



COURSE OBJECTIVE – FROM SYLLABUS

- Discuss local and global environmental health issues
- Analyze toxicologic and epidemiologic data
- Analyze and critique environmental health research papers

INTRODUCTION; SCOPE OF ENVIRONMENTAL HEALTH

- Key words and concepts
 - Assessment, understanding, control
 - Health determinants
 - Portals of entry
 - Biological, physical, chemical disease agents
- Examples of work done
 - Homework #1



TOXICOLOGY

- Key words and concepts
 - Laboratory testing
 - Exposure pathways, concentration, translocation, metabolism, excretion
 - Ethical limitations
 - Acute, short-term, long-term toxicity tests
 - Dose-response curve
 - LD₅₀, LC₅₀, TV, Draize score
 - NOAEL, LOAEL, Threshold
 - Health endpoints: carcinogens...immunotoxicity
 - Extrapolations and artifacts
- Examples of work done
 - Homeworks #2 and #3
 - Exam #1: problems 1-3



EPIDEMIOLOGY

- Key words and concepts
 - Distribution, determinants, frequency of disease
 - Exposure
 - Endemic, epidemic, pandemic
 - Host, agent, time (duration)
 - Measures of frequency: incidence, prevalence, attack rate, mortality rate
 - Measures of association: attributable risk, relative risk (risk ratio), odds ratio
 - Case-control vs. cohort; contingency table
 - Prospective vs. retrospective
 - Exposure status vs. disease status
 - Bias, follow-up, non-participation
 - Hazard vs benefit
- Examples of work done
 - Homework #4
 - Exam #1: problems 1, 2, and 4



OUTDOOR AND INDOOR AIR QUALITY

- Key words and concepts
 - Emissions, conversion, dilution, deposition
 - Inversion
 - Aerosol: size, chemical composition
 - Gas: solubility, reactivity
 - Specific respiratory problems
 - Non-ambient environments
 - Indoor sources: combustion, microbes, radon, ETS, ...
 - Ambient vs. indoor exposures (role of control)
 - Indoor control measures
- Examples of work done
 - Homework #5
 - Exam #2: problem 1



FOOD AND AGRICULTURE

- Key words and concepts
 - Production
 - Preparation
 - Handling
 - Foodborne disease
 - Bacterial
 - Viral
 - Parasitic
 - Chemical
 - Additives, genetic engineering, organic
- Examples of work done
 - Homework #6
 - Exam #2: problem 1



DRINKING WATER

- Key words and concepts
 - Hydrologic cycle
 - Usage vs. requirement
 - Gray water
 - Health risks: water borne, water privation, water contact, water insect related, chemical
 - ADI and GV
 - Water treatment: processes and efficiencies
 - THMs vs. microbes (health risks)
 - Global and local issues
- Examples of work done
 - Homework #7
 - Exam #2: problems 2 and 3



LIQUID WASTES

- Key words and concepts
 - Pit privy...modern flush toilet
 - Sewers
 - Combined
 - Separated
 - Point vs. non-point sources
 - Dissolved oxygen
 - Primary, secondary, tertiary treatment (processes and efficiencies)
 - On-site industrial processes
- Examples of work done
 - Homeworks #8 and #9



BIOTERRORISM AND PUBLIC HEALTH

- Key words and concepts
 - FEAR: education and preparation
 - Possible biological and chemical agents
 - Detection and containment of outbreaks
 - US vs. WHO response
 - Global guide to bioweapons
- Examples of work done
 - Homework #10



STANDARDS

- Key words and concepts
 - Basic and secondary goals
 - Limitations to setting standards
 - "Knee-jerk" standards
 - Chernobyl
 - Risk of death calculations
 - Internal exposures: ALI, DAC
- Examples of work done
 - Homework #11



RISK ASSESSMENT

- Key words and concepts
 - Comparative risks
 - Perceptions of risk
 - Risk assessment 4-step process
 - Occupational vs. general setting
 - Carcinogens vs. non-carcinogens
 - UNCERTAINTIES
- Examples of work (to be) done
 - Homework #11



MISCELLANY

- Videos
 - The Disappearing Male
 - The State of the Planet
- "Most important issue" conversation(s)
- MDGs and SDGs
- Examples of work done
 - Homework #8



EXAM INFORMATION

- **THURSDAY, 12/12, 9:00 - Noon**
- **Closed book/notes**
- **All necessary equations provided**
- **20-30 short answer questions**
- **2-3 discussion questions**
- **3-5 problems**
