



### General Information

Course Title:	<b>Advanced Epidemiological Methods</b>	Course Designation: <b>HES 551</b>	Credits: <b>3</b>
Semester:	<b>Spring</b>	Year:	<b>2008</b>
Department:	<b>Public Health Sciences</b>		
Director:	<b>Duanping Liao, MD, PhD</b>	Phone #	<b>7178</b> Email: <a href="mailto:dliao@psu.edu">dliao@psu.edu</a> Office Rm# <b>2404</b>
Time :	<b>7:30 to 9:55 am</b>	Days:	<b>Friday</b> Location: <b>C1847</b>

### Course Information

#### Description and/or Overview:

This course is an advanced methodological course that provides in-depth discussions on the applications of advanced methods to the design, execution, data analysis, and reporting of epidemiological studies.

#### Goals and/or Objectives:

Upon completion, students enrolled in this course will be able to:

- Fully understand the strengths and limitations of case-control study.
- Fully understand the concept of biases, confounding, and effect modification in epidemiological studies.
- Apply various multivariable analysis methods to epidemiological study data
- Make appropriate interpretation of the analysis results

**Pre-requisites:**

HES 520  
HES 550 or HES 510

**Requirements; course-specific policies and expectations:**

Students in this course need access to a computer and appropriate software to complete basic epidemiologic analysis, prepare written reports, and access data sets.

**Required Texts and Resources:****Required Text:**

*Modern Epidemiology. Kenneth Rothman and Sander Greenland.* (Lippincott Williams & Wilkins; 2nd edition, 1998, ISBN: 0316757802)

**Electronic Links:**

We will use the ANGEL course management system (<https://cms.psu.edu>).  
Lecture notes, homework assignments, and lab handouts will be posted.

**Attendance Policy:**

Students who miss more than 2 lectures without prior approval by the course director will receive a failing grade for the course.

**Examination Policy:**

See grading criteria

**Grading Criteria:**

Grading is based on:

- Class attendance and participation in the discussion: (20%)
- Demonstrated knowledge of topics covered in the class by means of homework assignments: (40%)
- Complete a class project, submit an abstract (no more than 1000 words), and make a presentation of the project, as an individual or as part of a small group of up to three students: (40%)

## 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

Read the [OWL Avoiding Plagiarism](#) Web site for a good discussion on the boundary between using other people's research and plagiarism.

For more information, see: <http://tit.its.psu.edu/suggestions/cyberplag/cyberplagstudent.html>

## 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 subjectivity 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 discomfiting 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**

### Course Schedule

<b>Course Title:</b>		Advanced Epidemiological Methods		<b>Course Designation:</b>	HES 551
<b>Course Director:</b>		<b>Duanping Liao, MD, PhD</b>		<a href="mailto:dliao@psu.edu">dliao@psu.edu</a>	<b>ext 7178</b>
<b>Time :</b>	7:30 to 9:55 a.m.		<b>Days:</b>	Friday	<b>Location:</b> C1847
<b>Date</b>	<b>Lecture #</b>	<b>Instructor</b> Last, first	<b>Instruction Type</b> (Lecture or lab)	<b>Projected Lecture Topic - This list is an approximate guide to lecture topics. Titles and content are subject to change</b>	
01/18/08	1	Liao, Duanping	Lecture	Course overview, Case-control study design, and selection of cases and controls (1 of 2)	
01/25/08	2	Liao, Duanping	Lecture	Case-control study design, and selection of cases and controls (1 of 2)	
02/01/08	3	Liao, Duanping	Lecture	Introduction to the concept of biases in epidemiological studies	
02/08/08	4	Liao, Duanping	Lecture	Confounding in epidemiological studies – definition, identification, and approaches to confounders	
02/15/08	5	Liao, Duanping	Lecture	Effect modification in epidemiological studies – definition, identification, and approaches to effect modifiers	
02/22/08	6	Liao, Duanping	Lecture	Principles and Procedures of Epidemiological Analysis Univariate and Stratified analyses Introduction to class projects	
02/29/08	7	Liao, Duanping	Lecture	Principles and Procedures of Epidemiological Analysis Application of multivariate models, Logistic regression, Linear regression	
03/07/08	NO CLASS - Graduate Student Forum				
03/14/08	8	Muscat, Joshua	Lecture	Principles and Procedures of Epidemiological Analysis Application of multivariate models, Proportional hazards model, Poisson regression	
03/21/08	9	Muscat, Joshua	Lecture	Selection and interpretation of multivariate analysis according to data sources and study designs	
03/28/08	10	Muscat, Joshua	Lecture	Analysis considerations for matched case-control studies	
04/04/08	11	Muscat, Joshua	Lab	Discussion of class projects	
04/11/08	12	Muscat, Joshua	Lecture	Meta Analysis, huge reviews, and consortiums	
04/18/08	13	Muscat, Joshua	Lab	Small group or individual work on class projects (1 of 2)	
04/25/08	14	Muscat, Joshua	Lab	Small group or individual work on class projects (2 of 2)	
05/02/08	15	Liao, Duanping Muscat, Joshua	Student Presentations	Students Presentations of Their Class Projects	
05/09/08	<b>FINAL EXAM - if given</b>				

**Contact Information**

<b>Faculty / Title</b>	<b>Department</b>	<b>Phone #</b>	<b>EMAIL</b>	<b>Office Room #</b>	<b>Mail Code</b>
<b>Kathy Simon</b> , Adm. Asst.	Graduate Student Affairs	6608	<a href="mailto:ksimon@psu.edu">ksimon@psu.edu</a>	1712	H170
<b>Mardi Sawyer</b> , Program Adm	Public Health Sciences	1286	<a href="mailto:mds21@psu.edu">mds21@psu.edu</a>	4105A	A210
<b>Duanping Liao</b>	Public Health Sciences	7178	<a href="mailto:diao@psu.edu">diao@psu.edu</a>	2404E	A210
<b>Joshua Muscat</b>	Public Health Sciences	7178	<a href="mailto:jmuscat@psu.edu">jmuscat@psu.edu</a>	3739C	A210