

# GSPH Course Descriptions

January 31, 2019

**EOH 2013 ENVIRONMENTAL HEALTH AND DISEASE Credit(s): 02.0**

THIS IS THE GRADUATE SCHOOL OF PUBLIC HEALTH CORE CURRICULUM COURSE IN ENVIRONMENTAL AND OCCUPATIONAL HEALTH. THE WORLD HEALTH ORGANIZATION DEFINES ENVIRONMENTAL HEALTH AS "THOSE ASPECTS OF HUMAN HEALTH, INCLUDING QUALITIES OF LIFE THAT ARE DETERMINED BY PHYSICAL, BIOLOGICAL, SOCIAL, AND PSYCHOSOCIAL FACTORS IN THE ENVIRONMENT." THE DISCIPLINE OF ENVIRONMENTAL AND OCCUPATIONAL HEALTH REFERS TO THE "THEORY AND PRACTICE OF ASSESSING, CORRECTING, CONTROLLING, AND PREVENTING THOSE FACTORS IN THE ENVIRONMENT THAT CAN ADVERSELY AFFECT THE HEALTH OF PRESENT AND FUTURE GENERATIONS." THIS COURSE WILL FAMILIARIZE THE STUDENTS WITH CURRENT ISSUES AND PRACTICES IN ENVIRONMENTAL AND OCCUPATIONAL HEALTH, AS WELL AS ASSESSMENT OF THE RISK OF ENVIRONMENTAL EXPOSURES. IT IS DESIGNED TO INTRODUCE THE STUDENTS TO KNOWLEDGE BASIC TO PUBLIC HEALTH, FOCUSING ON CHEMICAL AND PHYSICAL ENVIRONMENTAL FACTORS AFFECTING THE HEALTH OF THE COMMUNITY. \*\*\*\*Classroom & Courseweb\*\*\*\*\*

[Effective Fall 2018, Term 2191: credit change from 03.0 to 02.0.]

---

**EOH 2021 SPECIAL STUDIES Credit(s): 01.0 to 15.0**

PROPERLY QUALIFIED STUDENTS MAY UNDERTAKE ADVANCED STUDY UNDER THE GUIDANCE OF A FACULTY MEMBER.

---

**EOH 2022 SPECIAL TOPICS Credit(s): 01.0 to 03.0**

PROPERLY QUALIFIED STUDENTS MAY UNDERTAKE ADVANCED STUDY UNDER THE GUIDANCE OF A MEMBER OF THE FACULTY.

---

**EOH 2022 SPECIAL TOPICS Credit(s): 01.0 to 03.0**

PROPERLY QUALIFIED STUDENTS MAY UNDERTAKE ADVANCED STUDY UNDER THE GUIDANCE OF A MEMBER OF THE FACULTY.

---

**EOH 2108 ENVIRON & OCUPTNL HEALTH PRAC Credit(s): 02.0**

THIS PRACTICUM PROVIDES AN OPPORTUNITY FOR EOH MPH STUDENT TO DEMONSTRATE INTEGRATION AND APPLICATION OF KNOWLEDGE IN THE AREA OF ENVIRONMENTAL AND OCCUPATIONAL HEALTH THROUGH A CULMINATING EXPERIENCE. THIS IS A FACULTY SUPERVISED APPLIED RESEARCH OR PROBLEM SOLVING PROJECT IN CONSULTATION WITH A HEALTH ENVIRONMENT RELATED AGENCY OR ORGANIZATION. STUDENT PARTICIPATES AFTER COMPLETION OF COURSE WORK. THE PRACTICUM INCLUDES PREPARATION, CONTRIBUTION TO FIELD WORK, AND A FINAL WRITTEN REPORT WHICH MAY BE THE BASIS FOR A MASTER'S ESSAY.

---

**EOH 2109 MOLECLR TOXICOLOGY JOURN CLUB Credit(s): 01.0**

THE COURSE IS FOR STUDENTS TO GAIN EXPERIENCE IN THE PRESENTATION AND DISCUSSION OF TOPICS OF CURRENT INTEREST IN THE FIELDS OF INDUSTRIAL AND ENVIRONMENTAL HEALTH SCIENCES AND TOXICOLOGY. THE FORMAT IS ONE HOUR WEEKLY JOURNAL CLUB PRESENTED BY THE STUDENTS. OUR GOALS ARE TO EXPOSE STUDENTS TO THE MOST EXCITING RESEARCH IN OUR FIELD OF INTEREST. SECONDLY, TO PROVIDE A FORUM TO HONE SKILLS IN ORGANIZING AND PRESENTING SCIENTIFIC DATA, AS WELL AS CRITICALLY DISCUSSING PUBLISHED WORK.

---

**EOH 2110 ROTATION/PRACTICUM Credit(s): 02.0**

THIS COURSE IS DESIGNED TO BE A PRACTICAL RESEARCH EXPERIENCE FOR PhD STUDENTS, GOALS OF WHICH ARE FOR STUDENTS TO GAIN RESEARCH EXPERIENCE WITHIN LABORATORIES OF FACULTY WITHIN THE MOLECULAR TOXICOLOGY TRAINING PROGRAM. EACH LABORATORY ROTATION WILL BE 8 WEEKS IN DURATION WITH 2 ROTATIONS. STUDENTS WILL BE REQUIRED TO WRITE A REPORT ON THEIR RESEARCH PROJECT UPON COMPLETION OF THE LABORATORY COMPONENT.

---

**EOH 2122 TRANSPORT & FATE ENVIRONMENTAL AGENTS Credit(s): 03.0**

THIS COURSE PRESENTS IN A QUANTITATIVE FASHION THE MOVEMENT, TRANSFORMATION, BIOACCUMULATION, AND FATE OF VARIOUS PHYSICAL, BIOLOGICAL, AND CHEMICAL AGENTS THROUGH THE ENVIRONMENT, HOME, AND OCCUPATIONAL SETTINGS. CHEMICAL DEGRADATION, ATMOSPHERIC TRANSPORT, SURFACE AND GROUNDWATER SEDIMENTS, AND CONCENTRATION BY BIOLOGICAL SYSTEMS ARE DESCRIBED, INCLUDING MOVEMENT THROUGH FOOD CHAINS; ALSO INDOOR TRANSPORT AND VENTILATION.

---

**EOH 2175 PRINCIPLES OF TOXICOLOGY Credit(s): 03.0**

THIS COURSE WILL INTRODUCE STUDENTS TO THE PRINCIPLES GOVERNING THE INTERACTION OF CHEMICALS WITHIN THE HUMAN BODY. MAJOR ORGAN SYSTEMS WILL BE DESCRIBED WITH REGARD TO ANATOMY, PHYSIOLOGY AND EFFECTS FROM INTERACTIONS WITH CHEMICALS.

---

**EOH 2180 INTRODUCTION TO RISK SCIENCES Credit(s): 01.0**

**Corequisite(s): EOH 2181**

COURSE WILL EXPLORE ISSUES SURROUNDING ENVIRONMENTAL AND OCCUPATIONAL RISKS WITH FOCUS ON ADVERSE HUMAN HEALTH EFFECTS. WILL PROVIDE OVERVIEW OF RISK SCIENCES INCLUDING: RISK ASSESSMENT, RISK PERCEPTION, RISK COMMUNICATION AND RISK MANAGEMENT. DETAILED ATTENTION TO METHODS FOR QUALITATIVE AND QUANTITATIVE CHARACTERIZATION OF RISKS TO HUMAN HEALTH. QUALITATIVE AND QUANTITATIVE APPROACHES FOR RISK ASSESSMENT WILL CONSIDER METHODS FOR ASSESSMENT OF CANCER AND NON-CANCER HEALTH RISKS USING FOUR STEP PARADIGM BY NATIONAL ACADEMY OF SCIENCES.

(Coreq eff for spring 2012.)

---

**EOH 2181 RISK ASSESSMENT PRACTICUM Credit(s): 02.0**

**Corequisite(s): EOH 2180**

PRACTICUM WILL PROVIDE THE STUDENT OPPORTUNITY TO CONDUCT A QUANTITATIVE RISK ASSESSMENT FOR HUMAN HEALTH ENDPOINT (EITHER CANCER OR NON-CANCER) FROM AN ENVIRONMENTAL AND OCCUPATIONAL EXPOSURE. STUDENTS WILL LEARN TO IDENTIFY HUMAN HEALTH HAZARDS, CHARACTERIZE DOSE RESPONSE RELATIONSHIPS AND SITE AND MECHANISMS OF ACTION, CONDUCT EXPOSURE CHARACTERIZATION AND USE THAT DATA TO CHARACTERIZE RISKS TO HUMAN HEALTH.

(Coreq eff for spring 2012.)

---

**EOH 2309 ENVIRONMENTAL HEALTH CHEMISTRY Credit(s): 03.0**

THE ORGANIC, INORGANIC AND MECHANISTIC BIOCHEMICAL DETAILS OF INTERACTIONS OF TOXINS AND BIOLOGICAL SYSTEMS WILL BE PRESENTED. EMPHASIS ON CHEMICAL UNDERSTANDING OF POTENTIAL TOXICOLOGICAL SEQUELAE OF SUCH INTERACTIONS. STUDENTS PRESENT ONE LECTURE ON BIOORGANIC TOXICOLOGICAL TOPIC SYNTHESIZED FROM RECENT SCIENTIFIC LITERATURE.

---

**EOH 2310 MOLECULAR FUNDAMENTALS Credit(s): 03.0**

COURSE IS DESIGNED TO BE A REVIEW OF THE FUNDAMENTALS OF BIOCHEMISTRY, MOLECULAR BIOLOGY, AND CELL BIOLOGY. IT WILL BE TAUGHT IN THE FIRST SEMESTER FOR PHD STUDENTS AND THE FIRST OR THIRD SEMESTER FOR MPH STUDENTS. STUDENTS WILL BE EXPECTED TO HAVE A SOLID UNDERGRAD BACKGROUND IN BIOLOGY. THERE IS SIGNIFICANT TIME DEVOTED TO TECHNIQUES, WITH THE GOAL OF PROVIDING BACKGROUND FOR PHD STUDENTS BEGINNING THEIR RESEARCH CAREERS, AND A PERSPECTIVE FOR MPH STUDENTS ON THE AVAILABILITY AND UTILITY OF MODERN BIOLOGICAL RESEARCH METHODS.

---

**EOH 2313 BIOINORGANIC CHEMISTRY TOXICOLOGIST Credit(s): 02.0**

THIS COURSE WILL COVER THE ESSENTIAL INORGANIC CHEMISTRY UNDERLYING OXIDATIVE STRESS IN CONSIDERABLE DEPTH. IT WILL INTRODUCE KEY CONCEPTS AND TERMINOLOGY. IT WILL PROVIDE STUDENTS WITH ILLUSTRATIVE EXAMPLES ON HOW THIS CHEMISTRY IMPINGES ON CELLULAR PROCESSES. THE STUDENT WILL LEARN TO THINK OF THESE THINGS IN TERMS OF PROPERLY BALANCED CHEMICAL EQUATIONS, STRESSING THE INTERDEPENDENCY OF MANY COMPETING REACTIONS.

---

**EOH 2504 PRIN OF ENVIRONMENTAL EXPOSURE****Credit(s): 03.0**

THIS COURSE INTRODUCES CONCEPTS INHERENT IN RECOGNITION OF SOURCES, CONTAMINANT GENERATION, TRANSPORT AND UPTAKE OF CHEMICAL, BIOLOGICAL AND PHYSICAL STRESSES IN THE CONTEXT OF POTENTIAL ENVIRONMENTAL EXPOSURES RELATED TO HUMAN HEALTH. THIS COURSE PREPARES STUDENTS TO UNDERSTAND EXPOSURE ASSESSMENT IN ANTICIPATION, RECOGNITION, EVALUATION AND INTERVENTION AS UTILIZED IN RISK ASSESSMENT AND COMPOSITION OF MATTER, EXPOSURE PATHWAYS, PATHWAY ASSESSMENT METHODS INCLUDING MEASUREMENT, ANALOGY AND EXPOSURE MODELING.

---

**EOH 2513 POLC DEC MKG PH EMRGY/BIOTERSM****Credit(s): 03.0**

THIS THREE-CREDIT GRADUATE COURSE FOCUSES ON PUBLIC HEALTH EMERGENCIES AND BIOTERRORISM AT THE PHASES OF PREPAREDNESS, MITIGATION, AND RESPONSE. THE COURSE EMPHASIZES NOT ONLY BIOLOGICAL AGENTS BUT ALSO ALL HAZARDS WITH PUBLIC HEALTH CONSEQUENCES. IT ADDRESSES THE INTERFACES OF POLICIES AND LAWS IN THE CONTEXT OF FEDERALISM, WHICH REQUIRES INTERACTION AMONG THE FEDERAL, STATE, AND LOCAL LEVELS OF GOVERNMENT. THE COURSE CONSIDERS THE CRITICAL ROLE OF PRIVATE-SECTOR HEALTH CARE PROVIDERS IN ADDITION TO GOVERNMENTAL DECISION MAKERS. STUDENTS EXPLORE PAST EMERGENCIES THROUGH HISTORY AND CASE STUDIES, CONDUCT DIRECTED RESEARCH ON A CHOSEN POLICY ISSUE, AND EXPERIENCE DECISION-MAKING IN THE CONTEXT OF A SIMULATED EMERGENCY BY PLAYING A CHOSEN AND PREVIOUSLY RESEARCHED OFFICIAL ROLE. TEACHING METHODS INCLUDE LECTURES, CASE STUDIES, POLICY RESEARCH AND WRITING, INTERDISCIPLINARY CLASSROOM DISCUSSION, AND SIMULATED DECISION-MAKING.

(The prerequisite is to be currently enrolled in a graduate or professional degree program, but this may be waived by the Course Director.)

---

**EOH 2515 EOH PREPAREDNESS****Credit(s): 02.0**

THIS COURSE WILL BE A GRADUATE LEVEL COURSE FOCUSING ON ENVIRONMENTAL HEALTH HAZARDS WITH RESPECT TO DISASTER PREPARATION, DIDACTIC AND EXPERIMENTAL ASPECTS OF COURSE WILL INCLUDE CORE PRINCIPLES OF ENVIRONMENTAL HEALTH SAFETY. STUDENTS WILL EXAMINE CHALLENGES WITH RESPECT TO NATURAL AND MAN-MADE DISASTERS TO ALLOW STUDENTS TO PREPARE PROGRAMS TO HANDLE ENVIRONMENTAL HEALTH EMERGENCIES.

---

**EOH 3010 RESEARCH AND DISSERTATION PHD****Credit(s): 01.0 to 15.0**

DISSERTATION CREDITS FOR QUALIFIED DOCTORAL STUDENTS IN THE DEPARTMENT OF ENVIRONMENTAL AND OCCUPATIONAL HEALTH.

---

**EOH 3210 PATHOPHYSIOLOGY ENVRL DISEASE****Credit(s): 03.0**

THIS GRADUATE LEVEL COURSE FOCUSES ON THE ETIOLOGY AND PATHOGENESIS OF HUMAN DISEASE AND HOW THE DISEASE PROCESS AFFECTS NORMAL PHYSIOLOGIC FUNCTION. THE COURSE WILL INCLUDE A DIDACTIC COMPONENT COVERING THE NORMAL ANATOMY AND FUNCTION OF THE MAJOR ORGAN SYSTEMS AND A SERIES OF STUDENT-LED PRESENTATIONS AND DISCUSSIONS OF THE NATURE AND CAUSE OF COMMONLY ENCOUNTERED DISEASES AND OR INJURIES. STUDENTS WILL BE EXPECTED TO APPLY BASIC MECHANISTIC PHYSIOLOGIC PRINCIPLES OF EACH ORGAN SYSTEM IN CURRENT PUBLIC HEALTH AND ENVIRONMENTALLY RELEVANT TOPICS

[New course to be offered in Spring 2015, Term 2154]

---

**EOH 3305 GENOME INSTABILITY & HUMN DS****Credit(s): 03.0**

MECHANISMS THAT MAINTAIN GENOME STABILITY ALLOWED THE ORIGIN OF SPECIES. DNA DAMAGE IS OMNIPRESENT AND DNA REPAIR AND DNA DAMAGE TOLERANCE MECHANISMS ARE INTERWOVEN IN SYSTEMS THAT CONTROL TRANSCRIPTION, REPLICATION, CELL DIVISION, SIGNAL TRANSDUCTION, CELL DEATH AND EVOLUTION. MORE THAN 40 DISTINCT HUMAN DISEASES ARE CAUSED BY DEFECTS IN DNA REPAIR, INCLUDING SYNDROMES OF IMPAIRED DEVELOPMENT, IMMUNODEFICIENCY, CANCER PREDISPOSITION, NEURODEGENERATION, AND PREMATURE AGING. THIS COURSE WILL EMPHASIZE THE MOLECULAR BIOLOGY AND BIOCHEMISTRY OF DNA REPAIR, PLACING THESE MECHANISMS INTO THE CONTEXT OF OTHER CELLULAR PROCESSES AS THEY PERTAIN TO HEALTH AND DISEASE. ENVIRONMENTAL, CLINICAL AND ENDOGENOUS SOURCES OF DNA DAMAGE WILL BE DISCUSSED. AN UNDERSTANDING OF THE FUNDAMENTAL ROLE OF DNA REPAIR MECHANISMS IN IMMUNOLOGY, ONCOLOGY, NEUROLOGY, AND AGING WILL BE CENTRAL TO ALL LECTURES.

Effective spring 2016, term 2164, title change.

---

**FTDR 3999 FULL-TIME DISSERTATION RESEARCH**

**Credit(s): 00.0**

DOCTORAL CANDIDATES WHO HAVE COMPLETED ALL CREDIT REQUIREMENTS FOR THE DEGREE, INCLUDING ANY MINIMUM DISSERTATION REQUIREMENTS, AND ARE WORKING FULL-TIME ON THEIR DISSERTATIONS MAY REGISTER FOR THIS COURSE. WHILE THE COURSE CARRIES NO CREDITS AND NO GRADE, STUDENTS WHO ENROLL IN "FULL-TIME DISSERTATION STUDY" ARE CONSIDERED BY THE UNIVERSITY TO HAVE FULL-TIME REGISTRATION STATUS.

---