Welcome

In this course, we position ourselves with our feet on the UW-Madison campus and ask questions about the energy we use to heat and cool our buildings, the food we eat, the air we breathe, the electricity to run light bulbs and appliances, the goods we purchase, and the waste we create.

Ultimately, the goal of this course is to give you the tools to see the world around you in new ways, noticing things you may have missed and encouraging you to seek paths that both care for yourself and for all with whom you share this planet.

Through concrete, contextualized experiences (lab investigations and field trips), you'll make the invisible visible. Using the campus as a microcosm, you will encounter global environmental problems and solutions at the scale of our campus.

On campus, you will learn about sustainability-related initiatives, including those of the Office of Sustainability, the Wisconsin Union, and the UW-Madison Division of Facilities Planning & Management (FP&M, for short). Furthermore, your laboratory will meet in the Wisconsin Energy Institute to showcase sustainable building design.

Off campus, you will travel to places in Madison that can help you see the bigger picture of energy, food, and waste.

This course rests on core principles from environmental science, a multi-disciplinary field:

- We live on a finite planet.
- On this planet, our actions connect across space to neighbors near and far.
- Our actions connect across time to past and future generations.
- Even though the connections may be difficult to perceive, they have profound implications and are worthy of our attention.

Logistics

Link to this course in the UW-Madison Course Guide

Course Name and Number: Principles of Environmental Science. Envionmental Studies and Integrated Liberal Studies (ENVST/ILS) 126.

Credits: 4

Course Designations and Attributes:

- Level=Elementary
- Breadth=Physical Sciences
- L&S Credit Type=C
- Lab 301=Honors

Course Description:

This course relates principles of environmental science to our daily activities, with an eye to sustainability, conservation, and systems thinking. It introduces science as a process of inquiry and discovery rather than just a pre-established set of facts. Topics relate to energy, water, and land use, and include food, electric power, materials, buildings, transportation, and waste.

Prerequisities: None

Meeting Time:

- Lecture: Tuesday and Thursday 1:00pm-2:15pm
- Lab: Tuesdays 3:30pm-6:30pm (Section 301 and 302) and Thursdays 3:30pm-6:30pm (Section 303 and 304)

Meeting Location:

- Lecture: 4028 Vilas Hall (demo days in B371 Chemistry Hall)
- Lab: 1115 Wisconsin Energy Institute

Instructional Mode: all face-to-face

Textbook:

Title:	How Bad Are Bananas?: The Carbon Footprint of Everything
Author(s):	Mike Berners-Lee
Publisher:	Greystone Books (2011)
ISBN 10:	1553658310

ISBN 13:	9781553658313
Edition:	1st

Credit Hours:

From the UW-Madison Credit Hour Policy:

Traditional Carnegie definition of 1 credit hour is "One hour of classroom or direct faculty/instructor instruction and a minimum of two hours of out of class student work each week over approximately 15 weeks, or an equivalent amount of engagement over a different number of weeks. This is the status quo and represents the traditional college credit format used for decades."

Weekly task	Hours / week
In class:	
Attend lecture	2.5
Attend lab	3
Out of class:	
Prepare for and review lecture	1
Prepare for and review lab	1.5
Prepare for quizzes	2

Non weekly task	Hours / semester
Prepare for 2 exams and 1 final exam	16
Final exam take-home portion	12
Attend final exam	2

Instructors

			
Name	Mr. Tom Bryan	Mr. Tim Lindstrom	Mr. Rob Lundberg
Roles	Lecturer and TA for Lab303	Lecturer and TA for Lab301	TA for Lab302 and Lab304
Email	tbryan@wisc.edu	timothy.lindstrom@wisc.edu	rlundberg2@wisc.edu
In-person office hours	By appointment, or right after lab	By appointment, or right after lab	By appointment, or right after lab
Website(s)	Homepage	Homepage	

Course Outline and Objectives

Course Learning Objectives

- Describe the basic elements of the UW-Madison campus energy infrastructure, including the operation of the Charter Street Heating and Cooling Plant
- Calculate energy in terms of joules and kilowatt-hours, and connect energy use to economic and environmental impacts
- Describe projects that the physical plant have completed to reduce the energy footprint of the UW-Madison campus
- Categorize different approaches that an individual or a campus can employ to reduce energy consumption
- Compare and contrast major air pollutants and greenhouse gases, including each of their origins and their human and planetary effects
- Use models of the global carbon cycle to describe major components, flows, and connections to global climate change

- Analyze a model of a campus food supply chain, identifying primary, secondary, and tertiary sources of greenhouse gases
- Classify types of plastic by their uses, physical properties, chemical properties, and recyclability
- Outline responsible approaches to waste management that include recycling, composting, and reuse
- Employ a systems thinking approach to assess the sustainability of individual behaviors and campus operations

Laboratory

We have assembled a set of weekly activities that will coordinate closely with what you learn in lecture. Most weeks, lab will last the full three hours.

Each week's activity will be submitted via Canvas the following Thursday. Your responses to several (but not all) questions will be graded each week. You will earn up to 25 points each week.

Feel free to turn in your lab report early. The penalty on Thursday for late work is 10 points. Anything after 1:05 pm is late. You may still get partial credit until 1:00 pm on Friday.

The questions in lab activities are fair game for the quizzes in lecture. No surprises! Questions from your lab manual will be taken word-for-word except for small changes in style to fit the format of a quiz.

Before each lab, find and complete the graded entry survey on Canvas.

Arriving on time counts! And is worth 5 points (see Roll Call Attendance in Grades page) We need everybody assembled to launch the activities of the day. A late (after 3:35pm) arrival means a penalty of 5 points. If for some reason you know you will arrive late, please inform your TA. Do this at least 24 hours before your lab period.

Attendance counts! We cannot provide makeup labs. If for some reason you need to miss lab, please tell your TA at least 24 hours before your lab period. With enough lead time, you may be able to attend another section or make other arrangements.

Attendance counts! If you miss 2 lab periods, the highest grade you can earn is a D. For missing 3 or more labs, it is an F.

Safety counts! Each week, check the lab activity cover page carefully the different safety precautions. Also check the need for proper dress. Some field trips and lab activities require proper clothing and shoes.

Grading

For specific points, due dates, and grading details for assignments, refer to the Grades pages. All assignments, quizzes, and exams are also listed in the Calendar.

This course is set up to promote your success! For example, grades are assigned on a point scale. If you earn an A, you receive an A. This means that you are not competing with your classmates. Instead, we hope you will work together, enjoy each other's company, and perform well.

This course is set up to promote your success! As another example, your instructors will give you feedback via a short quiz in lecture each week. The questions are pre-announced, that is, no secrets. You will get clear signals about what is important.

This course is set up to promote your success! As one last example, your TAs are available each week in lab to answer your questions. Feel free to consult with them if you need help.

Attendance in lab counts! This is a UW rule. If you miss 2 lab periods, the highest grade you can earn is a D. For missing 3 or more labs, it is an F. Check the lab section for more details about lab.

Please keep in touch. During the semester, things unexpectedly may happen that will affect your ability to study. Let us know when problems arise, and we will work with you to find solutions.

Assigning Final Grades

Your point total determines your grade. Some points, such as those for quizzes, are easier to obtain because the questions are pre-announced. Strive to get all of them! Same thing for lab activity points. Your instructor will assist you in lab to properly answer some questions in the write-up; others will be answered in lecture.

Exam points are harder to earn. Even so, most students perform quite well on them. Exam scores typically average around 80% (in contrast to quizzes for which the average is closer to 90%).

A >92%

AB 90-92%

B 82-89.9%

BC 80-81.9%

C 70-79.9%

D 65-69.9% or missing 2 labs

F <65% or missing 3 labs

Quizzes

Why quizzes?

Quizzes provide an incentive for you to keep up. Starting Week #2, quizzes will be held during class - usually on Tuesdays - but perhaps a Thursday, now and then. Quizzes are designed to be quick to take (~15 min) and are worth 25 points each. As an example of "low stakes testing," quizzes provide you with timely feedback.

Can you drop your lowest quiz?

Yes. Although we expect the quiz grades to run high, you still may drop your lowest score. In return for this, we are not offering make-up quizzes for any reason.

What if you need an early quiz?

We know that you cannot be in two places at once. So here's the deal. If you know ahead of time that you cannot attend lecture, you are welcome to take an early quiz at 7:30 am the day of the quiz. Arrange this with your TA at least 2 days ahead of time (by 6 pm Sunday for a Tuesday quiz). I you miss a quiz for any reason, use this as the quiz you drop.

Where do the quiz questions come from?

Quiz questions are drawn from two sources: (1) questions in the lab manual, and (2) a pre-announced set of questions posted on the calendar date that shows the quiz. Each quiz is closed-book, but you will have seen all of the questions previously.

Where to find help?

Answer keys will not be posted. If you have questions, seek help from your TA, use office hours and your lecture materials, or work together with your classmates.

Exams

Timing and coverage

This course has two in-class exams worth 150 points, each covering material from the weeks that precede it.

Although these exams are not intended to be cumulative, some topics build upon those learned previously. Exams are designed to take 1 hour, but the entire 75-minute class period will be available.

Will last year's exam help me?

Yes, to some extent, because the format of exams stays the same year to year. But the content will vary. Determining the correct answer to past exam questions is your responsibility.

Exams from the 2017 version of ENVST/ILS 126: Exam #1 and Exam #2.

A minimum of trickiness

In writing exam questions, your instructors aim to be straightforward and to send clear signals about what you need to know. We do not intend to be tricky.

This said, it is nearly impossible to construct an exam that is 100% clear and fair. Even with our best efforts, a question or two will miss the mark, meaning that somebody will think that it is unfair or tricky. After each test, your instructors will inquire about any glitches and find ways to address them.

What if you need an early exam?

Consult with your TA at least a week before the exam. We'll work with you to arrange something. No late exams.

Final Exam

The final exam is cumulative, worth 250 points, and designed to take 1.5 hours. You will have 2 hours to complete it. If you have three exams scheduled in a 24-hour period, and if this exam is one of the three, please consult with your professor by May 1 for rescheduling.

Final Exam Take-Home Options

The end of the semester is usually too busy of a time. To lessen that burden, we've taken 75 points of the Final Exam and sprinkled them through the semester for you. There are four options, each worth 25 points. You can complete 3 of them. Sorry, no, you can't complete all 4 for credit. You can complete all 4 for fun, but we'll just grade the first 3 you submit.

Rules, Rights, and Responsibilities

Link to the 2017-2018 UW-Madison Undergraduate Guide to your privacy rights, grievance rules, how to seek assistance, and responsibilities as a student.

Academic Integrity

No form of academic dishonesty will be tolerated. Any instances will result in failure of the quiz or exam, possibly failure of the course, and a letter placed in your file at the Office of the Dean of Students. Read the statement on academic integrity from the Dean of Students.

By enrolling in this course, each student assumes the responsibilities of an active participant in UW-Madison's community of scholars in which everyone's academic work and behavior are held to the highest academic integrity standards. Academic misconduct compromises the integrity of the university. Cheating, fabrication, plagiarism, unauthorized collaboration, and helping others commit these acts are examples of academic misconduct, which can result in disciplinary action. This includes but is not limited to failure on the assignment/course, disciplinary probation, or suspension. Substantial or repeated cases of misconduct will be forwarded to the Office of Student Conduct & Community Standards for additional review. For more information, refer to studentconduct.wiscweb.wisc.edu/academic-integrity/.

Accommodations for Students with Disabilities

McBurney Disability Resource Center syllabus statement: "The University of Wisconsin-Madison supports the right of all enrolled students to a full and equal educational opportunity. The Americans with Disabilities Act (ADA), Wisconsin State Statute (36.12), and UW-Madison policy (Faculty Document 1071) require that students with disabilities be reasonably accommodated in instruction and campus life.

Reasonable accommodations for students with disabilities is a shared faculty and student responsibility. Students are expected to inform faculty [me] of their need for instructional accommodations by the end of the third week of the semester, or as soon as possible after a disability has been incurred or recognized. Faculty [I], will work either directly with the student [you] or in coordination with the McBurney Center to identify and provide reasonable instructional accommodations. Disability information, including instructional accommodations as part of a student's educational record, is confidential

and protected under FERPA."
http://mcburney.wisc.edu/facstaffother/faculty/syllabus.php

Diversity and Inclusion

Institutional statement on diversity: "Diversity is a source of strength, creativity, and innovation for UW-Madison. We value the contributions of each person and respect the profound ways their identity, culture, background, experience, status, abilities, and opinion enrich the university community. We commit ourselves to the pursuit of excellence in teaching, research, outreach, and diversity as inextricably linked goals.

The University of Wisconsin-Madison fulfills its public mission by creating a welcoming and inclusive community for people from every background – people who as students, faculty, and staff serve Wisconsin and the world." https://diversity.wisc.edu/