

Overview

Course	OEHS 6370
Department	Occupational Education and Health Sciences
Pre-Requisites	None
Credit Hours	3

Description Investigates concepts, methods, and practice of occupational epidemiology. Prepares students to design, execute, and evaluate occupational epidemiological research as well as evaluate and interpret published occupational safety and health epidemiological literature. Will cover various study designs, biases, confounders, and causation to address the prevention of workplace injuries and illnesses.

Goals & Objectives

This course is designed to prepare students to conduct or evaluate epidemiological studies to assist individual workers to be safe and healthy. Learners will identify problems, evaluate the research, make informed decisions and predictions, and determine if the research will ultimately make a difference in health and safety in the workplace. Students will design and assess the quality of a study addressing specific exposure-outcome relationships. This includes identifying the appropriate study design, defining the study population, measurements of exposure, measurements of the outcome, methods to minimize and mitigate bias, and how to analyze the data. Students can integrate these valid research findings into the larger knowledge base about the exposure-outcome relationship and modify their practice in clinical, industry, or academic pursuits. Special attention is given to ongoing consideration and application of epidemiological principles in a more comprehensive manner. The key focus of the course is to critically evaluate research and apply it to the larger scope of work.

This course will provide opportunities for students to:

1. Design a high-quality epidemiological study to address a specific exposure-outcome relationship
2. Critically assess published literature about occupational health and safety topics
3. Identify epidemiological methodological tools to assess strengths and weaknesses in study design, exposure assessment, outcome assessment, controlling for confounders, mitigating bias
4. Accurately calculate epidemiological measures such as incidence, prevalence, Odds Ratios, and 95% Confidence Intervals and interpret results from an epidemiological study

Required Materials

Materials required for this course are:

- **Required Readings** - Epidemiology: An Introduction. By Rothman KJ. Oxford University Press, 2002. ISBN-13:978-0195135541 ISBN-10:0195135547
- **Recommended Readings** - Hebel JR. & McCarter RJ. Study Guide to Epidemiology and Biostatistics, 2006.
- Webcam & microphone
- Zoom Account

Ensure you have these materials ahead of time as they will be required to complete assignments and activities throughout the course.

Evaluation

Your performance in this course will be evaluated by:

- Quizzes (6 before and 3 after midterm exam) - 20%

Quizzes are submitted online and cover the previous material covered since the prior lecture. They are **open** book/note and have a time limit. Late submissions will not be accepted. Students are not allowed to retake any quizzes.

- Comprehensive Midterm Exam (proctored) - 25%

Comprehensive Midterm and Final examinations will be proctored by Exam Services. These are **closed** book/notes and you may only use a **simple** calculator (no programmable calculators). You must schedule exams through the Exam Center.

- Final Study Design Project - 25%
 - Study Design Participation - 210 points
 - Study Design Project Presentation - 50 points
 - Study Design Project Writeup - 100 points
- Comprehensive Final Exam (proctored) - 30%

Exams will be proctored through Exam Services for online sections only. You must download an extension and register with Exam Services.

You can find more information on how to do this on the [Course Resources](#) page in the Exams section.

Lecture Topics

- Introduction to Epidemiology
- Causation
- Types of Epidemiology Studies
- Experimental Study Design
- Quantification of Occupational Exposures
- Measuring Disease Occurrence and Casual Effects
- Biases
- Literature Searches
- Statistical Analysis
- Regression Modeling and Interpretation
- Control of Cofounding and Measuring Effect Modification
- Surveillance
- Critical Review of Literature