



Sustainability & Green Chemistry in Guatemala

Course Details

Course Designator & Number: CHEM 1917

Number of Credits: 3

Language of Instruction English

Contact Hours: 40

Instructor: Dr. Edgar Arriaga

Course Description

Sustainable development is critical to the future of the planet, its people, and our communities. Evidence of its importance are the efforts by the United Nations and a large number of organizations, including the University of Minnesota, to advance sustainable development goals. Sustainable development considers factors such as climate change, food and agriculture, energy, health, the environment and its pollution, economic growth, and technology development (e.g., green chemistry).

In this course we will learn about how these factors are interconnected, how they affect us, how they shape our future and how we with our career can play a role in sustainability.

Our course activities include:

- Traveling to Guatemala over spring break to enrich our global perspective about sustainable development
- Talking with experts on these topics both in Minnesota and Guatemala
- Exploring how these topics are interconnected and affect each other
- Playing with computer simulations to understand how these factors affect climate change, both in Minnesota and Guatemala

- Learning what is being done worldwide (United Nations and its Sustainable Development Goals), in the States, the University of Minnesota, and Guatemala
- Discovering what we can do personally and through our education to contribute to sustainable development
- Discussing and using resources that can help us thrive and succeed in our studies at the University of Minnesota and beyond.

Course Objectives

- Support success in this course and in other academic activities
- Promote well-being
- Empower course participants to contribute their ideas in any settings
- Promote self-learning and critical thinking
- Promote engagement and commitment to sustainable development
- Organize an event to raise awareness about sustainable development

Grading

I do not give exams in this course. Grading is based on weekly assignments, self-reflection questionnaires, activities done during class sessions, activities done during travel, and participation in planning and holding an open house on sustainable development.

Grading Rubric

Letter Grade	Score or Percentage	Description
A	93–100	Achievement that is outstanding relative to the level necessary to meet course requirements.
A-	90–92	Achievement that is significantly above the level necessary to meet course requirements.
B+	87–89	
B	83–86	
B-	80–82	Achievement that meets the course requirements in every respect.
C+	77–79	
C	73–76	
C-	70–72	Achievement that is worthy of credit even though it fails to fully meet the course requirements.
D+	67–69	
D	60–66	
F	0–59	Represents failure (or no credit) and signifies that the work was either (1) completed but at a level of achievement that is not worthy of credit or (2) was not completed and there was no agreement between the instructor and the student that the student would be awarded an I.

Assessment Details

I do not give exams in this course. Grading is based on weekly assignments, self-reflection questionnaires, activities done during class sessions, activities done during travel, and participation in planning and holding an open house on sustainable development.

Course Content

We will meet each Friday for 100 minutes, from 2–3:40 p.m.. We have 12 in-class sessions, a trip to Guatemala over spring break (3/7–3/16/25), and homework outside class/travel (~40 hours).

Activities in Guatemala include:

- Staying at a UNESCO World Heritage City, (Antigua Guatemala)
- Visiting museums, communities, archeological sites
- Having conversations and exchanges with students, researchers, social workers, and community members
- Learning about environmental studies and remediation practices (Lake Atitlan)
- Partnering with Guatemalan students to conduct a climate change simulation

Topics that will be covered include:

- Sustainable development and me
- Thinking in systems and multi-solving
- Traveling abroad
- Sustainable development in Guatemala
- Climate change
- Green technologies
- The world and me—cultural awareness
- Guatemala's history, past, present
- Environmental impact—Lake Atitlan
- Life around Lake Atitlan
- Climate change simulations
- Cultural exchanges

Skills that we will practice include:

- Finding reliable information (library)
- Speaking with experts (interviews)
- Developing cultural competence
- Practicing design thinking
- Preparing an open house on sustainable development
- Communicating to an audience
- Planning and time management
- Self-reflection
- Working in teams

Student Well-being & Success

COVID-19 Response. Masks are no longer required. Wear a mask if you choose.

Mental Health. Many experiences such as strained relationships, increased anxiety, alcohol/drug problems, feeling down, difficulty concentrating and/or lack of motivation can affect your well-being and learning. These mental health concerns or stressful events may lead to diminished academic performance or reduce your ability to participate in daily activities. University of Minnesota services are available to assist you with addressing these and other concerns you may be experiencing. Learn more about the [broad range of confidential mental health services available](#) on campus. I am also a Mental Health Advocate and can help you identify supportive resources.

Access and Disability Accommodations. I am supportive of anyone requiring access or accommodations. Please contact the [Disability Resource Center](#), which will provide a letter describing how instructors should facilitate an inclusive learning environment. Please do not hesitate to reach out to me even if you do not have a letter from the Disability Resource Center. We will explore together how to provide a suitable learning environment.

Academic Success. You are not alone. The university counts with multiple resources listed under [Academic Success Centers](#) that are designed to help you succeed. Explore them and make the best out of it!

Sexual assault, relationship violence, stalking, and sexual harassment. [The Aurora Center for Advocacy & Education](#) provides a free and confidential space for students, faculty, and staff affiliated with the University of Minnesota, Twin Cities and Augsburg University who are victims, survivors, concerned people of sexual assault, relationship violence, stalking, and sexual harassment.

Actions against diversity, equity, free speech, or academic freedom. [The Bias Response and Referral Network \(BRRN\)](#) responds to reports of bias incidents on the Twin Cities campus. The BRRN's goal is to contribute to a campus climate that is welcoming, inclusive, and respectful for all. The BRRN provides support resources to impacted parties, promotes education and dialogue, and affirms the University's commitment to equity and diversity, free speech, and academic freedom.

Neighborhood safety. Please observe safety guidelines nearby campus and [observe safety around](#) campus.

Classroom safety. The flier below indicates potential emergency procedures in the classroom. While unlikely, [consider reviewing how to respond to an active shooter situation.](#)

Policies

Attendance Policy

Students are expected to be on time and attend all classes while abroad. Many instructors assess both attendance and participation when assigning a final course grade. Attendance alone does not guarantee a positive participation grade; the student should be prepared for class and engage in class discussion. See the on-site syllabus for specific class requirements.

University of Minnesota Policies & Procedures

Academic integrity is essential to a positive teaching and learning environment. All students enrolled in University courses are expected to complete coursework responsibilities with fairness and honesty. Failure to do so by seeking unfair advantage over others or misrepresenting someone else's work as your own can result in disciplinary action. The University Student Conduct Code defines scholastic dishonesty as follows:

Scholastic Dishonesty

Scholastic dishonesty means plagiarizing; cheating on assignments or examinations; engaging in unauthorized collaboration on academic work; taking, acquiring, or using test materials without faculty permission; submitting false or incomplete records of academic achievement; acting alone or in cooperation with another to falsify records or to obtain dishonestly grades, honors, awards, or professional endorsement; altering forging, or misusing a University academic record; or fabricating or falsifying data, research procedures, or data analysis.

Within this course, a student responsible for scholastic dishonesty can be assigned a penalty up to and including an "F" or "N" for the course. If you have any questions regarding the expectations for a specific assignment or exam, ask.

Student Conduct

The University of Minnesota has specific policies concerning student conduct. This information can be found [on the Learning Abroad Center website](#).

Conflict Resolution

On occasions, you may have a concern or problem regarding this course. You will find your instructor quite willing to discuss this with you. If, however, you wish to discuss it with someone other than your instructor, please contact Dr. [Lee Penn](#), the Director of Undergraduate Studies in Chemistry. They may serve as a mediator in helping to resolve the issue. Alternatively, you may want to take the concern to the [Student Conflict Resolution Center](#).

Missed Course Activities

Excused absences are given consideration in this course. Consult with the instructor.

Late Registration

Please discuss with the instructor.

Regrades

I am happy to discuss regrades of any graded items.

Artificial Intelligence

Artificial intelligence (AI) language models, such as ChatGPT, may be used in this course as long as it does not interfere with the learning objectives or skill development. You are responsible for fact checking statements composed by AI language models. Always cite AI resources, if and when used. I recommend using the [MLA style](#). See other [recommendations from the Library](#) on proper use of AI.

Incompletes

Students who find themselves in extenuating circumstances may request an incomplete as long as they have the equivalent of a “C-“ (or “S”) at the moment the incomplete is requested. Any incomplete must be made up in the following semester. After that time all incompletes turn into F grades.

Withdrawals

If you are considering withdrawing from the class, please speak with me. I am ready to help you assess your situation. If you do decide to drop the class, you should officially withdraw from the course following the rules for your college and know that students withdrawing from the course will not have any records retained for use upon re-taking the class.