

ADVANCED ENVIRONMENTAL INSTRUMENTAL ANALYSIS (EPCT 2335_6A1)

CREDIT

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

MODE OF INSTRUCTION

Face to Face; Thursdays, 5:30-8:50 p.m.; MPC 103

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 completion of this course, the student will be able to:

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

INSTRUCTOR CONTACT INFORMATION

Instructor:	Eduardo Leija
Email:	eleija1@lit.edu
Office Phone:	Instructor review required
Office Location:	Instructor review required
Office Hours:	Instructor review required



**LAMAR INSTITUTE
OF TECHNOLOGY**

Approved:

REQUIRED TEXTBOOK AND MATERIALS

Fundamentals of Industrial Hygiene, 6th Edition

Barbara A. Plog and Patricia J. Quinlan

NSC Press

ISBN: 9780879123123

USB flash drive

ATTENDANCE POLICY

INSTRUCTOR REVIEW REQUIRED: A verified Fall 2026 attendance policy for Eduardo Leija was not supplied.

DROP POLICY

If you wish to drop a course, you are responsible for initiating and completing the drop process by the specified date as listed in the College Calendar on the [Student Success](#) web page. If you stop coming to class and fail to drop the course, you will earn an "F" in the course.

COURSE CALENDAR

DATE	TOPIC	READINGS (Due on this Date)	ASSIGNMENTS (Due on this Date)
Week 1 8/27/26	Course Introduction, Syllabus & Policies; History of Environmental Analysis, Regulations, Standards, and Units of Measure	Week 1 PowerPoint	
Week 2 9/3/26	Calculating Time Weighted Averages (TWAs); Recordkeeping and Reporting; Utilizing Analytic Results to Regulatory Agencies	Week 2 PowerPoint	
Week 3 9/10/26	Sampling and Analysis of Matter, Particulate Matter, and Microbiological Sampling	Week 3 PowerPoint	Proposal outline for selected-topic presentation due in writing
Week 4 9/17/26	Continuation: Sampling and Analysis of Matter, Particulate Matter, Microbiological Sampling; Introduction to Soil Sampling and Basic Site Equipment	Week 4 PowerPoint	
Week 5 9/24/26	Lab: Guest Speaker (Brenda Barrow) - to be confirmed and subject to change; Radiation (Ionizing and Non-ionizing)	Week 5 PowerPoint	
Week 6 10/1/26	Air Sampling Introduction	Week 6 PowerPoint	Class presentations
Week 7 10/8/26	EXAM 1: Weeks 1-6	Review Weeks 1-6	EXAM 1
Week 8 10/15/26	Introduction to Food Service Inspection and Instrumentation; The Safety Officer and Food Service Facilities; Environmental Health Instrumentation and Calibration	Week 8 PowerPoint	Class presentations
Week 9 10/22/26	Radon and Radon Monitoring (Passive and Active Monitors); Soil Sampling and OSHA Classification of Soils; Introduction to Gas Chromatography and Chain of Custody	Week 9 PowerPoints	Class presentations
Week 10 10/29/26	EXAM 2: Weeks 7-9	Review Weeks 7-9	EXAM 2
Week 11 11/5/26	Introduction to NIOSH Methods for Sampling Airborne Contaminants	Week 11 PowerPoint	
Week 12 11/12/26	Portable Laboratory Equipment and Field Testing Equipment; Analytical Techniques: XRF, GC-MS, SEM with EDX, and other methods	Week 12 and Week 13 PowerPoints	
Week 13 11/19/26	EXAM 3: Weeks 11-13	Review Weeks 11-13	EXAM 3
Week 14 11/26/26	Thanksgiving Holiday - Campus Closed		Campus Closed
Week 15 12/3/26	FINAL EXAM - Comprehensive	Comprehensive review	FINAL EXAM

The instructor may adjust topics, readings, activities, or due dates when needed. Changes will be announced in class and through Blackboard.

COURSE EVALUATION

Final grades will be calculated according to the following criteria:

- Class attendance and participation 10%
- Three class tests (3 x 20%) 60%
- Class presentation of selected topic/instrument 10%
- Comprehensive final exam 20%

GRADE SCALE

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

TECHNICAL REQUIREMENTS

For the latest technical requirements, including hardware, compatible browsers, operating systems, etc., review the Minimum Computer and Equipment Requirements on the [LIT Online Experience](#) page. 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.

ARTIFICIAL INTELLIGENCE 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**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 this 3-credit-hour course, students should prepare to allocate approximately six to nine hours per week outside class.

ACADEMIC DISHONESTY

Students found to be committing academic dishonesty (cheating, plagiarism, or collusion) may receive disciplinary action. Students should review the institution's Academic Dishonesty Policy in the current LIT Catalog and Student Handbook.

INSTRUCTOR REVIEW REQUIRED

Confirm the required textbook and materials and provide any additional course policies for Eduardo Leija. The source's remaining policies are labeled for another instructor and were not transferred.