined data from the group. Students summarize the data visually by creating a bar graph showing the average and standard deviation for the three frog "species". Students justify if the data supports or does not support the initial hypothesis. Students are introduced to the concept of confounding variables, then reflect and discuss results with their lab group and how to better control for variables in their experiment.

**Ecology Lab.** Students use a citizen scientist technique from the Audubon Society to measure the biodiversity of bird populations in their local environment. Data collection: students identify a stationary site or choose a transect to count birds for 30 minutes. Students identify bird species and count the number of each species during their counting time. Students record site details such as habitat type, weather, and time. Completed counts are shared with the lab group via Carmen Discussions. Analysis: students gather the bird counts from their lab group members and input the data into tables in the lab's Microsoft Excel template. Biodiversity indices are used to calculate the Species Richness, Species Diversity, and Species Evenness of each of the 5 sites sampled by the lab group. Students summarize the index values visually using tables and charts and textually using concise scientific language. Students are asked to identify the most diverse of the 5 sites and speculate why it is most diverse based on the site description.

**Sustainability Lab.** Students are introduced to the ecological footprint, how it is measured, and what each component of the measure means. Data collection: students use the Global Footprint Network's online calculator to calculate their

Ecological and Carbon Footprints. The key values of the footprint are shared with the lab group via Carmen Discussions. Analysis: students gather the data from their lab group members and input the data into a table in the lab's Microsoft Excel template. Students calculate the group's average ecological footprint in number of Earth's and global hectares (gha). Students then use the Global Footprint Network's online database to download the most recent data for the ecological footprint of each country and identify the country or region that the group's average most closely matches. Students analyze and summarize the biocapacity and ecological footprints trends of these locations by referring to the online Reserve/Deficit database. Students analyze and summarize global trends using the online Sustainable Development database. Lastly, students determine lifestyle changes the group would need to make to reduce their ecological footprint by one Earth.

4. The Panel questions whether the Poster Assignment, found in the 2101 laboratory course, is reflective of a lab activity and would be better suited in the lecture component of the course and asks the Department to consider this or provide a rationale as to how the Poster Assignment addresses the laboratory component, specifically GE Foundation goal 1.3.

Thank you for the feedback. Following the committee's advice, we have removed the poster assignment from the laboratory, ENR2101. The poster assignment will be placed in ENR2100 (lecture) where it currently exists for ENR2100. We have been using the poster assignment as part of ENR2100 for the past 10 years, it works well in the lecture and so we will keep the poster assignment in the lecture.

The poster was completely removed from the ENR2101 syllabus. The poster assignment was added to the ENR2100 (lecture) syllabus and students read information about the poster assignment on [pages 5,6,14 of ENR2100 \(lecture\) syllabus](#).

5. The Panel has questions surrounding the peer interaction within the laboratory component of the course. For example, on page 6 of the syllabus under the Written Laboratory Assignments section, the syllabus mentions that the objectives are to "report standardized data to me and to your peer group", "analyze consolidated peer group data", and "summarize consolidated peer group data" yet the academic integrity statements mention that "you must complete the work on your own without help from peers". They would like further clarification around the peer groups and how they function within the course.

Thank you for helping us to clarify individual versus group activities in our laboratory syllabus. Each lab consists of two parts. Part 1 will be completed by the individual student and Part 2 will be completed as a group. We added text to clarify what elements students will complete on their own and what elements students will

complete as part of their group. On [page 6 of the ENR2101 \(lab\) syllabus](#), we added the following text:

Each laboratory will consist of two parts (Part 1 and Part 2) that will be completed over two weeks. Part 1 should be completed by you the student on your own. Part 2 should be completed as part of your lab group.

Part 1 (1<sup>st</sup> week) - Learn about the lab procedure and how scientists have used the technique or methods by reading peer-reviewed literature and watch instructional videos provided by your instructor. Execute laboratory experiment at home, collect and report standardized data to your instructor via a Carmen assignment or quiz. Data and results will also be reported to your peer group via the week's participation activity.

Part 2 (2<sup>nd</sup> week) – Gather your lab group's data from the participation activity submitted for Part 1 of the lab. Consolidate this data in a Microsoft Excel lab template. Analyze grouped data by performing calculations with Microsoft Excel. Interpret and summarize results by creating tables, graphs, and answering short-answer questions. These questions will be based on data that your group collected. You will be asked to analyze data, and answer questions about the experiments that you conducted at home.

Peer groups will be created by using the Carmen Learning Management System to randomly divide enrolled students into groups of 5. Students maintain group membership throughout the semester, which helps to form community within the course. To allow for flexibility in an asynchronous format, each lab spans across a two-week period, so that in week 1, students are collecting data and in week 2, students are analyzing data. Due dates for these activities are at the end of each week so that students can complete the work on their own time without having to rely on the schedule of their peers in their assigned lab group. Lab groups are also used for small reflection activities related to the topic of that week's lab. For example, lab 1 covers the Scientific Method. Students are introduced to the concept of confounding variables and are asked to discuss how to better control for variables in the class experiment. This discussion is conducted through Carmen discussions in a classic post-and-reply asynchronous format. Outside of gathering the datasets from their group members in the second week of each lab, students do not need to rely on each other to complete data collection or analysis. For this reason, as well as to align with the practicality of the asynchronous format, we clearly state in our academic integrity expectations that students should complete the work themselves. The academic integrity policy appears on pages 8-9 of the lab syllabus.

6. Additionally, the Panel would like to ask how these peer groups are formed, given the asynchronous nature of the course and students will never physically (and possibly virtually) meet one another.



The Carmen platform allows instructors to assign, organize, and interact with students in online peer groups. The software works well, even for very large asynchronous classes (e.g., 1,000 students). We have been using Carmen to manage peer groups in our asynchronous, online ENR2100 class over the past 7 years and have a great deal of experience on how to effectively manage and interact with peer groups through Carmen (e.g., we have taught 25 different online ENR2100 classes during Summer, Autumn and Spring semesters with enrollments ranging from 40 students to 1,000 students). We will use our past experiences to guide us in our asynchronous online lab.

For the lab, we will divide the class into manageable peer groups on Carmen. Carmen allows groups to be organized a variety of ways. For the purposes of the lab procedures, we will randomly divide students into groups of five students. We assign 1 teaching assistant (TA) to each peer group and that TA manages their group throughout the semester. TA responsibilities including scoring assignments based on grading rubrics, setting clear guidelines and expectations for each week's activities, setting clear boundaries to ensure professional communication among students, create communication plans for students, communicating with students in discussion boards and by email, and troubleshoot problems that arise. Instructors will be in constant (weekly) contact with TAs to ensure that each group is running smoothly and meeting weekly objectives. If students have questions or concerns throughout the semester, they can contact the instructor directly via a dedicated class Email (e.g., [ENR2100@osu.edu](mailto:ENR2100@osu.edu)) or using Carmen discussion boards (e.g., Course Q&A Discussion Board).

Based on our previous experience working with online peer groups in our current online asynchronous ENR2100 class, we have found that opening assignments for a period of 7 days allows for robust asynchronous interactions between online students. The 7-day submission window also allows us to accommodate 100% of our students who receive accommodations through SLDS. For example, in our current online ENR2100 class, students interact with one another in a virtual poster symposium run through Carmen. Students upload their poster presentation to Carmen on Week 12. Then during the next week, Week 13, each student is required to conduct a review of 3 poster presentations. For a very large class, this works out to ~1,000 poster submissions in Week 12 and ~3,000 peer reviews in Week 13. We have always achieved student completion rates of 90% or higher for these projects. End-of-semester student surveys indicate that 85% of the students found the online virtual poster symposium to be interactive, engaging and easy to navigate. We have found that students adapt well to asynchronous online classes if an instructor (1) provides clear instructions each week about what is expected, (2) uses the same due date each week (e.g., Sunday at 11:59PM), and (3) opens assignments on Carmen for at least 1-week so students can complete an assignment anytime over a 7-day period.

We have found that students are able to effectively communicate and interact with one another in an asynchronous environment through Carmen when given measurable and specific instructions and when using standardized prompts from week to week. We will continue to do this in our online lab so that students understand what is expected and to help ensure that the activity runs as planned. For example, rather than instruct our students “post 3 comments”, we will instruct them “using the assignment rubric as a guide to do a, b, and c”.

We have also found in our current asynchronous, online ENR2100 class, that having groups of at least 5 students ensures that there are robust interactions among students, interactions that may not happen with smaller groups (e.g., 3 students), especially if multiple students are sick (e.g., 2 students in a group of 3 are sick with Covid) and miss an entire week of class. We have an effective late policy and currently use it for our asynchronous, online ENR2100 class in situations where students miss an extended period. Our late policy allows students who have an excused absence (e.g., sick with Covid) to still participate in group activities on Carmen when they are well and able to return to class.

Using Carmen, we have developed and use a late assignment policy that allows us to accept late work from our students. We have found this to be a requirement for a large enrollment, asynchronous course. This is also a requirement for students who have a Flex-Plan set up with SLDS and receive accommodations. The Carmen learning management platform allows us to accept late assignments with or without a late penalty (e.g., -10% per day late) and for so many days past the due date (e.g., 10 days past). The Carmen software works in the background to automatically calculate and assess a late penalty without the instructor having to do it by hand. This ensures that all students receive their accommodations and are able to complete their work.

Finally, Carmen works well most of the time, however, it can go down. A few years ago, Ohio State experienced a two-week period when Carmen went down for about 2 weeks and faculty and students were not able to access Carmen. We were able to overcome this challenge because we had a go.osu.edu site for our class that contained all educational materials our students needed for class (e.g., lecture slides, closed-captioned lecture videos, assignments, rubrics, templates) and students were able to complete their coursework outside of Carmen. It wasn't an ideal situation, but we were still able to communicate with students by Email and students were still able to complete their coursework outside of Carmen. We will develop a similar go.osu.edu site for our online lab to (1) increase accessibility for our students and (2) serve as a back-up for the Carmen system.

7. The Panel would like to see details in the syllabus as to how the group work is managed in the weekly schedule; how a group member working early in the week is guided to collaborate with one working much later in the week.

This is a very good point, thank you for raising it. Real-time student-to-student interactions aren't realistic for asynchronous online courses, especially large enrollment courses where students are often in different time zones. These types of activities are better reserved for in-person, synchronous courses.

What does work well for asynchronous online courses is delayed responses (e.g., delayed student-to-student interactions) where students complete work as individuals in week 1 and then in week 2, students complete group activities based on the work that was completed in the previous week. We will use "delayed responses" for group work that is completed in our asynchronous, online lab. The opportunity of delayed response allows the flexibility required in asynchronous courses and encourages higher order learning skills as students are able to think about a problem or issue over an extended period of time (e.g., 1-week). The delayed response also allows the instructor to scaffold assignments to encourage students to use previous knowledge to explain new concepts. We have used "delayed responses" for group activities in our current asynchronous, online ENR2100 class for the past 7 years and found it to work very well to manage group work both for the students and instructor.

We have added more detailed information in our [\*\*ENR2101 \(lab\) syllabus on page 6\*\*](#), which describes that each laboratory consists of two parts: Part 1 will be completed in week 1 by an individual student; and Part 2 will be completed in week 2 as a group activity that is based on work completed in Part 1. Running an asynchronous online lab in this manner means that a group members can work anytime over a 7-day period.

We have a great deal of experience managing group work in our current large-enrollment, asynchronous, online class (ENR2100). We will use these experiences to guide us and serve as a model for how to effectively manage group work in the new asynchronous lab. What we have found works best in an asynchronous, online course is to use flexible schedules that allows students to participate across different time zones, scaffolded assignments, rubrics, and collaborative documents. For example, in the week 1 of lab, students are required to collect observational data (e.g., number of different trees found in a 10-meter x 10-meter area at local park) on their own and submit their data to their group members via the Carmen Discussion Board. In the second week of the lab, students are asked to gather all observational data from all group members provided on Carmen Discussion Board and analyze the combined data by calculating indices and producing a graph in Excel using these data provided and provide plausible explanations about each other's observations. This way students are still collaborating with one another, but their interactions are based on the previous weeks' work. Running the asynchronous labs in this manner

ensures that students are making constant forward progress from week to week, rather than waiting for their classmates. We have found in our current asynchronous ENR2100 class, that this method works very well to foster student-to-student interactions in asynchronous online settings.

Several approaches have worked well for us in the past when teaching our large, asynchronous class. We will use these same management methods with our online lab to promote and encourage student interactions in group activities. First, creating peer groups with 5 or more students ensures that plenty of students are participating from week to week so that student absences (e.g., illness) will not completely stop group work. Second, we have found that assigning roles to different students from week to week, helps to encourage peer interactions. For example, discussion leader, moderator, source finder and example finder, summarizer. Third, using Carmen we can require each student to post their material (e.g., video, Excel file, PowerPoint slide) before they can see posts from other students. Fourth, using grading rubrics in Carmen students understand exactly when we expect their work to be done and how their work will be judged on purpose, organization, details, completeness, and mechanics.

We will assign Teaching Assistants to each group and our TAs will monitor group activities throughout the week, adjust as needed and maintain constant contact with students, including those who miss assignments, to ensure that students are making satisfactory progress from week to week. We will also utilize a standard late policy (e.g., -10% deduction for each day late) and standard Flex-Plan (e.g., 72-hours extension when needed) in place for students who receive accommodations through SLDS.

Another technique that we have used before in our asynchronous, online course, and we have found works well to encourage peer interactions, is to have students submit video files, audio files, and/or image files about their work through Carmen. Using different multimedia platforms allows students to interact with each other in different ways. For example, in week 5 students are asked to upload a video presentation of a graph describing data they collected and explaining their methods and results to their audience. The next week, week 6, students are required to complete a rubric-guided, peer reviews of two video presentations.

It is challenging to have real-time, student-to-student interactions in a large, asynchronous course. Especially when students are in different time zones and have different schedules. However, we have found that if we are flexible, if real-time interactions are infrequent, we can have real-time interactions among students using Carmen Zoom or Carmen Discussion Boards. For example, discussion boards can be opened at different times on different days throughout the semester and students are required to participate in so many real-time sessions throughout the semester. Students who cannot participate will be required to upload a video file (or audio file)

of them responding to a prompt or explaining a problem set. Teaching assistants will be used to moderate Zoom sessions and discussion boards. Students who receive accommodations through SLDS will receive all their accommodations as they may pertain to real-time, student-to-student interactions.

8. The Panel recommends that the syllabus clearly state how each component of the course functions within the current and new GE program.

We thank the committee for this recommendation, this is a very good point to be sure that students enrolled in the prior GE program and new GE program understand how ENR2100 (lecture) and ENR2101 (laboratory) functions in the prior and new GE curriculum.

The new 1-credit ENR2101 laboratory does not fulfill any requirement outlined under the prior GE curriculum. We provide this information on page 2 of the ENR2101 syllabus.

The new 1-credit ENR2101 laboratory does fulfill goal 1 and learning outcome 1.3 for the new GE program. We provide this information on page 2 of the ENR2101 syllabus. When this 1-credit ENR 2101 laboratory is taken in combinations with the 3-credit ENR 2100 lecture, together these 4-credits (i.e., 1-credit laboratory + 3-credit lecture) fulfills all Goals (i.e., Goals 1 and 2) and ALL Expected Learning Outcomes (i.e., ELOs 1.1, 1.2, 1.3, 2.1, 2.2, 2.3) for the Foundations, Natural Science GE category.

On [page 2 of the ENR2101 \(lab\) syllabus](#), we provided detailed information for how ENR2101 functions within the new GE program and prior GE program. See page 2 “NEW GENERAL EDUCATION CURRICULUM” and page 2 “PRIOR GENERAL EDUCATION CURRICULUM”

On [pages 2-3 of the ENR2100 \(lecture\) syllabus](#), we provide detailed information for how ENR2100 (lecture) functions within the new GE program and prior GE program. See page 2 “NEW GENERAL EDUCATION CURRICULUM” and page 3 “PRIOR GENERAL EDUCATION CURRICULUM”