

**THE UNIVERSITY OF AKRON**  
**COLLEGE OF APPLIED SCIENCE AND TECHNOLOGY**  
**Department of Disaster Science and Emergency Services**  
**Emergency Management and Homeland Security**

**Course Title:** Hazards Science and Management

**Course Number:** 2235:370

**Course Credits:** 3 credit hours

**Prerequisites:** None

**Course Description:**

Provides an overview of hazards theory and the science of various hazards. Both natural and technological hazards are studied with the perspective of emergency management. Some of the topics include earthquakes, tsunami, volcanoes, floods, wildfires, terrorism, winter storms, and hurricanes.

**Program Outcomes:**

Students will gain a better understanding of:

- 1) the scientific process of various hazards
- 2) Emergency Management fundamentals in relationship to hazards
- 3) professionalism in Emergency Management
- 4) data sources and their reliability
- 5) utilization of technology and data in Emergency Management
- 6) utilization of case studies

**Program Assessment:**

The University of Akron and specifically the Emergency Management and Homeland Security program assesses student learning at several levels. The goal of these assessment activities is to improve student learning. As a student in this course, you will participate in various assessment activities. Grades and work samples may be selected to gather learning outcome data to be measured and tracked over several years. Student names or indicators are not used in data analysis. Students have an active role in course and program assessment projects. Generated data will direct any changes made in the curriculum which is designed to strengthen and constantly improve student learning and educational outcomes.

Knowledge of scientific processes of various hazards will be demonstrated through assignments.

Emergency Management fundamentals (response, preparedness, recovery, and mitigation) will be demonstrated through assignments.

Professionalism in Emergency Management will be demonstrated through an oral presentation in the final project.

Data sources and their reliability will be demonstrated with the assignment and final project.

The utilization of technology and data will be demonstrated with the assignment and final project.  
Utilization of case studies will be demonstrated with the assignment and final project.

**Course outline:**

- Topic I: Introduction to Hazards
  - Hazards Classification
  - Theory and Concepts
- Topic II: Geological and Hydrological Hazards
  - Volcanoes
  - Earthquakes and Tsunami
  - Wildfires
  - Floods
- Topic III: Biological Hazards
  - Diseases, Epidemics, and Pandemics
- Topic IV: Atmospheric Hazards
  - Fundamentals of Weather and Climate
  - Thunderstorms and Tornadoes
  - Midlatitude Cyclones
  - Hurricanes
- Topic V: Anthropogenic Hazards
  - Chemical Incidents, Hazardous Materials, and Environmental Hazards
  - Weapons of Mass Destruction

**Grading Scale:**

A	≥ 94%	488.80-520.00 points
A-	90-93%	468.00-488.79 points
B+	88-89%	457.60-467.99 points
B	83-87%	431.60-457.59 points
B-	80-82%	416.00-431.59 points
C+	78-79%	405.60-415.99 points
C	73-77%	379.60-405.59 points
C-	70-72%	364.00-379.59 points
D+	68-69%	353.60-363.99 points
D	63-67%	327.60-353.59 points
D-	60-62%	312.00-327.59 points
F	≤ 59.9%	≤ 311.99 points

**COURSE RATIONALE:**

This course will cover the basic theories of various hazards and emergency management. Emergency managers need to understand the basic scientific

principles in order to communicate with experts and the public. This will aid in decision making along with expanding the student's knowledge. Furthermore, the course is designed to promote critical thinking through applications which is a basis for learning rather than memorizing material.

**Special Accommodations:**

In pursuant to University policy #3359-38-01, The University of Akron recognizes its responsibility for creating an institutional atmosphere in which students with disabilities have the opportunity to be successful. Any student who feels he/she may need an accommodation based on the impact of a disability should contact the Office of Accessibility at 330-972-7928 (v), 330-972-5764 (tdd) or [access@uakron.edu](mailto:access@uakron.edu). The office is located in Simmons Hall Room 105.