

Environmental Analysis

ENV4041C

Fall 2021

- Instructor:** Dr. Elise S. Morrison
elise.morrison@essie.ufl.edu
(352) 294-9057
Please contact through the Canvas website
- Office Hours:** T, R
Period 7 (1:50 – 2:40 pm)
Office hours will be held over zoom. The zoom link can be found on the course CANVAS page
- UG Support:** Please contact through the Canvas website
Maria Banaszak, mariabanaszak@ufl.edu
Taima Kayali, taimakayali@ufl.edu
Alyssa Antoinette, alyssanasi@ufl.edu
Jessica Wingen, jwingen@ufl.edu
- Lecture Periods:** All sections: M, W Period 2 (8:30 – 9:20am)
- Lecture Location:** PSY0130
This is a registered in-person class that will be taught primarily in the face-to-face mode in room (PSY0130) at the scheduled times (M,W 8:30-9:20am). The class will be recorded via Zoom in order to anticipate and accommodate any student seeking remote access. Recordings will be made available through Canvas shortly after the live class. Students may elect to attend class either F2F (face to face) or virtually over Zoom.
- Lab Periods:** Monday Section 12994: M, Period 4-5 (10:40am – 12:35pm)
Tuesday Section 12995: T, Period 4-5 (10:40am – 12:35pm)
Wednesday Section 12996: W, Period 4-5 (10:40am – 12:35pm)
Thursday Section 26810: R, Period 4-5 (10:40am – 12:35pm)
Friday Section 26811: R, Period 4-5 (10:40am – 12:35pm)
- Lab Location:** BLK0203

Course Description

Theory and laboratory techniques for the analysis of air and water pollutants and basic concepts of ecosystems structure and analysis. 3 credits.

Course Pre-Requisites / Co-Requisites

CHM 2046 or CHM 2096 and STA 3032 or STA 2023.

Course Objectives

After completion of this course, you will acquire knowledge necessary for,

- accurate sampling, storage, handling, and analysis of environmental samples,
- linking different analytical techniques to the identification and quantitation of different pollutants and pathogens of environmental concern,
- critical analysis and discussion of experimental data, and
- reporting scientific information.

Materials and Supply Fees

A course fee of \$42.80 is required to cover lab materials.

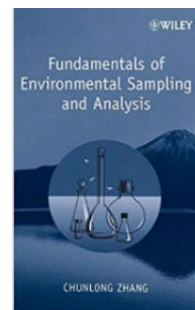
Relation to Program Outcomes (ABET):

Outcome	Coverage*
1. An ability to identify, formulate, and solve engineering problems by applying principles of engineering, science, and mathematics.	High
2. An ability to apply both analysis and synthesis in the engineering design process, resulting in designs that meet desired needs.	
3. An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.	High
4. An ability to communicate effectively with a range of audiences	Medium
5. An ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts.	Low
6. An ability to recognize the ongoing need for additional knowledge and locate, evaluate, integrate, and apply this knowledge appropriately.	Medium
7. An ability to function effectively on teams that establish goals, plan tasks, meet deadlines, and analyze risk and uncertainty	High

*Coverage is given as high, medium, or low. An empty box indicates that this outcome is not covered or assessed in the course.

Required Textbooks and Software

- Textbook
Title: *Fundamentals of Environmental Sampling and Analysis*
Author: Chunlong Zhang
Publisher: John Wiley & Sons, 2007
Print ISBN:9780471710974
Online ISBN:9780470120682
DOI:10.1002/0470120681
- Tools: CANVAS, Zoom, Labster, JoVe, PlayPostit, VoiceThread



Course format:

LECTURE:

This is a registered in-person class that will be taught primarily in the face-to-face mode in room (PSY0130) at the scheduled times (M,W 8:30-9:20am). The class will be recorded via Zoom in order to anticipate and accommodate any student seeking remote access. Recordings will be made available through Canvas shortly after the live class. Students may elect to attend class either F2F (face to face) or virtually over Zoom. Full credit for participation and assignments is available either way. Participation/Attendance will be evaluated through weekly online discussion posts on CANVAS. Discussion questions and Lecture Quizzes will open each Monday and will close at 11:59pm on the following Sunday.

LAB:

You will complete lab assignments either individually or with your lab group throughout the semester. Three individual lab reports will be required. The lab report grading rubric can be found under the "Start Here" CANVAS module. Some labs will include sampling and analytical protocol videos by JoVe and laboratory simulations by Labster. Each week you will be expected to complete a series of pre-lab assignments and/or quizzes prior to attending your lab section. These exercises will be available to you in the form of a CANVAS quiz or embedded in the laboratory simulation activities. You will be given a week to complete these exercises and they will be due at 11:59pm on the night before your lab section.

Course Schedule: Refer to the course CANVAS for deadlines and schedule updates.

Lecture Dates	Week	Lecture Topics	Chapter	Lab Topic	Assignments/Quizzes: Deadlines posted on CANVAS	
					Lecture	Lab
Module 1: Environmental Measurements						
8/23, M	1	Course Introduction Intro to Environmental sampling and analysis		No Lab; Complete Lab Assignment and Quiz for this week	Discussion 1	Lab Assignment 1 Pre-lab Quiz 1
8/25, W					Syllabus quiz	
8/30, M	2	Data Reporting	1, 2	Lab 1: Laboratory Safety	Discussion 2	Lab Assignment 2 Lab Quiz 2
9/1, W						
9/6, M	3	Holiday – no Monday lecture	3	Lab 2: Data Handling <i>Due to the holiday this week, labs will not meet in person and lab materials will be posted online</i>	Lecture Discussion 3	Lab Assignment 3 Pre-lab Quiz 3
9/8, W		Sampling plan and preservation of samples			Module 1 Quiz	
Module 2: Environmental Sampling and QC Procedures						
9/13, M	4	Environmental sampling techniques Quality control procedures	4,5	Lab 3-1: Environmental Sampling	Discussion 4	Lab assignment 4 Pre-Lab Quiz 4
9/15, W						
9/20, M	5	Basic Operations and techniques in Environmental Labs	6	Lab 3-2: Environmental Sampling continued	Discussion 5	Pre-Lab Quiz 5
9/22, W					Module 2 Quiz	
Module 3: Wet Chemical Analyses and Electrochemical Measures						
9/27, M	6	Chemical reactions and chemical methods Sample preparation techniques	7	Preparation for Lab 7: Chromatography	Lecture Discussion 6	No Pre-Lab Quiz this week
10/4, M	7	Titration and pH	6,11	Lab 4: Titration and pH <i>Due to the holiday this week, labs will not meet in person and lab materials will be posted online</i>	Lecture Discussion 7	Pre-Lab Quiz 6
10/6, W					Module 3 Quiz	Lab assignment 5
Module 4: Spectroscopic Methods						
10/11, M	8	Intro to UV-Vis and IR Spectroscopic methods and instrumentation	8	Lab 5-1: UV/Vis Spectroscopy & Quantitation in Environmental Analysis	Lecture Discussion 8	Pre-Lab Quiz 7
10/13, W						Lab assignment 6
10/18, M	9	Spectroscopic methods continued	9, 12	Lab 5-2: UV/Vis spectroscopy & Quantitation in Environmental Analysis	Lecture Discussion 9	Pre-Lab Quiz 8
10/20, W						Lab assignment 7

Course Schedule Continued: Refer to the course CANVAS for deadlines and schedule updates.

Lecture Dates	Week	Lecture Topics	Chapter	Lab Topic	Assignments/Quizzes: Deadlines posted on CANVAS	
					Lecture	Lab
10/25, M	10	Spectroscopic methods continued	9, 12	Lab 5-3: UV/Vis spectroscopy & Quantitation in Environmental Analysis	Lecture Discussion 10	Pre-Lab Quiz 9
10/27, W					Module 4 Quiz	Lab assignment 8
Module 5: Chromatographic Methods						
11/1, M	11	Introduction and principles of chromatography	10	Lab 6: Atomic spectrometry	Lecture Discussion 11	<u>Lab Report 1 Due</u>
11/3, W						
11/8, M	12	High performance liquid chromatography (HPLC)	10	Lab 7: Labster HPLC module <u>Due to the holiday this week, labs will not meet in person and lab materials will be posted online</u>	Lecture Discussion 12	Pre-Lab Quiz 10
11/10, W		HPLC detectors			Lab assignment 9	
11/15, M	13	Mass spectrometry	12	Lab 7: Chromatography	Lecture Discussion 13	<u>Lab Report 2 Due</u>
11/17, W					Module 5 Quiz	Lab assignment 10
11/22, M	14	Holiday – no lecture		<u>No lab this week</u>		
11/24, W						
Module 6: Selecting Methods for Analysis of Environmental Samples						
11/29, M	15	Methods for water analysis		Make up lab	Lecture Discussion 14	Lab assignment 11
12/1, W						
12/6, M	16	Methods for soil and air analysis		<u>No lab this week</u>	Module 6 Quiz	<u>Lab Report 3 Due</u>

Attendance Policy

Students are expected to:

- Complete weekly CANVAS discussion questions
- Complete assigned readings and assignments on time
- Read lab notes, watch pre-recorded laboratory activities, and complete pre-lab quizzes prior to your lab session
- Complete lab assignments and lab reports on time

Class Expectations

Students are expected to:

- Read and refer to the syllabus
- Arrive to all course meetings (either in person or virtual) on time (i.e., a few minutes early)
- Show respect to the course instructor and UG support/graders
- Use professional, courteous standards for all emails and discussions:
 - Descriptive subject line
 - Address the reader using proper title and name spelling
 - Body of the email should be concise but have sufficient detail
 - Respectful salutation (e.g., cheers, thank you, sincerely, respectfully)
- No personal conversations and social media during office hours/instruction times
- Adherence to the UF Student Honor Code (more details below)
- Obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against University policies and rules, disciplinary action will be taken as appropriate.

Make-Up Policy

If you miss an assignment/quiz/lab report without prior approval or other exception as described below, you will earn a zero and will not be granted a make-up. Requirements for class attendance and make-up exams, assignments, and other work in this course are consistent with university policies. Click here to read the university attendance policies:

<https://catalog.ufl.edu/UGRD/academic-regulations/attendance-policies/>

To schedule a make-up, please fill out the make-up request form posted in the CANVAS “Start Here module” ***in advance*** and submit it to your course instructor via CANVAS email. Documentation will be required and should accompany your make-up request form. In case of last-minute illness or emergency, please contact the instructor via email explaining the situation. If you have a serious emergency or life event, please contact the Dean of Students Office (www.dso.ufl.edu) and they will contact all your instructors for you – which would serve as “documentation.”

Evaluations of Grades: The following table outlines the point-accruing components of the course. This course is composed of both lecture + lab, but there will be emphasis on lab related activities. The course final grade will be determined as follows:

	Assignments	% Grade
Lecture	End of Module Quizzes (6)	30
	Lecture Discussion (14) (Participation/Attendance)	5
Laboratory	Lab quizzes (10)	15
	Lab Assignments (8-12)	25
	Individual Lab Reports (3)	25

Policy on Grade Corrections

Students have 1 week after receiving a grade to challenge errors or grading mistakes. 1 week after students have been informed of their grade, the grade will become final and will not be changed. Do not wait for the end of the semester; we will not adjust your grade for assignments that are beyond this deadline.

To challenge a grade: Students must attach a cover page to the front of the assignment, explaining what they want to be re-graded. We may make mistakes when grading, and we will gladly correct those errors, but we will not participate in verbal debates over grades. We will regrade when we have adequate time, space, and focus to assess the issue. We also reserve the right to re-grade the entire assignment, if needed. Again, mistakes can and will occur—we all make them—and they may be either a benefit or detriment to your grade. **This policy is strictly enforced—no exceptions.**

More information on UF grading policy may be found at:

<https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx>

Students Requiring Accommodations

Students with disabilities who experience learning barriers and would like to request academic accommodations should connect with the disability Resource Center by visiting <https://disability.ufl.edu/students/get-started/>. It is important for students to share their accommodation letter with their instructor and discuss their access needs, as early as possible in the semester.

Course Evaluation

Students are expected to provide professional and respectful feedback on the quality of instruction in this course by completing course evaluations online via GatorEvals. Guidance on how to give feedback in a professional and respectful manner is available at <https://gatorevals.aa.ufl.edu/students/>. Students will be notified when the evaluation period opens, and can complete evaluations through the email they receive from GatorEvals, in their Canvas course menu under GatorEvals, or via <https://ufl.bluera.com/ufl/>. Summaries of course evaluation results are available to students at <https://gatorevals.aa.ufl.edu/public-results/>.

Online Course Recording

Our class sessions may be audio visually recorded for students in the class to refer back and for enrolled students who are unable to attend live. Students who participate with their camera engaged or utilize a profile image are agreeing to have their video or image recorded. If you are unwilling to consent to have your profile or video image recorded, be sure to keep your camera off and do not use a profile image. Likewise, students who un-mute during class and participate orally are agreeing to have their voices recorded. If you are not willing to consent to have your voice recorded during class, you will need to keep your mute button activated and communicate exclusively using the "chat" feature, which allows students to type questions and comments live. The chat will not be recorded or shared. As in all courses, unauthorized recording and unauthorized sharing of recorded materials is prohibited.

In-Class Recording

Students are allowed to record video or audio of class lectures. However, the purposes for which these recordings may be used are strictly controlled. The only allowable purposes are (1) for personal educational use, (2) in connection with a complaint to the university, or (3) as evidence in, or in preparation for, a criminal or civil proceeding. All other purposes are prohibited. Specifically, students may not publish recorded lectures without the written consent of the instructor. A "class lecture" is an educational presentation intended to inform or teach enrolled students about a particular subject, including any instructor-led discussions that form part of the presentation, and delivered by any instructor hired or appointed by the University, or by a guest instructor, as part of a University of Florida course. A class lecture does not include lab sessions, student presentations, clinical presentations such as patient history, academic exercises involving solely student participation, assessments (quizzes, tests, exams), field trips, private conversations between students in the class or between a student and the faculty or lecturer during a class session.

Publication without permission of the instructor is prohibited. To "publish" means to share, transmit, circulate, distribute, or provide access to a recording, regardless of format or medium, to another person (or persons), including but not limited to another student within the same class section. Additionally, a recording, or transcript of a recording, is considered published if it is posted on or uploaded to, in whole or in part, any media platform, including but not limited to social media, book, magazine, newspaper, leaflet, or third party note/tutoring services. A student who publishes a

recording without written consent may be subject to a civil cause of action instituted by a person injured by the publication and/or discipline under UF Regulation 4.040 Student Honor Code and Student Conduct Code.

University Honesty Policy

UF students are bound by The Honor Pledge which states, “We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honor and integrity by abiding by the Honor Code. On all work submitted for credit by students at the University of Florida, the following pledge is either required or implied: “On my honor, I have neither given nor received unauthorized aid in doing this assignment.” The Conduct Code (<https://sccr.dso.ufl.edu/process/student-conduct-code/>) specifies a number of behaviors that are in violation of this code and the possible sanctions. If you have any questions or concerns, please consult with the instructor or TAs in this class.

Commitment to a Safe and Inclusive Learning Environment

The Herbert Wertheim College of Engineering values broad diversity within our community and is committed to individual and group empowerment, inclusion, and the elimination of discrimination. It is expected that every person in this class will treat one another with dignity and respect regardless of gender, sexuality, disability, age, socioeconomic status, ethnicity, race, and culture.

If you feel like your performance in class is being impacted by discrimination or harassment of any kind, please contact your instructor or any of the following:

- Your academic advisor or Graduate Program Coordinator
- Jennifer Nappo, Director of Human Resources, 352-392-0904, jpennacc@ufl.edu
- Curtis Taylor, Associate Dean of Student Affairs, 352-392-2177, taylor@eng.ufl.edu
- Toshikazu Nishida, Associate Dean of Academic Affairs, 352-392-0943, nishida@eng.ufl.edu

Software Use

All faculty, staff, and students of the University are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against University policies and rules, disciplinary action will be taken as appropriate. We, the members of the University of Florida community, pledge to uphold ourselves and our peers to the highest standards of honesty and integrity.

Student Privacy

There are federal laws protecting your privacy with regards to grades earned in courses and on individual assignments. For more information, please see: <https://registrar.ufl.edu/ferpa.html>

Campus Resources:

Health and Wellness

U Matter, We Care:

Your well-being is important to the University of Florida. The U Matter, We Care initiative is committed to creating a culture of care on our campus by encouraging members of our community to look out for one another and to reach out for help if a member of our community is in need. If you or a friend is in distress, please contact umatter@ufl.edu so that the U Matter, We Care Team can reach out to the student in distress. A nighttime and weekend crisis counselor is available by phone at 352-392-1575. The U Matter, We Care Team can help connect students to the many other helping resources available including, but not limited to, Victim Advocates, Housing staff, and the Counseling and Wellness Center. Please remember that asking for help is a sign of strength. In case of emergency, call 9-1-1.

Counseling and Wellness Center: <https://counseling.ufl.edu>, and 392-1575; and the University Police Department: 392-1111 or 9-1-1 for emergencies.

Sexual Discrimination, Harassment, Assault, or Violence

If you or a friend has been subjected to sexual discrimination, sexual harassment, sexual assault, or violence contact the [Office of Title IX Compliance](#), located at Yon Hall Room 427, 1908 Stadium Road, (352) 273-1094, title-ix@ufl.edu

Sexual Assault Recovery Services (SARS)

Student Health Care Center, 392-1161.

University Police Department at 392-1111 (or 9-1-1 for emergencies), or <http://www.police.ufl.edu/>.

COVID-19

- You are expected to wear approved face coverings at all times during class and within buildings even if you are vaccinated.
- If you are sick, stay home and self-quarantine. Please visit the UF Health Screen, Test & Protect website about next steps, retake the questionnaire and schedule your test for no sooner than 24 hours after your symptoms began. Please call your primary care provider if you are ill and need immediate care or the UF Student Health Care Center at 352-392-1161 (or email covid@shcc.ufl.edu) to be evaluated for testing and to receive further instructions about returning to campus.
- If you are withheld from campus by the Department of Health through Screen, Test & Protect, you are not permitted to use any on campus facilities. Students attempting to attend campus activities when withheld from campus will be referred to the Dean of Students Office.
- UF Health Screen, Test & Protect offers guidance when you are sick, have been exposed to someone who has tested positive or have tested positive yourself. Visit the [UF Health Screen, Test & Protect website](#) for more information.
- Please continue to follow healthy habits, including best practices like frequent hand washing. Following these practices is our responsibility as Gators.

Academic Resources

E-learning technical support, 352-392-4357 (select option 2) or e-mail to Learning-support@ufl.edu.
<https://lss.at.ufl.edu/help.shtml>

Career Resource Center, Reitz Union, 392-1601. Career assistance and counseling; <https://career.ufl.edu>.

Library Support, <http://cms.uflib.ufl.edu/ask> Various ways to receive assistance with respect to using the libraries or finding resources.

Teaching Center, Broward Hall, 392-2010 or 392-6420. General study skills and tutoring.
<https://teachingcenter.ufl.edu/>

Writing Studio, 302 Tigert Hall, 846-1138. Help brainstorming, formatting, and writing papers.
<https://writing.ufl.edu/writing-studio/>

Student Complaints Campus: <https://sccr.dso.ufl.edu/policies/student-honor-code-student-conduct-code/>; <https://care.dso.ufl.edu>

On-Line Students Complaints: <http://www.distance.ufl.edu/student-complaint-process>