General Information

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Environmental Health Sciences</th>
<th>Course Designation: PHS 542</th>
<th>Credits: 3.0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Semester:</td>
<td>Spring</td>
<td>Year:</td>
<td>2016</td>
</tr>
<tr>
<td>Department:</td>
<td>Public Health Sciences</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Director:</td>
<td>Jeff D. Yanosky, ScD</td>
<td>Phone #: (717) 531-5841</td>
<td>Email: <a href="mailto:jyanosky@phs.psu.edu">jyanosky@phs.psu.edu</a></td>
</tr>
<tr>
<td>Time :</td>
<td>6:00 pm to 8:45 pm</td>
<td>Days: Thursday</td>
<td>Location: ASB 1101</td>
</tr>
<tr>
<td>Office Rm #:</td>
<td>ASB 2404H</td>
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</tbody>
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Course Information

Description and/or Overview:

This course provides an overview of the major topic areas within the field of environmental health, which focuses on the study of the impact that chemical, physical, and biologic agents in the environment have on human health. The course will examine the links between the sources, environmental concentrations, routes of exposure, absorbed doses, and human health risks of agents in the environment, and will provide students with an introduction to such topics as environmental epidemiology, toxicology, environmental risk assessment, air and water pollution, global climate change, industrial hygiene, and environmental policy and regulation.

Competencies Covered in this Course:

The table below fulfills, in part, certain Principles of Ethical College and University Teaching contained within the Educator’s Code of Conduct (i.e., Content Competence and Pedagogical Competence).

<table>
<thead>
<tr>
<th>Competencies</th>
<th>Assignment</th>
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<tbody>
<tr>
<td>Explain the fundamental concepts of environmental health sciences.</td>
<td>Mid-term examination, final examination, course homework assignments.</td>
</tr>
<tr>
<td>Apply the fundamental concepts of environmental health sciences for assessing, preventing, and controlling environmental and occupational hazards.</td>
<td>Mid-term examination, final examination, course homework assignments.</td>
</tr>
<tr>
<td>Describe regulatory programs, guidelines, and authorities that relate to the practice of public health.</td>
<td>Mid-term examination, final examination, course homework assignments.</td>
</tr>
<tr>
<td>Discuss the ethical choices, values, and professional practices implicit in public health decisions, considering the effect of those choices on social justice and accountability.</td>
<td>Mid-term examination, final examination, course homework assignments.</td>
</tr>
<tr>
<td>Explain the importance of the contexts of gender, race, poverty, history, migration, and culture in public health theory and practice.</td>
<td>Mid-term examination, final examination, course homework assignments.</td>
</tr>
</tbody>
</table>
## Goals and/or Objectives:

At the end of the course, students will be able to:

1. Describe the relationships between sources and human health effects, both direct and indirect, of chemical, physical, and biologic agents in the environment.
2. Define how human exposures to physical, chemical, radiological, and biological agents in the environment impact human health and contribute both to promoting health and causing illness.
3. Provide students with an understanding of relevant environmental health issues including ambient and outdoor air pollution, indoor air contaminants, water pollution, the built environment, occupational health, children's environmental health, and global climate change.
4. Apply core concepts of toxicology, exposure assessment, environmental epidemiology, and risk assessment to the analysis of environmental health policies and the development of strategies related to controlling and reducing risks associated with exposure to environmental agents. Also, to describe how risk assessment plays a role in risk management and decision-making for environmental health policy.
5. Provide students with an understanding of the concept of “environmental justice”, its implications for the distribution of risk in society from environmental agents, and methods for identifying and reducing disproportionate exposures and risks.
6. Synthesize toxicological and environmental epidemiological data in order to create a coherent position relative to risks and benefits from a hypothesized environmental exposure, such as pesticide use.
7. Identify and understand environmental health issues that are relevant to your professional and personal life.

## Pre-requisites:

Undergraduate level courses in biology, chemistry, and algebra are recommended, but not necessary for enrollment.

## Requirements; course-specific policies and expectations:

Active learning through class participation and discussion is an important component of the course, and participation is part of the course grade. Students are expected to come to prepared to participate in class discussions. Before the final exam is administered, students must complete the course evaluation (SRTE) on ANGEL.

## Required Texts and Resources:


## Electronic Links:

ANGEL Course Management System: [https://cms.psu.edu](https://cms.psu.edu)

## Attendance Policy:
Attendance in class is strongly encouraged. Make up exams will only be allowed if a serious medical emergency or similar situation arises. In such cases, the student must coordinate with the course instructor (by email, if possible). Please do not contact the instructor regarding absences in class unless an exam will be missed.

**Examination Policy:**

A midterm and cumulative final examination will be given. These exams will be targeted at exploring the depth at which the student has mastered course material and is able to apply the principles discussed in class.

**Grading Criteria and Assignments:**

Assignments:

1. Homework assignment 1- 10 points
2. Homework assignment 2- 10 points
3. Written midterm exam- 25 points
4. Written final exam- 30 points
5. In-class student presentation- 15 points
6. Class participation- 10 points

Total points possible: 100 points

Note about evaluation:
All assignments will be evaluated on quality, presentation, and promptness. Late assignments will be marked down 20% of the value of the assignment for each day late, and will receive a grade of zero if more than two days late.

Grades will be assigned based on the tables below.

<table>
<thead>
<tr>
<th>Grade</th>
<th>Percent (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>94-100</td>
</tr>
<tr>
<td>A-</td>
<td>90-93</td>
</tr>
<tr>
<td>B+</td>
<td>87-89</td>
</tr>
<tr>
<td>B</td>
<td>84-86</td>
</tr>
<tr>
<td>B-</td>
<td>80-83</td>
</tr>
<tr>
<td>C+</td>
<td>77-79</td>
</tr>
<tr>
<td>C</td>
<td>74-76</td>
</tr>
<tr>
<td>C-</td>
<td>70-73</td>
</tr>
<tr>
<td>D+</td>
<td>67-69</td>
</tr>
<tr>
<td>D</td>
<td>64-66</td>
</tr>
<tr>
<td>D-</td>
<td>60-63</td>
</tr>
<tr>
<td>F</td>
<td>&lt; 60</td>
</tr>
<tr>
<td>Date</td>
<td>Class period #</td>
</tr>
<tr>
<td>---------</td>
<td>----------------</td>
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</tbody>
</table>
| 1.14.16 | 1              | Yanosky, Jeff          | Lecture                           | Part 1- Overview of course policies and organization  
Part 2- Introduction to Environmental Health                                                   |
Part 2- Concepts in Exposure Assessment                                                       |
| 1.28.16 | 3              | Yanosky, Jeff          | Lecture                           | Part 1- Environmental Toxicology  
Part 2- Risk Analysis: Risk Assessment and Risk Management                                      |
| 2.4.16  | 4              | Yanosky, Jeff          | Lecture                           | Environmental Epidemiology                                                                     |
| 2.11.16 | 5              | Yanosky, Jeff          | Lecture                           | Part 1- Occupational Health  
Part 2- Properties of Environmental Contaminants                                                |
| 2.18.16 | 6              | Yanosky, Jeff          | Lecture                           | Environmental Policy and Regulation                                                            |
| 2.25.16 | 7              | Yanosky, Jeff          | Lecture                           | Part 1- Pesticides and Other Organics  
Part 2- Midterm review                                                                          |
| 3.10.16 | -              |                        | Spring Break – No Class           |                                                                                                 |
| 3.17.16 | 9              | Yanosky, Jeff          | Lecture                           | Part 1- Toxic Metals and Elements  
Part 2- Water Pollution                                                                         |
| 3.24.16 | 10             | Yanosky, Jeff          | Lecture                           | Part 1- Radiant Energy  
Part 2- Solid and Liquid Wastes                                                                  |
| 3.31.16 | 11             | Yanosky, Jeff          | Lecture                           | Atmosphere, Air Pollution, and Climate Change I                                                  |
| 4.7.16  | 12             | Yanosky, Jeff          | Lecture                           | Atmosphere, Air Pollution, and Climate Change II                                                 |
| 4.14.16 | 13             | Yanosky, Jeff          | Lecture                           | Food Safety                                                                                     |
| 4.21.16 | 14             | Yanosky, Jeff          | Lecture                           | In-class student project presentations                                                           |
| 4.28.16 | 15             | Yanosky, Jeff          | Lecture                           | Part 1- Pediatric Environmental Health  
Part 2 – Course review                                                                           |
| 5.5.16  |                |                        | Final examination (part in-class and part take home) |                                                                                                 |

Note: Guest lecturers will present case studies and will be included above as time permits.
Disability Services

Penn State welcomes students with disabilities into the University's educational programs. If you have a disability-related need for reasonable academic accommodation in this course, contact Heather Manning, the College of Medicine Disability Services Coordinator, at hmanning@hmc.psu.edu or extension 283693. For further information visit the Office for Disability Services Web site at http://equity.psu.edu/ods/.

In order to receive consideration for course accommodations, you must contact the College of Medicine Disability Services Coordinator (DSC) and provide documentation (see the documentation guidelines at http://equity.psu.edu/ods/guidelines/documentation-guidelines). If the documentation supports the need for academic accommodation, the College DSC will provide a letter identifying appropriate accommodation. The DSC coordinator will work directly with you and with your instructors to arrange to provide this accommodation for you.

Academic Integrity

Academic Integrity at Penn State is defined by Faculty Senate Policy 49-20 as “the pursuit of scholarly activity in an open, honest and responsible manner”. The University's Code of Conduct states that “all students should act with personal integrity, respect other students' dignity, rights and property, and help create and maintain an environment in which all can succeed through the fruits of their efforts.

Academic integrity includes a commitment not to engage in or tolerate acts of falsification, misrepresentation or deception. Such acts of dishonesty violate the fundamental ethical principles of the University community and compromise the worth of work completed by others”. Academic dishonesty (including, but not limited to cheating, plagiarism, or falsification of information) will not be tolerated and can result in academic or disciplinary sanctions such as a failing (F) grade in the course.

Plagiarism

Please review the Penn State Plagiarism Tutorial for Students: http://tlt.its.psu.edu/plagiarism/tutorial.

Statement on Remediation

The basis for grades, as stated in Senate Policy 47-20, is "...the instructor's judgment of the student's scholastic achievement..." Occasionally, a disagreement arises in the assignment of a grade. A student who wishes to question or challenge the grade assigned in a course must first discuss grading practices and assignments with the instructor. It is expected that the student and instructor will try to eliminate any misunderstandings and will attempt to work out any disagreements over grades.

On the rare occasion that a student and instructor fail to resolve the grade dispute through informal means, the student may request that the head of the academic program offering the course act as a mediator. If this mediation does not resolve the dispute, the student who is a graduate student may request further mediation from the associate dean for graduate studies.

[For more information, see: http://www.psu.edu/dept/oue/aappm/G-10.html]

Educator's Code of Conduct

The Penn State Milton S. Hershey Medical Center and Penn State College of Medicine are dedicated to developing and maintaining a strong commitment to ethical teaching practices at all levels of the education process. The foundation for this Educator’s Code of Conduct is provided by the Penn State University Graduate School Statement on Teaching Ethics (1). The development of this Graduate School statement was based on a special issue of the journal, New Directions for Teaching and Learning. In this special issue, entitled Ethical Dimensions of College and University Teaching: Understanding and Honoring the Special Relationship between Teachers and Students (2), several authors provided theoretical and practical guidelines for honing ethical college teaching skills. Some of the authors’ recommendations have been used to formulate the Educator's Code of Conduct provided herein. Some of these recommendations were modified to specifically fit the needs of both educators and students at the Hershey Medical Center and the Penn State College of Medicine. Both the Unified Campus Commitment to Excellence of the Hershey Medical Center and Penn State College of Medicine (3) and the Code of Ethical Behavior of the Hershey Medical Center, Policy A-20 HAM (4) were also consulted in preparing this Educator's Code of Conduct.
Four Norms to Govern Teaching

Honesty
Honesty and integrity must be practiced during all aspects of the education process.

Promise-Keeping
Promise keeping requires the educator to fulfill the "promises" made at the beginning of the semester or any other learning activity. Syllabi, assignments, grading principles, and class and office hour schedules each involve promises that are made to students and that must be adhered to under normal circumstances.

Respect for Persons
The educator must approach the learner with personal respect. In addition, the educator ought to encourage mutual respect among students. In particular, respect for race, religion, sexual orientation, disability gender, age, marital status, cultural differences, and political conviction should be supported and encouraged in all aspects of the educational process. Additionally, educators ought to show respect and common courtesy for students both during interpersonal interactions and in responding promptly to students' need for guidance and feedback. An environment free from harassment and discrimination, verbal abuse, physical violence, and intimidation in any form must also be provided for all learning activities.

Fairness
Recognizing the inherent subjectively involved in grading, an educator ought to ensure that their grading practices are as objective as possible by creating and adhering to unambiguous criteria.

Principles of Ethical College and University Teaching

Content Competence
An educator maintains a high level of subject matter knowledge and ensures that the content of the educational experience is current, accurate, representative, and appropriate to the position of the learning experience within the students' program of study. The educator must be capable of approaching each learner with a commitment to meeting his or her educational needs.

Pedagogical Competence
A pedagogically competent educator communicates the objectives of the educational experience to students, is aware of alternative instructional methods or strategies, and selects methods of instruction that are effective in helping students to achieve the course objectives.

Dealing with Sensitive Topics
Topics that students are likely to find sensitive or discomforting are dealt with in an open, honest, and positive way.

Student Development
The overriding responsibility of the educator is to contribute to the intellectual development of the student, at least in the context of the educator's own area of expertise, and to avoid actions such as exploitation and discrimination that detract from student development.

Dual Relationship with Students
To avoid conflict of interest, an educator does not enter into dual-role relationships with students that are likely to detract from student development or lead to actual or perceived favoritism on the part of the educator. The establishment of a romantic/sexual relationship between an educator and a student should be reported to the immediate supervisor of the educator. Such relationships should be dealt with consistent with Penn State Administrative Policy AD41 — Sexual Harassment (5).

Student Confidentiality
Student grades, letters of evaluation, attendance records, and private communications are treated as confidential materials and are released only with student consent, for legitimate academic purposes, or if there are reasonable grounds for believing that releasing such information will be beneficial to the student or will prevent harm to the student or to others.

Patient Privacy and Confidentiality
Educators who utilize patient information as part of any educational experience must follow patient privacy and confidentiality guidelines as outlined by the Health Insurance Portability and Accountability Act of 1996 (HIPAA).

Respect for Colleagues
An educator respects the dignity of his or her colleagues and works cooperatively with colleagues in the interest of fostering student development.

Valid Assessment of Students
An educator is responsible for taking adequate steps to ensure that the assessment of a student's performance is valid, open, fair, and congruent with the course/educational experience objectives. An educator must be aware that such assessments are important in students' lives and in the development of their careers.

Respect for Institution and Profession
In the interest of student development, an educator is aware of and respects the educational goals, policies, and standards of the institution in which he or she teaches and the profession which he or she represents.

Citing Sources of Educational Material
An educator acknowledges and documents, as appropriate, the sources of information and other materials used for teaching.

Violations of the Educator's Code of Conduct
Should a learner experience conduct that is inconsistent with the Educator’s Code of Conduct, he/she is encouraged to first address the issue with either the educator responsible for the inconsistency or the director of the course in which the educator teaches.

Should this attempt to resolve the problem fail, or if the nature of the inconsistency is such that the learner does not feel comfortable addressing the issue with either the educator or the course director, the student may consult other individuals. These individuals may include but are not limited to: faculty advisor, student ombudsman, departmental chair, the Vice Dean for Educational Affairs, and the Vice Dean for Faculty and Administrative Affairs. The decision of who to contact may be dependent on the educational program of the learner and/or type of violation that was encountered.

References:
(1) http://www.gradsch.psu.edu/research/ethics.html#teaching)
(2) http://cte.uncwil.edu/et/br030697.htm
(3) Unified Campus Commitment to Excellence of the Penn State Milton S. Hershey Medical Center and College of Medicine; 05/11/01
(4) Code of Ethical Behavior of the Hershey Medical Center, Policy A-20 HAM; Effective Date October, 2001
(5) http://guru.psu.edu/POLICIES/Ad41.html

Developed by the Unified Campus Academic Team Endorsed by Teams Council — May 21, 2003