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: **R. Peter Whittaker MHS REHS**

Email: rpwhittaker@lit.edu

Office Phone: 409 247 5283

Office Location: MPC 239

Office Hours: **Monday – Thursday 2.00-5.00pm. Friday 11.00am-12.00pm (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.

Revised: 8/23/24

ATTENDANCE POLICY

This is an attendance based class. Attendance is required for all scheduled lectures and activities. Attendance and participation account for 10% of the overall class grade (as shown in course evaluation). 3% points will be deducted from your overall grade (up to a maximum of 10%) for each unexcused absence.

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. 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 **8/29/24**	**Course Introduction, Syllabus, & Policies. History of Environmental Analysis, Regulations, Standards, and Units of Measure**	**Week 1 PowerPoint.**	
Week 2 **9/5/24**	**Calculating Time Weighted Averages (TWAs) Recordkeeping and Reporting/Utilizing Analytic Results to Regulatory Agencies**	**Week 2 PowerPoint.**	
Week 3 **9/12/24**	**Sampling and Analysis of Matter, Particulate Matter, and Microbiological Sampling**	**Week 3 PowerPoint.**	
Week 4 **9/19/24**	**Continuation: Sampling and Analysis of Matter, Particulate Matter, Microbiological Sampling, Introduction to Soil Sampling, and Basic Site Equipment.**	**Week 4 PowerPoint.**	

Week 5 **9/26/24**	**Lab: Guest Speaker (Brenda Barrow) to be confirmed, and subject to change.- Radiation (Ionizing and Non-ionizing).**	**Week 5 PowerPoint.**	
Week 6 **10/3/24**	**Air Sampling Introduction.**	**Week 6 PowerPoint.**	
Week 7 **10/10/24**	**Exam # 1** **Followed by Introduction to Food Service Inspection & Instrumentation.**	**Week 7 PowerPoint.**	**Exam 1 (10/10/24) On material from weeks 1 – 6.** **Plus, outline of proposal for Selected Topic for Class Presentation to be submitted in writing**
Week 8 **10/17/24**	**The Safety Officer and Food Service Facilities. Environmental Health Instrumentation and Calibration.**	**Week 8 PowerPoint.**	
Week 9 **10/24/24**	**Radon and Radon Monitoring (Passive and Active Monitors).**	**Week 9 PowerPoint.**	
Week 10 **10/31/24**	**Soil Sampling and OSHA Classification of Soils. Plus introduction to Gas Chromatography and Chain of Custody.**	**Week 10 PowerPoint.**	
Week 11 **11/7/24**	**Exam # 2** **Followed by Introduction to NIOSH Methods for Sampling Airborne Contaminants.**	**Week 11 PowerPoint.**	**Exam 2 (11/7/24) On material from weeks 7 - 10**
Week 12 **11/14/24**	**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.**	

	Energy Dispersive X-Ray Analysis (EDX), etc		
Week 13 11/21/24	**Guest Speaker – Richard Hensley (OSHCON Program) to be confirmed Lab - Start of Class Presentations**	**Week 13 PowerPoint.**	**Class Presentations of Selected Topics. 11/21/24**
Week 14 11/28/24	**THANKSGIVING BREAK – NO CLASSES**		**11/28/24. NO CLASSES**
Week 15 12/5/24	**Exam # 3 (12/5/24), Followed by Lab - Class Presentations.**		**Exam 3 (12/5/24) On material from weeks 11 – 13. Followed by conclusion of Class Presentations.**
Week 16 12/12/24	**Comprehensive Final Exam (12/12/24)**		**Final Exam (12/12/24) Comprehensive.**

COURSE EVALUATION

Final grades will be calculated according to the following criteria:

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

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.

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.