DEPARTMENT: Environmental Health

CREDIT HOURS: 3.0
COURSE TITLE: Public Health Consequences of Disasters

INSTRUCTOR NAME    Mark Keim, MD, MBA

INSTRUCTOR CONTACT INFORMATION
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SCHOOL ADDRESS OR MAILBOX LOCATION: EH Department 2nd floor
OFFICE HOURS: By appointment only

BRIEF COURSE DESCRIPTION

This course is a public health overview of natural and man-made disasters, with an emphasis on understanding their complexity and impact. Included in the course is an explanation of the basic disaster hazard phenomenon, the public health consequences associated with each hazard, and a discussion of the role of public health for prevention, preparedness and response to each of these disasters.

The course is taught by top experts in the field and guest speakers who are approachable, engaging, and full of stories and experiences. The experience is designed to stimulate understanding and forward thinking and to encourage exchange of ideas regarding lessons learned from the past and the implications on current and future policies and disaster management.

LIST SCHOOL LEVEL, DEPARTMENT, AND/ OR PROGRAM COMPETENCIES

All learning objectives for this course are associated with the following competencies:

Rollins School of Public Health Core Competencies
- Describe environmental conditions, including biological, physical and chemical factors, that affect the health of individuals, communities and populations
- Describe behavioral, social and cultural factors that contribute to the health and well-being of individuals, communities and populations
- Assess global forces that influence the health of culturally diverse populations around the world

Department of Environmental Health Competencies
- Describe major environmental risks to human health ranging from the local to global scale.
LIST OF LEARNING OBJECTIVES ASSOCIATED WITH THE COMPETENCIES

Introduction to Disasters
- Define the word “disaster”
- Recognize that disasters result from both hazards and vulnerability
- List the three classifications of disasters that are based on hazard

Public Health Consequences of Disasters
- Identify public health consequences of disasters
- List 6 common disaster myths

Natural Disasters
- Define the term “natural disaster”
- Recognize that:
  - the cost of damage from natural disasters is increasing
  - the number of natural disasters was increasing until 2000
  - the number of deaths due to natural disasters is decreasing
- Identify the various ways to classify natural disasters (time-based, notice-based, and hazard-based disasters)
- Identify public health consequences of natural disasters

Biological Disasters
- Define the term “biological disaster”
- Recognize definitions for patterns of disease occurrence to include:
  - endemic
  - outbreak
  - epidemic
  - pandemic
- Recognize public health response capabilities for biological disasters
- Identify 3 major public health consequences of biological disasters

Tropical Cyclones
- List the three terms used to describe tropical cyclones
- Identify the conditions necessary for the formation of a tropical cyclone
- Recognize that tropical cyclones are categorized in 5 levels according to the wind speed of the storm
- Identify a hazard map for tropical cyclones
- Identify major public health consequences of tropical cyclones
- Identify secondary disasters that may occur
- Identify human factors that influence mortality and morbidity in a tropical cyclone
- Identify prevention and control measures for tropical cyclones

Earthquakes
- Define the word “earthquake”
- Recognize the basic elements of plate tectonics
- Recognize the difference between a Richter scale and a Mercalli scale for measuring earthquake severity
- List secondary disasters that may occur as a result of earthquakes
- Identify human factors that contribute to the severity of impact from earthquakes
- List immediate and delayed health effects of earthquakes
- Identify major public health consequences of earthquakes
- Identify prevention and control measures that can be taken for earthquakes
LIST OF LEARNING OBJECTIVES ASSOCIATED WITH THE COMPETENCIES

Tsunamis
• List the six causes of tsunamis
• List the conditions that must be present for an earthquake to cause a tsunami
• List three warning signs that a tsunami may be about to occur
• Identify the characteristics of a tsunami
• Identify major public health consequences of tsunamis

Floods
• Describe two categories of floods
• Identify the factors that influence the severity of a flood
• Identify major public health consequences of floods
• Identify key public health and safety issues following a flood
• Identify prevention, control, and mitigation measures for floods
• Identify reasons for conducting community outreach after floods

Climate Change
• Define the term “climate change”
• Identify the main human activity contributing to climate change
• Identify future trends in health related to climate change
• List 3 factors that make Small Island Developing States (SIDS) and coastal communities particularly vulnerable to climate change
• Identify expected impacts of climate change on small islands
• Identify adaptation and mitigation measures for climate change

Drought
• Define the word “drought”
• Identify natural and human factors that contribute to the occurrence of droughts
• List factors that contribute to water shortages
• Identify threats to health, agriculture and the environment from droughts
• List four goals for public health during water emergencies
• Identify criteria for choosing alternative sources of water
• Identify major public health consequences of a drought

Volcanoes
• Identify the two types of volcanic eruptions
• Describe the “Ring of Fire”
• Identify hazards associated with volcanic eruptions
• List the major public health consequences of volcanic eruptions
• Identify prevention and preparedness measures for volcanoes
• List secondary disasters that could result from a volcanic eruption

Fires
• Recognize two ways to categorize fire incidents and their sub-categories
• Identify factors that contribute to the severity of fires
• Identify the major public health consequences of fires
• Identify prevention measures for fires
**LIST OF LEARNING OBJECTIVES ASSOCIATED WITH THE COMPETENCIES**

**Tornadoes**
- Define the word “tornado”
- Identify major public health consequences of tornadoes
- List prevention and control measures for tornadoes

**Technological Disasters**
- Define the term “technological disaster”
- List the hazard-based classifications of technological disasters
- List examples of intentional technological disasters
- List examples of unintentional technological disasters

**Industrial Disasters**
- Define the term “industrial disaster”
- Identify the different types of industrial disasters (overt, rapid, etc.)
- Identify the factors that affect the severity of an industrial disaster

**Terrorism**
- Define the word “terrorism”
- List the typical strategies used by terrorists
- Define weapons of mass destruction (WMD)
- Identify biological, chemical and radiological WMD

**Chemical Warfare Agents**
- Define the term “chemical warfare”
- Identify examples of agents that could be used in a chemical attack
- Identify the response considerations following a chemical attack
- Recognize the major public health consequences of a chemical attack

**Biological Warfare Agents**
- Define the word “bioterrorism”
- Identify Class A agents
- Describe the common public health consequences of a biological attack

**Radiation Disasters**
- Identify the 2 forms of ionizing radiation
- List the three methods of radiation exposure reduction
- List the major public health consequences radiation exposure

**Complex Emergencies**
- Define the term “complex emergency”
- Identify direct & indirect effects of conflict
- Identify major public health consequences of complex emergencies
## EVALUATION

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<th>ITEM</th>
<th>DESCRIPTION</th>
<th>DUE DATE</th>
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<tr>
<td>Quizzes</td>
<td>5 quizzes consisting of 20 multiple choice questions each based upon course lectures and learning objectives</td>
<td>Weeks 3, 5, 7, 10, 13</td>
<td>15%</td>
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<td>Journal Studies</td>
<td>Student will read 10 journal articles posting a brief Blackboard review on a weekly basis</td>
<td>Weeks 1-6, 10-12</td>
<td>10%</td>
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<td>Mid-term Exam</td>
<td>Closed book test consisting of 40 multiple choice questions based upon course lectures and learning objectives to date</td>
<td>Week 8</td>
<td>25%</td>
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<td>Classroom presentation</td>
<td>Student will deliver a 15-minute presentation that elaborates on any of the weekly lecture topics. A 300-word abstract is due one week prior to presentations</td>
<td>Weeks 14-16</td>
<td>10%</td>
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<tr>
<td>Final Exam</td>
<td>Closed book test consisting of 80 multiple choice questions based upon lectures and learning objectives for the entire course</td>
<td>Week 17</td>
<td>40%</td>
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### ACADEMIC HONOR CODE

The RSPH requires that all material submitted by a student in fulfilling his or her academic course of study must be the original work of the student.

### Semester Grade Scoring

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