

SYLLABUS - Advanced Environmental Instrumental Analysis (EPCT 2335)



**LAMAR INSTITUTE
OF TECHNOLOGY**

CREDIT

3 Semester Credit Hours (2 hour lecture, 2 hour lab)

MODE OF INSTRUCTION

Face to Face. **Thursday 5.30pm – 9.25pm**

PREREQUISITE/CO-REQUISITE:

Math 1332 or equivalent, and CHEM 1306/1106 or PHYS 1305/1105

COURSE DESCRIPTION

Regulations and standards in the analysis of samples using specific analytical instruments and their procedures. Emphasis on instrument calibrator sample preparation, evaluation, and reporting of analytical results.

COURSE OBJECTIVES

Upon the completion of the course the student will be able to:

1. Demonstrate knowledge of the regulations and standards for the obtaining and analysis of industrial hygiene samples.
2. Demonstrate competence in analytical procedures and instrument analysis.
3. Demonstrate competency in evaluating sample results and recordkeeping.

INSTRUCTOR CONTACT INFORMATION

Instructor: **Rueben Reyes – CSHO – OSHA 10/30 Trainer**

Email: rreyes@lit.edu

Office Phone: 409 2847497

Office Location: MPC 239

Office Hours: **Monday – Thursday 2:00PM - 5.00PM
Friday 8.00am - 9.00pm (Appointment Recommended).**

REQUIRED TEXTBOOK AND MATERIALS

1. Fundamentals of Industrial Hygiene by Barbara A. Plog & Patricia J. Quinlan, 6th edition, NSC Press. ISBN number is 9780879123123
2. USB Flashdrive.

ATTENDANCE POLICY

You are required to log on weekly to Blackboard and review the week's course material. Additionally, you are required to check your LIT emails weekly.

Each student will be required to give a 1-2 minute safety meeting at the beginning of every class. This will be used to take attendance, as well as a daily grade. If you miss the safety meeting, it cannot be made up. If you are late, you miss the meeting. If you miss the meeting because you are tardy, it is your responsibility to let me know you are there. If not, you will be counted absent.

According to campus policy, students must be in attendance for 80% of class days. Following is the policy for absences in all 16 week process technology classes and labs.

Miss 3 classes or less	receive calculated grade
Miss 4 classes	10 points dropped from calculated grade
Miss 5 classes	20 points dropped from calculated grade
Miss 6 classes	30 points dropped from calculated grade
Miss 7 or more classes	student receives an 'F'

A student is absent if they are not physically in the classroom. An excused absence simply means that the student can make up any missed work. I allow make-up work, but YOU must request it.

Three student tardies will be considered one absence. A student is considered to be tardy once the instructor has completed taking roll.

An excused absence will only be granted if the student provides a written justification (for example, by email) which is vetted and approved by the instructor (such as a sickness/injury, or job related requirement). If the student is applying for a job related excused absence documentation must be provided from their employer, including their supervisor's contact information. A sick note from a Doctor or hospital is required for long term sickness/injury.

DROP POLICY

If you wish to drop a course, you are responsible for initiating and completing the drop process by the specified drop date as listed on the Academic Calendar available on the LIT website otherwise the grade you receive in the course will impact your GPA.

STUDENT EXPECTED TIME REQUIREMENT

For every hour in class (or unit of credit), students should expect to spend at least two to three hours per week studying and completing assignments. For a 3-credit-hour class, students should prepare to allocate approximately six to nine hours per week outside of class in a 16-week session OR approximately twelve to eighteen hours in an 8-week session. Online/Hybrid students should expect to spend at least as much time in this course as in the traditional, face-to-face class.

COURSE CALENDAR

DATE	TOPIC	READINGS (Due on this Date)	ASSIGNMENTS (Due on this Date)
<u>Week 1</u> 8/28/25	Course Introduction, Syllabus, & Policies. History of Environmental Analysis, Regulations, Standards, and Units of Measure	Week 1 PowerPoint.	
<u>Week 2</u> 9/4/25	Calculating Time Weighted Averages (TWAs) Recordkeeping and Reporting/Utilizing Analytic Results to Regulatory Agencies	Week 2 PowerPoint.	
<u>Week 3</u> 9/11/25	Sampling and Analysis of Matter, Particulate Matter, and Microbiological Sampling	Week 3 PowerPoint.	Outline of proposal for Selected Topic for Class Presentation to be submitted in writing
<u>Week 4</u> 9/18/25	Continuation: Sampling and Analysis of Matter, Particulate Matter, Microbiological Sampling, Introduction to Soil Sampling, and Basic Site Equipment.	Week 4 PowerPoint.	
<u>Week 5</u> 9/25/25	Lab: Guest Speaker (Brenda Barrow) to be confirmed, and subject to change.- Radiation (Ionizing and Non- ionizing).	Week 5 PowerPoint.	
<u>Week 6</u> 10/2/25	Air Sampling Introduction.	Week 6 PowerPoint.	Class Presentations of Selected Topics

<u>Week 7</u> 10/9/25	Exam # 1	Week 7 PowerPoint.	<u>Exam 1 (10/9/25)</u> On material from weeks 1 – 6.
<u>Week 8</u> 10/16/25	Introduction to Food Service Inspection & Instrumentation. The Safety Officer and Food Service Facilities. Environmental Health Instrumentation and Calibration.	Week 8 PowerPoint.	Class Presentations of Selected Topics
<u>Week 9</u> <u>10/23/25</u>	Radon and Radon Monitoring (Passive and Active Monitors) - Soil Sampling and OSHA Classification of Soils. Plus introduction to Gas Chromatography and Chain of Custody.	Week 9 PowerPoints.	Class Presentations of Selected Topics
<u>Week 10</u> 10/30/25	Exam 2		Exam 3 7 – 10 (10/30/25)
<u>Week 11</u> 11/6/25	Introduction to NIOSH Methods for Sampling Airborne Contaminants.	Week 11 PowerPoint.	
<u>Week 12</u> 11/13/25	Portable Laboratory Equipment / Field Testing Equipment. Plus: Analytical Techniques - Chemical Analysis: X-Ray Fluorescence Spectrometry (XRF Analysis), Gas Chromatography-Mass Spectrometry (GC-MS Analysis), Scanning Electron Microscopy (SEM) with	Week 12 PowerPoint. Week 13 PowerPoint	

	Energy Dispersive X-Ray Analysis (EDX), etc		
<u>Week 13</u> 11/20/25	Exam # 3		<u>Exam3</u> (11/20/25) On material from weeks 11 – 13.
<u>Week 14</u> 11/27/25	THANKSGIVING BREAK – NO CLASSES		11/27/25. NO CLASSES
<u>Week 15</u> 12/4/25	Comprehensive Final Exam (12/04/25)		<u>Final Exam</u> (12/04/25) Comprehensive Final Exam

COURSE EVALUATION

Final grades will be calculated according to the following criteria:

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| 1. Class Attendance and Participation | 10% |
| 2. Three Class Tests (3 x 20%) | 60% |
| 3. Class Presentation of Selected Topic/Instrument | 10% |
| 4. Final Exam | 20% |

GRADE SCALE

- 90-100 A
- 80-89 B
- 70-79 C
- 60-69 D
- 0-59 F

ACADEMIC DISHONESTY

Students found to be committing academic dishonesty (cheating, plagiarism, or collusion) may receive disciplinary action. Students need to familiarize themselves with the institution's Academic Dishonesty Policy available in the Student Catalog & Handbook.

TECHNICAL REQUIREMENTS

The latest technical requirements, including hardware, compatible browsers, operating systems, etc. can be online at <https://lit.edu/online-learning/online-learning-minimum-computer-requirements>. A functional broadband internet connection, such as DSL, cable, or WiFi is necessary to maximize the use of online technology and resources.

DISABILITIES STATEMENT

The Americans with Disabilities Act of 1990 and Section 504 of the Rehabilitation Act of 1973 are federal anti-discrimination statutes that provide comprehensive civil rights for persons with disabilities. LIT provides reasonable accommodations as defined in the Rehabilitation Act of 1973, Section 504 and the Americans with Disabilities Act of 1990, to students with a diagnosed disability. The Special Populations Office is located in the Eagles' Nest Room 129 and helps foster a supportive and inclusive educational environment by maintaining partnerships with faculty and staff, as well as promoting awareness among all members of the Lamar Institute of Technology community. If you believe you have a disability requiring an accommodation, please contact the Special Populations Coordinator at (409)-951-5708 or email specialpopulations@lit.edu. You may also visit the online resource at Special Populations - Lamar Institute of Technology (lit.edu).

STUDENT CODE OF CONDUCT STATEMENT

It is the responsibility of all registered Lamar Institute of Technology students to access, read, understand and abide by all published policies, regulations, and procedures listed in the *LIT Catalog and Student Handbook*. The *LIT Catalog and Student Handbook* may be accessed at www.lit.edu. Please note that the online version of the *LIT Catalog and Student Handbook* supersedes all other versions of the same document.

AI STATEMENT

Lamar Institute of Technology (LIT) recognizes the recent advances in Artificial Intelligence (AI), such as ChatGPT, have changed the landscape of many career disciplines and will impact many students in and out of the classroom. To prepare students for their selected careers, LIT desires to guide students in the ethical use of these technologies and incorporate AI into classroom instruction and assignments appropriately. Appropriate use of these technologies is at the discretion of the instructor. Students are reminded that all submitted work must be their own original work unless otherwise specified. Students should contact their instructor with any questions as to the acceptable use of AI / ChatGPT in their courses.

STARFISH

LIT utilizes an early alert system called Starfish. Throughout the semester, you may receive emails from Starfish regarding your course grades, attendance, or academic performance. Faculty members record student attendance, raise flags and kudos to express concern or give praise, and you can make an appointment with faculty and staff all through the Starfish home page. You can also login to Blackboard or MyLIT and click on the Starfish link to view academic alerts and detailed information. It is the responsibility of the student to pay attention to these emails and information in Starfish and consider taking the recommended actions. Starfish is used to help you be a successful student at LIT.

ADDITIONAL COURSE POLICIES/INFORMATION FOR MR. REYES

STUDENT BEHAVIOR EXPECTATIONS

- Students are expected to be in the class room and ready for instruction at the beginning of the face-to-face class period. Habitual tardiness will be dealt with on a one-to-one basis and may lead to being marked absent.
- Keep in mind that each student comes from a different background and brings with her/him a different set of beliefs and values.
- Disrespect for others will not be tolerated, online or face-to-face.

MY RESPONSE TIME

- I only return calls that leave a voicemail. I prefer emails though.
- The best way to reach me is through my LIT email, rreyes@lit.edu.
- I usually respond to emails within 24 hours unless the email is received after noon on Fridays, weekends, campus holidays or days when I am required to travel.

MY LIT EMAIL

- Not communicating with me because your LIT email is not working is not a valid reason for no response. LIT email is how we communicate with you. Get it working so you don't miss any important information (contact the help desk for assistance).
- I will email an announcement to your LIT email the first day of class. Please respond to it so we both know your LIT email is working.

MY BLACKBOARD MESSAGES

- Check the Send-to-Email box above Blackboard Messages text box if you want a faster response.
- If you use Blackboard Messages to contact me, and I don't respond within 24 hours, please send the same email message to my LIT email, rreyes@lit.edu

MY BLACKBOARD ANNOUNCEMENTS

- Announcements in Blackboard are posted to the Announcements web page that you see when you log into class. They are important, so be sure to read them.
- "I did not see it" is not an acceptable reason for missing an announcement!

MY TECHNOLOGY REQUIREMENTS

- Use Chrome or Firefox as your browser. Edge and Safari do not work well with Blackboard.
- If you do class assignments on a cell phone, a table, or a netbook, make sure you are seeing all assignments as they are presented on a desktop computer.

- Papers (assignments) are to be submitted using Microsoft Word or preferably, as a PDF. If one of these methods is not used, formatting problems are the responsibility of the student.
- Not having the correct technology, device or internet is not a valid excuse for not doing assignments or tests.
- Problems with Blackboard are to be addressed by the HELP DESK. I can only help you with content and understanding the material.

MY DUE DATE POLICIES

- All discussions, assignments, and tests have due dates. It is your responsibility to know the due dates and get material submitted on time.
- Late work is frowned on. Students may submit late work, but 10 points will be taken off for each class DAY that it is late.
- For students who were absent, the student must request the work and have until the next class period to turn it in. After the next class period, the work will be considered late and will have 10 points deducted for each class DAY that it is late.
- If a face-to-face test is missed due to an emergency situation, the student will have one week to make it up; otherwise, a grade of 0 will be assigned. Absent students will receive the same test as those who took it on test day for the first missed test only. Missing more than 1 test will result in future test(s) being all free-response answers.
- For online classes that are required to write papers; the papers must be submitted to SafeAssign to check for plagiarism (its automatic). In most cases, the student has 3 submissions to correct any problems. However, all submissions MUST be made by the due date.

MY GRADING POLICIES

- **Each student will present a 1 – 2 minute Safety Meeting at the beginning of class;** this Safety Meeting cannot be made up. However, 3 lowest assignment grades will be dropped at the end of the semester. Fully online classes do not take these quizzes.
- I grade student work Monday through Friday during my office hours.
- All grades are recorded in Gradebook on Blackboard.
- It is the student's responsibility to make sure their grades on their work match their grades in Blackboard Gradebook. If there is a discrepancy, please contact me and be prepared to show the graded work if requested.
- Grading rubrics are available on writing assignments.
- If Blackboard locks up or submits something early, I will only restart a test one time. The test must be started completely over. If it messes up again, the student will be required to come to my office and take a face-to-face test

MY ACADEMIC HONESTY AND PLAGIARISM POLICIES

- **Academic honesty is expected on all assignments. See LIT handbook for more information about academic honesty and the penalty for breaking academic honesty.**
- **Plagiarism is submitting someone else's work, either published or not, as your own, and is not allowed.**
- **Plagiarism includes everything from using AI to write your writing assignments, patchworking sentences together from the internet, to using another class mates work. Because you are only required to write 2 pages, putting cited quotes is not allowed either. Please read the specific assignment for rules.**
- **All writing assignments are submitted to a plagiarism checker in Blackboard to be reviewed for plagiarism and AI content.**
- **Most writing assignments may be redone 2 times to reduce what is identified in SafeAssign. If the bibliography is cited, that will not result in points being deducted. Please read each assignment's instructions for the particular policy on plagiarism for that specific assignment.**
- **Students who plagiarize or use AI may receive a 0 on the assignment or may receive an F for the entire course.**

If you wish to drop a course, the student is responsible for initiating and dropping the course. If you stop logging-in to the course and do not complete the course drop process, then you will receive an "F" grade for the course.

A student who wishes to drop a course is responsible for initiating and completing the drop process. A student who stops coming to class, and fails to drop the course, will earn an "F" in the course.