

Epidemiology and Environmental Health Course Syllabi (formerly Social and Preventive Medicine)

SPM 500 Introduction to Epidemiology for the Health Professions
SPM 501 Principles of Epidemiology
PTR 502 Analysis of Health Related Data
SPM 502 Advanced Methodology
SPM 505 Lab, Application of Biostatistics to Epidemiology I with SAS Lab
SPM 506 Epidemiologic Applications of Biostatistics II
SPM 507 Introduction to Health Care Organization
SPM 509 Alcohol Epidemiology
SPM 511 Nutritional Epidemiology
SPM 513 Infectious Diseases Epidemiology
SPM 515 Epidemiology and Prevention of Cardiovascular Diseases
SPM 519 Principles of Measurement in Public Health
PTR 525 Cancer Epidemiology
SPM 530 Administrative Theory and Practice for Public Health Programs
SPM 534 Global Health
SPM 535 Biological Basis of Public Health
SPM 536 Management for Public Health Practitioners
SPM 539 Introduction to Health Economics
SPM 542 Health Policy in the United States
SPM 543 Public Health Practice
SPM 549 Environmental Health
SPM 551 Epidemiologic Applications to Environmental Health
SPM 553 Fundamentals of Grant Development
SPM 561 Advanced Cancer Epidemiology and Prevention
SPM 602 Advanced Epidemiologic Study Designs
SPM 604 Fundamentals of Genetic Epidemiology
SPM 614 Molecular Epidemiology
SPM 615 Geographic Medicine
SPM 618 Perinatal Epidemiology
PMY 626 Toxicology Principles and Practices
PMY 627 Toxicology at Target Organs
SPM 632 Strategic and Operations Management in Health Care Systems
SPM 649 Advanced Environmental Health Sciences
SPM 650 Environmental Toxicology and Risk Assessment

University at Buffalo
The State University of New York

School of Public Health and Health Professions
Department of Epidemiology and Environmental Health
(Formerly Department of Social and Preventive Medicine, SPM)

Spring 2014

Course No.:	SPM 500	Class Day/Time:	Tuesdays, 4:00-6:40 PM
Course Title:	Introduction to Epidemiology for the Health Professions	Class Location:	Kimball 126
		Format:	Lecture

Instructor(s):	Michael J. LaMonte, PhD, MPH, Assistant Professor
Office:	Farber Hall 273
Telephone(s):	829-5379
Email:	mlamonte@buffalo.edu
Office Hours:	By appointment.
Teaching Assistant (TA):	Ajay Anand Myneni (ajayanan@buffalo.edu) Emails received after 5:00 pm will be answered the following business day (M-F) Questions regarding lectures and other course activities should be addressed during the TA office hour, not by email.
TA Office Hour:	Student Room (Farber 265): Thursdays, 9:00 – 10:00 am
Prerequisite(s):	None

I. Course Description:

This course is intended to provide a basic introduction to principles and methods of epidemiology for students who are not in the MPH programs or in the MS or PhD epidemiology programs, and whose career interests in a health-related field may include using epidemiologic information. The course emphasizes the conceptual aspects of epidemiologic investigation and application of these concepts in public health and related professions. Topics include overview of the epidemiologic approach to studying disease; the natural history of disease; measures of disease occurrence, association and risk; epidemiologic study designs; disease surveillance; population screening; interpreting epidemiologic associations; causal inference using epidemiologic information; and application of these basic concepts in the context of selected major diseases and risk factors of particular relevance to the Health Professions. Please note that this course cannot be used for degrees that require SPM 501 or as a prerequisite for courses that require SPM 501.

II. Course Objectives

The overall goal of the course is for students to obtain a working knowledge of basic epidemiology concepts so they can better evaluate epidemiologic information to help them make sound decisions within their health-related discipline. By the end of the course, students will be able to:

1. Define epidemiology and:
 - a. Identify the characteristics that distinguish it from other approaches to the study of disease
 - b. Describe the major assumptions of epidemiologic investigation
 - c. Describe how and why epidemiologists characterize disease by Person, Place, and Time
2. Describe the natural history of disease and explain its relevance to:
 - a. Primary, secondary and tertiary prevention
 - b. Assessing exposure and disease status in epidemiologic studies
 - c. Descriptive and analytic epidemiologic studies
3. Define and interpret measures of disease:
 - a. Incidence
 - b. Prevalence
 - c. Morbidity
 - d. Mortality
4. Define the concept of age-standardization and:
 - a. Explain its use in interpreting epidemiologic information
 - b. Interpret crude and age-standardized measures
5. Define surveillance and:
 - a. Distinguish between active and passive surveillance
 - b. Describe the purpose of and general methodology used in major U.S. public health surveillance systems (e.g., National Health and Nutrition Examination Survey (NHANES), Behavioral Risk Factor Surveillance System (BRFSS), National Death Index (NDI) etc.)
6. Define and interpret measures of risk and association:
 - a. Absolute risk and Attributable risk
 - b. Risk ratio
 - c. Odds ratio
7. Describe the major epidemiologic study designs, their major similarities and differences, and their strengths and limitations.
 - a. Ecologic study
 - b. Cross-sectional study
 - c. Case-control study
 - d. Cohort study
 - e. Randomized Trial (Experimental study)
8. Define the following and describe their role in interpreting epidemiologic associations including ways each can be evaluated and addressed in epidemiologic studies:
 - a. Random error (chance)
 - b. Bias
 - c. Confounding
 - d. Effect modification
9. Describe the concept of causal inference using epidemiologic data and its role in evaluating epidemiologic evidence in the context of public health decision making.
10. Describe the concept of population screening, including:
 - a. Its relationship with the natural history of disease
 - b. The requirements for effective screening programs

- c. Definition and interpretation of basic screening measures: sensitivity, specificity, positive predictive value, and negative predictive value
11. Describe the application of epidemiologic methods in context of understanding selected major public health diseases and risk factors relevant to the Health Professions (e.g., cancer, cardiovascular disease, osteoporosis/fracture, obesity, dietary intake, exercise)

III. Textbooks /Equipment

The below textbook is **required**. Other resource material for each unit will be placed in electronic format on the UB Learns Blackboard, and/or distributed in class.

Resource	Required	Note
Friis RH & Sellers TA. <i>Epidemiology for Public Health Practice</i> , 5 th Edition, Jones & Bartlett, 2014. (ISBN: 978-1-4496-6549-4)	Yes	Available at Health Sciences bookstore
A <u>calculator</u> that can perform square root, log, and exponent functions will be needed.		

IV. Course Requirements and Assignments

- (a) Class format will be mainly lecture and in-class discussion.
- (b) Attendance to each class meeting and active participation in lecture discussions.
- (c) Readings from the textbook (see course schedule) as well as articles assigned to supplement specific lecture content
- (d) There will be regularly scheduled quizzes (see course schedule).
- (e) Two exams, midterm and final, will be given (see course schedule). The final exam will not be cumulative.
- (f) All students are strongly encouraged to complete a course evaluation at the completion of the course. This information is critical to refining the course across offerings. Students who complete an online evaluation as reported to the instructor by the SPHHP CourseEval Administrator will be **awarded an additional 1%** in their overall course average. CourseEval procedures protect the anonymity of student respondents: no faculty member receives evaluation reports (ratings and comments) before grades are submitted and student names are not included on evaluation reports.

Quizzes: Quizzes will be administered at the beginning of the class period. Quizzes cannot be made up; students arriving late to class will have limited time to complete quizzes. Students who are not present will not receive credit for that particular quiz. Quizzes will cover both lecture material and assigned readings.

Exams: There are no make-ups allowed for exams. If a different time is required for an exam, arrangements should be made at the beginning of the semester. If you are sick, you need to make arrangements before the exam. Documentation for any illness or extenuating circumstances will be required. No excuses will be accepted after the exam.

V. Grading

Course Component	Percentage of Final Grade
Attendance and Participation	10%
Midterm Exam	35%
Final Exam	35%
Quizzes	20%
Total:	100%

The following distribution of total percentage points earned will guide assignment of final letter grades for the course:

>93%	A	70-74%	C+
90-93%	A-	65-69%	C
85-89%	B+	60-64%	C-
80-84%	B	55-60%	D
75-79%	B-	<55%	F

VI. Policy Regarding Absences, Attendance, Assignments, Exams, and University Policy on Incompletes in Courses

- **Class Attendance and Absences**

Attendance is **required** for this course and will count toward your participation grade. An attendance sheet will be completed each class. Class begins promptly at 4:00 pm. The attendance sheet will be collected after the first 10 minutes of class. Students arriving thereafter will not receive attendance credit for that day. Arriving late is a distraction to the lecturer and to the other students. Please arrive on time.

Arrangements for planned class absence, including appropriate documentation, should be discussed with and approved by the instructor at least one week in advance of the absence.

Please **do not use** cell phones (turn phones off or on silent mode), blackberries, iPhones, laptop computers (other than for taking notes) or other PDA devices during class as this is a distraction to the instructor and to your classmates.

- **Exams**

Exam dates are listed on the course schedule. The examinations will be completed in class and will consist of multiple choice, true/false, and free response items.

- **Policy on Incomplete Grades for the Course**

Incomplete grades will be given only if there are extenuating circumstances (i.e. severe illness) that preclude the student from completing the course. The student must have satisfactorily completed all course work and successfully passed all exams (B or better) up until the time an incomplete is requested.

- **University Policy on Incomplete Grades**

A grade of incomplete (“I”) indicates that additional course work is required to fulfill the requirements of a given course. Students may only be given an “I” grade if they have a passing average in coursework that has been completed and have well-defined parameters to complete the course requirements that could result in a grade better than the default grade. An “I” grade may not be assigned to a student who did not attend the course. Prior to the end of the semester, students must initiate the request for an “I” grade and receive the instructor’s approval. Assignment of an “I” grade is at the discretion of the instructor.

The instructor must specify a default letter at the time the “I” grade is submitted. A default grade is the letter grade the student will receive if no additional coursework is completed and/or a grade change form is not filed by the instructor. “I” grades must be completed within 12 months. Individual instructors may set shorter time limits for removing an incomplete than the 12-month time limit. Upon assigning an “I” grade, the instructor shall provide the student specification, in writing or by electronic mail, of the requirements to be fulfilled, and shall file a copy with the appropriate departmental office.

Students must not re-register for courses for which they have received an “I” grade.
Applicable dates regarding the 12-month provision:

Courses taken in (semester):	Will default in 12 months on:
Fall	December 31
Spring	May 31
Summer	August 31

The “I” must be changed to a grade before the degree conferral date if the student plans to graduate in that semester. At any time prior to the default date, students may elect to change the “I” grade to the default grade using the Grade Retrieval Form.

A default grade can be “A-,” “B+,” “B-,” “C+,” “C-,” “D+,” “D,” or “F.” (If a student selected an S/U grading option, it will replace the default letter grade when the grade defaults.)

VII. Disability Policy

If you have any disability which requires reasonable accommodations to enable you to participate in this course, please contact the Accessibility Resource Office (ARO), 25 Capen Hall, 645-2608, and also the instructor of this course during the first week of class. ARO will provide you with information and review appropriate arrangements for reasonable accommodations.

VIII. Academic Integrity

Students who are suspected of academic dishonesty will be dealt with severely in accordance with the Department of Social and Preventive Medicine and University Policy. This may include a grade of 0 for an assignment and/or failure in a course.

Academic Dishonesty: Actions that compromise academic integrity include, but are not limited to the following examples:

- *Previously submitted work*: Submitting academically required material that has been previously submitted – in whole or in substantial part – in another course, without prior and expressed consent of the instructor.
- *Plagiarism*. Copying or receiving material from any source and submitting that material as one’s own, without acknowledging and citing the particular debts to the source (quotations, paraphrases, basic ideas), or in any other manner representing the work of another as one’s own.

- *Cheating.* Soliciting and/or receiving information from, or providing information to, another student or any other unauthorized source (including electronic sources such as cellular phones and PDAs), with the intent to deceive while completing an examination or individual assignment.
- *Falsification of academic materials.* Fabricating laboratory materials, notes, reports, or any forms of computer data; forging an instructor's name or initials; resubmitting an examination or assignment for reevaluation which has been altered without the instructor's authorization; or submitting a report, paper, materials, computer data, or examination (or any considerable part thereof) prepared by any person other than the student responsible for the assignment.
- *Misrepresentation of documents.* Forgery, alteration, or misuse of any University or Official document, record, or instrument of identification.
- *Confidential academic materials.* Procurement, distribution or acceptance of examinations or laboratory results without prior and expressed consent of the instructor.
- *Selling academic assignments.* No person shall sell or offer for sale to any person enrolled at the University at Buffalo any academic assignments, or any inappropriate assistance in the preparation, research, or writing of any assignment, which the sellers knows, or has reason to believe, is intended for submission in fulfillment of any course or academic program requirement.
- *Purchasing academic assignments.* No person shall purchase an academic assignment intended for submission in fulfillment of any course or academic program requirement.

IX. COURSE SCHEUDLE

This course schedule is subject to revision due to unforeseen events. Changes will be posted on UB Learns and will be announced in class as time permits. Additional required readings also may be assigned.

Date	Lecture Topics	Reading	Class Happenings
Jan 28	Introduction	Chapter 1 Chapter 2 (p.56-59; 97-101)	Review syllabus
Feb 4	Measures of Disease Occurrence, Risk, and Association	Chapters 3, 4, 9	
Feb 11	Study Designs: Ecologic, Cross-sectional, Surveillance	Chapters 5 (p.259-267) Chapter 6	Quiz 1: Measures of disease, risk, and association
Feb 18	Study Designs: Case-control, Cohort, Randomized Trials	Chapters 7, 8	Quiz 2: Ecologic and cross-sectional study design; Surveillance
Feb 25	Screening	Chapter 11	Quiz 3: Case-control, cohort, randomized trial study designs
Mar 4	Mid-term Examination		
Mar 11	Interpreting Epidemiologic Associations : Chance, Bias, Confounding	Chapter 9 (p.420-424) Chapter 10	
Mar 18	NO CLASS – Spring Break		
Mar 25	Interpreting Epidemiologic Associations: Effect Modification, Causality	Chapter 2 (p.83-93) Chapter 9 (p. 424-431)	Quiz 4: Chance, bias, confounding Receive reading for cancer lecture
Apr 1	Cancer Epidemiology (Dr. Jo Freudenheim)	Cancer article	Quiz 5: Effect modification, causality Receive reading for osteoporosis lecture
Apr 8	Osteoporosis/Fracture Epidemiology (Dr. Jean Wactawski-Wende)	Osteoporosis article	Quiz 6: Cancer epidemiology Receive reading for diabetes/CVD lecture
Apr 15	Diabetes/CVD Epidemiology (Dr. Dick Donahue)	Diabetes/CVD article	Quiz 7: Osteoporosis/Fracture Receive reading for obesity lecture
Apr 22	Obesity Epidemiology (Dr. Youfa Wang)	Obesity article	Quiz 8: Diabetes/CVD Receive reading for nutrition lecture
Apr 29	Nutritional Epidemiology (Dr. Amy Millen)	Nutrition article	Quiz 9: Obesity epidemiology Receive reading for physical activity lecture
May 6	Physical Activity Epidemiology (Dr. Mike LaMonte)	Physical activity article	Quiz 10: Nutritional epidemiology
May 13	Final Examination		

University at Buffalo
The State University of New York

School of Public Health and Health Professions

Social and Preventive Medicine

Fall 2013

Course No.:	SPM 501	Class Day/Time:	Mon, Wed 3:30-5:20 PM
Course Title:	Principles of Epidemiology	Class Location:	Crosby 301
		Format:	Lecture

Instructor(s):	Mike LaMonte, PhD, MPH, Assistant Professor, Social and Preventive Medicine
Office:	273 Farber Hall
Telephone(s):	829-5379
Email:	mlamonte@buffalo.edu
Office Hours:	By appointment
Teaching Assistant:	Catherine Callahan (clc46@buffalo.edu) Ajay Anand Myneni (ajayanan@buffalo.edu) Emails received after 5:00 pm will be answered the following business day (M-F). Questions regarding lectures, assignments, and other course activities should be addressed during the TA office hours, and not by email.
Office Hours:	Student Room (Farber 265): Tues 10:00 – 11:00 am; Thur 1:30 - 2:30 pm
Prerequisite(s):	Enrolled in either (a) one of the 5 MPH concentrations for which this course is required in the School of Public Health and Health Professions, (b) the MS or PhD in epidemiology, or (c) by permission of the instructor.

I. (a) Course Description:

SPM 501 is a masters/doctoral level course designed to introduce epidemiology, its methods, and its role in public health. A major portion of the course will be devoted to over viewing fundamental epidemiologic methods used in public health research and practice. The student will be familiarized with basic measures used in describing disease frequency in populations. Descriptive and analytic approaches to the study of disease will be explored, and a perspective on the role of epidemiologic methods in health services planning and evaluation will be provided. Problem solving exercises will be used to provide students an opportunity to tabulate data and apply subject matter developed during

lectures and in reading assignments. At the end of the course students should have a general understanding of the uses and limitations of epidemiologic inquiry. This understanding should provide the basis for applying epidemiologic concepts in work-related settings and in other courses in the public health curriculum.

I. (b) Course Rationale/Relationship to Curriculum Design:

This four-credit course is one of the required core components for all MPH degrees within the School of Public Health and Health Professions (SPHHP), and is required for the MS and PhD in epidemiology within the Department of Social and Preventive Medicine. This course also is a prerequisite for several other courses offered in the SPHHP. Students should be enrolled in this course in the first semester of their program.

II. Course Objectives / Competency / Instructional Method(s) / Assessment Method(s) Upon completing SPM 501, Principles of Epidemiology, the student will have developed several competencies in support of applying epidemiological concepts in public health and other settings. These competencies align with the major fundamental objectives for public health practice as determined by the Council on Education for Public Health (CEPH), the accrediting agency for School's of Public Health. The specific competencies for SPM 501, methods of instruction and assessment are shown in the below table.

Objective	Accreditation Competency	Instructional Method(s)	Assessment Method(s)
Understand investigation of a disease outbreak, utilizing biological information with measured characteristics of the outbreak to identify the disease etiology. Understand concepts related to efficacy of vaccines. Utilizing biological principles in the design of epidemiologic studies	Apply biological principles to the development and implementation of disease prevention, control, or management programs.	Lecture Exercises: Objectives of the exercise are to list the tasks involved in investigating an outbreak of unknown origin; prioritize those tasks; and, formulate a plan for further systematic evaluation of the source and impact of outbreak, ongoing monitoring of relevant populations as needed, and appropriate dissemination of findings.	Weekly quizzes Exam
Discuss basic principles of ethics in human epidemiologic research	Apply legal and ethical principles to the use of information technology and resources in public health settings.	Lecture	Exam

Objective	Accreditation Competency	Instructional Method(s)	Assessment Method(s)
Demonstrate ability to interpret data for a lay audience	Demonstrate effective written skills for communicating in the context of professional public health activities.	Lecture	Exam
Apply knowledge of validity and reliability of data to the evaluation of programs and treatments	Apply evidence-based principles and the scientific knowledge base to critical evaluation and decision-making in public health.	Lecture	Exam
Know which are the appropriate statistics for both surveillance and analytic epidemiology Know how to calculate and interpret those statistics	Apply descriptive techniques commonly used to summarize public health data.	Lecture, Readings Exercises: Objectives of the exercise is to provide case studies and problems regarding the choice of statistical analysis, the calculation and interpretation of those statistics	Exams including calculations and interpretation Weekly quizzes
Know the strengths and limitations of publicly available datasets; available exposure and outcome data (i.e., government agency, insurers, others); and primary data collection	Identify key sources of data for epidemiologic purposes.	Lecture	Exams
Know the criteria for a condition that is appropriate for public health screening Understand how population characteristics will affect efficacy of a screening program Understand how appropriate screening relates to an understanding of the natural history of a condition Know (including selecting the appropriate measure or measures, calculate those measures and interpreting them) the key concepts in screening: validity, reliability, sensitivity, specificity, predictive value Know issues with regard to selection of cut points for a screening program Know strategies for multiple tests	Identify the principles and limitations of public health screening programs.	Lecture, Readings, Exercises: Objectives of the exercise are to define and perform calculations of sensitivity, specificity, predictive-values positive and negative; describe the influence of disease prevalence; list the principles of a good screening program	Exams including calculations and interpretation Weekly quizzes
Know issues regarding public health surveillance Calculate appropriate rates and proportions for description of public health problems	Describe a public health problem in terms of magnitude, person, time and place.	Lecture, Readings Exercises: Objectives of the exercise are to calculate simple rates and	Exams including calculations and interpretation

Objective	Accreditation Competency	Instructional Method(s)	Assessment Method(s)
Understand and calculate an age adjusted rate List person, place and time attributes that might be of importance in description of a public health problem.		proportions, calculate and interpret data on incidence and prevalence, perform age adjustment of a rate and interpret the result.	Weekly quizzes
Know the strengths and limitations of epidemiologic findings Know the fundamentals of issues in deciding when there is sufficient data to inform policy Understand that other considerations also inform policy (ethics, economics, politics) Understand how epidemiologic methods can be used to evaluate health services	Explain the importance of epidemiology for informing scientific, ethical, economic and political discussion of health issues.	Lecture, Readings	Exams
Students should know the definition and the basic principles of application of measures of disease occurrence (prevalence and incidence); of the validity and reliability of measurements; and of primary epidemiologic study designs	Apply the basic terminology and definitions of epidemiologic methods	Lecture, Readings Exercises: Objectives of the exercise are described in competencies #3 and #9.	Exam, weekly quizzes
Know how to calculate and interpret: measures of disease occurrence (proportions, rates) and measures of risk (relative and absolute)	Calculate basic measures used in epidemiology.	Lecture, Readings Exercises: As described above, exercise to calculate measures related to screening; to calculate rates and proportions; to do age adjustment; to calculate a risk ratio, rate ratio, and odds ratio; to calculate rate difference and attributable risk; to interpret each of these measures and their main use in both descriptive and inferential epidemiology.	Exam, weekly quizzes
Interpret appropriately findings from an epidemiologic study in a comprehensible way. Determine the appropriate context for findings to increase understanding.	Communicate epidemiologic information in the context of lay and professional audiences.	Lecture on the role, strengths and limits of epidemiology in developing public policy, risk assessment and communication, and in causal inference. Readings	Exam, weekly quizzes
Understand the strengths and limitations	Draw appropriate inferences	Lectures regarding	Exam, weekly

Objective	Accreditation Competency	Instructional Method(s)	Assessment Method(s)
of epidemiologic findings. Understand major issues inherent in any study design including sampling, measurement error, bias, confounding, effect modification.	from epidemiologic data.	study design. Lectures regarding sampling, bias, confounding, effect modification. Exercises: Objectives of the exercises are: critical review of published epidemiology studies including identification of hypotheses, the study design, sampling, methods, measures, study results, strengths and limitations; and, evaluation of findings in context of causation.	quizzes
Identify the design of an epidemiologic study Know the strengths and limitations of the major study designs Identify deviations from good practice in a particular epidemiologic report and describe the possible consequences of that deviation	Evaluate the strengths and limitations of epidemiologic reports.	Lectures regarding study design, sampling, bias, confounding, effect modification, and causal inference. Exercises: Objectives of the exercises are: critical understanding of major epidemiology study designs (descriptive and inferential) including identification of hypotheses, the study design, sampling, methods, measures, study results, strengths and limitations; and, evaluation of findings in context of causation.	Exam, weekly quizzes
Identify the design of an epidemiologic study Know the strengths and limitations of each of the major study designs Identify deviations from good practice in a particular epidemiologic report and describe the possible consequences of that deviation	Evaluate the strengths and limitations of epidemiologic reports.	Lectures regarding study design, sampling, bias, confounding, effect modification, and causal inference. Exercises, as described above	Exam, weekly quizzes
Define random error, bias, confounding, and effect modification. Know how each may affect the results of epidemiologic studies and affect the	Explain how random error, bias, confounding, and effect modification may affect the results of epidemiologic investigations and how they	Lecture, Readings	Exam, weekly quizzes

Objective	Accreditation Competency	Instructional Method(s)	Assessment Method(s)
evidence for causality. Know how each may be identified, prevented or controlled.	may be prevented or controlled.		
Know basic approaches for the collection of primary data. Know the strengths and limitations of using secondary data. Know approaches to assess the quality of data collection and measurements.	Describe basic approaches for the collection of primary data, the use of secondary data, and the assessment of the quality of data collection and measurements	Lecture, readings	Exams
Know issues regarding public health surveillance. Calculate appropriate rates and proportions for description of public health problems. Understand and calculate an age-adjusted rate. List person, place and time attributes that might be of importance in surveillance of a public health problem.	Describe a surveillance system	Lecture, Readings Exercise: Objectives of the exercise are to calculate and interpret simple rates and proportions; calculate and interpret data on incidence and prevalence; do age adjustment of a rate and interpret the findings.	Exams, weekly quizzes
Formulate a statement of the research problem, the null and alternative hypotheses.	Formulate a statement of the research problem, the null and alternative hypotheses.	Lecture	Exam, weekly quizzes
Perform hypothesis testing based on a 2x2 table using a Chi-Square test and confidence intervals	Undertake hypothesis testing using basic computational approaches	Lecture	Exam, weekly quizzes

III. Textbooks /Equipment

Resource	Required	Note
Gordis, L. <i>Epidemiology</i> , 4th Edition. WB Saunders, 2009. (ISBN 9781416040026)	Y	Available at Health Sciences bookstore or online
Porta, M. <i>Dictionary of epidemiology</i> . 5 th ed. Oxford University Press, 2008. (ISBN 9780195314502)	Y	Available at Health Sciences bookstore or online
A <u>calculator</u> that can perform square root, log, and exponent functions will be needed.		

IV. Course Requirements and Assignments

All students are strongly encouraged to complete a course evaluation at the completion of the course. This information is critical to refining the course across offerings.

Components of the Course

There are 3 core components to your learning in this course:

1) Lectures and Readings: Each week you will read chapters from the text and, at times, additional readings related to that week's topic. A list of the required textbook readings appears in the course schedule. Any additional readings will be announced ahead of time and will be posted on the course's UBLearns site. Reading assignments should be completed before the lecture. Please note that class schedules may change during the semester and students will be given notice of any modifications.

2) Homework Assignments: Throughout the semester there will be homework assignments that involve completion of an exercise that relates to the content being covered in the lecture and chapter readings. The work should be completed individually and is to be turned in at the beginning of the class in which it is due. The homework will be checked for completion and will be returned to you at the break during class. We will discuss the exercises and the answers during the last part of class. This course emphasizes student interaction and participation in discussions both during lecture and during the in-class exercises. All students are expected to actively participate in the class discussions.

3) Quizzes and Exams: There will be several quizzes throughout the semester. Quizzes will be administered at the beginning of the class period. Quizzes cannot be made up; students arriving late to class will have limited time to complete quizzes. Students who are not present will not receive credit for that particular quiz. Quizzes will cover both lecture material and assigned readings. Questions at the end of each chapter are potential quiz questions.

There will be two exams during the semester and one final exam. The final exam will be cumulative, which means it will include all topics covered during the semester. There are no make-ups allowed for exams. If a different time is required for an exam, arrangements should be made at the beginning of the semester. If you are sick, you need to make arrangements before the exam. Documentation for any illness or extenuating circumstances will be required. No excuses will be accepted after the exam.

V. Grading

Course Component	Percentage
Class Attendance/Participation	5%
Homework	10%
Quizzes	15%
Exam 1	15%
Exam 2	20%
Final Exam (cumulative)	35%
total:	100%

The following distribution of total percentage points earned will guide assignment of final letter grades for the course:

>93%	A	70-74%	C+
90-93%	A-	65-69%	C
85-89%	B+	60-64%	C-
80-84%	B	55-60%	D
75-79%	B-	<55%	F

NOTE: A grade of B (80%) or better is required for core MPH programs in the School of Public Health and Health Professions and for all degrees in Social and Preventive Medicine.

VI. Communication

Difficulties with course: In the event that you are having difficulties with the course material, or want further information about a topic, please let one of the TAs know by attending the scheduled TA office hours.

If you and the TA are not able to resolve the issue, please feel free to call my office (829-5379) or email me (mlamonte@buffalo.edu) with questions or concerns. Also, if you have multiple email accounts, please be sure that you access (or forward) your UB email. Your UB email is the email we will use to send course-related materials.

VII. Policy Regarding Absences, Attendance, Assignments, Exams, and University Policy on Incompletes in Courses

- **Class Attendance and Absences**

Attendance is required for this course and will count toward your participation grade. An attendance sheet will be completed each class. Class begins promptly at 3:30 pm. The attendance sheet will be collected after the first 10 minutes of class. Students arriving thereafter will not receive attendance credit for that day. Arriving late is a distraction to the lecturer and to the other students. Please arrive on time.

Please do not use cell phones (turn phones off or on silent mode), blackberries, iPhones, laptop computers (other than for taking notes) or other PDA devices during class as this is a distraction to the instructor and to your classmates.

- **Late Assignments**

All assignments are due in the beginning of class at the designated time and due date. If there are circumstances that will preclude you from turning in assignments on the due date, it is imperative that you discuss the situation with the instructor prior to the due date.

- **Exams and Final Exam**

Exam dates are listed on the course schedule. The examinations will be completed in class and will consist of multiple choice, true/false, and free response items.

- **Policy on Incomplete Grades for the Course**

Incomplete grades will be given only if there are extenuating circumstances (i.e. severe illness) that preclude the student from completing the course. The student must have satisfactorily completed all course work and successfully passed all exams (B or better) up until the time an incomplete is requested.

- **University Policy on Incomplete Grades**

A grade of incomplete ("I") indicate that additional course work is required to fulfill the requirements of a given course. Students may only be given an "I" grade if they have a passing average in coursework that has been completed and have well-defined parameters to complete the course requirements that could result in a grade better than the default grade. An "I" grade may not be assigned to a student who did not attend the course. Prior to the end of the semester, students must initiate the request for an "I" grade and receive the instructor's approval. Assignment of an "I" grade is at the discretion of the instructor.

The instructor must specify a default letter at the time the "I" grade is submitted. A default grade is the letter grade the student will receive if no additional coursework is completed and/or a grade change form is not filed by the instructor. "I" grades must be completed within 12 months. Individual instructors may set shorter time limits for

removing an incomplete than the 12-month time limit. Upon assigning an "I" grade, the instructor shall provide the student specification, in writing or by electronic mail, of the requirements to be fulfilled, and shall file a copy with the appropriate departmental office.

Students must not re-register for courses for which they have received an "I" grade. Applicable dates regarding the 12-month provision:

Courses taken in (semester):	Will default in 12 months on:
Fall	December 31
Spring	May 31
Summer	August 31

The "I" must be changed to a grade before the degree conferral date if the students plans to graduate in that semester. At any time prior to the default date, students may elect to change the "I" grade to the default grade using the Grade Retrieval Form. A default grade can be "A-," "B+," "B-," "C+," "C-," "D+," "D," or "F." (If a student selected an S/U grading option, it will replace the default letter grade when the grade defaults.)

Disability Policy

If you have any disability which requires reasonable accommodations to enable you to participate in this course, please contact the Accessibility Resources Office (ARO), 25 Capen Hall, 645-2608, and also the instructor of this course during the first week of class. ARO will provide you with information and review appropriate arrangements for reasonable accommodations.

Academic Integrity

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Academic Dishonesty: Actions that compromise academic integrity include, but are not limited to the following examples:

- *Previously submitted work*: Submitting academically required material that has been previously submitted – in whole or in substantial part – in another course, without prior and expressed consent of the instructor.
- *Plagiarism*. Copying or receiving material from any source and submitting that material as one's own, without acknowledging and citing the particular debts to the source (quotations, paraphrases, basic ideas), or in any other manner representing the work of another as one's own.
- *Cheating*. Soliciting and/or receiving information from, or providing information to, another student or any other unauthorized source (including electronic sources such as cellular phones and PDAs), with the intent to deceive while completing an examination or individual assignment.

- *Falsification of academic materials.* Fabricating laboratory materials, notes, reports, or any forms of computer data; forging an instructor's name or initials; resubmitting an examination or assignment for reevaluation which has been altered without the instructor's authorization; or submitting a report, paper, materials, computer data, or examination (or any considerable part thereof) prepared by any person other than the student responsible for the assignment.
- *Misrepresentation of documents.* Forgery, alteration, or misuse of any University or Official document, record, or instrument of identification.
- *Confidential academic materials.* Procurement, distribution or acceptance of examinations or laboratory results without prior and expressed consent of the instructor.
- *Selling academic assignments.* No person shall sell or offer for sale to any person enrolled at the University at Buffalo any academic assignments, or any inappropriate assistance in the preparation, research, or writing of any assignment, which the sellers knows, or has reason to believe, is intended for submission in fulfillment of any course or academic program requirement.
- *Purchasing academic assignments.* No person shall purchase an academic assignment intended for submission in fulfillment of any course or academic program requirement.

Computation Guidelines:

Unless otherwise specified, the following apply in SPM 501:

- Calculations – Intermediate calculations and results should be to the 5th decimal. Final results should be reported to the 2nd decimal.
- Prevalence – All prevalence measures should be expressed as a percentage (%).
- Incidence - All incidence measures should be expressed per 1000 population or per 1000 person-years (the exception being case-fatality, which is expressed as a percentage).
- Interpretation - The final numerical result should always be followed by written interpretation of the result.
- Show work - For exercises involving calculations, show all the intermediate steps, not just the final result.
- Formulae - Formulae should be memorized. Formula sheets are not allowed for quizzes or exams.
- Write legibly – Answers on quizzes and exams that are not legible will not be graded.

COURSE SCHEDULE

This course schedule is subject to revision due to unforeseen events. Any course schedule changes will be posted on UB Learns and will be announced in class as time permits. Additional required readings also may be assigned. You will be notified of such readings prior to the class for which they are assigned.

Date	Topic	Reading	Class Happenings
August 26 (M)	Lecture: Introduction		Review syllabus
August 28 (W)	Lecture: Measurement of Disease Occurrence	Chapters 1,3,4 Rose paper Savitz paper Snow paper	
September 2 (M)	No Class: Labor Day		
September 4 (W)	Lecture: Measurement of Disease Occurrence (cont'd)	Chapters 3,4	Quiz: Chpt 1; Rose, Savitz, Snow papers Receive homework #1: Mortality, Morbidity & Age Adjustment
September 9 (M)	Lecture: Measures of Association and Risk	Chapters 11,12	
September 11 (W)	Lecture: Association and Risk (cont'd) Hypothesis testing		Quiz: Measurement of Disease Occurrence (Chpt 3,4) Homework #1 due
September 16 (M)	Lecture: Hypothesis testing (cont'd)		
September 18 (W)	Lecture: Screening	Chapter 5, 19 (p.333-337) Rose paper	Quiz: Measures of Association & Risk, hypothesis testing Receive homework #2: Screening
September 23 (M)	Review for exam 1		Homework #2 due
September 25 (W)	EXAM 1 Chpt 1, 3-5, 11-12, hypothesis testing, Rose, Savitz papers		
September 30 (M)	Lecture: Cross-sectional studies & surveillance	Chapters 3 (p.54-55) & 10 (p. 195-198)	Receive example cross-sectional paper
October 2 (W)	Lecture: Case-control studies	Chapter 10	Receive homework #3: Smoking & lung cancer (cohort & case-control design) Discuss example cross-sectional paper Receive example case-control paper
October 7 (M)	Lecture: Case-control studies (cont'd) Cohort studies	Chapter 9	Quiz: Cross-sectional studies; surveillance Discuss example case-control paper
October 9 (W)	Lecture: Cohort studies (cont'd)		Receive example cohort paper

Date	Topic	Reading	Class Happenings
October 14 (M)	Lecture: Randomized trials	Chapters 7,8	Receive homework #4 : Randomized trials (with 2 WHI papers); DPP paper Discuss example cohort paper
October 16 (W)	Lecture: Randomized trials (cont'd)		Quiz : cohort & case-control studies Homework #3 due
October 21 (M)	Lecture: Natural history of disease/Life tables	Chapter 6	Receive homework #5 : Life table
October 23 (W)	Lecture: Study Designs - summary		Quiz : randomized trials Homework #4 due
October 28 (M)	Review for Exam 2		Homework #5 due
October 30 (W)	EXAM 2 Chpt 6-12		
November 4 (M)	Lecture: Bias	Chapter 15	Receive homework #6 : Oral contraceptive use and ovarian cancer
November 6 (W)	Lecture: Bias (cont'd) Confounding	Chapter 15	
November 11 (M)	Lecture: Confounding (cont'd) Effect Modification (Interaction)	Chapter 15	
November 13 (W)	Lecture: Effect Modification (cont'd) Causal Inference		
November 18 (M)	Lecture: Causal inference (cont'd)	Chapter 14	Homework #6 due
November 20 (W)	Lecture: Disease Transmission/ Outbreak Investigation	Chapter 2	Receive homework #7 : "Oswego:" An Outbreak Investigation
November 25 (M)	Lecture: Careers in epidemiology		Quiz : bias, confounding, effect modification, causation Homework #7 due
November 27 (W)	No Class: HAPPY THANKSGIVING!		
December 2 (M)	Example of an epidemiological investigation		Quiz : Disease transmission/Outbreaks And The Band Played On
December 4 (W)	Review for Final Exam		And The Band Played On
TBA	CUMULATIVE FINAL EXAM		

Advanced Methodology
(SPM 502)
Spring 2014

Time: Tuesdays, 9:00am –11:40pm

Location: 182 Farber Hall

Instructor: Matthew Bonner, Ph.D., M.P.H.
Associate Professor
Department of Social and Preventive Medicine
277 Farber Hall
(716) 829-5385
mrbonner@buffalo.edu

Office Hours: by appointment

Teaching Assistant: Youjin Wang, MS
youjinwa@buffalo.edu

Office Hours: Mondays 10-Noon and by appointment

Course Description: This course deals with current epidemiologic methods used to investigate disease etiology and other causal factors to prevent and control of disease in populations. This course expands upon the concepts covered in SPM 501. Topics that will be covered include causal inference, principles of sound study design, effect measure modification, confounding, validity and measurement error, statistic in epidemiology, and epidemiologic analyses.

Prerequisites: B or better in Principles of Epidemiology (SPM 501).

Course Objectives:

Upon completion of this course, students will:

- (1) Understand the principles of sound epidemiologic study design and analysis
- (2) Calculate and interpret measures of disease occurrence and association
- (3) Understand threats to validity, including confounding, selection, and information biases

Teaching Format: This course will consist of didactic lectures and discussion sessions. The lectures are designed to cover concepts pertinent to epidemiologic methods, while the discussion sessions will provide the opportunity to explore and discuss issues in more detail and depth.

Student Evaluation: Performance will be evaluated based on written assignments (20%), mid-term exam (35%), final exam (35%) and class participation (10%).

Written Assignments (20%): All assignments are due at the beginning of class. Late assignments will not be accepted and a grade of zero will be registered each missed assignment. All written assignments must be typed using Arial (size 11) font (or equivalent); hand written assignments will not be accepted and a grade of zero will be registered for each hand written assignment submitted. Calculations may be handwritten, but must be legible and neat. Written assignments will be graded with a $\boxplus$ (100%), $\square$ (90%), or a $\boxminus$ (80%).

Mid-term Exam (35%): In Class, scheduled for March 25th 9:00am.

Final Exam (35%): Scheduled for May 13th 9:00am.

Missed Exam Policy: Students must sit for the mid-term and the final exams on their scheduled dates. Students who fail to attend an exam will be given a grade of zero for the exam. Make up exams will not be offered. Students with an incapacitating illness or injury, resulting in hospitalization or under medical care, must provide documentation from their treating physician. Students with a documented legitimate illness or with a death of an immediate family member can make up the missed exam by completing a 15-page term paper on a topic determined by the instructor.

Class Participation (10%): Class attendance and participation is required and will be calculated into the class participation grade. Each absence from class will result in a five point deduction from the class participation grade. Absence for the mid-term or final exam will result in a zero for the missed exam.

Assignment of letter grades:

A =	≥92%	C+ =	78-79.9%
A- =	90-91.9%	C =	72-77.9%
B+ =	88-89.9%	C- =	70-71.9%
B =	82-87.9%	D =	60-69.9%
B- =	80-81.9%	F =	<60%

Textbook: Szklo M. and Nieto F.J. Epidemiology: Beyond the Basics. 3rd Edition Jones & Bartlett Learning. Burlington, MA.

Supplemental Readings: Additional readings from the open literature will be also be assigned periodically.

Academic Integrity: Academic integrity is a fundamental university value. Through the honest completion of academic work, students sustain the integrity of the university while facilitating the university's imperative for the transmission of knowledge and culture based upon the generation of new and innovative ideas.

(<http://www.grad.buffalo.edu/policies/academicintegrity.php#preamble>).

Academic Misconduct: Academic misconduct in any form is a very serious matter and will not be tolerated. Academic misconduct is broadly defined as being any action on the part of the student that violates the rights of another student in academic work or that involves misrepresentation of your own work. Such misconduct includes (but is not limited to): cheating on assignments or examinations; plagiarizing, which means misrepresenting as your own work any part of work done by another; submitting the same paper, or substantially similar papers, to meet the requirements of more than one course without the approval and consent of all instructors concerned; depriving another student of necessary course materials; or interfering with another student's work.

The UB Graduate School policies for academic misconduct will be followed.

(<http://www.grad.buffalo.edu/policies/academicintegrity.php#preamble>)

Accommodations for Disabilities: Reasonable accommodations to students will be provided, on a flexible and individualized basis, to students who have disabilities that may affect their ability to participate in course activities or to meet course requirements. Students must be registered with UB's Office of Disability Services (stu-disability@buffalo.edu) to determine which accommodations are needed to ensure full participation in the course. Students with disabilities are encouraged to contact me as soon as possible to discuss their individual needs for accommodations as some accommodations take time to implement.

Grade Disputes: Students wishing to dispute an assigned grade must present their dispute to the instructor IN WRITING within one week after the date when the exam or paper is returned. The dispute must include a specific rationale for why the student's answer is correct (e.g., a reference to a specific page in the textbook).

Upon completing SPM 502, Advanced Methodology, students will have the following competencies:

Competency- By the end of SPM502 the student should be able to:	Objectives: knowledge, skills, and behaviors	Instruction method	Assessment
Be able to describe the different study designs	Know the strengths and limitation of use of each study design. Be able to determine which study design is most appropriate for the research question as well as the feasibility of each design to answer the question.	Lecture, readings	Exam, exercises
Apply the terminology and definitions of epidemiology.	Describe and use terminology typically used in epidemiology	Lectures, readings	Exam, exercises
Calculate epidemiology measures.	Know how to calculate: rates and measures of disease occurrence and measures of risk	Lectures, readings	Exam, exercises
Draw appropriate inferences from epidemiologic data.	Understand the strengths and limitations of epidemiologic findings. Understand the issues inherent in any study design including sampling, bias, confounding, effect modification Extension of SPM 501 objectives listed above to discussing the application and strengths and limitations of suggested criteria to inform inferential decisions	Lecture, reading and discussion of use and limitations of various criteria	Exam, exercises
Explain how bias, confounding, effect modification, and random error may affect the results of epidemiologic investigations and how they may be prevented or controlled.	Explain how bias, confounding, effect modification, and random error may affect the results of epidemiologic investigations and how they may be prevented or controlled. Extend SPM 501 objectives above to explain in more depth how bias, confounding, effect modification, and random error may affect the results of epidemiologic investigations and how they may be prevented or controlled.	Lecture, class discussion	Exam, exercises

Develop a plan for analysis of epidemiologic data, based on an understanding of the appropriate statistical techniques	Identify appropriate multivariate techniques and theories Understand importance and use of stratification	Lecture, class discussion	Exam, exercises
Evaluate the strengths and limitations of epidemiologic reports.	Evaluate the strength and limitations of various analytic strategies. Understand the use of sensitivity analyses in epidemiologic analyses	Lecture, in class discussion, readings	Exam, exercises
Understand what validity is in an epidemiologic study	Apply knowledge of validity and reliability of data to the evaluation of programs and treatments	Lecture	Exam, exercises
Describe basic approaches for the collection of primary data, the use of secondary data and the assessment of quality of measurement and data collection.	Describe basic approaches for the collection of primary data, the use of secondary data and the assessment of quality of measurement and data collection Extend SPM 501 objectives to further describe basic approaches for the collection of primary data, the use of secondary data and the assessment of quality of measurement and data collection.	Lecture, critique examples, class discussion	Exam, exercises
Understand the importance of power and sample size in epidemiologic study	Know necessary components to calculate sample size Understand the importance of power and sample size in conduct and interpretation of epidemiologic studies	Lecture, exercises	Exam, exercises

Course Outline:

Date	Topic
1/28	Course Overview Nature of Epidemiologic Research and Causal Inference
2/4	Measures of Disease Occurrence, and Effect and Association
2/11	Study Design I: Cohort Studies
2/18	Study Design II: Case-Control Studies
2/25	Interaction I
3/4	Interaction II
3/11	Causal Diagrams & Review for mid-term exam
3/18	No Class—Spring Break
3/25	Mid-term Exam
4/1	Ethics in Epidemiologic Research & Statistics in Epidemiology
4/8	Validity in Epidemiologic Studies I: Confounding
4/15	Validity in Epidemiologic Studies II: Selection Bias
4/22	Validity in Epidemiologic Studies III: Information Bias
4/29	Epidemiologic Data Analysis I
5/6	Epidemiologic Data Analysis II
5/13	Final Exam

PTR 502
ANALYSIS OF HEALTH RELATED DATA
Spring 2014
4 hours credit
Roswell Park Graduate Division

Time: Wednesday, 9:00-11:20 am
Place: Cancer Cell Center Room 314 (Grossberg), Roswell Park Cancer Institute

Instructor: Susan McCann, PhD
Office hours: by appointment
susan.mccann@roswellpark.org

Teaching assistant: Ajay Myneni
ajayanan@buffalo.edu
Office hours: Monday 2:00-3:30 pm and Friday 1:30-3:00; SPM
computer room

Prerequisite: Statistics courses covering topics through linear and logistic regression

Overview: The purpose of this course is to provide students in the health sciences with practical experience in preparing, analyzing, interpreting, and reporting findings from epidemiologic and other health-related data. Using existing data, students will complete data analysis exercises through data cleaning, data file construction and management, basic descriptive statistics, analytical strategies, biostatistical analysis, and interpretation and reporting of results. SAS software will be used in classroom presentations and exercises.

Course organization

The class will meet as a group for 2.5 hours per week. Attendance is strongly recommended, and essential to completion of course objectives.

We will be using UBLearns for the majority of our class communication. Here you will find assignments and due dates, datasets to be used in the class, supplementary materials, and an electronic bulletin board for communication between students and staff. To log onto the course, go to <http://ublearns.buffalo.edu>. Log in with your UBIT name and password.

Class format. Primarily didactic, but real-time presentations of data will occur. Weekly assignments designed to provide practical application of concepts covered in class.

Grading: Assignments (80%) Final (20% each)

Grading scale:

A	94-100	B-	75-79
A-	88-93	C	70-74
B+	84-87	D	65-70
B	80-83	F	< 65

Assignments will be posted on UBLearn. Unless otherwise noted, assignments are due by 4 pm one week after they are assigned. Assignments must be turned in ON TIME. There are **NO EXCEPTIONS** to this rule. If you have a medical emergency that prevents you from completing the assignment, you must provide an official note from your doctor stating your inability to complete the assignment because of illness or injury. If you provide documentation of an illness, you will receive no credit for the late assignment, but neither will it be counted against you (grade will be dropped). Late assignments without doctor's excuses will be graded as 0%.

Textbook: Available at the UB Medical Bookstore (Main Street)

Required:

Cody RP, Smith JK. Applied Statistics and the SAS Programming Language. 5th Edition. Pearson/Prentice Hall, 2006.

Woodward M. Epidemiology: Study Design and Data Analysis. Third Edition. Chapman & Hall/CRC, 2014.

O'Rourke N, Hatcher L, Stepanski EJ. A Step-by-step approach to using SAS for univariate and multivariate statistics, Second Edition. SAS Press, 2005.

Some useful references include: Rothman: Modern Epidemiology; Kleinbaum et al: Applied Regression Analysis and Other Multivariable Methods; Hosmer and Lemeshow: Applied Logistic Regression; any good basic stats book can be helpful. SAS Online Documentation has a great deal of background on various statistical procedures.

<http://support.sas.com/91doc/docMainpage.jsp>

A book that many newcomers to SAS find useful is The Little SAS Book by Delwiche and Slaughter. It is available through the SAS bookstore online, or through Amazon.

There will also be supplementary readings posted on UBLearn and on reserve at the RPCI Library.

Please note:

Enrollment preference will be given to PhD students with an epidemiology background.

Statistical software is not provided. It is expected that students will have their own access to SAS. You **do not** have to purchase your own software, however, reasonably priced licenses for SAS are available through the University at Buffalo UB Micro. SAS is available in the SPM computer lab, SPHP computer lab in Kimball Tower, and in the Roswell Park Cancer Institute Library (on a designated computer).

Disability Policy

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- *Confidential academic materials*. Procurement, distribution or acceptance of examinations or laboratory results without prior and expressed consent of the instructor.
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- *Purchasing academic assignments*. No person shall purchase an academic assignment intended for submission in fulfillment of any course or academic program requirement.

Course Objectives / Competency / Instructional Method(s) / Assessment Method(s) Upon completing PTR 502, Analysis of Health Related Data, the student will have developed several competencies in support of applying epidemiological and biostatistical concepts in the analysis of public health-related data. These competencies align with the major fundamental objectives for public health practice as determined by the Council on Education for Public Health (CEPH), the accrediting agency for Schools of Public Health. The specific competencies for PTR 502, methods of instruction and assessment are shown in the **below table**.

Objective	Accreditation Competency	Instructional Method(s)	Assessment Method(s)
Use SAS to read and clean data Use SAS to manipulate data, including creating new variables or recoding variables Know the effect of missing data on analyses Understand and apply analytic techniques, including measures of association, chi-square test, t-tests, ANOVA, linear and logistic regression, Generalized Linear Modeling, and Survival analysis Summarize the analytic results and discuss in a format suitable for a manuscript	Demonstrate expertise in advanced analysis and interpretation of data, including data cleaning, data file construction and management, and implementation of analytic strategies appropriate for the type of data, study design, and research hypothesis.	Lecture, Readings, Assignments	Assignments Final

Objective	Accreditation Competency	Instructional Method(s)	Assessment Method(s)
Summarize the analytic results and discuss in a format suitable for a manuscript	Interpret results of statistical analyses found in public health studies	Lecture, Readings, Assignments	Assignments Final
Use SAS to prepare and analyze a dataset	Utilize computer software to enter, edit, and manage epidemiologic data	Lecture, Readings, Assignments	Assignments Final
Conduct stratified associations Understand and conduct a test for interaction Conduct model building Assess a model for confounding and effect modification	Examine data for the presence of confounding and effect modification, identify their presence, and manage them appropriately	Lecture, Readings, Assignments	Assignments Final
Use SAS to read and clean data	Develop and implement a plan for data management and quality assurance	Lecture, Readings, Assignments	Assignments Final
Understand and apply analytic techniques	Obtain and analyze the data needed to address an epidemiologic research question, using basic techniques for collection and analysis of the data	Lecture, Readings, Assignments	Assignments Final
Summarize the analytic results and discuss in a format suitable for a manuscript	Interpret research results make appropriate inferences based on results and recognize the implications of the research results	Lecture, Readings, Assignments	Assignments Final

PTR 502 Analysis of Health Related Data—Spring 2013; Wed 9-11:20		
Date	Topic	Readings/Assignments
Jan 29	Course overview Blackboard information Basic SAS programming; reading and cleaning data; file formats Commenting programs; maintaining research notebooks	SAS book: Chapters 1-3 Cody: Chapter 1, 14 Parascandola paper and Olsen paper on causation (UBLearns)
Feb 5	Basic analytic procedures Data presentation	SAS Book: Chaps 4-5, Appendix A Cody Chapters 2 and 3, 15 (Arrays)
Feb 12	Manipulating data Matching files Creating new variables Creating indices Arrays/loops Working with non-normal data Recoding variables Defining missing values Variable/value labels Exploring your data	UBLearns: imputation of missing data reading(s) Assignment #1
Feb 19	Multiple imputation Dr. Song Yao, Guest lecturer	Assignment #1 due
Feb 26	Sensitivity analyses Effect of missing data on analyses Imputation of missing data Misclassification	SAS book: chaps 6, 8, 9 Online SAS documentation PROC REG Cody Chapters 5 and 6

Mar 5	Quantitative outcomes Measures of association: Correlation, Chi square, t-tests Exposure/outcome assessment Linear regression, simple ANOVA	SAS Chapter 14 Cody Chap 7, 9 Woodward: Modelling quantitative outcome variables Assignment #2
Mar 12	Statistical Laboratory Session	Kleinbaum et al. Applied Regression Analysis and Other Multivariable Methods: Regression Diagnostics (UBLearns) Assessment #2 due
Mar 19	Spring break	
Mar 26	Quantitative outcomes, part II Regression, ANOVA, GLM, adjusted means Diagnostics, outliers, influential observations	Agresti: Chap 5 UBLearns: logistic regression reading (Chapter 8 Categorical Data Analysis) Online SAS documentation PROC LOGISTIC Woodward: Assessing risk factors Assignment 3
Apr 2	Assessing risk factors; modeling binary outcomes Risk and relative risk Logistic regression	Assignment #3 due Woodward: Confounding and interaction
Apr 9	Stratified associations Interactions and dose response (multiple and logistic regression, glm)	Assignment #4 Woodward: Modelling binary outcome data
Apr 16	Model building and assessment of confounding	Assignment #4 due
Apr 23	Survival analysis	Assignment #5
Apr 30	Meta analysis Dr. Lara Sucheston, guest lecturer	Assignment #5 due
May 7	Final exam	

This schedule is subject to change at any time

Department of Social and Preventive Medicine

Course Title/Number: SPM 505/505 Lab, Application of Biostatistics to Epidemiology I with SAS Lab

Semester: Fall 2013

Course no. and credit hours:	SPM 505: 3 credits SPM 505 Lab: 1 credit (S/U)
Format:	Lecture and Computer Lab
Lecture Day/Time/Location:	Mon and Wed, 1-2:20 pm 182 Farber Hall
Lab Day/Time/Location:	Wed, 2:30-3:20 pm 113 Kimball Hall
Prerequisites:	(a) enrolled in the MPH Epidemiology, Environmental Health or Health Services Administration concentrations, (b) MS or PhD in epidemiology, or (c) by permission of instructor.
Instructor:	Heather Ochs-Balcom, PhD, Assistant Professor
Office:	268D Farber Hall
Telephone:	716-829-5338
Email:	hmochs2@buffalo.edu
Office Hours:	By appointment
Teaching Assistants:	Youjin Wang (youjinwa@buffalo.edu) Ajay Myneni (ajayanan@buffalo.edu)
TA Office Hours/Location:	Mondays, 10 am-12 pm, 265 Farber

I. (a) Course Description

The course has an emphasis on the application and interpretation of statistical tests commonly employed in epidemiologic research. It is not a mathematics course and so will not stress derivations of formulae but rather will emphasize statistics concepts and the application of statistical methods to test hypotheses in epidemiologic datasets. Topics include descriptive statistics, probability and probability distributions, point and confidence interval estimation, hypothesis testing for means, proportions, elementary non-parametric techniques, tests for categorical data, ANOVA, correlations and introduction to regression methods. Students will be introduced to SAS in weekly laboratory sessions to learn how to import and manipulate datasets and perform data analysis using statistical methods covered in the course.

(b) Course Rationale/ Relationship to Curriculum Design:

This four credit course is one of the required core courses for the MPH-Epidemiology degree, one of two optional statistics courses for the MPH-Health Services Administration, and a required core course for the MS and PhD programs in Epidemiology offered within the Department of Social and Preventive Medicine, School of Public Health and Health Professions (SPHHP). This course is a pre-requisite for other advanced biostatistical courses offered in SPHHP. Students should be enrolled in this course in the first semester of their program.

II. Course Objectives / Competency / Instructional Method(s) / Assessment of Student Learning

Learning Objectives	Program Competency	Instructional method(s)	Assessment
Demonstrate an understanding of biostatistics as it applies to epidemiology.	Biostatistics A.1. Describe the roles biostatistics serves in the discipline of public health.	Powerpoint presentation, textbook readings.	• Quizzes and Exams • SAS exercises • SAS Project
Distinguish population parameters from sample estimates; differentiate descriptive and inferential statistics.	Biostatistics A.7. Apply descriptive and inferential methodologies according to the type of study design for answering a particular research question.	Powerpoint presentation, textbook readings.	• Problem sets • Quizzes and Exams
Describe the main types of epidemiologic studies, both observational and experimental.	Epidemiology C.6. Apply the basic terminology and definitions of epidemiology.	Powerpoint presentation, textbook readings.	• Quizzes and Exams
Recognize the different types of variables (categorical and continuous), type of measurement, and implications on both measurement and analysis. Demonstrate ability to create new variables.	Biostatistics A.4. Distinguish among the different measurement scales and the implications for selection of statistical methods to be used based on these distinctions.	Powerpoint presentation, textbook readings.	• Quizzes and Exams • Problem sets • SAS exercises • SAS Project
Define and estimate measures of central tendency: mean, median, mode.	Biostatistics A.5. Apply descriptive techniques commonly used to summarize public health data.	Powerpoint presentation, textbook readings.	• Problem sets • Quizzes and Exams • SAS exercises • SAS Project
Differentiate and estimate measures of variability.	Biostatistics A.5. Apply descriptive techniques commonly used to summarize public health data.	Powerpoint presentation, textbook readings.	• Problem sets • Quizzes and Exams • SAS exercises • SAS Project
Recognize common ways to graphically present data and results of analyses; apply to epidemiologic data.	Biostatistics A.5. Apply descriptive techniques commonly used to summarize public health data.	Powerpoint presentation, textbook readings, in-class exercise and discussion.	• Problem sets • Quizzes and Exams • SAS exercises • SAS project
Define probability, interpret probability notation.	Biostatistics A.2. Describe basic concepts of probability, random variation and commonly used statistical probability distributions.	Powerpoint presentation, textbook readings, in-class exercise	• Problem sets • Quizzes and Exams
Describe the utility of a probability distribution; describe properties of different probability distributions.	Biostatistics A.2. Describe basic concepts of probability, random variation and commonly used statistical probability distributions.	Powerpoint presentation, textbook readings.	• Problem sets • Quizzes and Exams
Estimate probabilities using the normal, binomial and Poisson probability distributions.	Biostatistics A.2. Describe basic concepts of probability, random variation and commonly used statistical probability distributions.	Powerpoint presentation, textbook readings, in-class exercise	• Problem sets • Quizzes and Exams
Use point estimates and confidence intervals to interpret research	Biostatistics A.9. Interpret results of statistical analyses	Powerpoint presentation, textbook	• Problem sets • Quizzes and

results; describe the relation between confidence interval and sample size.	found in public health studies.	readings, in-class activity.	Exams • SAS exercises • SAS project
Define, calculate and interpret p-values.	Biostatistics A.9. Interpret results of statistical analyses found in public health studies.	Powerpoint presentation, textbook readings. in-class activity.	• Problem sets • Quizzes and Exams • SAS exercises • SAS project
Use the concept of statistical significance to better understand the results of a study.	Biostatistics A.9. Interpret results of statistical analyses found in public health studies.	Powerpoint presentation, textbook readings, (2) in-class discussions of published literature.	• Problem sets • Quizzes and Exams • SAS exercises • SAS project
Explain the concept of null and alternate hypothesis tests; write null hypotheses for several commonly used statistical tests.	Biostatistics A.9. Interpret results of statistical analyses found in public health studies.	Powerpoint presentation, textbook readings.	• Problem sets • Quizzes and Exams • SAS exercises • SAS project
Recognize some of the basic concepts associated with the power of a study.	Biostatistics A.9. Interpret results of statistical analyses found in public health studies.	Powerpoint presentation; in-class activity.	• Problem sets • Quizzes and Exams
Demonstrate familiarity with various descriptive and inferential statistics.	Biostatistics A.6. Apply common statistical methods for inference.	Powerpoint presentation, textbook readings, (2) in-class discussions of published literature.	• Problem sets • Quizzes and Exams • SAS exercises • SAS project
Recognize when and if non-parametric analytic techniques should be used; apply non-parametric statistical tests to real data.	Biostatistics A.3. Describe preferred methodological alternatives to commonly used statistical methods when assumptions are not met.	Powerpoint presentation, textbook readings.	• Problem sets • Quizzes and Exams • SAS exercises • SAS project
Describe and apply a variety of statistical tests commonly used to compare differences between groups.	Biostatistics A.7. Apply descriptive and inferential methodologies according to the type of study design for answering a particular research question.	Powerpoint presentation, textbook readings.	• Problem sets • Quizzes and Exams • SAS exercises • SAS project
Describe and apply analysis of variance tests (ANOVA).	Biostatistics A.7. Apply descriptive and inferential methodologies according to the type of study design for answering a particular research question.	Powerpoint presentation, textbook readings.	• Problem sets • Quizzes and Exams • SAS exercises • SAS project
Recognize, estimate and interpret common measures of correlation.	Biostatistics A.7. Apply descriptive and inferential methodologies according to the type of study design for answering a particular research question.	Powerpoint presentation, textbook readings.	• Problem sets • Quizzes and Exams • SAS exercises • SAS project
Define and demonstrate understanding of parameters estimated linear and logistic regression analysis.	Biostatistics A.7. Apply descriptive and inferential methodologies according to the type of study design for answering a particular research question.	Powerpoint presentation, textbook readings, in-class activity, in-class discussion of published literature.	• Problem sets • Quizzes and Exams • SAS exercises • SAS project
Identify and perform appropriate statistical analyses using a real epidemiologic dataset. Prepare results in tables and	Biostatistics A.7. Apply descriptive and inferential methodologies according to the type of study design for answering a particular	Powerpoint presentations, textbook and other reading assignments,	• Problem sets • Quizzes and Exams • SAS project

develop a scientific presentation to show results.	research question. A.10. Develop written and oral presentations based on statistical analyses for both public health professionals and educated lay audiences. Epidemiology C. 8. Communicate epidemiologic information to lay and professional audiences. C. 9. Draw appropriate inferences from epidemiologic data.	in-class activity on preparing an analytic plan.	
Interpret descriptive and inferential statistics from studies in published epidemiology literature.	Epidemiology C. 8. Communicate epidemiologic information to lay and professional audiences. C. 9. Draw appropriate inferences from epidemiologic data. C. 10. Evaluate the strengths and limitations of epidemiologic reports.	Powerpoint presentations, reading assignments, (2) in-class discussions of published literature.	• Problem sets • Two assignments from published literature • Quizzes and Exams • SAS exercises • SAS project

III. Textbooks

Text	Required	Note
Forthofer, Lee and Hernandez. <u>Biostatistics: A guide to design, analysis and discovery</u> . Second Edition. Academic Press, 2007.	Yes	Available at UB Medical Bookstore or online
Hatcher L. <u>Step-by-step basic statistics using SAS: student guide</u> . SAS Publishing, 2003.	Yes	Available at UB Medical Bookstore or online.
Hatcher L. <u>Step-by-step basic statistics using SAS: exercises</u> . SAS Publishing, 2003.	Yes	Available at UB Medical Bookstore or online; available for short-term borrowing in 242 Farber
Agresti A and Finlay B. <u>Statistical Methods for the Social Sciences</u> . Fourth Edition. Prentice Hall 2009.	No	On reserve at UB Health Sciences Library, and available for short-term borrowing in 242 Farber

IV. Course Learning Activities

(a) Lecture component:

Reading Assignments: Each week you will be assigned reading from the text and/or additional readings related to the topic. A list of required textbook readings appears in the course schedule. All reading assignments should be completed before the lecture, and this material will be covered on quizzes and the exam even if I do not implicitly discuss it. The class schedule and assignments may change during the semester and students will be notified of all changes.

Lecture-Based Homework Assignments: Throughout the semester there will be homework assignments that involve completion of an exercise that relates to the content being covered in the lecture and chapter readings. The work should be completed individually and is to be turned in at the beginning of the class in which it is due. Late homework will not be accepted under any circumstances. Email submission of homework is not acceptable. Work should be prepared in a professional manner: neat hand writing and on paper without frayed edges.

Quizzes: There will be several quizzes. Quizzes will be administered at the beginning of the class period. Students arriving late to class will have limited time to complete quizzes. Students who are not present will not receive credit for that particular quiz. The lowest quiz grade will be dropped. Quizzes will cover both lecture material and assigned readings and may cover any material previously covered in class (not limited to the most recent material).

Exams. There will be one exam given during the semester and one cumulative final exam, which means all topics covered during the semester, will be included. There is no opportunity for make-up exams nor is it possible to take the exam at a different time. If you are sick, you need to contact the instructor before the exam, and documentation for any illness or extenuating circumstances is strictly required. No excuses will be accepted after the exam.

Course Component	Percentage
Homework	15%
Quizzes	10%
Midterm Exam	30%
SAS Project	15%
Final Exam (cumulative)	29%
CourseEval survey	1%
Total:	100%

Assignment of letter grades:	
A = $\geq 92\%$	C+ = 78-79.9%
A- = 90-91.9%	C = 72-77.9%
B+ = 88-89.9%	C- = 70-71.9%
B = 82-87.9%	D = 60-69.9%
B- = 80-81.9%	F = $<60\%$

(b) Laboratory component:

SAS Exercises: Throughout the semester, there will be weekly assignments based on the SAS exercises. You must read the chapters in the SAS textbook before coming to lab; we will not be able to help you during the lab period of you arrive unprepared to complete the exercise. All of this homework should be type-written.

The laboratory will be graded in an S/U fashion, where “S” indicated credit earned, and “U” indicates no credit earned. The “S” grade will be awarded only if a “B” (82.0%) or better is earned on SAS exercises.

You will have access to SAS and SPSS software both at 113 Kimball Hall and the SPM computer lab (279 Farber Hall). You may purchase your own SAS for Windows license for \$104 through UB’s OnTheHub store, <http://ubit.buffalo.edu/software/win/sas/>. It is license that expires in one year or less. You can use this license for SPM 506 next semester.

V. Course and Instructor Evaluation

UB and SPHHP take great pride in effective teaching. All students are strongly encouraged to complete the online course evaluation (CourseEval) at the end of the course, and will be given 1% of the course for doing so. You will receive an email notification and request in the final weeks of the semester. We look forward to your constructive comments regarding the overall course as well as effectiveness of the instructor. CourseEval procedures protect the anonymity of student respondents. The instructor will not receive the final evaluation reports (ratings and comments) before grades are submitted, and student names are never included on the evaluation reports.

VI. Communication

In the event that you are having difficulties with course material or want further information about a topic, please attend TA office hours. If you and the TA are not able to resolve the issue, you may contact Dr. Ochs-Balcom with questions and concerns via email.

Please always use “SPM 505” in the subject line of your emails to Dr. Ochs-Balcom and the TAs.

Please be sure that you access and regularly monitor your UB email; we will send updates and class cancellations in case of an emergency to your UB email address.

VII. Policy Regarding Absences, Attendance, Assignments, Exams

Class Attendance. Attendance is required. Please arrive on time and silence your cell phones. Class begins promptly at 1 pm. Arriving late is a distraction to the instructor and other students. If you miss a class you should obtain lecture notes from a classmate. Your attendance and participation may be taken into account when determining final grades. If you must miss a class please notify Dr. Ochs-Balcom by email BEFORE class.

Disability Policy. If you have any disability which requires reasonable accommodations to enable you to participate in this course, please contact the Office of Disability Services (ODS), 25 Capen Hall, 645-2608, and also the instructor of this course during the first week of class. ODS will provide you with information and review appropriate arrangements for reasonable accommodations.

Academic Integrity. Each student is expected to abide by the code of conduct that includes the highest standards of academic integrity. Failure may result in failure of the course or dismissal from the program according to UB procedures. For further information, see <http://www.grad.buffalo.edu/policies/academicintegrity.php>. Students who are suspected of academic dishonesty will be dealt with severely in accordance with the Department, SPHHP and University Policy. This may include a grade of 0 for an assignment and/or failure of the course.

Academic Dishonesty. Actions that compromise academic integrity include, but are not limited to the following examples:

- *Previously submitted work.* Submitting academically required material that has been previously submitted – in whole or in substantial part – in another course, without prior and expressed consent of the instructor.
- *Plagiarism.* Copying or receiving material from any source and submitting that material as one’s own, without acknowledging and citing the particular debts to the source (quotations, paraphrases, basic ideas), or in any other manner representing the work of another as one’s own.
- *Cheating.* Soliciting and/or receiving information from, or providing information to another student or any other unauthorized source (including electronic sources such as cellular phones and PDAs) with the intent to deceive while completing an examination or individual assignment.
- *Confidential academic materials.* Procurement, distribution or acceptance of examinations without prior and expressed consent of the instructor.
- *Selling academic assignments.* No person shall sell or offer for sale to any person enrolled at the University at Buffalo any academic assignments, or any inappropriate assistance in the preparation, research, or writing of any assignment, which the sellers knows, or has reason to believe, is intended for submission in fulfillment of any course or academic program requirement.
- *Purchasing academic assignments.* No person shall purchase an academic assignment intended for submission in fulfillment of any course or academic program requirement.

SPM 505 and 505 Laboratory - Fall 2013 Schedule

UNIT 1					
Week	Date	Topic	Reading Assignment*	Homework Due	Quizzes
1	8/26	Course introduction	Ch 1		
	8/28	Study design	Ch 6		
	8/28 Lab	Ch 3: Writing and submitting SAS programs	SAS Ch 1,2,3		
2	9/2	No Class - Labor Day			
	9/4	Data types, measurement	Ch 2		Quiz 1
	9/4 Lab	Ch 4: data input	SAS Ch 4	SAS Ch 3	
3	9/9	Descriptive statistics	Ch 3		
	9/11	Descriptive statistics, cont; <i>Paper discussion I</i>		Hwk 1	Quiz 2
	9/11 Lab	Ch 5: creating frequency tables Ch 7: measures of central tendency and variability	SAS Ch 5&7	SAS Ch 4	
4	9/16	<i>In class exercise, descriptive statistics</i>			
	9/18	Probability	Ch 4	Hwk 2	Quiz 3
	9/18 Lab	Ch 6: creating graphs	SAS Ch 6	SAS Ch 5&7	
5	9/23	Probability distributions	Ch 5		
	9/25	Estimation I, <i>In class exercise I</i>	Ch 7.3-7.5		
	9/25 Lab	Ch 8: creating and modifying variables and datasets	SAS Ch 8	SAS Ch 6	
6	9/30	Estimation II		Hwk 3	
	10/2	Hypothesis testing I	Ch 8		Quiz 4
	10/2 Lab	Ch 9: z scores	SAS Ch 9	SAS Ch 8	
7	10/7	Hypothesis testing II, <i>In class exercise II</i>			
	10/9	T-tests	Ch 8	Hwk 4	
	10/9 Lab	Ch 12: single sample t-test Ch 13: independent samples t-test	SAS Ch 12&13	SAS Ch 9	
8	10/14	Correlation	Ch 3.7		
	10/16	<i>Writing an analytic plan</i> ; SAS project handed out		Hwk 5	Quiz 5
	10/16 Lab	Ch 10: bivariate correlation	SAS Ch 10	SAS Ch 12&13	
9	10/21	Linear regression, <i>In class exercise III</i>	Ch 13		
	10/23	<i>Analytic plan group work session</i>		Hwk 6	Quiz 6
	10/23 Lab	Ch 11: bivariate regression Ch 15: one-way ANOVA with one between-subjects factor	SAS Ch 11&15	SAS Ch 10	
10	10/28	Review session		SAS Ch 11&15	
	10/30	Midterm Exam			
	10/30 Lab	No Lab			

SPM 505 and 505 Laboratory - Fall 2013 Schedule

UNIT 2					
Week	Date	Topic	Reading Assignment*	Homework Due	Quizzes
11	11/4	ANOVA I	Ch 12		
	11/6	ANOVA II			
	11/6 Lab	Ch 16: factorial ANOVA with two between-subjects factors	SAS Ch 16		
12	11/11	Categorical data analysis	Ch 10		
	11/13	Nonparametric tests	Ch 9	Hwk 7	Quiz 7
	11/13 Lab	Ch 17: chi-square test of independence	SAS Ch 17	SAS Ch 16	
13	11/18	Introduction to multivariate relationships, model building	Agresti Ch 10		
	11/20	Logistic regression, <i>In class exercise IV</i>	Ch 14	Hwk 8	Quiz 8
	11/20 Lab	Logistic regression lab	Handout	SAS Ch 17	
14	11/25	Real life data analysis, <i>Paper discussion II</i>		Hwk 9 SAS Log reg	
	11/27	No class - Fall recess			
	11/27 Lab	No lab - Fall recess			
15	12/2	Project presentations		SAS Project	
	12/4	Project presentations			
	12/4 Lab	Introduction to SPSS	Handout	SPSS Lab, due 12/6	
Finals	12/9-12/16	Comprehensive final exam – TBD			
*Forthofer readings unless otherwise noted.					

SPM 506: Epidemiologic Applications of Biostatistics II
Spring 2014

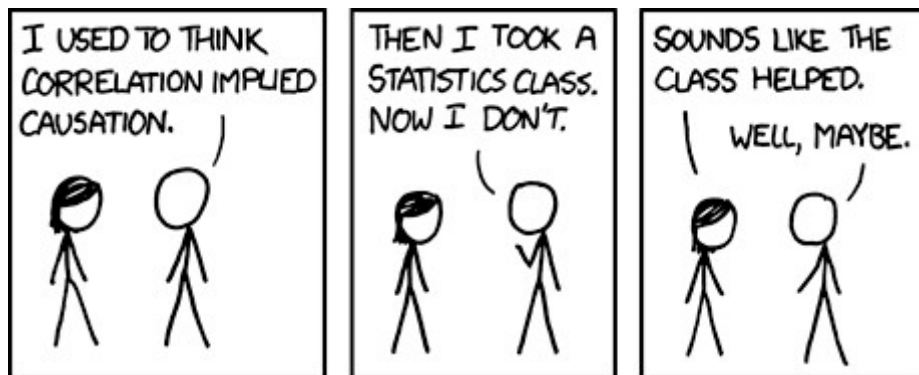
Lecture: Wednesdays 4-5:20 and Fridays, 10-11:20 in Farber 180
Lab: Fridays, 9-9:50 in Kimball 113

Instructor: Carole B. Rudra, Ph.D., M.P.H	
Office hours by appointment	E-mail: cbrudra@buffalo.edu

Teaching assistant: Albina Minlikeeva	
Office hours TBD	E-mail: albinami@buffalo.edu

Course description

This course is designed to teach students how to perform multivariable regression analyses commonly used in epidemiologic studies. Topics include multivariable logistic and linear regression, regression diagnostics, and modeling strategies. Students learn SAS coding in the lab session.



xkcd: a webcomic of romance, sarcasm, math, and language.

By Randall Munroe

<http://xkcd.com/552/>

For readings: F=Forthofer's text (2nd ed.), K=Kleinbaum's text (optional), articles cited on the next page.

Class	Date	Topic	Reading	Assigned work	Work due by start of class
1A	W 1/29	Class overview	Syllabus	Baseline quiz	
1L	F 1/31	Univariate and bivariate stats review		Lab HW 1	
1B	F 1/31	Standardization and pooled estimates	---	HW 1	Baseline quiz
2A	W 2/5	Overview of modeling I	---		
2L	F 2/7	Standardization & pooled estimates		Lab HW 2	
2B	F 2/7	Overview of modeling II	---	HW 2	Lab HW 1, HW 1
3A	W 2/12	Linear regression formulation I	Articles 1 & 2 F 349-361		
3L	F 2/14	Fitting linear regression models		Lab HW 3	
3B	F 2/14	Linear regression formulation II	---	HW 3	Lab HW 2, HW 2
4A	W 2/19	Inferences: slope and intercept	F 361-368		
4L	F 2/21	Computing and testing betas		Lab HW 4	
4B	F 2/21	Hypothesis testing and prediction	---	HW 4	Lab HW 3, HW 3
5A	W 2/26	Evaluating linear model fit	F 368-380		
5L	F 2/28	Evaluating linear model fit		Lab HW 5	
5B	F 2/28	Midterm review	---		Lab HW 4, HW 4
6A	W 3/5	Midterm exam 1 (linear models)	---		
6L	F 3/7	No lab			
6B	F 3/7	Logistic regression formulation I	Articles 3 & 4 K Chapter 1 (or F 387-420)	HW 5	Lab HW 5
7A	W 3/12	Logistic regression formulation II	K Chapter 4		
7L	F 3/14	Fitting logistic regression models		Lab HW 6	
7B	F 3/14	Computing the odds ratio	K Chapter 3	HW 6	HW 5
No class or lab 3/19 & 3/21: spring break					
8A	W 3/26	Hypothesis testing and prediction	K Chapter 5		
8L	F 3/28	Computing and testing ORs		Lab HW 7	
8B	F 3/28	Evaluating logistic model fit	K Chapter 9	HW 7	Lab HW 6, HW 6
9A	W 4/2	Parameterization of X: categorical	K Chapter 2	HW 8	
9L	F 4/4	Evaluating logistic model fit		Lab HW 8	
9B	F 4/4	Parameterization of X: continuous	---		Lab HW 7, HW 7
10A	W 4/9	Midterm review	---		HW 8
10L	W 4/11	Exercises in parameterization		Lab HW 9	
10B	F 4/11	Midterm exam 2 (logistic models)	---		Lab HW 8
11A	W 4/16	Evaluating confounding: theory	K Chapters 6-8		
11L	F 4/18	Evaluating confounding			
11B	F 4/18	Evaluating confounding: practice	---	HW 9	Lab HW 9
12A	W 4/23	Evaluating interaction: theory	---		
12L	F 4/25	Evaluating interaction		Lab project	
12B	F 4/25	Evaluating interaction: practice	---	HW 10	HW 9
13A	W 4/30	Intro to survival analysis	F 297-322		
13L	F 5/2	Final project work time			
13B	F 5/2	Intro to propensity scoring	TBA	HW 11	HW 10
14A	W 5/7	TBA	TBA		
14L	F 5/9	Final project work time			
14B	F 5/9	Review session	---		HW 11, Lab project
---	TBA	Final exam (cumulative)			

Prerequisites

SPM 501 and SPM 505. Students who are not in an epidemiology degree program also need my permission.

Class and lab structure

- Classes will consist mostly of lecture, sometimes interspersed with in-class exercises. There will be a 5-minute break about halfway through.
- You might find it helpful to bring a calculator to lectures, so you can follow along in some calculations.
- To encourage active participation, **I do not post complete lecture slides**. I post modified slides before the lecture that are not completely filled in. I will post keys to problems discussed in class after each lecture.
- Labs will consist of 50 minutes in the computer lab. The TA or I will go over an example of coding relevant to the day's topic and will be on hand for the rest of the class period to answer questions as you complete the lab assignment. You are not required to attend lab sessions, and if you finish your homework early, you may leave early. You may also choose to finish the homework later in the week, as long as it's turned in on time.

Readings

Forthofer is required for this class; Kleinbaum is highly recommended.

1. Forthofer RN, Lee ES, Hernandez M. Biostatistics: A Guide to Design, Analysis, and Discovery. 2nd ed. Academic Press: 2007.
2. Kleinbaum DG, Klein M. Logistic Regression: A Self-learning Text. 3rd ed. Springer: 2010.

I will reference other books throughout the class. Though you are not required to purchase them, you might find them helpful:

1. Hennekens CH, Buring JE. Epidemiology in Medicine. 1st ed. Little, Brown: 1987.
2. Kleinbaum, DG. Survival analysis: a self-learning text. 2nd ed. Springer: 2005.
3. Rothman KJ, Greenland S, Lash TL. Modern Epidemiology. 3rd ed. Lippincott Williams & Wilkins: 2008.
4. Kleinbaum DG, Kupper LL, Muller KE, Nizam A. Applied regression analysis and multivariable methods. 3rd ed. Duxbury: 1998.
5. Rosner B. Fundamentals of Biostatistics. 6th or 7th ed. Thomson Brooks/Cole:2006.

I will be using some of my previous work as examples throughout the class. PDFs are available on UBLearns:

1. Butler CL, Williams MA, Sorensen TK, Frederick IO, Leisenring WM. Relation between maternal recreational physical activity and plasma lipids in early pregnancy. Am J Epidemiol 2004;160(4):350-9. PMID 15286020.
2. Rudra CB, Williams MA, Sheppard L, Koenig JQ, Schiff MA, Frederick IO, Dills R. Relation of whole blood carboxyhemoglobin concentration to ambient carbon monoxide exposure estimated using regression. Am J Epidemiol 2010;171:942-51. PMID 20308199.
3. Rudra CB, Sorensen TK, Luthy DA, Williams MA. A prospective analysis of recreational physical activity and preeclampsia risk. Med Sci Sports Exerc 2008;40(9):1581-8. PMID 18685534.
4. Rudra CL [sic], Williams MA. BMI as a modifying factor in the relations between age at menarche, menstrual cycle characteristics, and risk of preeclampsia. Gynecol Endocrinol 2005;21(4):200-5. PMID 16316840.

Requirements

- **Eleven class homework assignments.** Homeworks will be posted on UBLearns at least one week before their due date. Homeworks are due at the start of class indicated on the schedule.
- **Nine lab homework assignments and one final lab project.** Lab homeworks will be assigned at the beginning of lab sessions and posted on UBLearns. The lab homeworks are due at the **start of the class (not the lab)**

indicated on the schedule. The final lab homework will be an unguided analysis of a dataset I will provide you. You will be given 2 weeks (including 2 lab sessions) to complete this final analysis.

- o **Two midterm exams.** The 100-minute in-class midterm exam on 3/5 will cover material from 1/29 until 2/26. The midterm exam on 4/11 will cover material from 3/7 to 3/28. Review sessions will be held in the class before each midterm.
- o **One final exam.** The in-class final exam will cover all material taught in the class.

Grading

Each class homework will be graded on a two-point scale.

- 0 Incomplete or no demonstration of work (*i.e.*, numerical answers without calculations)
- 1 Reasonable attempt at every problem, demonstration of work, but many minor errors or >2 major errors
- 2 Clear demonstration of work, only a few minor errors, and ≤ 2 major errors

Each lab homework will be graded on a two-point scale.

- 0 Nothing turned in
- 1 Incomplete
- 2 Reasonable attempt at every problem

The final lab project will be graded on a ten point scale, as described here:

- 1 point: Clearly stated and justified model
- 2 points: Clearly described and justified method of X variable selection and parameterization
- 1 point: Clear reporting of descriptive statistics (Table 1) in table formatted per provided examples
- 3 points: Clear reporting of model results (Table 2 or higher) in table formatted per provided examples
- 3 points: Clear reporting and interpretation of model results in text

Homework keys will be posted after the homeworks are turned in. I will grade the final lab homework. The TA will mark errors in other homeworks according my key, but I will define major and minor errors and determine the grade for each homework. If you have a question about a homework problem or concept, check the homework key, then see the TA if necessary, and then see me if necessary. If you have a question about the credit you received for the homework, see me rather than the TA.

The midterms and final exam will be closed-book, closed-notes, and in-class. Further details about the exam format will be given closer to the exam date.

The course grade will be calculated as follows:

- 22% class homeworks (2% each for 11 homeworks)
- 18% lab homeworks (2% each for 9 homeworks)
- 15% midterm exam I
- 15% midterm exam II
- 10% lab final project
- 20% final exam

I will use the following grade distributions when assigning your final grade:

A	93-100%	B-	80-82	D	60-67
A-	90-92	C+	78-79	F	<60
B+	88-89	C	70-77		
B	83-87	D+	68-69		

Policies

- **Late assignments:** Homeworks are due at the start of class. Late class or lab homeworks will not be accepted without good reason and permission from me. The TA cannot grant permission. Similarly, I will not grant a makeup exam without a good reason. Good reasons include death or serious illness in the family, a student's illness, emergencies, and travel directly related to your degree program (*e.g.* a conference at which you are presenting research). Good reasons do not include family vacations and extracurricular travel. If you know of a reason for which you request a makeup exam or extension (*e.g.*, conference travel), you must request prior permission from me as soon as possible. If you miss a homework or exam due to an emergency, you must contact me as soon as possible after the emergency is resolved to request an extension or makeup exam. I may request documentation to support the reason for your absence. Full, partial, or no credit will be assigned to late assignments at my discretion.
- **Absenteeism:** You are not required to attend class sessions or labs. However, if you miss a class or lab, it is your responsibility to ensure that the TA or I receive your assignment that is due by the start of class. If you will be absent from class, ask a trusted classmate to turn in the homework for you, or email me or the TA. If you turn in a hardcopy assignment, it needs to be delivered to me by then or it will be considered late. Emailed homeworks are due by the start (9 AM) of class.
- **Working with others:** Collaboration is allowed on the homeworks **except for the lab final project** under the following conditions. Deviation from these conditions will be considered cheating:
 - You should collaborate only after you have thought about each problem for at least 20 minutes on your own. This will help you learn the material and when taking your exams.
 - Your homework must be written in your own words. While problems can be discussed in the group, writing up the homework must be done individually. In particular, at no point should you have in your possession someone else's written homework.
- **Plagiarism and cheating:** Collaboration during the exams is not allowed. **Collaboration for lab HW 11 (the final analysis) is not allowed.** Collaboration on other class and lab homeworks is allowed only under the conditions listed above. I have no tolerance for academic dishonesty and plagiarism. I follow the UB policy on academic dishonesty and will use all resources available to me to determine if academic dishonesty has occurred.
- I follow the **UB policy on disabilities**.

Objectives

Class objectives, by week of class (week 1 = classes 1A and 1B, etc.)

1. Go over the course structure and expectations, review assigned articles. Learn direct and indirect standardization and Mantel-Haenszel pooled estimates of association.
2. Learn the motivation for regression; become familiar with terminology, definitions, and notation; see examples of several models.
3. Learn the method of least squares, F-test, t-test; linear model assumptions; understand and interpret linear model output.

4. Learn how to use linear regression for hypothesis testing and prediction. Be able to calculate fitted values and transform parameters as needed.
5. Learn how to evaluate the fit of a linear model and what to do when the model does not fit well.
6. Midterm 1. Define and motivate the logistic regression model. Become familiar with the logit function.
7. Become familiar with maximum likelihood estimation and assumptions of logistic regression. Learn how to compute and interpret the odds ratio and fitted value.
8. Learn hypothesis testing and prediction using the logistic regression model. Learn how to evaluate model fit and what to do when the model does not fit well.
9. Learn several ways to parameterize categorical and continuous variables and to report and interpret the resulting model output.
10. Midterm review and midterm 2.
11. Define confounding, learn strategies to detect and report it, and see examples.
12. Define interaction, learn strategies to detect and report it, and see examples.
13. Become familiar with survival analysis and the Cox proportional hazards model and learn when to use them. Become familiar with propensity scoring.
14. TBA. Final review session.

Course Title/Number: Introduction to Health Care Organization/11462

Department Name: Social and Preventive Medicine

Program Name: MPH

Semester: Fall; Year: 2013

Class Day/Time:	Mondays, 6:00-8:40 p.m.
Class Location:	182 Farber Hall
Format(s):	LEC
Prerequisite(s):	None
Instructor of Record:	Kristina M. Young, MS-Clinical Assistant Professor
Office:	268C Farber Hall
Phone Number(s):	716-829-5365
Email:	kmy@buffalo.edu
Office Hours:	By appointment
Teaching Assistant (TA):	None

I. (a) Course Description:

The course introduces students to the historical development, structure, operation, and current and future directions of the major components of the American health care delivery system. It examines the ways in which health care services are organized and delivered, the influences that impact health care public policy decisions, factors that determine priorities in financing health care services and the relationship of health care costs to measurable benefits. The course enables students to assess the role of organized efforts to influence health policy formulation, and the contributions of medical technology, research findings, and societal values to the evolving U.S. health care delivery system. Class time is also devoted to exploring emerging policy, ethical and legal dilemmas resulting from medical and technological advances.

I. (b) Course Rationale/Relationship to Curriculum Design:

This three-credit course is one of the required core courses for the MPH degree. From a population perspective, the course provides a foundation of knowledge about the history, major components and complexities of the current and reforming American health care system and defines and explains an array of major health care delivery system terms. Course learning objectives address several required competencies.

II. Course Objectives / Competency / Instructional Method(s) / Assessment of Student Learning

Learning Objective(s)	Accreditation/Program Competency	Instructional Method(s)	Assessment Method(s)
Define “population health” and compare and contrast with “individual intervention” perspective.	Professionalism 4. Analyze determinants of health and disease using an ecological framework. 9. Embrace a definition of public health that captures the unique characteristics of the field (e.g., population-focused, community-oriented, prevention-motivated and rooted in social justice) and how these contribute to professional practice.	Text reading and lectures threaded throughout numerous course topics, coupled with literature readings and classroom discussions.	Written exams; project papers as applicable.
List and describe benchmark policy developments in U.S. health care delivery and financing.	Health Policy and Management 1. Identify the main components and issues of the organization, financing and delivery of health services and public health systems in the U.S.	Text reading; lectures and classroom discussions of instructor-provided questions	Written exams
Review ways in which lifestyles and biology impact morbidity & mortality.	Public Health Biology 2. Describe how behavior alters human biology. 5. Explain the role of biology in the ecological model of population-based health. 8. Apply biological principles to development and implementation of disease prevention, control, or management programs.	Text reading; lecture and illustrative text materials: -changes in causes of death and disease prevalence throughout U.S. history - natural history of disease and levels of prevention - review illustrative graphics of “Natural History of Any Disease”, “Natural History of Cancer” and “Natural History of Aging”	Written exams; project papers as applicable

Learning Objective(s)	Accreditation/Program Competency	Instructional Method(s)	Assessment Method(s)
List, define and characterize the origins and effects of health disparities in populations on health outcomes and population health status.	Health Policy and Management 4. Discuss the policy process for improving the health status of populations. Social and Behavioral Sciences 2. Identify the causes of social and behavioral factors that affect health of individuals and populations. 6. Describe the role of social and community factors in both the onset and solution of public health problems. 7. Describe the merits of social and behavioral science interventions and policies. Diversity and Culture 7. Differentiate among availability, acceptability and accessibility of health care across diverse populations.	Text reading; lectures and classroom discussions; DVD case studies on health care accessibility.	Written exams; project papers as applicable
Identify and discuss health care system dilemmas posed by technology costs and undefined parameters for effective & efficient technology deployment.	Health Policy and Management #1. above.	Text reading; lectures; DVD on costs of health care with instructor-provided questions for class discussion.	Written exams; project papers as applicable
Identify and review effective disease prevention and intervention program parameters in the current delivery system.	Epidemiology 1. Identify the principles and limitations of public health screening programs. 2. Describe a public health problem in terms of magnitude, person, time and place. 9. Draw appropriate inferences from public health data.	Text reading; lectures and classroom discussions; review and discuss current literature articles.	Written exams; project papers as applicable

Learning Objective(s)	Accreditation/Program Competency	Instructional Method(s)	Assessment Method(s)
Describe major private, governmental, professional and economic contributions to the development and current operation of the public and private health care delivery systems.	Health Policy and Management # 1., above. 4. Describe the policy process for improving the health status of populations. 8. Apply “systems thinking” for resolving organizational problems.	Text readings; lectures and classroom discussions; review of current literature articles.	Written exams; project papers as applicable
Analyze challenges of implementing a population, prevention-oriented focus in the U.S. health care delivery system.	Professionalism 6. Analyze determinants of health and disease in an ecological framework. 7. Analyze the potential impacts of legal and regulatory environments on the conduct of ethical public health research and practice.	Text readings; lectures; articles from current literature; classroom discussions	Written exams; project papers as applicable
Describe and characterize major modes of U.S. health care delivery by facilities, consumers, services, costs and financing, categories of providers and their education and training preparation and credentialing.	Health Policy and Management # 1., above. 2. Describe the legal and ethical bases for public health and health services.	Text reading; lectures; classroom discussions of instructor-provided questions; DVD case studies with questions for small group discussions	Written exams; project papers as applicable

Learning Objective(s)	Accreditation/Program Competency	Instructional Method(s)	Assessment Method(s)
Compare and contrast U.S. population health status and health care expenditures with other developed nations.	Health Policy and Management # 1., above Systems Thinking 9. Analyze effects of political, social and economic policies on public health systems at the local, state, national and international levels.	Text readings; lectures; DVD on international comparisons with U.S. health care delivery system; classroom discussions of instructor-provided questions.	Written exams; project papers as applicable.
Describe health care quality improvement initiatives.	Health Policy and Management 7. Apply quality and performance improvements concepts to address organizational performance issues. #8., as above.	Text readings; lectures; discussions of articles	Written exams; project papers as applicable.
Describe challenges of public sector health policy-making as it relates to population health initiatives and private health care sector financing.	Health Policy and Management # 1., above	Text reading; lectures; classroom discussions of instructor-provided questions	Written exams; project papers as applicable
Identify and characterize educational and health system barriers to collaborative problem-solving, decision-making and evaluation; explain roles of health care interest groups.	Systems Thinking 1. Identify characteristics of a system. 9. Analyze inter-relationships among systems that influence the quality of life of people in their communities.	Text reading; classroom discussions of instructor-provided questions.	Written exams; project papers as applicable

Learning Objective(s)	Accreditation/Program Competency	Instructional Method(s)	Assessment Method(s)
Describe and characterize the significance of the historical relationship between public health and private practice medicine.	Professionalism 10. Appreciate the importance of working collaboratively with diverse communities and constituencies.	Text reading; classroom discussions of instructor-provided questions	Written exams; project papers as applicable
Review and discuss health information technology history, government incentives promoting adoption and progress to date.	Communication and Informatics 3. Discuss the influences of social, organizational and individual factors on the use of information technology by end-users.	Text reading; classroom lectures and discussions; articles from current literature	Written exams; project papers as applicable
Identify and characterize barriers to electronic health record adoption from provider and organization perspectives.	Communication and Informatics 6. Collaborate with communication and informatics specialists in the process of design, implementation and evaluation of public health programs.	Text reading; classroom lectures and discussions.	Written exams; project papers as applicable
Describe statistical data bases commonly used to identify and analyze public health issues.	Communication and Informatics 8. Use information technology to access, evaluate and interpret public health data. Epidemiology 1. Identify key sources of data for epidemiologic purposes.	Text reading; lectures	Written exams; project papers as applicable

Learning Objective(s)	Accreditation/Program Competency	Instructional Method(s)	Assessment Method(s)
Define “public health,” review historical origins of public health practice, U.K public health as the U.S. model; U.S. legislation establishing the public health infrastructure: Describe U.S. Department of Health and Human Services.	Professionalism 1. Discuss sentinel events in the history and development of the public health profession and their relevance for practice in the field. 4. Apply the core functions of assessment, policy development and assurance in the analysis of public health problems and their solutions. Health Policy and Management # 1. above.	Text reading; lectures; classroom discussions	Written exams; project papers as applicable
Define and characterize the U.S. public health system: core public health functions and public health agency responsibilities.	Professionalism #s 1. and 4 above Health Policy and Management # 1., above.	Text reading; classroom discussions	Written exams; project papers as applicable
Enumerate and describe the <i>Principles of the Ethical Practice of Public Health</i> as defined by the Public Health Leadership Society and underlying values developed by the Institute of Medicine.	Professionalism 2. Apply basic principles of ethical analysis (e.g. the Public Health Code of Ethics, human rights framework, other moral theories) to issues of public health practice and policy. 8. Distinguish between population and individual ethical considerations in relation to the benefits, costs and burdens of public health programs. Epidemiology 5. Comprehend basic ethical and legal principles pertaining to the collection, maintenance, use and dissemination of epidemiologic data.	Text reading; articles from current literature; classroom discussions; University of NC School of Public Health online ethics course Modules 1 & 7.	Written exams; project papers as applicable.

Learning Objective(s)	Accreditation/Program Competency	Instructional Method(s)	Assessment Method(s)
Characterize and discuss the significance of the historical relationship between public health and private medicine.	Professionalism 10. Appreciate the importance of working collaboratively with diverse communities and constituencies.	Text readings; lectures	Written exams; project papers as applicable
Review types of scientific research that contribute to health care advances including: disciplinary, biomedical, clinical, health services, public health, and comparative effectiveness	Professionalism 3. Apply evidence-based principles and the scientific knowledge base to critical evaluation and decision-making in public health	Text reading; lectures	Written exams; project papers as applicable
Define, compare and contrast qualitative and quantitative research and how each contributes to advances in public health and health care delivery.	Program Planning 7. Differentiate between qualitative and quantitative evaluation methods in relation to their strengths, limitations and appropriate uses, and emphases on reliability and validity.	Text readings; lectures	Written exams
Cast potential future scenarios for the U.S. health care delivery system	Health Policy and Management # 1., above	Text reading; lectures; classroom discussion of instructor-provided questions	Written exams

III. Textbooks /Equipment /Required Technologies

Resources	Required	Notes
Health Care USA; Understanding its Organization and Delivery, 8th edition; Harry A. Sultz and Kristina M. Young; Jones and Bartlett Learning, 2014	Yes	Available at UB Medical Bookstore, Harriman Hall lower level Rm. 20 and online
Textbook "Navigate" Companion Website	No, but strongly recommended	Many student resources to complement in-class presentations and study
Instructor-provided PowerPoint outlines of each textbook chapter	Yes	Use as study guides for key concepts, terms and exams
Instructor-provided articles from current literature and professional organization and media reports on health care delivery system ongoing developments.	Yes	Electronic copies and web links provided by instructor

IV. Course Learning Activities

- a. Students are expected to read assigned chapters prior to each class according to the schedule attached to this syllabus using PowerPoint outlines of each text chapter provided in advance as a guide.
- b. Students are expected to review instructor-provided articles and related questions in advance of each class to prepare for in-class, structured discussions.
- c. Selected, professionally produced DVD presentations on current health care delivery system issues such as quality, costs and access coupled with the use of instructor-provided trigger questions amplify the human and corporate dimensions of the delivery system to aid student comprehension of the system's complexity and challenges.
- d. Small-group-produced term papers of up to 20 pages in length, on instructor-approved topics require students to synthesize major concepts pertinent to health care delivery systems including the topic's significance to stakeholders, costs and relevant ethical impacts. Discussion of potential future scenarios is required. The instructor provides written guidelines for paper development. Each group is required to conduct a 20-minute presentation of its paper to the full class. It is intended that all members of each group receive the same grade. However, the instructor requires every group member to anonymously rate performance of their other group members on participation level and specific contributions to the final work. This peer rating may affect individual students' final paper grade.

V. Course and Instructor Evaluations

Detailed evaluation of the course and instructor will be conducted via the SPHHP online course evaluation (CourseEval). All students are required to complete the online course evaluation. Students who complete the online evaluation are reported to the instructor by the SPHHP

CourseEval Administrator. CourseEval protects students' anonymity: students are never identified on evaluation reports.

VI. Grading

Course Component	Due date	Percentage
Mid-term exam	October 21	30%
Project Paper	Hardcopy and electronic version: November 18	35%
Final exam	December 9	35%

Total: 100%

Final Grade Determination

Approximate grading points for letter grades:

92.0- 100	A	72.0- 77.9	C
90.0- 91.9	A-	70.0- 71.9	C-
88.0- 89.9	B+	68.0- 69.9	D+
82.0- 87.9	B	62.0- 67.9	D
80.0- 81.9	B-	<62.0-	F
78.0- 79.9	C+		

VII. Other course related information

It is students' responsibility to bring any difficulties with course material, assignments or Project Paper work to the instructor's attention at the earliest possible time in order to assist resolution.

VIII. Communication

Students with multiple email accounts must access or forward emails to their UB email. Unless specifically requested otherwise in writing, the instructor will send all course- related materials to students' UB email address.

The instructor uses both her corporate (kmy427@aol.com) and UB email (kmy@buffalo.edu) addresses to send student communications; emails are linked, so either address reaches her.

IX. Policy Regarding Absences, Attendance, Assignments, Exams, and University Policy on Incompletes in Courses

- **Class Attendance and Absences**

Attendance at all classes is required. In exceptional circumstances that result in a late class arrival or absence, students are required to contact the instructor prior to class either by voicemail or email. Class absence does excuse students from any assigned requirements due on the date of absence.

- **Late Assignments**

The Project Paper is due in both hardcopy and electronic format at the date and time noted in VI. above. Failure to submit the paper on time will result in a loss of 5 points per 24 hour period that the paper is late. Papers more than 72 hours late will not be accepted and students will receive no points toward their final grade for the assignment. Because the Project Paper is assigned and groups designated several weeks in advance of the due date, any circumstances that will prevent meeting the deadline must be communicated to the instructor at least 72 hours prior to the deadline date and time. Granting of a deadline extension is at the instructor's sole discretion.

- **Exams and Final Exam**

There will be a mid-term and final exam as listed in VI. above and on the Course Schedule. The examinations will be completed in class and will consist of multiple choice and true/false items. The instructor will discuss the scope of materials to be covered in each exam in class. Exam responses will be recorded on optically scanned forms for which the instructor will provide advance guidance.

- **Policy on Incomplete Grades for the Course**

Incomplete grades will be given only if there are extenuating circumstances (i.e. severe illness) that preclude the student from completing the course. The student must have satisfactorily completed all course work and successfully passed all exams (B or better) up until the time an incomplete is requested.

- **University Policy on Incomplete Grades**

A grade of incomplete ("I") indicate that additional course work is required to fulfill the requirements of a given course. Students may only be given an "I" grade if they have a passing average in coursework that has been completed and have well-defined parameters to complete the course requirements that could result in a grade better than the default grade. An "I" grade may not be assigned to a student who did not attend the course. Prior to the end of the semester, students must initiate the request for an "I" grade and receive the instructor's approval. Assignment of an "I" grade is at the discretion of the instructor.

The instructor must specify a default letter at the time the "I" grade is submitted.

A default grade is the letter grade the student will receive if no additional coursework is completed and/or a grade change form is not filed by the instructor. "I" grades must be completed within 12 months. Individual instructors may set shorter time limits for removing an incomplete than the 12-month time limit. Upon assigning an "I" grade, the instructor shall

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provide the student specification, in writing or by electronic mail, of the requirements to be fulfilled, and shall file a copy with the appropriate departmental office.

Students must not re-register for courses for which they have received an "I" grade.

Applicable dates regarding the 12-month provision:

Courses taken in (semester):	Will default in 12 months on:
Fall	December 31
Spring	May 31
Summer	August 31

The "I" must be changed to a grade before the degree conferral date if the students plans to graduate in that semester. At any time prior to the default date, students may elect to change the "I" grade to the default grade using the Grade Retrieval Form.

A default grade an be "A-," "B+," "B-," "C+," "C-," "D+," "D," or "F." (If a student selected an S/U grading option, it will replace the default letter grade when the grade defaults.)

Disability Policy

Students with any disability requiring reasonable accommodations to participate in this course must contact the Office of Disability Services, 25 Capen Hall, 645-2608, and also the course instructor during the first week of class. The ODS will provide information and review appropriate arrangements for reasonable accommodations. Please see: <http://www.student-affairs.buffalo.edu/ods/> for additional information.

Academic Integrity

Students who are suspected of academic dishonesty will be dealt with severely in accordance with the Department and University Policy. This may include a grade of 0 for an assignment and/or failure in a course.

Infractions may also include other more severe sanctions as outlined on the website provided in the last bullet of this section.

Academic Dishonesty: Actions that compromise academic integrity include, but are not limited to the following examples:

- *Previously submitted work:* Submitting academically required material that has been previously submitted – in whole or in substantial part – in another course, without prior and expressed consent of the instructor.
- *Plagiarism.* Copying or receiving material from any source and submitting that material as one's own, without acknowledging and citing the particular debts to the source (quotations, paraphrases, basic ideas), or in any other manner representing the work of another as one's own.
- *Cheating.* Soliciting and/or receiving information from, or providing information to, another student or any other unauthorized source (including electronic sources such as cellular phones and PDAs), with the intent to deceive while completing an examination or individual assignment.
- *Falsification of academic materials.* Fabricating laboratory materials, notes, reports, or any forms of computer data; forging an instructor's name or initials; resubmitting an examination or assignment for reevaluation which has been altered without the instructor's authorization; or submitting a report, paper, materials, computer data, or examination (or any considerable part thereof) prepared by any person other than the student responsible for the assignment.

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- *Misrepresentation of documents.* Forgery, alteration, or misuse of any University or Official document, record, or instrument of identification.
- *Confidential academic materials.* Procurement, distribution or acceptance of examinations or laboratory results without prior and expressed consent of the instructor.
- *Selling academic assignments.* No person shall sell or offer for sale to any person enrolled at the University at Buffalo any academic assignments, or any inappropriate assistance in the preparation, research, or writing of any assignment, which the sellers knows, or has reason to believe, is intended for submission in fulfillment of any course or academic program requirement.
- *Purchasing academic assignments.* No person shall purchase an academic assignment intended for submission in fulfillment of any course or academic program requirement.
- Please review: <http://academicintegrity.buffalo.edu>.

Student Handbook: All students are required to read the student handbook. An online version is available on the 'Information For Current Students' page of your department website.

COURSE SCHEDULE

This schedule below is subject to revision due to class progress and other factors. The instructor will inform students via email of any schedule or assignment changes. Additional required readings may be assigned and if so, will be assigned prior to the class at which they will be discussed.

<u>Date</u>	<u>Topic</u>	<u>Required Readings/Assignments</u>
Aug. 26	-U.S. health care delivery: accomplishments & failures - Major system stakeholders -Natural history of disease & levels of prevention - Technological advancements: pros & cons - Continuing system challenges	Text reading: Introduction & Chapter 1
Sept. 9	-Evolution of health care into an industrial complex -Battles over health insurance - Hospital development with the rise of insurance -Major health care legislative developments of the 20 th century -Advancing technology & the medical workforce: rise of "intervention" over "prevention" -Influences on health care system reforms	Text reading: Chapter 2 • DVD: "Sick Around the World" • Discussion questions • Handout: "Why the Affordable Care Act Needs a New Name"

Sept. 16	-History of health information technology (HIT) development -Current research on HIT impacts on costs and quality -HITECH Act: purposes and components: "meaningful-use." -Providers and institutional Issues of HIT implementation -Challenges of interoperability & proposed solutions: health information exchanges and regional health information organizations -Electronic health record implementation progress	Text reading: Chapter 3 • Handouts: "Need to Incorporate Health Information Technology into Physicians' Education and Professional Development," "Obtaining Providers' Buy-in" and Establishing Effective Means of Information Exchange will be Critical to HITECH's Success" • Discussion questions • Project Paper groups assigned by instructor
Sept. 23	-Early origins of U.S. hospitals -Hospital structure and organization -Forces that shaped the hospital industry -Evolution of academic health centers -Quality issues in hospital care -Hospital consolidations: trends in mergers and acquisitions; physician employment; hospitalists -ACA impacts on hospitals and future directions	Text reading: Chapter 4 • DVD: "Money and Medicine" • Handout: Discussion questions
Sept. 30	-Definitions of ambulatory care; auspices and ownership - Physician practices -New ambulatory care models -Hospital emergency departments --Ambulatory surgery -Federally Qualified Community Health Centers -Public health-sponsored ambulatory care -Not-for-profit voluntary agencies	Text reading: Chapter 5 • Handout: "Primary Care: Current Problems and Proposed Solutions." • Handout: Discussion questions • Project paper outlines due
Oct. 7	-History of U.S. medical education -Flexner Report & medical school reforms -Academic health centers -Graduate medical education & specialization -Trends in physician workforce supply and demand -Preventive medicine: physician roles -Physician-hospital relationships in the reformed system -Evidence-based clinical guidelines -Physician quality accountability	Text reading: Chapter 6 • Handout: Discussion questions

Date	Topic	Required Readings/Assignments
Oct. 14	-Credentialing and regulating health professions -Health care occupations and education and training requirements -Factors influencing health personnel demand -The ACA and health care workforce issues -The future: complexities of health care workforce planning	Text Reading: Chapter 7 • DVD: "Escape Fire" • Handout: Discussion questions
Oct. 21	Midterm exam; Financing health care, Part 1 -Health care expenditures: global perspectives -Drivers of health care expenditures -Evolution of private health insurance -Government as source of payment: Medicare, Medicaid and CHIP	Text reading: Chapter 8, pp. 289-321
Oct. 28	Financing health care, Part 2 -ACA health care financing provisions; - Individual mandate and insurance expansions - Medicaid expansion - Health insurance exchanges - Penalties, taxes and fees - Reimbursement experiments and the Independent Payment Advisory Board - Continuing challenges	Text reading: Chapter 8, pp. 321-336 • DVD "Sick Around America" • Handout: Discussion questions
Nov. 4	-Historical development of long-term care services - Modes of long term care: types, facilities, definitions and personnel - Quality, cost and accessibility issues in long-term care -Innovations in long term care -Long term care insurance -The future of long-term care	Text reading: Chapter 9 • DVD: "Assisted Living" • Handout-Discussion questions

Date	Topic	Required Readings/Assignments
Nov. 11	-Current developments and historical overview of mental health services - Recipients of psychiatric and behavioral health services -Treatment services -Barriers to care -Organization of psychiatric and behavioral health services -Paradigm shifts: Recovery-oriented systems of care -Financing psychiatric and behavioral health services -The future of psychiatric and behavioral health services	Text reading: Chapter 10
Nov. 18	-Public health defined -A brief early history of public health - Development of U.S. public health and government supported services -Responsibilities of the public health sector - Public health and private medicine - Challenges of disenfranchised populations -Public health services and voluntary agencies -Public health ethics -The ACA: major public health provisions -The future	Text reading: Chapter 11 • Handout: Discussion questions: public health ethics; UNC Public Health Ethics: Modules 1 and 7: Review at: http://oce.sph.unc.edu/phethics/modules.htm • Project Papers Due
Nov. 25	-Focus of different types of research: epidemiology, health services, outcomes -Patient satisfaction research -Research ethics and conflicts of interest -Continuing challenges in the reform era - The challenges of technological advancements -Changing dimensions of health care delivery landscapes - Promises of health information technology -The ACA: closing the gap between public health and clinical medicine -Predictions and future challenges	Text readings: Chapters 12 & 13 • Preparation for presentations • Student presentations (1)

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<u>Date</u>	<u>Topic</u>	<u>Required Readings/Assignments</u>
Dec. 2	Student Presentations (2)	Preparation for presentations
Dec. 9	Final Exam	

Social and Preventive Medicine 509
Alcohol Epidemiology
Spring 2011

Instructor:

William F. Wieczorek, Ph.D. (878-6137) e-mail: wieczowf@buffalostate.edu
Office hours after class or by appointment

Time and Location: Wednesdays, 1:00-3:20pm
Farber 182

Course Objectives:

The main objectives of this course are (1) to provide a broad overview of alcoholism and alcohol use, including the definition, history, and etiology of alcoholism/dependence, and the epidemiology of alcohol use, and (2) to examine alcohol's role as a risk factor for health and social consequences.

Grading:

Class Participation (5%)
Mid-term exam (25%)
Assigned Class presentation (25%)
Presentation on Your Research Topic (25%)
Research Paper (20%)

Participation: Class participation is based on attendance and is graded as full credit or no credit (2 or more absences).

Exam: The mid-term exam format will include definitions of concepts and short essays on major topics presented in the course. The mid-term exam will take about 1-1.5 hours to complete.

Research Paper: The research paper will be on an alcohol-related topic selected by the student and approved by the instructor. The instructor **must** approve the topic for your paper. **A concept paragraph (about five sentences) for your paper is due no later than February 23.** Your final paper **CANNOT** be longer than 10 typed pages (12 point type, double spaced, excluding references), about half the paper is recitation of your topic and the other half is interpretation/analysis. The purpose of this format is to have students develop a highly focused assessment of the main public health, health practice, policy, or research implication(s) of the selected issue.

Class Presentations: You will have two class presentations: the first will be on a topic assigned by the instructor and the second will be on the same topic as your paper. Each presentation should be in Powerpoint format (or other format with the approval of the instructor).

Grades: A > 90%, A- 88-90%, B+ 85-87%, B 81-84%, B- 78-80%, C < 78%

Readings:

Readings will be assigned from the text; additional readings also will be assigned from other sources. Main text: Babor et al. (2010). Alcohol: No Ordinary Commodity. Oxford University Press:New York (ISBN978-0-19-955114-9).

Class Schedule: (chapter in text; additional readings to be assigned)

Jan 19	Health Impact of Alcohol Use (Chapt 4)
Jan 27	Basic processes in alcohol consumption
Feb 2	Epidemiology/Demography of Alcohol Consumption and Problems (Chapt 3) Definition and Measurement of alcohol use disorders (Chapt 2)
Feb 9	Alcohol Consumption: Measurement and analytical issues
Feb 16	Drinking and Driving (Chapt 11) Underage Drinking
Feb 23	Alcohol & Violence Alcoholism Theories/Theoretical Issues
March 2	Physical Availability and Geographic Factors (Chapt 9) Addiction video
March 9	Mid-term Alcohol and Gambling
March 23	Alcohol Use by Minorities and Women Fetal Alcohol Syndrome
March 30	Neuroscience and behavioral genetics Alcohol treatment (Chapt 14)
April 6	Prevention and policy approaches (Chapt 12, 13)
April 13	Student Presentations
April 20	Student Presentations
April 27	Student Presentations
May 12	Final Papers Due

Note that the schedule is subject to change.

SPM 511: Nutritional Epidemiology (Fall 2011)

School of Public Health and Health Professions

Department of Social and Preventive Medicine

Course Instructor: Amy Millen, PhD

Farber Hall, Room 270F

Phone: 716.829.5377

Email: aemillen@buffalo.edu

Class: Fridays 9:00-11:40 am, Farber Hall, Room 182

Office hours: By appointment via email or arrange after class

Course Summary

This course is designed for graduate students, at either the Master's or the PhD level, with an interest in nutritional epidemiology. The purpose of this course is threefold:

- 1) To provide students with the ability to understand and critically evaluate the nutritional epidemiology literature; and
- 2) To provide students with basic knowledge to incorporate nutritional assessment measures into future epidemiologic studies,
- 3) To provide students with the basic concepts involved in the analysis of nutritional epidemiologic data.

This course will review current methods of assessing nutritional status, with emphasis on dietary assessment methodology, biological markers, and supplement use. This course will address the application of epidemiologic methods to studies of nutrition and disease (with an emphasis on chronic disease), and highlight methodologic issues and interpretation of findings.

Primary Course Objectives:

To enable students to:

1. Discuss the complexity of assessing the diets of free-living individuals.
2. Name and describe the purpose of the US Dietary Standards, the US Dietary Guidelines, and the food guidance system used for translating the Dietary Guidelines.
3. Name and describe the major nutrition monitoring and surveillance systems in the US.
4. Choose a dietary intake instrument appropriate to particular research designs and questions.
5. Gain an appreciation that research in nutritional epidemiology requires an understanding of nutrition, physiology, and biochemistry.
6. Explain the general function of macronutrients and micronutrients and their potential consequences on human health.
7. Outline the strengths and weaknesses of assessing nutrition through biological markers.
8. Describe the difficulties of assessing and analyzing supplement intake data.
9. Discuss basic nutritional epidemiologic analyses used to assess relationships between diet and disease, and the challenges of such analyses.
10. Name different, commonly used ways to assess dietary patterns and describe the strength and weakness of using dietary patterns versus single nutrient or food analyses.
11. Critically evaluate nutritional epidemiologic literature.

Course Prerequisite

Introduction to epidemiology (SPM 501) is a prerequisite for this course. All students are required to have knowledge of general epidemiology. Students who have not taken SPM 501 must obtain approval from the instructor to take SPM 511.

Required text and readings and homework assignments:

There is NO required text. Readings will be assigned and noted in the syllabus and can be found in one of three locations. Readings will be on UBelearns unless noted otherwise in syllabus:

1. On the UBelearns Blackboard website under "Course Documents."
2. In course reserve (electronically) through UB Libraries.
http://bison.buffalo.edu:8991/F/?func=find-b-0&local_base=UBRSV
3. In the book "Nutritional Epidemiology" by Walter Willett held on reserve at the Health Sciences Library (HSL) and in SPM with Mary Orlowski in Farber 242. Mary is here every day from 9 to 4 pm. In both HSL and SPM, check out for the reserved book will be in 2 hour time slots.

Student performance evaluation

Students will be evaluated on class attendance and participation, completion of a homework assignment, 2 in-class tests, an in-class comprehensive final, and a grant proposal and presentation of the proposal. Each of the two in-class tests will be approximately 1 ½ hours long (not the entire class). These activities will be weighted as follows:

Class attendance and participation	5%
Food frequency questionnaire & food record	5%
Test 1	15%
Test 2	15%
Final	20%
Grant Proposal & Presentation	40%
1 st draft Significance & Background	5 pts
2 nd draft Significance & Background + Specific Aim(s)/Hypotheses + Innovation	5 pts
1 st draft Analytic approach	5 pts
2 nd draft Analytic approach	5 pts
Final version	10 pts
Presentation	10 pts

Assignments are due at the start of class on the specified due date unless otherwise instructed. Assignments turned in late will receive a 10% deduction in the grade for each day they are late.

Please type all homework assignments (no handwritten assignments please).

For papers, please hand in a hard copy and email a version (in Microsoft Word) to the instructor (aemillen@buffalo.edu).

For exams, students are required to use a code in lieu of their name. This is an 4 digit code chosen by the student at the start of class. Using this code is an effort to reduce any potential bias in grading.

Assignment of letter grades:

A	≥92%	C+	78-79.9%
A-	90-91.9%	C	72-77.9%
B+	88-89.9%	C-	70-71.9%
B	82-87.9%	D	60-69.9%
B-	80-81.9%	F	<60%

Expectations of Students

This course is designed in a seminar style format. Teaching will be a combination of didactic presentations and student participation. The instructor believes that student participation is an integral part of the process of learning and developing competencies in the area of nutritional epidemiology.

Come to class prepared, which means complete the required readings and bring necessary materials or assignments to class. In addition to coming to class prepared, students are expected to be actively engaged in the learning at every class meeting.

Attendance is required. Students will be allowed one (1) excused absence without penalty.

Students are expected to be present at the start of class (unless arrangements are made prior to class) in order to participate fully in the reviews and discussion.

Communication with the Instructor

There are no official office hours. Appointments to meet with the instructor can be scheduled via email or arranged after class. Please allow 24 hours for responses to emails on weekdays and 48 hours on weekends.

Accommodation for students with disabilities

If you have any disability for which you may require accommodation, you are encouraged to notify your instructor and Disability Services, 25 Capen Hall, Tel: (716) 645-2608, during the first two weeks of the term.

Citation Style

We will be following the *American Journal of Epidemiology's* (AJE) citation style for all homework and papers where you cite others work. Please see the following link at AJE's website under "Manuscript Instruction for Authors"

http://www.oxfordjournals.org/our_journals/aje/for_authors/general.html.

This section describes their instructions for references and gives reference style examples. Points will be deducted for not following this reference style.

Emails

When sending emails to the instructor, please put "NUTEPI" in the subject of the email (with or without additional text). This will help me easily identify emails from class

RECOMMENDED RESOURCES:

Nutritional epidemiology and diet assessment texts

- Willett, W. Nutritional Epidemiology, 2nd edition. Oxford University Press, 1998.
 - **ON RESERVE AT HSL AND SPM**
- Margetts B and Nelson M (eds). Design Concepts in Nutritional Epidemiology. 2nd edition. Oxford University Press, 1997.
- Gibson RS. Principles of Nutritional Assessment. 2nd edition. Oxford University Press, 2005.

Basic nutrition texts

- Brown JE. Nutrition Now. Wadsworth Publishing, 6th edition.
- Gropper SS, Smith JL, and Gropper JL. Advanced Nutrition and Human Metabolism, 5th edition. Wadsworth, Cengage Learning, 2009.
- Present Knowledge in Nutrition, 9th edition, (eds. Bowman BA and Russell RM), International Life Sciences Institute, 2006.
- Shils M, Shike M, Olson J, and Ross C. Modern Nutrition in Health and Disease, 10th edition, Lippincott Williams & Wilkins, 2005.

Nutrition in the context of disease

(Data in these books are not exclusive to epidemiology. However, these texts are good resources for reviews of the current literature and nutritional mechanisms related to disease.)

- Coulston AM and Boushey (eds). Nutrition in the Prevention and Treatment of Disease. 2nd edition. Academic Press, 2008.
- Heber D, Blackburn GL, Go VLW, Milner J (eds). Nutritional Oncology. 2nd edition. Academic Press, 2006. (available online text through UB library).

Premier nutrition journals that often present nutritional epidemiology data:

American Journal of Clinical Nutrition
Journal of Nutrition

Premier journals of epidemiology that often present nutritional epidemiology data:

American Journal of Epidemiology
Cancer Epidemiology Biomarkers and Prevention
Annals of Epidemiology

These are so many other journals where nutritional epidemiology data is also present:

JAMA, New England Journal of Medicine, and so many other specialty journals that focus on diseases other than cancer that include articles on nutrition and disease using epidemiologic methods.

Academic Integrity

The University at Buffalo has no tolerance for academic dishonesty and plagiarism. Any work submitted by a student must represent his/her own intellectual contribution and efforts. Any student found to be engaged in cheating, plagiarism, or any other act of academic dishonesty will be subject to a failing grade in the assignment and/or the course and to further disciplinary action.

All students are expected to be familiar with and abide by the University's academic integrity policies, both Undergraduate and Graduate

<http://undergrad-catalog.buffalo.edu/policies/course/integrity.shtml>

<http://ublib.buffalo.edu/libraries/asl/guides/plagiarism.html>

<http://academicintegrity.buffalo.edu/video/index.php>

Please see the Graduate School's web-based Policies & Procedures Manual located at <http://www.grad.buffalo.edu/policies/index.php>. Read the section on *Academic Integrity Policies and Procedures*.

Plagiarism detection software may be used by individual instructors or the institution to aid in determining the originality of student work. All papers will be required in electronic form as they will be run through the software for plagiarism detection.

As stated above, this class will adhere to the UB policy on academic dishonesty.

You are required to sign the next page stating that you have read and comprehend this above sections on academic integrity. This will be due at the start of the second class.

If you have any questions about proper citation methods, please don't hesitate to talk to the instructor or a librarian.

**ACKNOWLEDGEMENT OF UNDERSTANDING
OF THE UNIVERSITY AT BUFFALO'S
POLICY ON ACADEMIC INTEGRITY**

I, _____,
(Write your first and last name)

have read in full the University at Buffalo's Graduate School Policy on Academic Integrity
located at <http://www.grad.buffalo.edu/policies/index.php>

(posted as of August 16, 2010).

By signing this document I acknowledge that I understand and will follow the policies described
in this document.

CLASS DATE	TOPIC	Assignment
CLASS 1 September 2	Class Overview, Expectations, & Assignments Introduction to Nutritional Epidemiology US Dietary Standards and Recommendations	Assigned: FFQ and FR homework Assigned: Grant topics
CLASS 2 September 9	Overview of Macronutrients functions Nutrition monitoring and surveillance Nature of variation in the diet	
CLASS 3 September 16	Overview of Micronutrient functions Nutrient Composition Databases Assessment of Dietary Supplement Use	
CLASS 4 September 23	Dietary Assessment Instruments	Due: Completed FFQ and Food Records
CLASS 5 September 30	Validation and Reproducibility of Dietary Assessment Methodologies & Measurement Error	Due: 1 st draft of Grant <u>Significance & Background</u>
CLASS 6 October 7	TEST 1 (Classes 1-4) Biomarkers	Returned: 1 st draft of Grant <u>Significance & Background</u>
CLASS 7 October 14	Data Analysis & Energy Adjustment (Biomarkers continued...)	
CLASS 8 October 21	Diet Patterns (Data Analysis & Energy Adjustment continued...)	Due: 2 nd draft of Grant <u>Significance & Background + Specific Aim(s)/ Hypotheses + Innovation</u> and 1 st draft of <u>Analytic Section</u>
CLASS 9 October 28	Nutrition Intervention Trials (Diet Patterns continued....)	Returned: 2 nd draft of Grant <u>Significance & Background + Specific Aim(s)/ Hypotheses + Innovation</u> and 1 st draft of <u>Analytic Plan</u>
CLASS 10 November 4	TEST 2 (Classes 5-8 (but not diet patterns)) Public Health Concerns of Obesity (Jennifer Temple)	Due: 2 nd draft of Grant <u>Analytic Plan</u>
CLASS 11 November 11	Nutrition Concerns in Developing Countries (Pavani Ram)	Returned: 2 nd draft of Grant <u>Analytic Plan</u>
CLASS 12 November 18	Making Policy – When is Evidence Sufficient? (Suzen Moeller) – topic TBD	
November 25	Class recess – Happy Thanksgiving!	
CLASS 13 December 2	Presentations	Due: <u>Final Grant (all parts)</u>
CLASS 14 December 9	Presentations Class wrap up	
FINALS WEEK Date TBD	FINAL EXAM (comprehensive)	

CLASS 1 September 1	Class Overview, Expectations, & Assignments Introduction to Nutritional Epidemiology US Dietary Standards and Recommendations
Required Readings	Neuhouser ML and Patterson RE. "Overview of Nutritional Epidemiology." In: Nutrition in the Prevention and Treatment of disease, 2nd ed. (course reserve at UB libraries) Tarasuk VS, Brooker A. Interpreting epidemiologic studies of diet-disease relationships. J Nutr 1997;127:1847-1852. Freudenheim JL. Study design and hypothesis testing: issues in the evaluation of evidence from research in nutritional epidemiology. Am J Clin Nutr 1999;69(suppl): 1315S-1321S. Read Dietary Guidelines 2010 Murphy SP. "Dietary Standards in the United States." In: Present Knowledge in Nutrition. 9th edition. (course reserve at UB libraries) Go to http://www.choosemyplate.gov/ To familiarize yourself with this website. Read: "Getting started with MyPlate" and "A Brief History of USDA Food Guides" (both on the website and also on Blackboard)
Class activity/ Assignment	IN CLASS EXERCISE: Factors that influence diet disease associations HOMEWORK 1 ASSIGNED: Food Record & FFQ GRANT TOPIC ASSIGNED
Learning Objectives	1. Define nutritional epidemiology. 2. Describe the purpose of a dietary standard and the types of dietary standards used in the US. 3. Describe what the purpose of the Dietary Guidelines is and how this information is translated to consumers. 4. Describe factors that could influence diet and disease associations.

CLASS 2 September 9	Overview of Macronutrients functions Nutrition monitoring and surveillance Nature of variation in the diet
Required Readings	Willett W. Nutritional Epidemiology. Chapter 3, "Nature of Variation in Diet" (book on reserve at HSL) Briefel RR. "Nutrition Monitoring in the United States." In: Present Knowledge in Nutrition. 9th edition. (course reserve at UB libraries). Ortega MI and Valencia ME. Measuring the intakes of foods and nutrients of marginal populations in north-west Mexico. Public Health Nutrition. 5(6A):907-910.
Assignment/ Class activity	DUE: Signed academic integrity sheets. IN CLASS EXERCISE: Ortega paper discussion ASA34 - 24HR in class exercise
Learning Objectives	1. Explain the general function of macronutrients and their potential consequences on human health. 2. Explain what types of variation in dietary intake occurs and why variation in dietary intake occurs. 3. Explain how variation in dietary intake influences assessment of usual dietary intake. 4. Explain the purposes\uses of nutrition monitoring data and how they relate to public health. 5. Describe the current nutrition monitoring programs used in the US.

CLASS 3 September 16	Overview of Micronutrient functions Nutrient Composition Databases Assessment of Dietary Supplement Use
Required Readings	Pennington JAT et al., "Food Composition Data: The Foundation of Dietetic Practice and Research." JADA. 2007;107:2105-2113. deKleijn MJJ, et al. "Intake of dietary phytoestrogens is low in postmenopausal women in the United States: The Framingham Study." J Nutr. 2001;131:1826-1832. Neuhouser ML. "Dietary Supplement Use by American Women: Challenges in Assessing Patterns of Use, Motives and Costs." J Nutr. 2003;133:1992S-1996S. David Schardt. Multiplex. What you need to know about multivitamins. In: Nutrition Action Health Letter. September 2011.
Assignment/ Class activity	IN CLASS EXERCISE: deKleijn et al., Neuhouser, and Schardt paper discussion
Learning Objectives	1. Explain the general function of micronutrients and their potential consequences on human health. 2. Define what a nutrient composition database is, its purpose, as well as the assumptions of nutrient composition databases. 3. Know the different factors that can affect the accuracy of a nutrient composition database. 4. Explain what types of nutrient composition databases can be used with different types of dietary assessment tools. 5. Know the "gold standard" nutrient composition database and what government agency maintains it, as well as be familiar with other nutrient composition databases available. 6. Describe the challenges in collecting data on dietary supplement use. 7. Know the potential confounders and biases you may encounter when studying associations between supplement use and disease outcomes.

CLASS 4 September 23	Dietary Assessment Instruments
Required Readings	Thompson FE and Subar AF. "Dietary Assessment Methodology." In: Coulston AM and Boushey CJ, eds. Nutrition in the Prevention and Treatment of Disease. p 3-39. (course reserve at UB libraries). Bingham SA, et al. "Are imprecise methods obscuring a relation between fat and breast cancer?" Lancet. 2003;362:212-214. Shattuck Kolar A, et al. "A practical method for collecting 3-day food records in a large cohort." Epidemiology. 2005;16(4):579-82. Kristal AR et al. "Is it time to abandon the food frequency questionnaire?" CEBP;2005;14:2826-2828.
Assignment/ Class activity	Due: Completed FFQ and Food Records IN CLASS EXERCISE: Dietary Assessment Tool Discussions Discuss Bingham et al. and Shattuck Kolar papers
Learning Objectives	1. Name the different dietary assessment tools used in nutritional epidemiology. 2. Name differences in how dietary intake is assessed with each tool. 3. Describe settings/study designs/study questions in which it would or would not be appropriate to use each dietary assessment tool. 4. Name the two main components of a food frequency questionnaire. 5. Describe different sources of measurement error which occurs with each dietary assessment tool.

CLASS 5 September 30	Validation and Reproducibility of Dietary Assessment Methodologies & Measurement Error
Required Readings	Willett W. Nutritional Epidemiology. Chapter 6, “Reproducibility and Validity of Food Frequency Questionnaires” (book on reserve at HSL) Willett W. Nutritional Epidemiology. Chapter 12, “Correction for Measurement Error” (book on reserve at HSL) Lee JE et al. “Fat, Protein, and Meat Consumption and Renal Cell Cancer Risk: A Pooled Analysis of 13 Prospective Studies.” J Natl Cancer Inst. 2008;100:1695-1706. - o Related editorial: Kipnis V and Freedman LS. “Impact of Exposure Measurement Error in Nutritional Epidemiology.” JNCI. 2008;100:1658-9. Subar AF, et al., “Comparative validation of the Block, Willett, and National Cancer Institute food frequency questionnaires: the Eating at America’s Table Study.” AJE. 2001;154(12):1089-99. - o Related Comments: Block AJE. 2001;154(12):1100-2 and Willett AJE. 2001;154(12):1105-6. - o Related Editorial: Byers T. Food frequency dietary assessment: how bad is good enough? Am J Epidemiol. 2001 Dec 15;154(12):1087-8.
Assignment/ Class activity	Due: 1st draft of Grant Significance & Background IN CLASS EXERCISE: Discuss Subar et al. paper
Learning Objectives	1. Describe different types of exposure measurement error encountered in nutritional epidemiology. 2. Describe the objectives of a validation and reliability study for an FFQ. 3. What assumptions are made with respect to measurement error when validating an FFQ with another dietary assessment tool (e.g., 24HR or Food Record). 4. Describe how a correlation coefficient in a validation study or risk estimate in an association study is adjusted for measurement error using data from a validation (calibration) study.

CLASS 6 October 7	Biomarkers
Required Readings	Jenab M et al. "Biomarkers in nutritional epidemiology: applications, needs and new horizons." Hum Genet. 2009;125:507-525 Willett W. Nutritional Epidemiology. Chapter 9, "Biochemical Indicators of Dietary Intake". (<i>includes encyclopedia of nutritional biomarkers</i>) (book on reserve at HSL) Jakszyn P. "Endogenous versus exogenous exposure to N-nitroso compounds and gastric cancer risk in the European Prospective Investigation into Cancer and Nutrition (EPIC-EURGAST) study." Carcinogenesis. 2006;27(7):1497-1501.
Assignment/ Class activity	TEST 1 IN CLASS EXERCISE: Biomarker exercise Discussion of critical evaluation of the Jakszyn P et al. paper.
Learning Objectives	1. Describe what is a nutritional biomarker and the different general categories of nutritional biomarkers. 2. Be able to differentiate between a direct measure and a functional measure of nutrient exposure. 3. Understand what you would need to know about a biomarker to determine whether it would be a useful marker to assess intake of the nutrient or food component. 4. Understand which nutritional biomarkers are more short-term, medium-term, or long-term markers of nutritional exposure. 5. Know which factors (both dietary and non-dietary) that may affect the misclassification of nutrition exposure when using biomarkers. 6. Know the reference biomarkers for total energy and protein intake and understand the overall findings from the Observing Protein and Energy Nutrition (OPEN) Study. 7. Understand the advantages and limitations of using different nutritional biomarkers. 8. Know how study design may influence whether or not you can or choose to use a nutritional biomarker. 9. Understand why the correlation between dietary intake and blood indicators of nutrient status may be low in cross-sectional studies. 10. Describe how you might validate a biomarker.

CLASS 7 October 14	Data Analysis & Energy Adjustment (Biomarkers continued...)
Required Readings	Willett WC, et al. "Adjustment for total energy intake in epidemiologic studies." AJCN; 1997: 65(suppl):1220S-8S. Willett W. Nutritional Epidemiology. Chapter 13, "Issues in Analysis and Presentation of Dietary Data." (book on reserve at HSL) Hu FB et al. "Dietary fat intake and the risk of coronary heart disease in women." N Engl J Med. 1997;337"1491-9. Hu FB et al. "Dietary fat and coronary heart disease: A comparison of approaches for adjusting for total energy intake and modeling repeated dietary measurements." Am J Epidemiol. 1999;149-531-40.
Assignment/ Class activity	IN CLASS EXERCISE: Data analysis exercises Discussion of critical evaluation of the Hu et al. 1997 paper.
Learning Objectives	1. Understand what factors you should consider when cleaning collected dietary intake data. 2. Describe the different ways to parameterize nutrient, food group or food pattern intake in analyses. 3. Understand why consideration of the correct critical window of exposure for dietary assessment is important in nutritional epidemiology. 4. Describe potential confounders, effect modifiers and sources of potential bias in nutritional epidemiology. 5. Know what is meant by multicollinearity in nutritional epidemiology. 6. Understand what is mean by energy adjustment in nutritional epidemiology. 7. Describe the different methods used for energy adjustment.

CLASS 8 October 21	Dietary Patterns (Data Analysis & Energy Adjustment continued...)
Required Readings	Moeller S et al. "Dietary patterns: challenges and opportunities in dietary patterns research." J Am Diet Assoc 2007;107(7): 1233-39. Guenther PM et al. "Development of the Healthy Eating Index." J Am Diet Assoc. 2008;108:1896-1901. USDA Healthy Eating Index 2005. Access at http://www.cnpp.usda.gov/HealthyEatingIndex.htm Mares JA, et al. "Healthy Lifestyles Related to Subsequent Prevalence of Age-Related Macular Degeneration." Arch Ophthalmol. 2011;129(4):470-80.
Assignment/ Class activity	Due: 2nd draft of Grant <u>Significance & Background</u> + <u>Specific Aim(s)/Hypotheses</u> + <i>Innovation</i> and 1st draft of <u>Analytic Section</u> IN CLASS EXERCISE: Discussion of critical evaluation of the Mares et al. paper.
Learning Objectives	1. Understand why you would conduct a dietary patterns analysis over a single nutrient/food group analysis. 2. Differentiate between a <i>posterior (data-driven)</i> and a <i>priori (score-based)</i> approaches to dietary patterns. 3. Differentiate between factor analysis and cluster analysis. 4. Know the strengths and weaknesses of data-driven and scored-based methods. 5. Be familiar with the basic components of the healthy eating index.

CLASS 9 October 28	Nutrition Intervention Trials (Diet Patterns continued...)
Required Readings	Kristal AR. "Are Clinical Trials the "Gold Standard" for Cancer Prevention Research?" CEBP. 2008;17(12):3289-3291. Kristal AR. "Nutrition prevention of cancer: new directions for an increasingly complex challenge." JNCI. 2009;101(6):363-5. Prentice RL and Andersen GL. "The Women's Health Initiative: Lessons Learned." Annual Review of Public Health. 2007;29:131-50. Morris MC and Tangney CC. "A potential design flaw of randomized trials of vitamin supplements." JAMA. 2011;305(13):1348-9.
Assignment/ Class activity	None planned. Likely will continue with dietary patterns paper discussion.
Learning Objectives	1. Understand the strengths and limitations of nutrition intervention trials. 2. Describe potential modifiers of nutrition intervention trials.

GUEST LECTURES

CLASS 10 November 4	Public Health Concerns of Obesity
Required Readings	TBD
Assignment/ Class activity	TEST 2 Due: 2nd draft of Grant <u>Analytic Plan</u> Others - TBD
Learning Objectives	TBD

CLASS 11 November 11	Nutrition Concerns in Developing Countries (Pavani Ram)
Required Readings	TBD
Assignment/ Class activity	TBD
Learning Objectives	TBD

CLASS 12 November 18	Making Policy – when is evidence sufficient? (Suzen Moeller)
Required Readings	TBD
Assignment/ Class activity	TBD
Learning Objectives	TBD

PRESENTATIONS

CLASS 13 December 2	Presentations
Required Readings	None
Assignment/ Class activity	Listen to Presentations, ask questions Due: <u>Final Grant (all parts)</u>

CLASS 14 December 9	Presentations/ Class wrap up
Required Readings	TBD
Assignment/ Class activity	Listen to Presentations, ask questions Discuss required reading(s)

Infectious Diseases Epidemiology SPM 513

Timings and location: Fridays 8:00 am – 10:40 am, Rm 180 Farber Hall

Instructor:

Pavani K. Ram, MD
Associate Professor
Social and Preventive Medicine
e-mail: pkram@buffalo.edu
tel: 829-5380

Co-Instructor:

Heather Lindstrom, PhD
Research Assistant Professor, Social and Preventive Medicine
Research Director, Department of Emergency Medicine and University Emergency Medicine Services
e-mail: HLindstrom@ecmc.edu
tel: 898-4564

Office hours: By appointment or e-mail

Dr. Ram will make herself available to meet with you typically within 24 hours of your request. Email is always the most reliable way to reach her. Please do NOT hesitate to contact her.

Dr. Lindstrom will also be available to meet with you, typically after the class each Friday. Email is the best way to reach her as well. Particularly when Dr. Ram is traveling, please do not hesitate to contact Dr. Lindstrom.

Prerequisite: a passing grade in SPM 501 has typically been the prerequisite for this course; because of the shift to the fall semester, a number of students are concurrently enrolled in SPM 501. It is the student's responsibility to ask for assistance if a lack of core epidemiologic principles is preventing mastery of the topics addressed in SPM 513.

Text:

Case Studies in Field Epidemiology: A global perspective. Mark Dworkin, Jones and Bartlett, 2010.

The text is available at the University Bookstore; if you choose to order your text from an online book source such as Amazon or Barnes and Noble, please ensure that you have the text before the start of classes.

Additional text (not required but may be useful):

Epidemiologic Methods for the Study of Infectious Diseases, ed. J.C. Thomas and D.J. Weber, Oxford University Press, New York, 2001.

Additional readings: I have provided the citation for papers that need to be downloaded for each week's class on the syllabus. You will receive an email in case of an update to the syllabus. The full text of all the readings is available for free online, or through the University Libraries electronic journal holdings (<http://library.buffalo.edu/libraries/findlibrarymaterials/ejournals/>).

Course objectives: At the conclusion of the course, students will be able to:

1. Describe bacteria, viruses, and parasites, identify microbial virulence factors, and describe diagnostic techniques.
2. Describe the fundamentals of the biological basis of infectious disease epidemiology, including the key triangle, transmission pathways, and host and environmental risk factors.
3. Appreciate the utility, approaches, and limitations of studying transmission dynamics.
4. Describe the principles of outbreak investigation and propose a rational approach to investigating hypothetical and ongoing outbreaks of infectious disease. Critically review previous outbreak investigations and highlight strengths and weaknesses of such investigations.
5. Appreciate the importance of case definitions for outbreak investigation and surveillance of infectious diseases. Write a clear case definition.
6. Discuss aspects of surveillance relevant to infectious diseases, including elements of a good surveillance system, data sources, and analysis of surveillance data.
7. Discuss the epidemiology, risk factors, and control strategies for antimicrobial resistance in infectious pathogens
8. Discuss the epidemiology, environmental and host risk factors, and prevention and control strategies for pathogens transmitted via the fecal-oral route, aerosol transmission, and vectorborne transmission.
9. Discuss the epidemiology and prevention and control strategies for influenza. Understand the history of influenza pandemics, the H1N1 pandemic, and the relevance of Influenza A H5N1 (avian) influenza for the next pandemic.
10. Describe the steps to investigating the efficacy and effectiveness of a vaccine.
11. Discuss disparate views on vaccination for infectious diseases affecting children, adolescents, and adults.
12. Discuss the epidemiology, risk factors, and prevention and control strategies for sexually transmitted infections, including HIV. Recognize limitations and efficacy of approaches to prevention and control of HIV.

Course requirements:

Assigned readings from text and journal articles

- Note that readings are assigned for the first class and for each class thereafter.
- The readings have been posted to UB Learns but do be sure to check the site each Friday to ensure that no additional readings have been posted for the following week's class.

Homework

- For each of 5 weeks, you will be expected to prepare and submit notes for an in-class activity. **I expect you to work independently.** Please refer to the syllabus for the activity that is planned for the week and to the UB Learns site for guidance on preparing your notes. You should prepare your notes on one single-sided, single-spaced page and include at least **3 references** from the peer-reviewed literature in the American Journal of Public Health format – **use EndNote!** The notes should be submitted to me at the beginning of class. Notes turned in after the class session starts will not be accepted and you will not receive any points. They are intended to serve as a source of discussion and to allow you to prepare for the in-class activity. I will review them for completeness and score on a 3-point scale: 3 points for comprehensive and thoughtful notes, 2 points for adequate attempt, 1 point for less than mediocre but completed attempt. You will not receive any points if the notes are not submitted at the beginning of class. Please be sure to bring in a copy for yourself as well so that you can use them to take part in the in-class activity. In total, **these notes will be worth 15%.**

Active participation in class discussions

- Public health is a collaborative effort. No individual truly functions alone. To encourage active participation, **15% of the total grade will rely on participation.** Please note that this can mean the difference between an A and a B, or a B and C for your final grade.

Concept note and oral presentations during the semester

- Each student must develop one written concept note and one oral presentation addressing a research or public health practice question at hand.
- Drs. Ram and Lindstrom will develop a list of topics. You will be expected to choose from amongst these topics. Topic selection is on a first-come, first-served basis. Each topic may be selected by only one student. Please make an appointment to see me and come with a minimum of two papers from the peer-reviewed literature relevant to your presentation of the topic. You are expected to discuss your topic of choice with me before deadline for topic selection (it comes fast so schedule an appointment asap!). The deadline for approval of your presentation topic is indicated on the syllabus.
- Students will be expected to develop a thoughtful approach to addressing the research or public health practice question. Students should take care to describe the need for the investigation (i.e. the background and data gap / public health imperative), the study methods in detail, including the following: study design, case and comparison group definitions, diagnostic methods, recommendations for control or prevention, and methodological strengths / deficiencies.
- The detailed outline should be emailed to Dr. Ram by the time / date indicated on the syllabus. She will provide feedback within one week. The outline should be a minimum of 2 full single-spaced pages, sufficient to convey to the reader the content that will be included in the full-

length concept note. A numbered format should be used. You should include a minimum of 5 references from the peer-reviewed literature in the American Journal of Public Health format.

- o Concept notes should be a **minimum of 3 pages and a maximum of 5 pages** in length and include at least **10 references** from the peer-reviewed literature in the American Journal of Public Health format. This means Arial 10 point font, or Times New Roman 12 point font, single-spaced and single-sided, with normal margins (i.e. 1 inch all around). **The concept note will be worth 25% of the grade (10% for the outline, and 15% for the final draft).**
- o Oral presentations should be **10 minutes in length and allow 5 minutes for questions**. You can choose to bring draft slides to the concept note clinics for assistance. A practice session for presentations will be held at a time convenient for the majority. **The presentation will be worth 15% of the total grade.**
- o Students should strongly consider attending one or both of the concept note clinics – dates indicated on the syllabus. Dr. Ram and her team will be available to review drafts of your written concept note as well as slides for the oral presentations.
- o Dr. Ram uses a rubric for grading both the concept note and the oral presentation.

Exam

- o The mid-term exam will be held on Friday, October 19. The exam will require you to think and write. Please do not expect to see any true/false or multiple choice questions. There will only be short answer and essay-type questions on the exam.
- o The exam is worth **30%** of the total grade.

Grading scale

93-100%: A	90-92: A-	88-89%: B+	83-87% B	80-82: B-
78-79%: C+	73-77% C	70-72: C-	61-70: D	≤60: Fail

Attendance:

Students are expected to attend all classes and the exam. Those who must be absent should e-mail Dr. Ram and Dr. Lindstrom with a brief explanation, before the session/exam. If the instructor does not hear from you BEFORE the exam, you should expect to receive a zero for the exam. Notification of absence for the exam must be made by e-mail or voicemail BEFORE the exam, unless a life-threatening emergency precludes it.

Academic Integrity:

The University at Buffalo and I view academic integrity as an essential part of your career development. Please familiarize yourself with the University's academic integrity policies and information on plagiarism available in the websites below. Disciplinary action, as outlined in the University's policies, will be undertaken should there be a suspected breach of academic integrity. Please do not hesitate to ask questions about this.

<http://academicintegrity.buffalo.edu/policies/index.php>

<http://library.buffalo.edu/libraries/asl/guides/plagiarism.html>

Lecture Schedule

Week	Date	Structured Topics / in-class activity	Reading	Lecturer
1	Aug 31	Basic microbiology, diagnostics, and antimicrobial resistance	- Dworkin 8 – verify the diagnosis (Spellberg 2008)	Ram / Kamm
2	Sep 7	Modes of transmission (fecal-oral, vector-borne, aerosol)	- Dworkin 14 – cryptosporidiosis - Dworkin 12 – shigellosis (Brankston, Gitterman et al. 2007) (Marshall and Bruggink 2011)	Ram
	Sep 13	DEADLINE FOR APPROVAL OF TOPIC – 2 PM		
3	Sep 14	Transmission dynamics Design a program to address antimicrobial resistance in a high-income country.	(Lloyd-Smith, George et al. 2009) (Beauchemin and Handel 2011) (Coburn, Wagner et al. 2009) (Luz, Struchiner et al. 2010)	Ram
4	Sep 21	Transmission dynamics continued Design a study to evaluate efficacy of a non-pharmaceutical intervention to prevent Influenza DEADLINE FOR DETAILED OUTLINE OF CONCEPT NOTE – 5 pm	Dworkin 1 and 2 – overview of outbreak investigation and how an outbreak is investigated	Ram / Lindstrom
5	Sep 28	Outbreak investigation – case study Prepare outbreak investigation case study – Multistate outbreak <i>E. coli</i> O157		Lindstrom / Ram
6	Oct 5	Vaccines	- Dworkin 21 – mumps (Skowronski, Janjua et al. 2012) (Halloran, Struchiner et al. 1997)	Ram
		Concept note clinic – Rm 240 Farber	Drop in to get feedback on your concept note or presentation slides	Ram and Team
7	Oct 12	The vaccine controversy	Dworkin 9 – Measles	Ram

		“Frontline – The Vaccine War” Design studies to assess vaccine efficacy and vaccine effectiveness	(Offit and Moser 2009) (Lantos, Jackson et al. 2012) (Opel and Diekema 2012)	
8	Oct 19	EXAM		
		Concept note clinic – Rm 240 Farber	Drop in to get feedback on your concept note or presentation slides	Ram and Team
9	Oct 26	Zoonotic / Emerging infections: Ebola and Nipah Design a public health program to improve uptake of childhood vaccinations in Ashland, Oregon	- Dworkin 18 – Ebola (Feldmann and Geisbert 2011) (Luby, Rahman et al. 2006) (Gurley, Montgomery et al. 2007)	Ram
10	Nov 2	HIV Watch CDC Grand Rounds on HIV prevention (1 hour): http://www.cdc.gov/about/grand-rounds/archives/2012/August2012.htm	(Cohen, Chen et al. 2011) (Mermin and Fenton 2012) (Fauci and Folkers 2012)	Ram / LaDouceur
		Practice talks		
11	Nov 9	Sexually transmitted infections DEADLINE FOR SUBMISSION OF CONCEPT NOTE -- 5 pm	- Dworkin 16 – Syphilis (Helleringer and Kohler 2007) (Langhaug, Sherr et al. 2010)	Burstein
12	Nov 16	Surveillance of infectious diseases	- Dworkin 14 – cryptosporidiosis - CDC Surveillance Evaluation Guidelines (UB Learns) - Englund Eurosurveillance 2012 (UB Learns)	Lindstrom
	Nov 23	Thanksgiving break		
13	Nov 30	STUDENT PRESENTATIONS		Ram / Lindstrom
14	Dec 7	Study design workshop: The group will refine methodologies for each of the topics developed into concept papers / oral presentations by classmates.	Read all concept notes	Ram / Lindstrom / team

REFERENCES

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- Cohen, M. S., Y. Q. Chen, et al. (2011). "Prevention of HIV-1 infection with early antiretroviral therapy." N Engl J Med **365**(6): 493-505.
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- Lantos, J. D., M. A. Jackson, et al. (2012). "Why we should eliminate personal belief exemptions to vaccine mandates." J Health Polit Policy Law **37**(1): 131-140.
- Lloyd-Smith, J. O., D. George, et al. (2009). "Epidemic dynamics at the human-animal interface." Science **326**(5958): 1362-1367.
- Luby, S. P., M. Rahman, et al. (2006). "Foodborne transmission of Nipah virus, Bangladesh." Emerg Infect Dis **12**(12): 1888-1894.
- Luz, P. M., C. J. Struchiner, et al. (2010). "Modeling transmission dynamics and control of vector-borne neglected tropical diseases." PLoS Negl Trop Dis **4**(10): e761.
- Marshall, J. A. and L. D. Bruggink (2011). "The dynamics of norovirus outbreak epidemics: recent insights." Int J Environ Res Public Health **8**(4): 1141-1149.
- Mermin, J. and K. A. Fenton (2012). "The future of HIV prevention in the United States." JAMA **308**(4): 347-348.
- Offit, P. A. and C. A. Moser (2009). "The problem with Dr Bob's alternative vaccine schedule." Pediatrics **123**(1): e164-169.
- Opel, D. J. and D. S. Diekema (2012). "Finding the proper balance between freedom and justice: why we should not eliminate personal belief exemptions to vaccine mandates." J Health Polit Policy Law **37**(1): 141-147.
- Skowronski, D. M., N. Z. Janjua, et al. (2012). "The number needed to vaccinate to prevent infant pertussis hospitalization and death through parent cocoon immunization." Clin Infect Dis **54**(3): 318-327.
- Spellberg, B. (2008). "Antibiotic resistance and antibiotic development." Lancet Infect Dis **8**(4): 211-212; author reply 212-214.

Course Description

SPM 515 EPIDEMIOLOGY AND PREVENTION OF CARDIOVASCULAR DISEASES Spring 2014

COURSE GOALS

The purpose of this course is to provide the student with a description of the epidemiological characteristics of the major cardiovascular diseases (coronary heart disease, cerebrovascular disease, etc.) and their distribution in the population. Emphasis will be placed on the epidemiology of major risk factors (serum lipids, blood pressure, smoking, diet, obesity, diabetes, physical activity, etc.).

COURSE DESCRIPTION

A major portion of the course will be devoted to the descriptive statistics of cardiovascular diseases in the U.S. and other industrialized and non-industrialized countries around the world.

The student will then be familiarized with the role major risk factors play in the determination of the clinical manifestations of atherosclerosis. A number of different study designs will be analyzed, and the methodological issues relating to the measurement of study variables and data analysis will be discussed.

The importance of different strategies in the prevention of cardiovascular diseases will be discussed. The lectures will focus primarily on the biologic and medical characteristics of cardiovascular diseases and on the integration of the epidemiologic information with the theories of biological causation, while the class discussions will be focused largely on the assigned readings. Thus, this class is a combination of lecture/seminar with student participation encouraged and mandated.

COURSE OBJECTIVES

1. To provide the student with an understanding of the importance of cardiovascular diseases as a major cause of death.
2. To develop a further understanding of the role of risk factors in the etiology of cardiovascular diseases, and of the pathophysiological process underlying these diseases.
3. To enable the students to identify groups at high risk for developing cardiovascular diseases.
4. To develop an understanding and appreciation of the value of different study designs in cardiovascular disease epidemiology.
5. To develop an understanding of the epidemiological principles and their applications in disease prevention.

LEARNING OBJECTIVES FOR THE STUDENT

It is expected that the student will be able to:

1. Define cardiovascular diseases and describe the public health impact of this broad group of diseases.
2. Understand the basic anatomy and physiology of the cardiovascular system and the patho-physiological processes underlying the clinical manifestations of cardiovascular diseases.
3. Define and understand the role of risk factors in the etiology and prevention of coronary heart disease.
4. Understand the multifactorial etiology of cardiovascular diseases.
5. Understand the concept and importance of primary, secondary and tertiary prevention in cardiovascular diseases.
6. Develop a critical approach in reading and interpreting the cardiovascular disease literature through an understanding of the uses and limitations of various study designs.

COURSE FORMAT

The course will include lectures and assigned readings to be discussed by the students, as well as a student presentation, a mid-term examination and a final examination.

Plagiarism:

Students should by the second class have read UB Policy on Academic Integrity & Plagiarism and view the following websites:

<http://ublib.buffalo.edu/libraries/asl/guides/plagiarism.html>

<http://academicintegrity.buffalo.edu/video/index.php>

<http://academicintegrity.buffalo.edu/index.php>

It will be the responsibility of the students to read and understand the policy. Those who commit plagiarism will be penalized appropriately.

STUDENT PRESENTATION

Each student will be required to present the findings of one "Landmark" study of cardiovascular disease. The selected study should pertain to the lecture topic for that date. Students are free to choose a given paper, from the list of studies below. The presentation should be **approximately 15 -20 minutes long**, and include a description of the study design, main hypothesis, population, results, limitations and strengths. **A one-page handout should be prepared for other students in the class.**

"Landmark Studies"

<u>Date</u>	<u>Topic</u>	<u>Study</u>
2/4	International Comparisons/Migrant Studies Blood Pressure	Ni-Hon-San INTERSALT
2/11	Pathological Basis/Lipids	Bogalusa Study
2/18	Inflammation	Cardiovascular Health Study
2/25	Serum Lipids and CVD	The Framingham
3/4	Hypertension as a Risk Factor for CVD	MRFIT Observational
3/25	Gender Differences and CHD	The Rancho Bernardo Study
3/26	Obesity/Fat Distribution	Gothenberg Study
4/1	Insulinemia & CHD	Helsinki Policemen Study
4/8	Physical Activity	The Harvard Alumni Study
4/15	Diet and CVD	The DASH Study
4/22	Alcohol Consumption and stroke	The Honolulu Heart Study
4/29	Socioeconomic Factors in CVD	The Whitehall Study
	Psychosocial Factors in CVD	Western Collaborative Group Study
	Secondary Prevention	The National Exercise and Heart Disease Project
	Population Strategies	The Stanford Five City Project

COURSE GRADE

The final grade will be determined on the basis of the following as indicated:

a.	Presentation of "Landmark Study"	10%
b.	Student Participation	10%
c.	Mid-term exam	40%
d.	Final exam	40%

RECOMMENDED TEXTS

Epidemiology and Prevention of Cardiovascular Diseases: A Global Challenge. Second Edition. Darwin R. Labarthe, Jones and Barlett Publishers, 2011.

Coronary Heart Disease Epidemiology From Aetiology to Public Health. Michael Marmot and Paul Elliott (eds.) Oxford: Oxford University Press, 1992.

Prevention of Myocardial Infarction. JoAnn E. Manson, Paul M. Ridker, J. Michael Gaziano, & Charles N. Hennekens (eds.), New York: Oxford University Press, 1996.

OFFICE HOURS

Tuesdays after class or as needed by appointment (829-5368 or e-mail: rpd1@buffalo.edu).

Grades will be based on the following scale:

95-100	A
92-94	A-
89-91	B+
85-89	B
82-84	B-
79-81	C+
75-78	C
72-74	C-
65-71	D
<65	F

Absences:

Class attendance and participation is mandatory. At the beginning of the year, everyone starts with 100 points for class participation. For *each* class missed there will be a 10 point reduction in your class participation grade. Your class participation points are then factored into your overall grade on the above scale. Excusable absences will be taken into consideration based on the reason for absence. However, email notification of the absence (with reason) is REQUIRED BEFORE class to be considered for an exemption. You are responsible for obtaining the class materials, assignments and notes, for meeting with the instructor to discuss the merits of the absence, and for making up any assigned work.

Disability Policy

If you have any disability which requires reasonable accommodations to enable you to participate in this course, please contact the Office of Disability Services (ODS), 25 Capen Hall, 645-2608, and also the instructor of this course during the first week of class. ODS will provide you with information and review appropriate arrangements for reasonable accommodations.

SPM 515
EPIDEMIOLOGY AND PREVENTION OF CARDIOVASCULAR DISEASES
Spring 2014
Noon-2:40PM Tuesdays

<u>DATE</u>	<u>LECTURE</u>	<u>SPEAKER</u>
1/28	Basic Anatomy and Physiology of the Cardiovascular System Definition and Importance of the Various Forms of Cardiovascular Disease (CVD)	Donahue
2/4	Lessons from International Comparisons and Migrant Studies Blood Pressure: Pathophysiology and Epidemiology	Donahue
2/11	Pathological Basis of Atherosclerosis and Acute Thrombosis. Lipids and Lipoproteins	Donahue
2/18	Serum Lipids, Lipoproteins and CVD/ROS	Donahue/Browne
2/25	Hypertension as a Risk Factor for CVD. Epidemiology of Stroke	Donahue
3/4	Gender and CVD/ Diabetes as a Risk Factor for CVD/Physical activity, Obesity, Fat Distribution	Donahue
3/11	MID-TERM EXAM	Donahue
3/18	SPRING BREAK	Donahue
3/25	Diet and CVD Alcohol Consumption and CVD	Donahue
4/1	Cigarette Smoking and CVD Socioeconomic Status and CVD	Donahue
4/18	Psychosocial Factors in CVD Guidelines for Treating High Blood Cholesterol for adults	Donahue
4/15	Primary Prevention of CHD	Donahue
4/29	Secondary Prevention Population Strategies	Donahue
5/6	REVIEW	Donahue
5/13	FINAL EXAM	

**PROGRAM COMPETENCIES/LEARNING OBJECTIVES/INSTRUCTIONAL &
ASSESSMENT METHODS:**

Program Competency Should be able to:	Learning Objectives: knowledge, skills, and behaviors	Instructional Method(s):	Assessment Method(s):
PUBLIC HEALTH BIOLOGY			
Describe how behavior alters human biology.	Define how physical activity, diet, and cigarette, alcohol and drug use affects atherosclerosis and CVD mortality and morbidity	Lectures, presentations of landmark CVD studies, assigned readings	Presentations, written exams and quizzes, class participation
Explain the biological and molecular basis of public health.	Define and describe the basic anatomy and physiology of the CV system and the pathophysiologic processes underlying the clinical manifestations of CVD	Lectures, presentations of landmark CVD studies, assigned readings	Presentations, written exams and class participation
Explain the role of biology in the ecological model of population-based health.	Compare and contrast CVD risk across and within populations	Lectures, presentations of landmark CVD studies, assigned readings	Presentations, written exams and class participation
Apply biological principles to development and implementation of disease prevention, control, or management programs.	Describe individual and population based programs in primary and secondary prevention of CVD	Lectures, presentations of landmark CVD studies, assigned readings	Presentations, written exams and class participation
COMMUNICATION AND INFORMATICS			
Demonstrate effective written and oral skills for communicating with different audiences in the context of professional public health activities	Demonstrate the ability to communicate scientific information to a lay audience To critically examine the media's presentation of scientific findings	Lecture, class discussion	Final exam
DIVERSITY AND CULTURE			
Describe the roles of history, power, privilege and structural inequality in producing health disparities.	Discuss the complex role of socioeconomic status in CVD Examine the gender, race, and age differences in CVD diagnosis, screening, treatment, and prevention	Lectures, presentations of landmark CVD studies, assigned readings	Presentations, written exams and class participation
PROFESSIONALISM			
Distinguish between population and individual ethical considerations in relation to the benefits, costs, and burdens of public health programs.	Define similarities and differences of high risk and population based preventive approaches (Rose's prevention strategies)	Lectures, presentations of landmark CVD studies, assigned readings	Presentations, written exams and class participation
SYSTEMS THINKING			
Explain how the contexts of gender, race, poverty,	Discuss the complex role of socioeconomic status in CVD	Lectures, presentations of landmark CVD studies, assigned readings	Presentations, written exams and class

history, migration, and culture are important in the design of interventions within public health systems.	Examine the gender, race, and age differences in CVD diagnosis, screening, treatment, and prevention		participation
Analyze the impact of global trends and interdependencies on public health related problems and systems.	Develop an understanding of international trends in cardiovascular disease (CVD) Describe the epidemiology and public health implications of CVD in developing countries	Lectures, presentations of landmark CVD studies, assigned readings	Presentations, written exams and, class participation
EPIDEMIOLOGY			
Identify key sources of data for epidemiologic purposes.	Identify landmark studies in CVD epidemiology Compare and contrast research design, evolution of epidemiologic methods employed, and results and interpretation	Lectures, presentations of landmark CVD studies, assigned readings	Presentations, written exams and class participation
Identify the principles and limitations of public health screening programs	Discuss sources of data and populations studied to develop CVD screening guidelines Identify current screening guidelines for major CVD risk factors in the US and internationally Discuss limitations related to generalizability to populations other than the source population	Lectures, presentations of landmark CVD studies, assigned readings	Presentations, written exams and class participation
Describe a public health problem in terms of magnitude, person, time and place.	Recognize and appreciate the burden of CVD in developed and developing countries	Lectures, presentations of landmark CVD studies, assigned readings	Presentations, written exams and class participation
Explain the importance of epidemiology for informing scientific, ethical, economic and political discussion of health issues.	Define and understand the role of risk factors in the etiology and prevention of CVD	Lectures, presentations of landmark CVD studies, assigned readings	Presentations, written exams and class participation
Apply the basic terminology and definitions of epidemiology.	Differentiate relative risk, attributable risk, and absolute risk as they pertain to cardiovascular disease Understand the concept and importance of primary, secondary, and tertiary prevention in CVD	Lectures, presentations of landmark CVD studies, assigned readings	Presentations, written exams and class participation
Communicate epidemiologic information to lay and professional audiences.	Demonstrate skill in written and oral communication for both scientific and lay audiences	Presentations of landmark CVD studies, assigned readings	Presentations, written exams and class participation
Draw appropriate inferences from epidemiologic data	Develop an in depth understanding of risk factors for CVD to be able to identify groups at high risk of disease development	Lectures, presentations of landmark CVD studies, assigned readings	Presentations, written exams and class participation
Evaluate the strengths	To develop a critical approach to	Lectures, presentations of landmark	Presentations, written

and limitations of epidemiologic reports.	reading and interpreting the CVD literature through an understanding of the uses and limitations of various study designs	CVD studies, assigned readings	exams and class participation
SOCIAL AND BEHAVIORAL SCIENCES			
Identify critical stakeholders for the planning, implementation and evaluation of public health programs, policies and interventions.	Describe critical stakeholders in the community in order to promote successful population-based CVD prevention efforts	Lectures, presentations of landmark CVD studies, assigned readings	Presentations, written exams and class participation
Describe the role of social and community factors in both the onset and solution of public health problems.	To describe the contribution of the public health approach to the prevention of CVD	Lectures, presentations of landmark CVD studies, assigned readings	Presentations, written exams and class participation
Specify multiple targets and levels of intervention for social and behavioral science programs and/or policies.	To develop an understanding and appreciation of the synergistic effects of the population based approach and the high risk on CVD prevention	Lectures, presentations of landmark CVD studies, assigned readings	Presentations, written exams and, class participation
Identify the major risk factors for morbidity and mortality in the United States and globally, including causal influences at different levels of society, trends over time and health disparities affecting specific subgroups of the population.	Identify and understand the role of the major risk factors for CVD morbidity and mortality in the United States and globally, including causal influences at different levels of society, trends over time and health disparities affecting specific subgroups of the population in the etiology and prevention of CVD	Lectures, presentations of landmark CVD studies, assigned readings	Presentations, written exams and class participation
Explain how bias, confounding, effect modification, and random error may affect the results of epidemiologic investigations and how they may be prevented or controlled.	To develop and understanding of how bias, confounding, effect modification, and random error may affect the results of epidemiologic investigations and how they may be prevented or controlled in the CVD literature	Lectures, presentations of landmark CVD studies, assigned readings	Presentations, written exams and class participation
Synthesize epidemiologic knowledge to define advancements in epidemiologic research or the development and analysis of public health policies	Synthesize epidemiologic knowledge to define advancements in CVD research and the development and analysis of public health policies in the prevention of CVD	Lectures, presentations of landmark CVD studies, assigned readings	Presentations, written exams and class participation
Identify the full range of interventions available to address a given public health problem and develop the rationale for selecting potentially	Identify the full range of interventions available to address cardiovascular diseases and develop the rationale for selecting potentially effective interventions in the prevention	Lectures, presentations of landmark CVD studies, assigned readings	Presentations, written exams and class participation

effective interventions	of CVD		
Communicate, in written and oral formats, the background, description and results of an epidemiologic study (to professional and lay audiences).	Demonstrate skill in written and oral communication for both scientific and lay audiences	Presentations of landmark CVD studies, assigned readings	Presentations, written exams and class participation
Demonstrate basic knowledge of at least one content area within epidemiology.	Discuss the public health importance of cardiovascular diseases as a major cause of mortality and morbidity	Lectures, presentations of landmark cardiovascular disease (CVD) studies, assigned readings	Presentations, written exams and, class participation
Additional PhD competencies			
Demonstrate an understanding of the epidemiology, major epidemiologic studies, and general physiology and pathophysiology in one area of chronic or infectious disease epidemiology in a project, thesis, or dissertation topic area	Discuss the public health importance of CVD Develop an understanding of the risk factors in the etiology of CVD, and of the underlying pathophysiological processes underlying CVD Discuss the landmark CVD studies	Lectures, presentations of landmark CVD studies, assigned readings	Presentations, written exams and class participation
Know the global, cultural, and social context of the topic area addressed in the dissertation and how these influence the conduct, interpretation, and dissemination of research	Discuss the global, cultural, and social context of CVD and how these influence the conduct, interpretation, and dissemination of CVD research	Lectures, presentations of landmark CVD studies, assigned readings	Presentations, written exams and class participation

Course Title/Number: SPM 519- Principles of Measurement in Public Health

Department Name: Social & Preventive Medicine

Program Name: MPH, MS, & PhD

Semester: Fall **Year:** 2013

Class Day/Time:	Thursday, 1:00-3:40 PM			
Class Location:	Farber 182			
Format(s):	LEC	REC		
Prerequisite(s):	None			

Instructor(s) of Record:	William L. Scheider
Office:	Farber 268G
Phone Number(s):	829-5369
Email:	wls3@buffalo.edu
Office Hours:	Preferably by appointment. Walk-ins OK, if I am unencumbered
Prerequisite(s):	None

I. (a) Course Description:

An explanation of basic principles and methods of measurement and their application in public health. These include development and use of different types of instruments and scales for measuring behavioral and social constructs and biological characteristics; questionnaire construction; validity and reliability of measurement; sampling; data collection methods; and fundamental principles underlying data analysis and interpretation. Students will gain practical experience developing a questionnaire about a public health issue, administering the questionnaire, and resolving issues related to sampling, data collection, preparing data for analysis, analyzing data, and interpreting the results.

II. Course Objectives / Competency / Instructional Method(s) / Assessment of Student Learning

Objective	ASPH Accreditation/ Program Competency	Instructional Method(s)	Assessment Method(s)
Identify the roles measurement plays in scientific inquiry related to public health	- B.4. Specify current environmental risk assessment methods - B.5. Specify approaches for assessing, preventing and controlling environmental hazards that pose risks to human health and safety - C.4. Explain the importance of epidemiology for informing scientific, ethical, economic , and political discussion of health issues - E.5. Describe steps and procedures for the planning, implementation and evaluation of public health programs, policies and interventions	- <u>Text reading</u>: Streiner, Chapter 1; White, pp. 1-5 - <u>Handout</u>: The Nature of Science and the Process of Measurement - Powerpoint presentation - Class discussion	Mid-term exam
Define the four levels of measurement and: - Describe the nature of measurements made at each level - Classify a given measurement technique into the appropriate level	- A.4. Distinguish among the different measurement scales and the implications for selection of statistical methods to be used based on these distinctions	- <u>Text reading</u>: Streiner, pp. 37-38; White, pp. 9-11 - <u>Handout</u>: The Nature of Science and the Process of Measurement - Powerpoint presentation - Class discussion - Diet assessment class project provides practical experience in deal with different levels of measurement	- Mid-term exam - Diet assessment project report

II. Course Objectives / Competency / Instructional Method(s) / Assessment of Student Learning

Objective	ASPH Accreditation/ Program Competency	Instructional Method(s)	Assessment Method(s)
Define the four levels of measurement and: - Identify the statistical procedures that are most appropriate for analyzing data at each level	- A.4. Distinguish among the different measurement scales and the implications for selection of statistical methods to be used based on these distinctions	- <u>Text reading</u> : Streiner, pp. 37-38; White, pp. 9-11 - <u>Handout</u> : The Nature of Science and the Process of Measurement - Powerpoint presentation - Class discussion - Diet assessment class project provides practical experience in dealing with different levels of measurement	- Examination - Diet assessment project report
Compare qualitative and quantitative measurement techniques, including: - The nature of information each provides - The role each plays in scientific inquiry - Strengths and limitations of each	- K.7. Differentiate between qualitative and quantitative evaluation methods in relation to their strengths, limitations, and appropriate uses, and emphases on reliability and validity	- <u>Handout</u> : The Nature of Science and the Process of Measurement - Powerpoint presentation - Class discussion	Examination
Define the three behavioral domains and describe how they can be used as a framework for measuring psycho-social constructs	- E. 6. Describe the role of social and community factors in both the onset and solution of public health problems. - E.10. Specify multiple targets and levels of intervention for social and behavioral science programs and/or policies.	- <u>Handout</u> : The Nature of Science and the Process of Measurement - Powerpoint presentation - Class discussion - Survey questionnaire class project provides practical experience in dealing with defining and measuring the 3 behavioral domains	- Examination - Survey questionnaire class project report

II. Course Objectives / Competency / Instructional Method(s) / Assessment of Student Learning

Objective	ASPH Accreditation/ Program Competency	Instructional Method(s)	Assessment Method(s)
Describe and carry out a conceptualization process for developing a questionnaire, including: - Establish questionnaire objectives - Identify and define constructs the questionnaire is intended to measure - Identify and operationally define variables that characterize each construct	- E.5. Describe steps and procedures for the planning, implementation and evaluation of public health programs, policies and interventions - K.5. Differentiate among goals, measurable objectives, related activities, and expected outcomes for a public health program	- <u>Text reading</u>: Streiner, Chapter 3; White, pp. 175-178. - <u>Handout</u>: Measuring Constructs Using Questionnaires I—Conceptualization - Powerpoint presentation - Class discussion - Survey questionnaire class project provides practical experience in conceptualizing a questionnaire	- Examination - Survey questionnaire class project report
Design a questionnaire for obtaining the information needed to address the questionnaire's objectives, including: - Select an administration method appropriate for the situation - Develop questions using appropriate measurement scales and wording	- B.5. Specify approaches for assessing, preventing and controlling environmental hazards that pose risks to human health and safety - E.5. Describe steps and procedures for the planning, implementation and evaluation of public health programs, policies and interventions	- <u>Text reading</u>: Streiner, Chapters 5-7, 13; White, Chapters 2 & 6 - <u>Handout</u>: Measuring Constructs Using Questionnaires I—Conceptualization - <u>Handout</u>: Measuring Constructs Using Questionnaires II—Writing Good Questions - <u>Handout</u>: Instrument Development - Powerpoint presentation - Class discussion - Survey questionnaire class project provides practical experience in conceptualizing a questionnaire	- Examination - Survey questionnaire class project report

II. Course Objectives / Competency / Instructional Method(s) / Assessment of Student Learning

Objective	ASPH Accreditation/ Program Competency	Instructional Method(s)	Assessment Method(s)
Design a questionnaire for obtaining the information needed to address the questionnaire's objectives, including: - Assemble and lay out the questionnaire in an effective manner, including instructions, question sequence, and cues and probes - Pilot-test the questionnaire	- B.5. Specify approaches for assessing, preventing and controlling environmental hazards that pose risks to human health and safety - E.5. Describe steps and procedures for the planning, implementation and evaluation of public health programs, policies and interventions	- <u>Text reading:</u> Streiner, Chapters 5-7, 13; White, Chapters 2 & 6 - <u>Handout:</u> Measuring Constructs Using Questionnaires I—Conceptualization - <u>Handout:</u> Measuring Constructs Using Questionnaires II—Writing Good Questions - <u>Handout:</u> Instrument Development - Powerpoint presentation - Class discussion - Survey questionnaire class project provides practical experience in conceptualizing a questionnaire	- Examination - Survey questionnaire class project report
Identify and define the components needed for determining sample size and given the requisite information, calculate sample size, power, or smallest detectable effect	- A.2. Describe basic concepts of probability, random variation and commonly used statistical probability distributions - A.6. Apply common statistical methods for inference	- <u>Text reading:</u> Streiner, Chapters pp. 195-201; White, pp. 79-80, 89-90, 135-137, 154-158 - <u>Handout:</u> Sample Size, Power, and Minimum Detectable Effect - Powerpoint presentation - Class discussion	Examination

II. Course Objectives / Competency / Instructional Method(s) / Assessment of Student Learning

Objective	ASPH Accreditation/ Program Competency	Instructional Method(s)	Assessment Method(s)
Describe and compare the following sampling strategies: - Simple random sample - Systematic random sample - Stratified random sample - Multistage cluster sample	A.6. Apply common statistical methods for inference	- <u>Handout</u>: Sampling - Powerpoint presentation - Class discussion	Examination
- Describe the principles of effective interviewing and apply them to administration of a questionnaire - Accept the importance of training interviewers and assessing their performance	- B. 5. Specify approaches for assessing, preventing and controlling environmental hazards that pose risks to human health and safety. - E.5. Describe steps and procedures for the planning, implementation and evaluation of public health programs, policies and interventions - G.5. Use the basic concepts and skills involved in culturally appropriate community engagement and empowerment with diverse communities.	- <u>Text reading</u>: White, Chapter 7 - <u>Handout</u>: Interviewing - Powerpoint presentation - Class discussion	Examination

II. Course Objectives / Competency / Instructional Method(s) / Assessment of Student Learning

Objective	ASPH Accreditation/ Program Competency	Instructional Method(s)	Assessment Method(s)
- Explain the basic principles for protecting human subjects in research, including privacy, appropriate selection of subjects, informed consent, confidentiality, and assessment of benefits and risks - Accept the importance of institutional review of study proposals and address the elements in an IRB application that are pertinent to a specific research project	- C.5. Comprehend basic ethical and legal principles pertaining to the collection, maintenance, use and dissemination of epidemiologic data - E.9. Apply ethical principles to public health program planning, implementation and evaluation - F.5. Apply legal and ethical principles to the use of information technology and resources in public health settings	- At the beginning of the course, students must complete the CITI online course for social and behavioral science researchers - <u>Text reading:</u> Streiner, Chapter 14; White, Chapter 12 - Class discussion of human subjects protection as it relates to the class survey questionnaire project - Development of informed consent form for the class survey questionnaire	- Examination - The informed consent form for the class survey questionnaire
Define validity and reliability and describe how to assess the following: - Face, content, criterion (concurrent and predictive), and construct validity - Measures of reliability	- A.9. Interpret results of statistical analyses found in public health studies - C.10. Evaluate the strengths and limitations of epidemiologic reports.	- <u>Text reading:</u> Streiner, pp. 23-27, Chapter 8, Chapter 10; White, Chapter 4 - Powerpoint presentation - Class discussion, especially regarding face and content validity of the class survey questionnaire	Examination

II. Course Objectives / Competency / Instructional Method(s) / Assessment of Student Learning

Objective	ASPH Accreditation/ Program Competency	Instructional Method(s)	Assessment Method(s)
Create and analyze a dataset from a short questionnaire, including: - Select and carry out an appropriate data entry method - “Clean” and prepare the data for analysis - Perform and interpret frequency and cross-tabulation analyses of categorical variables - Calculate and interpret descriptive statistics for continuous variables	- A.5. Apply descriptive techniques commonly used to summarize public health data. - A.6. Apply common statistical methods for inference. - A.7. Apply descriptive and inferential methodologies according to the type of study design for answering a particular research question - C.9. Draw appropriate inferences from epidemiologic data.	- Powerpoint presentation - Class discussion - Data management, analysis, and interpretation for the class survey questionnaire project	- Examination - Survey questionnaire - class project report
Describe the nature of the methodologies, strengths, and limitations, including validity/reliability issues, for the following: - Clinical assessment and case definitions - Anthropometric measures	- B.5. Specify approaches for assessing, preventing and controlling environmental hazards that pose risks to human health and safety - I.8. Apply biological principles to development and implementation of disease prevention, control, or management programs	- <u>Text reading:</u> White, Chapters 8, 9, 10 - Powerpoint presentation - Class discussion	Examination

II. Course Objectives / Competency / Instructional Method(s) / Assessment of Student Learning

Objective	ASPH Accreditation/ Program Competency	Instructional Method(s)	Assessment Method(s)
Describe the nature of the methodologies, strengths, and limitations, including validity/reliability issues, for the following: - Biochemical measures (biomarkers) - Dietary assessment techniques	- B.5. Specify approaches for assessing, preventing and controlling environmental hazards that pose risks to human health and safety - I.8. Apply biological principles to development and implementation of disease prevention, control, or management programs	- <u>Text reading:</u> White, Chapters 8, 9, 10 - Powerpoint presentation - Class discussion	Examination
Describe the application of questionnaire and biological measurement principles to epidemiologic research and program evaluation, including the implications of random error, selection bias, and information bias.	- C.9. Draw appropriate inferences from epidemiologic data. - C.10. Evaluate the strengths and limitations of epidemiologic reports - E.5. Describe steps and procedures for the planning, implementation and evaluation of public health programs, policies and interventions - E.8. Apply evidence-based approaches in the development and evaluation of social and behavioral science interventions - K.6. Differentiate the purposes of formative, process, and outcome evaluation	- Powerpoint presentation - Class discussion	Examination

III. Textbooks /Equipment /Required Technologies

Resource	Required	Notes
White E, Armstrong BK, Saracci R. Principles of Exposure Measurement in Epidemiology, 2nd Edition. Oxford University Press, 2008.	Especially for epidemiology students	Essential reading for epidemiology PhD prelim exam
Streiner DL, Norman GR. Health Measurement Scales, A Practical Guide to Their Development and Use, 4th Edition. Oxford University Press, 2008.	Especially for health behavior students	
Fowler FJ, Jr. Survey Research Methods, 4th Edition. Sage Publications, 2008.	No longer required	A great practical guide to survey methodology
Singleton RA, Straits BC. <i>Approaches to Social Research</i> , 5 th Edition. Oxford University Press, 2009.	No	A widely used research methods text

IV. Course Learning Activities

The course has two major experiential learning activities, both of which are mini-studies conducted by the entire class that illustrate specific principles of measurement:

1. Comparison of two diet assessment methods (food frequency questionnaire and 3-day diet record), which illustrates conduct and validity/reliability of frequency-duration-intensity types of measurements
2. Development, administration, analysis, and interpretation of a survey questionnaire, which provides hands-on experience with this process

Each week's class will be a combination of instructor presentation and class discussion of course content and in-class work on the survey questionnaire project.

V. Course and Instructor Evaluation

Course evaluation:

1. Two take-home examinations, one assigned about mid-term and the other toward the end of the semester
2. Diet assessment project report
3. Survey questionnaire project report

The two project reports are major papers that provide experience in communicating study findings and their interpretation.

Instructor evaluation: Will be conducted via the SPHHP online course evaluation (CourseEval). All students are required to complete the online course evaluation. Students who complete an online evaluation as reported to the instructor by the SPHHP CourseEval Administrator will be awarded an additional 1% in their overall course average. The instructor will receive a list of names of students who have submitted evaluations. CourseEval procedures protect the anonymity of student respondents: no faculty member receives evaluation reports (ratings and comments) before grades are submitted and student names are not included on evaluation reports.

VI. Grading

Evaluation components will be weighted as follows:

Course Component	Due date	Percentage
Diet analysis project paper	October 10	30% of total grade
Take-home examination	October 31	30% of total grade
Survey questionnaire project paper	December 12	40% of total grade
Course evaluation completion		1%

Total: 100% + 1%

Final Grade Determination

Approximate cutpoints:

92.0-	100	A	72.0-	77.9	C
90.0-	91.9	A-	70-	71.9	C-
88.0-	89.9	B+	68.0-	69.9	D+
82.0-	87.9	B	62.0-	67.9	D
80.0-	81.9	B-	60.0-	61.9	D-
78.0-	79.9	C+	<	60.0	F

VII. Other course related information

None

VIII. Communication

If you have multiple email accounts, please be sure that you access (or forward) your UB email. Your UB email is the account I will use to send course-related materials.

IX. Policy Regarding Absences, Attendance, Assignments, Exams, and University Policy on Incompletes in Courses

- **Class Attendance and Absences**

Because many in-class activities will be completed throughout the semester, class attendance is expected. In the case of exceptional circumstances that result in you being late or absent, you must contact me prior to the start of class (either by email or by leaving a telephone message). Please be aware that an absence from class under these circumstances does not excuse you from any required assignments. More than one excused absence will call into question your commitment to the course. More than one absence of any kind may result in a loss from the final grade of 5 raw score points per extra absence.

- **Late Assignments**

All assignments are due at the designated time and due date. Failure to submit the assignment when due will result in a loss of 5 points per day that the assignment is late. Assignments that are more than 3 days late will not be accepted. If there are circumstances that will preclude you from turning in assignments on the due date, it is imperative that you discuss the situation with the instructor prior to the due date.

- **Policy on Incomplete Grades for the Course**

Incomplete grades will be given only if there are extenuating circumstances (i.e. severe illness) that preclude the student from completing the course. The student must have satisfactorily completed all course work and successfully passed all exams (B or better) up until the time an incomplete is requested.

- **University Policy on Incomplete Grades**

A grade of incomplete ("I") indicate that additional course work is required to fulfill the requirements of a given course. Students may only be given an "I" grade if they have a passing average in coursework that has been completed and have well-defined parameters to complete the course requirements that could result in a grade better than the default grade. An "I" grade may not be assigned to a student who did not attend the course. Prior to the end of the semester, students must initiate the request for an "I" grade and receive the instructor's approval. Assignment of an "I" grade is at the discretion of the instructor.

The instructor must specify a default letter at the time the "I" grade is submitted.

A default grade is the letter grade the student will receive if no additional coursework is completed and/or a grade change form is not filed by the instructor. "I" grades must be completed within 12 months. Individual instructors may set shorter time limits for removing an incomplete than the 12-month time limit. Upon assigning an "I" grade, the instructor shall provide the student specification, in writing or by electronic mail, of the requirements to be fulfilled, and shall file a copy with the appropriate departmental office.

Students must not re-register for courses for which they have received an “I” grade.
Applicable dates regarding the 12-month provision:

Courses taken in (semester):	Will default in 12 months on:
Fall	December 31
Spring	May 31
Summer	August 31

The “I” must be changed to a grade before the degree conferral date if the students plans to graduate in that semester. At any time prior to the default date, students may elect to change the “I” grade to the default grade using the Grade Retrieval Form.

A default grade can be “A-,” “B+,” “B-,” “C+,” “C-,” “D+,” “D,” or “F.” (If a student selected an S/U grading option, it will replace the default letter grade when the grade defaults.)

Disability Policy

If you have any disability which requires reasonable accommodations to enable you to participate in this course, please contact the Office of Accessibility Resources, 25 Capen Hall, 645-2608, and also the instructor of this course during the first week of class. The office will provide you with information and review appropriate arrangements for reasonable accommodations. <http://www.ub-disability.buffalo.edu/>

Netiquette

This course may utilize UBlearns to facilitate online communication between course participants. Please keep in mind the following “Rules of Netiquette” when communicating online.

1. **The rules of the classroom are the same regardless of location.** Remember just because you’re interacting online, doesn’t mean you stop having respect for your professors, and fellow classmates. You’re communicating with a real person, not a computer screen.
2. **Remember your audience.** When communicating online it’s important to remember who you’re communicating with. When sending a message to a professor, please refrain from using “text speak”. For example, Shakespeare never intended for you to type “2B or not 2B”. Also, stay away from typing in all capital letters; it will appear as if you’re shouting.
3. **Avoid strong language.** Language can easily be misinterpreted in an online setting. Be sure to review your work before submitting, making sure the reader won’t be able to misinterpret it as strong, or offensive. Sarcasm doesn’t translate well online. Your audience can’t see your facial expressions, or body language. Try to be as straight forward and professional as possible.
4. **Read everything, twice.** Be sure to thoroughly read all course materials before beginning to work on your assignments. If you have a question, or need clarification, re-read the materials. You may have glanced over an important detail the first time. If you’re still having difficulties, then e-mail your professor.

5. **Review all materials before submitting.** When responding to discussion board posts, be sure to read all previous postings before you post your own. This way you won't duplicate someone else's comments. Also, it's a good idea to write, and save your work in Microsoft Word first. In case of a technical issue, you have a backup copy.

Academic Integrity

Students who are suspected of academic dishonesty will be dealt with severely in accordance with the Department and University Policy. This may include a grade of 0 for an assignment and/or failure in a course.

Academic Dishonesty: Actions that compromise academic integrity include, but are not limited to the following examples:

- *Previously submitted work:* Submitting academically required material that has been previously submitted – in whole or in substantial part – in another course, without prior and expressed consent of the instructor.
- *Plagiarism.* Copying or receiving material from any source and submitting that material as one's own, without acknowledging and citing the particular debts to the source (quotations, paraphrases, basic ideas), or in any other manner representing the work of another as one's own.
- *Cheating.* Soliciting and/or receiving information from, or providing information to, another student or any other unauthorized source (including electronic sources such as cellular phones and PDAs), with the intent to deceive while completing an examination or individual assignment.
- *Falsification of academic materials.* Fabricating laboratory materials, notes, reports, or any forms of computer data; forging an instructor's name or initials; resubmitting an examination or assignment for reevaluation which has been altered without the instructor's authorization; or submitting a report, paper, materials, computer data, or examination (or any considerable part thereof) prepared by any person other than the student responsible for the assignment.
- *Misrepresentation of documents.* Forgery, alteration, or misuse of any University or Official document, record, or instrument of identification.
- *Confidential academic materials.* Procurement, distribution or acceptance of examinations or laboratory results without prior and expressed consent of the instructor.
- *Selling academic assignments.* No person shall sell or offer for sale to any person enrolled at the University at Buffalo any academic assignments, or any inappropriate assistance in the preparation, research, or writing of any assignment, which the sellers knows, or has reason to believe, is intended for submission in fulfillment of any course or academic program requirement.
- *Purchasing academic assignments.* No person shall purchase an academic assignment intended for submission in fulfillment of any course or academic program requirement.

Student Handbook: All students are required to read the student handbook. An online version is available on the 'Information For Current Students' page of your department website.

COURSE SCHEDULE

This schedule is subject to revision due to unforeseen events. Any course schedule changes or additional readings will be posted on Ublearns and will be announced in class as time permits. Note: Additional required readings may be assigned and will be assigned at least one week prior to the class for which they are assigned.

<u>Date</u>	<u>Topic</u>	<u>Required Readings/Assignments</u>
August 29	Introduction - Course requirements - The nature of scientific inquiry as it relates to measurement - Qualitative research techniques and their relevance to quantitative measurement - Introduction to validity and reliability, accuracy and precision - Introduction to random and systematic error - Levels of measurement and their relevance to measuring biological characteristics and psycho-social constructs and choice of methods for statistical analysis	- <u>Text reading</u>: Streiner, Chapter 1, 37-38; White, pp. 1-5, 9-11 - <u>Handout</u>: The Nature of Science and the Process of Measurement - Diet analysis assignment instructions given - <u>Survey Project</u>: Discuss class project and select a topic
September 5	Rosh Hashanah— No class	
September 12	Measuring psycho-social constructs I: Identifying constructs and variables and operationally defining variables - Establishing objectives the questionnaire is intended to accomplish - Selecting and conceptualizing constructs that the questionnaire will assess - Identifying variables to measure constructs - Operationally defining variables	- <u>Text reading</u>: Streiner, Chapter 3; White, pp. 175-178. - <u>Handout</u>: Measuring Constructs Using Questionnaires I—Conceptualization - <u>Survey Project</u>: Identify constructs the questionnaire will assess; identify and operationally define variables to measure the constructs

COURSE SCHEDULE

<u>Date</u>	<u>Topic</u>	<u>Required Readings/Assignments</u>
September 19	Measuring psycho-social constructs II: Writing questions and developing scales - Developing or selecting an instrument for measuring psychosocial constructs, including writing informative questions - Use of Likert and other types of questionnaire-based scales - Assessment of questions to determine which to include in the questionnaire	- <u>Text reading</u>: Streiner, Chapters 5-7; White, Chapter 6 - <u>Handout</u>: Measuring Constructs Using Questionnaires II—Writing Good Questions - <u>Survey project</u>: Develop questions to obtain information that address the operational definitions of variables selected for the project
September 26	Methods for administering a questionnaire - Types of interview and self-administration methods Discussion about dietary assessment measures	- <u>Text reading</u>: Streiner, Chapter 13; White, Chapter 2 - <u>Handout</u>: Instrument Development - Diet analysis project report assigned - <u>Survey project</u>: Continue question development and begin questionnaire design
October 3	Designing the overall questionnaire - Design issues (layout, question placement, etc.) - Pilot-testing and revisions	- <u>Handout</u>: Instrument Development - <u>Survey project</u>: Continue questionnaire design
October 10	Administering questionnaires - Human subjects in research and the IRB process - Interviewing techniques - Self-administered questionnaires - Error related to questionnaire administration (e.g. interviewer bias, recall bias)	- <u>Text reading</u>: White, Chapter 7 - <u>Handout</u>: Interviewing - Diet analysis report due, 11:59 PM - <u>Survey project</u>: Finalize questionnaire and discuss human subjects issues and the IRB process as they pertain to this project

COURSE SCHEDULE

<u>Date</u>	<u>Topic</u>	<u>Required Readings/Assignments</u>
October 17	Sampling issues - Sample size determination, power, smallest detectable effect - Sampling methods appropriate for different public health study designs	- <u>Text reading</u>: Streiner, Chapters pp. 195-201; White, pp. 79-80, 89-90, 135-137, 154-158 - <u>Handout</u>: Sample Size, Power, and Minimum Detectable Effect - <u>Survey project</u>: Discuss data collection process and assign self-administered questionnaires
October 24	Validity and Reliability of Measurement - Validity in psycho-social measurement: face validity, content validity, criterion validity (concurrent and predictive), and construct validity - Reliability in psycho-social measurement: test-retest, split-half, Cronbach's alpha, Kuder-Richardson, and others	- <u>Text reading</u>: Streiner, pp. 23-27, Chapter 8, Chapter 10; White, Chapter 4 - Take-home examination assigned. Exam covers all material up to and including today's material on validity & reliability - <u>Survey project</u>: Begin data collection
October 31	Data management and analysis - Data entry methods - Quality control - Developing a plan for data analysis	- No reading. Powerpoint presentation stands on its own - Take-home examination due by 11:59 PM - <u>Survey project</u>: Continue data collection
November 7	Biological Measurement - Clinical evaluation and case definitions - Anthropometry - Biochemical measurement and biomarkers	- <u>Text reading</u>: White, Chapter 9 - <u>Survey project</u>: Set up database and analyze data for frequency counts and percentages for each question

COURSE SCHEDULE

<u>Date</u>	<u>Topic</u>	<u>Required Readings/Assignments</u>
November 14	Biological Measurement (continued) - Clinical evaluation and case definitions - Anthropometry - Biochemical measurement and biomarkers Discuss frequency/percentage survey results	- <u>Text reading</u> : White, Chapter 9 - <u>Survey project</u> : Perform cross-tabulations and other analyses on survey data
November 21	Discuss class project - Interpretation of data - Methodological issues that arose during the project - Validity of questionnaire results	- Survey project report assigned
December 5	Additional topics - Applications of measurement in epidemiology and program evaluation - Threats to validity	- <u>Text reading</u> : Streiner, Chapter 11 - <u>Handout</u> : Threats to validity
December 12		- Survey project report due by 11:59 PM

Cancer Epidemiology (PTR 525)
Spring 2014

Instructor: Dr. Kirsten Moysich
Professor of Oncology, Department of Cancer Control and Prevention
Professor of Immunology
Roswell Park Cancer Institute
Professor and Academic Chair, Cancer Pathology and Prevention
Professor, Social and Preventive Medicine
State University of New York at Buffalo

Office Hours by Appointment

Tel. 716-845-8004

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Teaching Assistant: Kristina Schmitt
Research Apprentice
Department of Cancer Control and Prevention
Roswell Park Cancer Institute
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e-mail: kristina.schmitt@roswellpark.org

Guest Faculty: Dr. David Cheng
Assistant Professor, Department of Cancer Control and Prevention

Dr. Gary Giovino
Professor and Chair, Department of Health Behavior

Dr. Zhihong Gong
Assistant Professor, Department of Cancer Control and Prevention

Dr. Mary Reid
Associate Professor, Department of Medicine

Dr. Lara Sucheston
Assistant Professor, Department of Cancer Control and Prevention

Dr. Song Yao
Assistant Professor, Department of Cancer Control and Prevention

Course Objective:

This course is intended to provide an overview of the field of cancer epidemiology. The major topics addressed in this course include 1) basic cancer biology; 2) epidemiologic methodology in its application to cancer; 3) epidemiologic exposures relevant to cancer etiology; and 4) the epidemiology of common cancers.

Grading Procedures:

Final grade will be based on the following:

- 4 Short Quizzes (10% each)
- Student Presentation (30%)
- Final Exam (30%)

Quizzes: Each class faculty member will submit 2-3 short questions (i.e., true/false, multiple choice or fill-in-the-blank/s) that will be directly related to the lecture materials or (if applicable) assigned readings.

Student Presentation: Students are expected to submit their PowerPoint presentation to the Teaching Assistant at the day of the assigned presentation date. The presentation will be graded according to the adherence of the guidelines outlined below and the accuracy of the content.

Final Exam: Each faculty member will submit short questions (i.e., true/false, multiple choice or fill-in-the-blank/s) or more detailed written questions that will be directly related to the lecture materials or (if applicable) assigned readings. The number of questions included for each lecture will depend on the depth of the questions provided.

Textbooks

Nasca PC & Pastides H. Fundamentals of Cancer Epidemiology. Jones and Bartlett Publishers. Sudbury, MA 2008. (Required)

Adami HO, Hunter D, Trichopoulos D. Textbook of Cancer Epidemiology. Oxford University Press. New York, NY 2002. (Recommended)

Assigned Readings

Cancer Facts and Figures, 2013

<http://www.cancer.org/research/cancerfactsfigures/cancerfactsfigures/cancer-facts-figures-2013>

On Being A Scientist: Responsible Conduct In Research. NATIONAL ACADEMY OF SCIENCES (<http://www7.nationalacademies.org/obas/>).

Instructor assigned research papers will be distributed at least one week before the lecture.

Guidelines for Presentations (30% of Final Grade)

The objective of the student presentations is to provide an overview of the epidemiology of specific cancer sites. The topic of your presentation will be assigned to you in order to avoid duplication of topic areas and to assure the coverage of a wide range of cancer sites. You are encouraged to carefully read several recent review papers on the epidemiology of cancer site assigned to you. Your presentation should include the following:

Descriptive epidemiology of cancer site

Incidence

Mortality

Trends over time

Sex and race distribution

Known risk factors

Description of risk factor

Biological mechanism by which factor affects risk

Magnitude of increase in risk

Known protective factors

Description of protective factor

Biological mechanism by which factor affects risk

Magnitude of decrease in risk

Suspected risk or protective factors

Description of risk/protective factors

Biological mechanism by which factors affect risk

Magnitude of increase/decrease in risk

Discussion

Methodological challenges in studying cancer site (if any)

Future research directions

You are expected to present your paper in the format of a Power Point presentation. You should cover the material in a 10-20 minute time frame, depending on the size of the class.

Presentation Topics

Breast Cancer	
Prostate Cancer	
Lung Cancer	
Colon Cancer	
Hodgkin’s Disease	
Non-Hodgkin’s Lymphoma	
Multiple Myeloma	
Adult Acute Leukemia	
Adult Chronic Leukemia	
Childhood Acute Leukemia	
Ovarian Cancer	
Endometrial Cancer	
Cervical Cancer	
Pancreatic Cancer	
Renal Cancer	
Stomach Cancer	
Oral Cancer	
Thyroid Cancer	
Liver Cancer	
Esophageal Cancer	
Melanoma	
Non-Melanoma Skin Cancer	
Bladder Cancer	
Brain Cancer	
Soft Tissue Sarcoma	
Osteosarcoma	
Testicular Cancer	



Course Title/Number: Administrative Theory and Practice for Public Health Programs,SPM 530

Department Name:Department of Socialand Preventive Medicine

Semester: Spring Year: 2014

Class Day/Time:	Tuesdays,4:00 6:40p.m.		
Class Location:	182 Farber Hall		
Format(s):	LEC		
Prerequisite(s):	Accepted into the Graduate Program		

Instructor(s) of Record:	Melinda E. Buckley,MS, CMA
Office:	By appointment, before and after class.
Phone Number(s):	716-307-5448
Email:	mebuckle@buffalo.edu
Office Hours:	By appointment,before and after class.

I. (a) Course Description:

This course provides students with a practical understanding of organizational theories and practices critical to the management of public health and health care related departments, programs, and projects. Based upon state-of-the-art organizational theory and research, the course emphasizes evidence-based approaches to management practice in public health and private health sectors. Logic models are presented to define program objectives and the management processes utilized to develop programs to accomplish desired outcomes. The course focuses upon the competencies needed for public health leaders and managers to effectively design and manage public health program and project operations while simultaneously influencing and adapting to dynamic changes in the public health and health care industry environments.

The major goal of this course is to prepare students to be effective leaders and managers in complex, evolving public health and health care industry environments. Accordingly, the objectives of this course are to enable students to:

Comprehend the scope of organizational theory and practice in the public health leadership and management arenas.

Understand and acquire key competencies required for leaders and managers to design, direct and develop theoretically sound and practical operational methods to implement and manage evidence-based public health programs:

- o Strategic Planning
 - Managing innovation and change
 - Classic strategic planning constructs
- o Designing
 - Translating population needs into financial and operational plans
- o Leading
 - Motivating the workforce
 - Recruiting, monitoring and guiding personnel
- o Decision making
 - Coordinating work across multiple internal and external collaborations
 - Negotiating agreements
- o Communicating
 - Exerting influence
 - Resolving conflict
- o Managing quality
- o Marketing programs and services

Understand leaders' and managers' critical roles in program and project design and implementation to assure fulfillment of program and project deliverables.

Gain key knowledge and understanding of human resources skills required to accomplish goals and encourage innovation.

II. Course Objectives / Competency / Instructional Method(s) / Assessment of Student Learning

Objective	Accreditation/Program Competency	Instructional Method(s)	Assessment Method(s)
Define health, health programs and projects, and the management of health programs and projects.	Health Policy and Management: 1. Identify the main components and issues of the organization, financing and delivery of health services and public health systems in the US.	Text, class lecture and discussion.	Written exam.
Describe the core activities of strategizing, designing, and leading, and the facilitative activities of management work.	Health Policy and Management: 5. Apply the principles of program planning, development, budgeting, management and evaluation in organizational and community initiatives.	Text, class lecture and discussion.	Written exam.
List and explain the competencies needed to manage effectively.	Program Planning: 2. Describe the tasks necessary to assure that program implementation occurs as intended.	Text, class lecture, questions assigned for out of class, practical application throughout grant project.	Written exam, grant project.
Recognize ethical issues and be able to analyze/address with the standard four key ethical principles.	Social and Behavioral Sciences: 9. Apply ethical principles to public health program planning, implementation and evaluation. Professionalism: 2. Apply basic principles of ethical analysis (e.g. the Public Health Code of Ethics, human rights framework, other moral theories) to issues of public health practice and policy. 5. Promote high standards of personal and organizational integrity, compassion, honesty and respect for all people.	Text, class lecture and discussion, written assignments.	Written exam, written assignments.
Understand the importance of, and the mechanics of conducting internal and external situational analysis on a program or project to develop an inventory of desired results.	Program Planning: 9. In collaboration with others, prioritize individual, organizational, and community concerns and resources for public health programs.	Text, class lecture and discussion. Practical exercise in class.	Written exam, grant project.
Formulate and reformulate statements of desired outputs, outcomes and impact for a program or project.	Systems Thinking: 7. Illustrate how changes in public health systems (including input, processes, and output) can be measured.	Text, class lecture and discussion. Practical exercise in class.	Written exam, grant project.
Understand how to assess and control performance and evaluate results to achieve the desired results established for a program or project.	Health Policy and Management 8. Apply "systems thinking" for resolving organizational problems.	Text, class lecture and discussion. Guest speaker.	Written exam, grant project.

Differentiate between creating a business plan for a new program versus conducting a situational analysis for an existing program. Define strategizing and interventional planning	Program Planning: 3. Explain how the findings of a program evaluation can be used.	Text, class lecture and practical exercise.	Written exam.
Explain the importance of tying organizational mission to program impact and operational plans of a program or project.	Professionalism: 3. Articulate an achievable mission, set of core values, and vision.	Text, class lecture and practical exercise.	Written exam and grant project.
Describe the purpose of setting a budget and discuss why the budget is the most widely used control system, using financial, personnel and service unit budgets.	Program Planning: 5. Differentiate among goals, measurable objectives, related activities, and expected outcomes for a public health program. 10. Assess evaluation reports in relation to their quality, utility, and impact on public health.	Text, class lecture and practical exercise. Practical application throughout grant project.	Written exam and grant project.
Explain the key organizational design concepts of division of work, specialization of workers, span of control and coordination as it relates to personnel management for a program or project.	Program Planning: 2. Describe the tasks necessary to assure that program implementation occurs as intended.	Text, class lecture and out of class assignment.	Written exam.
Discuss the relationship between authority and responsibility in organization designs.	Leadership: 5. Demonstrate team building, negotiation, and conflict management skills.	Text, class lecture and class discussions and out of class assignment.	Written exam and grant project.
Describe the basic staffing process of a program or project and discuss the interdependence among the steps in the process.	Program Planning: 2. Describe the tasks necessary to assure that program implementation occurs as intended.	Text, class lecture and class discussions.	Written exam.
Define leading, and explain the relationships between influence, leading, and interpersonal power.	Leadership: 1. Describe the attributes of leadership in public health.	Text, class lecture and class discussions.	Written exam.
Describe the motivation process distinguishing between content and process perspectives.	Leadership: 9. Develop strategies to motivate others for collaborative problem solving, decision-making, and evaluation.	Text, class lecture and class discussions.	Written exam.
Discuss the main approaches to studies of leadership including leader traits, leader behaviors and situational or contingency approaches.	Health Policy and Management: 9. Communicate health policy and management issues using appropriate channels and technologies.	Text, class lecture and class discussions.	Written exam.

Describe and discuss the sequential steps in the decision making process.	Professionalism: 3. Apply evidence-based principles and scientific knowledge base to critical evaluation and decision-making in public health.	Text, class lecture and class discussions.	Written exam.
Describe how the implementation and evaluation of management decisions are critical components of the decision making process.	Health Policy and Management: 7. Apply quality and performance improvement concepts to address organizational performance issues.	Text, class lecture and class discussions.	Written exam.
Define communicating as it relates to the facilitative role of a manager in communicating effectively with internal and external stakeholders.	Communication and Informatics: 4. Apply theory and strategy-based communication principles across different settings and audiences. Health Policy and Management: 10. Demonstrate leadership skills for building partnerships.	Text, class lecture and practical exercise.	Written exam.
Describe how effective listening is a critical management and leadership tool.	Communication and Informatics: 7. Demonstrate effective written and oral skills for communicating with different audiences in the context of professional public health activities.	Text, class lecture and practical exercise.	Written exam.
Discuss the application of the three principles that underpin the total quality approach: patient/customer focus, continuous improvement , and teamwork.	Health Policy and Management 7. Apply quality and performance improvement concepts to address organizational performance issues.	Text, class lecture and discussion.	Written exam.
Define quality as it applies to health programs and projects. Distinguish between content quality and delivery and service quality.	Health Policy and Management 7. Apply quality and performance improvement concepts to address organizational performance issues.	Text, class lecture and discussion.	Written exam.
Understand the use of the epidemiological planning model in marketing.	Epidemiology: 8. Communicate epidemiologic information to lay and professional audiences. 9. Draw appropriate inferences from epidemiologic data.	Text, class lecture and discussion.	Written exam.
Discuss the importance of identifying target markets and segments as the basis for effective commercial marketing strategies.	Health Policy and Management: 6. Apply principles of strategic planning and marketing to public health.	Text, guest speaker, and discussion.	Written exam, grant project.
What is a SWOT analysis, and discuss how an environmental scan of the organization can assist with the strategic plan of your program or project.	Leadership: 2. Describe alternative strategies for collaboration and partnership among organizations focused on public health goals. Secondary: Diversity and culture: 10. Develop public health programs and strategies responsive to the diverse cultural values and traditions of the communities being served.	Review and discussion of instructor provided material in class. Practical exercise in class, discussion.	Written exam, grant project.

Define the various components of a budget and explain the process to compile a successful budget plan.	Program Planning: 5. Differentiate among goals, measurable objectives, related activities, and expected outcomes for a public health program. 8. Prepare a program budget with justification.	Review and discussion of instructor provided material in class. Practical exercise in class.	Written exam, grant project.
List the essential legal components within a contract and discuss the potential consequences of not including these in the contractual process.	Leadership: 7. Use collaborative methods for achieving organizational and community health goals.	Review and discussion of instructor provided material in class.	Written exam, grant project.
Explain the uses and value of an organizational chart for the entity that holds a program or project.	Program Planning: 9. In collaboration with others, prioritize individual, organizational, and community concerns and resources for public health programs.	Review and discussion of instructor provided material in class. Practical out of class exercise.	Written exam.
Describe the process to analyze and design a job, and the components of a quality job description. How do these contribute to the effective management of the position?	Health Policy and Management: 5. Apply the principles of program planning, development, budgeting, management and evaluation in organizational and community initiatives. Program Planning: 2. Describe the tasks necessary to assure that program implementation occurs as intended.	Guest speaker, lecturer. Class discussion.	Written exam, grant project.
Describe a quality personnel evaluation process for the effective development of positions within a program or project.	Health Policy and Management: 5. Apply the principles of program planning, development, budgeting, management and evaluation in organizational and community initiatives. Program Planning: 2. Describe the tasks necessary to assure that program implementation occurs as intended.	Guest speaker, lecturer. Class discussion.	Written exam.

III. Textbooks /Equipment /Required Technologies

Resource	Required	Notes
Longest, Beaufort B. Jr. (2004), Managing Health Programs and Projects, San Francisco, CA: Jossey-Bass, A Wiley Imprint	Text is required	May be rented from bookstore.
Additional supplemental material.		

IV. Course Learning Activities

Lectures, in class exercises and discussion, assignments, semester group project, exams.

Assignments:

- 1) Questions will be assigned periodically from the text material as well as supplemental material provided by the instructor. Details and format of these assignments will be provided in class. These assignments will be used for discussion during class.
- 2) Group project: Each student will be assigned to a group. Each group will complete a "practice" grant proposal for a health related program. Selections will be made from public internet sources (the instructor will provide suggested sources in class). This will be a project that utilizes all areas of class study: strategizing, operational planning, resource planning and design, budget compilation, quality metrics, marketing, regulatory compliance.

Each group will provide a power point presentation of the proposal to the class as if it were to be considered by the authorizing body for approval. A written paper will also be required by each group member outlining the process the group used to identify the specific project chosen, and the grant area that individual student was assigned to complete for the grant proposal. More information on this project will be provided in class. A selected Request for Proposal will be due by the seventh class.

V. Course and Instructor Eval

It is strongly recommended that each student complete a course evaluation.

VI. Grading

Course Component	Due date	Percentage
Mid-term exam	3/25/14	100 pts., 33.3%
Group Grant Proposal/Presentation	4/29/14	100 pts., 33.3%
Final exam	5/13/14	100 pts., 33.3%

Total: 300 points, 100%

Final Grade Determination

Approximate cutpoints:

279- 300	A	219- 230	C
270- 278	A-	210- 218	C-
261- 269	B+	180- 209	O
249- 260	B	O- 178	F
240- 248	B-		
231- 239	C+		

VII. Other course related information

VIII. Communication

If you have multiple email accounts, please be sure that you access (or forward) your UB email. Your UB email is the account I will use to send course-related materials.

IX. Policy Regarding Absences, Attendance, Assignments, Exams, and University Policy on Incompletes in Courses

- **Class Attendance and Absences**

As many in-class activities will be completed throughout the semester, class attendance is required. In the case of exceptional circumstances that result in you being late or absent, you must contact me prior to the start of class (either by email or by leaving a telephone message). Please be aware that an absence from class under these circumstances does not excuse you from any required assignments.

- **Late Assignments**

All assignments are due at the designated time and due date.

Failure to submit the assignment when due will result in a loss of up to 5 points per day that the assignment is late. Assignments that are more than 3 days late will not be accepted. If there are circumstances that will preclude you from turning in assignments on the due date, it is imperative that you discuss the situation with the instructor prior to the due date.

- **Exams and Final Exam**

There will be a mid-term exam that covers material from the text. The final exam will cover all supplemental material covered in the second half of the course.

- **Policy on Incomplete Grades for the Course**

Incomplete grades will be given only if there are extenuating circumstances (i.e. severe illness) that preclude the student from completing the course. The student must have satisfactorily completed all course work and successfully passed all exams (B or better) up until the time an incomplete is requested.

- **University Policy on Incomplete Grades**

A grade of incomplete ("I") indicate that additional course work is required to fulfill the requirements of a given course. Students may only be given an "I" grade if they have a passing average in coursework that has been completed and have well-defined parameters to complete the course requirements that could result in a grade better than the default grade. An "I" grade may not be assigned to a student who did not attend the course. Prior to the end

of the semester, students must initiate the request for an "I" grade and receive the instructor's approval. Assignment of an "I" grade is at the discretion of the instructor.

The instructor must specify a default letter at the time the "I" grade is submitted. A default grade is the letter grade the student will receive if no additional coursework is completed and/or a grade change form is not filed by the instructor. "I" grades must be completed within 12 months. Individual instructors may set shorter time limits for removing an incomplete than the 12-month time limit. Upon assigning an "I" grade, the instructor shall provide the student specification, in writing or by electronic mail, of the requirements to be fulfilled, and shall file a copy with the appropriate departmental office.

Students must not re-register for courses for which they have received an "I" grade. Applicable dates regarding the 12-month provision:

Courses taken in (semester):	Will default in 12 months on:
Fall	December 31
Spring	May 31
Summer	August 31

The "I" must be changed to a grade before the degree conferral date if the student plans to graduate in that semester. At any time prior to the default date, students may elect to change the "I" grade to the default grade using the [Grade Retrieval Form](#). A default grade can be "A-," "8+," "8-," "C+," "C-," "D+," "D," or "F." (If a student selected an S/U grading option, it will replace the default letter grade when the grade defaults.)

Disability Policy

If you have any disability which requires reasonable accommodations to enable you to participate in this course, please contact the Office of Accessibility Resources, 25 Capen Hall, 645-2608, and also the instructor of this course during the first week of class. The office will provide you with information and review appropriate arrangements for reasonable accommodations.

<http://www.ub-disability.buffalo.edu/>

Netiquette

This course may utilize U81eans to facilitate online communication between course participants. Please keep in mind the following "Rules of Netiquette" when communicating online.

1. The rules of the classroom are the same regardless of location. Remember just because you're interacting online, doesn't mean you stop having respect for your professors, and fellow classmates. You're communicating with a real person, not a computer screen.
2. Remember your audience. When communicating online it's important to remember who you're communicating with. When sending a message to a professor, please refrain from using "text speak". For example, Shakespeare never intended for you to type "28 or not 28". Also, stay away from typing in all capital letters; it will appear as if you're shouting.
3. Avoid strong language. Language can easily be misinterpreted in an online setting. Be sure to review your work before submitting, making sure the reader won't be able to misinterpret it.

as strong, or offensive. Sarcasm doesn't translate well online. Your audience can't see your facial expressions, or body language. Try to be as straight forward and professional as possible.

4. **Read everything, twice.** Be sure to thoroughly read all course materials before beginning to work on your assignments. If you have a question, or need clarification, re-read the materials. You may have glanced over an important detail the first time. If you're still having difficulties, then e-mail your professor.
5. **Review all materials before submitting.** When responding to discussion board posts, be sure to read all previous postings before you post your own. This way you won't duplicate someone else's comments. Also, it's a good idea to write, and save your work in Microsoft Word first. In case of a technical issue, you have a backup copy.

Academic Integrity

Students who are suspected of academic dishonesty will be dealt with severely in accordance with the Department and University Policy. This may include a grade of 0 for an assignment and/or failure in a course.

Academic Dishonesty: Actions that compromise academic integrity include, but are not limited to the following examples:

- *Previously submitted work:* Submitting academically required material that has been previously submitted- in whole or in substantial part- in another course, without prior and expressed consent of the instructor.
- *Plagiarism.* Copying or receiving material from any source and submitting that material as one's own, without acknowledging and citing the particular debts to the source (quotations, paraphrases, basic ideas), or in any other manner representing the work of another as one's own.
- *Cheating.* Soliciting and/or receiving information from, or providing information to, another student or any other unauthorized source (including electronic sources such as cellular phones and PDAs), with the intent to deceive while completing an examination or individual assignment.
- *Falsification of academic materials.* Fabricating laboratory materials, notes, reports, or any forms of computer data; forging an instructor's name or initials; resubmitting an examination or assignment for reevaluation which has been altered without the instructor's authorization; or submitting a report, paper, materials, computer data, or examination (or any considerable part thereof) prepared by any person other than the student responsible for the assignment.
- *Misrepresentation of documents.* Forgery, alteration, or misuse of any University or Official document, record, or instrument of identification.
- *Confidential academic materials.* Procurement, distribution or acceptance of examinations or laboratory results without prior and expressed consent of the instructor.
- *Selling academic assignments.* No person shall sell or offer for sale to any person enrolled at the University at Buffalo any academic assignments, or any inappropriate assistance in the preparation, research, or writing of any assignment, which the seller knows, or has reason

to believe, is intended for submission in fulfillment of any course or academic program requirement.

- *Purchasing academic assignments.* No person shall purchase an academic assignment intended for submission in fulfillment of any course or academic program requirement.

Student Handbook: All students are required to read the student handbook. An online version is available on the 'Information For Current Students' page of your department website.

COURSE SCHEDULE

This schedule is subject to revision due to unforeseen events. Any course schedule changes or additional readings will be announced in class as time permits. Note: Additional required readings may be assigned and will be assigned at least one week prior to the class for which they are assigned.

Date		Required Readings[Assignments]
Week1	11/28/14	Intro, Chapter 1 Management Work and Chapter 2 Strategizing the Future
Week2	2/4/14	Project Detailed Description, Chapter 3 Designing for Effectiveness
Week3	2/11/14	Chapter 4 Leading to Accomplish Desired Results Review sample grant application and completed version.
Week4	2/18/14	Chapter 5 Making Good Management Decisions Guest speaker. (This date is flexible).
Week5	2/25/14	Chapter 6 Communicating for Understanding
Week6	3/4/14	Chapter 7 Managing Quality - Totally
Week7	3/11/14	Chapter 8 Commercial and Social Marketing, Mid-term Review, Review and approval of chosen RFP.
Week8	(FOLLOWS RECESS OF 3/20) 3/25/14	Mid-term Exam, Practical: Strategic Planning, SWOT's

Date			Required Readings/Assignments
Week9		4/1/14	Practical: Financial Statements, Budgeting
Week10		4/8/14	Practical: Budgeting continued, Contracts Guest speaker.
Week11		4/15/14	Practical: HR: Organizational Charts, Designing Jobs, Job Descriptions
Week12		4/22/14	Practical: HR: Interviewing, Selecting, Managing
Week13		4/29/14	Practical: HR: Evaluations Project presentations.
Week14		5/6/14	Project presentations.
Final		5/13/14	

Global Health
SPM 534

Timings and location: Fridays 2:00-4:40 pm, Rm 182 Farber Hall

Instructor: Pavani K. Ram, MD
Associate Professor
Department of Social and Preventive Medicine
School of Public Health and Health Professions
e-mail: pkram@buffalo.edu
tel: 829-5380

Office hours: By appointment or e-mail
Email is always the most reliable way to reach me. Please do NOT hesitate to contact me. If you need to meet me, I will typically be available on Fridays by appointment.

Text: We will not use a text for this course. Instead, we will use readings almost exclusively from the peer-reviewed literature. Gray literature will be used occasionally as absolutely necessary.

Readings: I have provided the citation for papers that need to be downloaded for each week's class on the syllabus. Look out for announcements for any changes to the readings. The full text of all the readings is available for free online, or through the University Libraries electronic journal holdings (<http://library.buffalo.edu/libraries/findlibrarymaterials/ejournals/>).

General course objectives:

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

1. *Describe the Millennium Development Goals as they relate to health and the relevance of the Alma-Ata declaration to global public health. Consider your position on whether health is a human right and defend that position.*
2. *Describe the epidemiologic transition and the role of poverty in health. Discuss challenges to the development and maintenance of functioning health systems in resource-poor settings.*
3. *Describe the epidemiology and risk factors for major causes of childhood mortality, and prevention strategies to improve child survival in resource-poor settings.*
4. *Describe the key disease entities relevant to nutrition in low- and middle-income settings, including wasting, stunting, and protein-energy malnutrition.*
5. *Describe the epidemiology of vaccine-preventable diseases. Describe herd immunity, surveillance strategies specific to elimination and eradication programs, and challenges to the completion of polio eradication efforts.*
6. *Describe the epidemiology, risk factors, and prevention strategies for parasitic diseases in resource-poor settings.*
7. *Describe the epidemiology, risk factors, and prevention strategies relevant to neonatal morbidity and mortality in resource-poor settings. Describe specific antenatal and neonatal interventions and the challenges of community-based diagnosis and treatment for neonatal health outcomes.*
8. *Describe the epidemiology, risk factors, and prevention strategies relevant to maternal morbidity and mortality in resource-poor settings. Discuss the role of poor infrastructure and health systems in fostering high rates of maternal mortality. Examine the biological and social effects of obstetric fistula.*
9. *Describe the epidemiology, diagnostics, risk factors, treatment and prevention strategies for malaria in sub-Saharan Africa. Discuss challenges to scaling up insecticide-treatment bednet use in a sustainable way, and to the use of artemisinin-based therapeutics.*
10. *Discuss the epidemiology, diagnostics, risk factors, prevention, and treatment strategies for tuberculosis in resource-poor settings. Describe the importance of HIV – TB co-infection. Explain the methodology and challenges to achieving DOTS.*
11. *Describe the epidemiology, risk factors, prevention, and treatment strategies for HIV in resource-poor settings. Consider epidemiology unique to subgroups, such as prevention of mother-to-child transmission. Discuss effective prevention strategies and the role of politics in funding and implementation of public health programming relevant to HIV.*
12. *Describe the role of water, sanitation, and hygiene in disease transmission in low- and middle-income countries. Consider the threats to equity and non-discrimination for segments of the population (e.g. rural vs. urban, girls vs. boys).*
13. *Describe the epidemiology, risk factors, and prevention strategies relevant to tobacco-related disease in resource-poor settings.*
14. *Learn to write and critically review goals, targets, and indicators.*

Course requirements:

- *Assigned readings from text and journal articles*
 - *Note that readings are assigned for the first class and for each class thereafter. Please find them in UB Learns*
 - *Be on the lookout for email announcements of additional readings.*
- *Active participation in class discussions*
 - *Public health is a collaborative effort. No individual truly functions alone. Your participation should reflect your thorough reading of the papers assigned. To encourage active participation, **15%** of the total grade will rely on participation.*
- *Oral presentation*
 - *Each student must complete one oral presentation on a topic of relevance to global public health. You can choose to focus on any topics NOT covered in the course, although the general theme may have been covered. This is not intended to be a general talk / paper that could be put together using a single review article or the WHO website. Choose a topic that is of interest to you and that will allow for a rich discussion in your paper (and, more importantly, in your mind). You **MUST** use information from primary peer-reviewed literature to inform your talk. So, “Trachoma” would not be a suitable topic. “Evidence to support the SAFE strategy for the prevention of Trachoma” would be a suitable topic. You must speak with me during break, after class, or by appointment to ensure that I approve of your topic. Be sure to bring at least 3 papers from the peer-reviewed literature to our conversation. After we talk, please send me an email with the proposed title for your paper and presentation. I will respond with an approval. **You must have my approval by email by the date listed on the syllabus, which means that we should have discussed your topic before then.***
 - *The presentation is intended to be an iterative process. That is, you provide me with an outline (5% of your total grade). I give you feedback. You use that feedback and improve the presentation that you are preparing. You submit the first draft of your slides (**10%** of your total grade). I give you feedback on the first draft of your slides. You incorporate that feedback and send the final draft of slides, which you’ll present to the class (**15%** of your total grade). This iterative process is how public health works in real life. Critique does not mean criticism so please do not be disheartened if you find a lot of red ink on the drafts. That is to be expected. Each step will count towards the grade for your paper and demonstrating incorporation of feedback or justification for not incorporating that feedback is very important.*
 - *The outline should be a minimum of one full, single-spaced, page using standard outline format. Please be sure to use either Times New Roman 12 point font or Arial 10 point font. Please use single spacing, since you will be submitting the outline by email. The outline should include at least 3 references from the peer-reviewed literature. Use EndNote! An undeveloped outline will be returned to you without comment and with a poor score commensurate with the level of effort demonstrated by the outline – it behooves you to invest in your outline development.*
 - *The presentation should be 10 minutes in length, and allow for 2 minutes of questions. You should critically evaluate the literature that exists on your topic during your session. The last slide of your presentation should include at least 10 references from the peer-reviewed literature. WHO and CDC websites are NOT peer-reviewed literature!*

- You should use PowerPoint slides for your presentation. I will grade your slides both on the content of the slide itself as well as the script that you write in the notes section for each slide so write out your script word-for-word.
- Students should strongly consider attending one or both of the presentation clinics. Also, we will set up a practice session for those interested in doing a dry run of their presentations. This has typically been very helpful.
- Please email me the outline, 1st draft, or final draft of the slides by 12 midnight on the night that the slides are due. So, if the slides are due on October 19th, please submit it to me before 11:59 pm on the evening of October 19th. The only acceptable excuses for late submission of your deliverables are acute illness/injury. Unless I hear from you before the deadline (barring catastrophic events), I will NOT accept late documents; you will receive a zero for documents submitted after the deadline.
- The presentation will be worth **30%**. This grade includes the outline (5%), the first draft of your slides (**10%**), and the final draft that you present (**15%**).
- Group exercise: Write the next set of development goals
 - The Millennium Development Goals expire in 2015 and much will be left unachieved. On November 2 (after Exam 2) and November 9, you will split off into groups to write the next set of development goals. There will be more to come on this exercise.
 - Anticipate substantial time for group work during the week between Nov 2 and Nov 9.
 - Each group will receive a collective grade, worth **15%** of your total grade.
- Exams
 - Expect to write – a lot – on your exams! Carbo-load, do finger stretches, whatever it takes to make sure that you can write.
 - You will be expected to synthesize information from the readings and your lecture notes.
 - Both exams will consist primarily of essay questions. Each exam will last about 1 hour.
 - Exam 1 will be held on Friday, September 28, and Exam 2 will be held on Friday, November 2.
 - Each exam will count for **20%** of the total grade.

Grading scale:

93-100%: A	90-92: A-	88-89%: B+	83-87% B	80-82: B-
78-79%: C+	73-77% C	70-72: C-	61-70: D	≤60: Fail

Attendance:

Students are expected to attend all classes. Those who must be absent are asked to e-mail me with a brief explanation, before the session.

Academic Integrity:

The University at Buffalo and I view adherence to academic integrity as an essential part of your career development. Please familiarize yourself with the University's academic integrity policies and information on plagiarism available in the websites below. Disciplinary action, as outlined in the University's policies, will be undertaken should there be a suspected breach of academic integrity. Please do not hesitate to ask me questions about this.

Lecture Schedule

Week	Date	Structured Topics	Reading	Lecturer
1	Aug 31	Introduction, MDGs, Alma-Ata Declaration, Is health a human right?	• (Backman, Hunt et al. 2008) • (Homedes and Ugalde 2009) • (Hunt and Backman 2008) • (Shiffman 2006)	Ram
2	Sep 7	Global burden of disease, Epidemiologic transition, Poverty and Health, Health Systems, and Health Determinants	• (Maher, Smeeth et al. 2010) • (Sachs 2012) • (Yates 2010) • (Barnighausen, Bloom et al. 2010) • (Sanders, Fuhrer et al. 2008)	Ram
3	Sep 14	Respiratory diseases, indoor air pollution, Diarrheal Diseases DEADLINE FOR APPROVAL OF PAPER TOPIC	• (Adegbola 2012) • (Rudan, El Arifeen et al. 2011) • (Santosham, Chandran et al. 2010)	Ram
4	Sep 21	Neonatal and maternal health Detailed outline of talk due	• (Bhutta, Cabral et al. 2012) • (Kinney, Kerber et al. 2010) • (Prata, Sreenivas et al. 2009) • (Canning and Schultz 2012)	Ram
5	Sep 28	EXAM 1 Neonatal health Parasitic diseases and elimination / eradication	• http://www.povertyactionlab.org/publication/deworming-best-buy-development • (Dowdle and Cochi 2011)	Ram
6	Oct 5	Global tobacco control Vaccine-preventable diseases	• (Giovino, Mirza et al. 2012) (UB Learns) • Hosseinpour (UB Learns) • (Aylward and Tangermann 2011) • (Strebel, Cochi et al. 2011) • (John, Plotkin et al. 2011)	Giovino/ Ram
7	Oct 12	Malaria, Nutrition Draft of slides for presentation due	• (Lutter, Daelmans et al. 2011) -previously assigned for 9/14 • http://www.rollbackmalaria.org/gmap/0-5.pdf • (Korenromp 2012) • (Lienhardt, Glaziou et al. 2012)	Ram

8	Oct 19	HIV in the resource-poor setting	• (Merson, O'Malley et al. 2008) • (Piot, Bartos et al. 2008) • (Larson, Bertozzi et al. 2011) • (Merson, Padian et al. 2008)	Ram
9	Oct 26	Water, Sanitation, and Handwashing Environmental enteropathy	• (Bartram and Cairncross 2010) • (Hunter, MacDonald et al. 2010) • (Clasen 2010) • (Mara, Lane et al. 2010) • (Curtis, Schmidt et al. 2011) • (Humphrey 2009)	Ram
10	Nov 2	EXAM 2 Write the next set of development goals (group)		Ram / team
11	Nov 9	Write the next set of development goals (group)		Ram / team
12	Nov 16	No class Final set of slides for presentation due		
14	Nov 23	Thanksgiving break		
15	Nov 30	Student presentations		Ram
16	Dec 7	Student presentations		Ram

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SPM 535
BIOLOGICAL BASIS OF PUBLIC HEALTH Spring 2014
Semester

COURSE INFORMATION (3 Credits)

Classes: Wednesday; 1pm to 3:40pm

Instructor: Carl Li, MD, MPH (email: carlli@buffalo.edu)

Office hours: By appointment or email. Dr. Li will make himself available to meet with you typically within 24 hours of your request. Email is always the most reliable way to reach him. Please do NOT hesitate to contact him. Electronic mail received after 5:00 PM will be answered the following business day (M-F)

COURSE DESCRIPTION

This course is designed for students beginning graduate studies in epidemiology or public health who have little or no background in human biology. The first part of the course will provide a broad overview of the fundamental principles and mechanisms in the normal structure and function of cells, molecules, and the human body as they apply to diseases of emerging epidemiologic and public health importance. Subsequent units will focus on the anatomy, histology, physiology, pathology, metabolism, and biochemistry of selected organ systems and associated diseases of epidemiologic importance.

COURSE GOALS

The purpose of this course is to provide the student with an understanding of the normal and abnormal mechanisms in the human body. Emphasis will be placed on understanding those mechanisms that lead to diseases of epidemiologic public health importance.

COURSE OBJECTIVES:

1. To understand the normal structure and function of cells and molecules.
2. To grasp the basic concepts in human genomics, immunology, infectious diseases, and cardiovascular disease.
3. To appreciate the complexity and interplay of the human organ systems at the microscopic and macroscopic level

COURSE PREREQUISITES: None.

COURSE ORGANIZATION AND LEARNING ACTIVITIES

Class Attendance and Absences:

Attendance is required for this course. In the case of exceptional circumstances that result in you being late or absent, you must contact me prior to the start of class (either by

email or by leaving a telephone message). Please be aware that an absence from class under these circumstances does not excuse you from any required assignments.

Course Format:

The course will include lectures, case studies, readings, quizzes, two in-class exams and a final cumulative examination.

Lectures:

Reading assignments should be completed before the lecture. Please note that class schedules may change during the semester and students will be given notice of any modifications.

Case Studies Homework Assignments:

Throughout the semester there will be homework assignments that involve completion of a case study that relates to the content being covered in the lectures. The work should be completed before class and then the case will be discussed in class, after the quiz on the case study. All students are expected to actively participate in the class.

Examinations and Quizzes:

There will be several quizzes throughout the semester. Quizzes will be administered at the beginning of the class period. Quizzes cannot be made up; students arriving late to class will have limited time to complete quizzes. Students who are not present will not receive credit for that particular quiz. Quizzes will cover the case study and its assigned readings and the associated lecture material.

There will be two examinations during the semester and one final examination. Examinations will be in-class and consist primarily of multiple-choice and fill-in-the-blank questions. The final examinations will be cumulative, which means it will include all topics covered during the semester. There are no make-ups allowed for exams. If a different time is required for an exam, arrangements should be made at the beginning of the semester. If you are sick, you need to make arrangements before the exam. Documentation for any illness or extenuating circumstances will be required. No excuses will be accepted after the exam.

Paper:

There will be a two-page paper on the public health implications of the ethics surrounding genetic testing. Another topic related to ethics can be discussed, but only after the topic is approved by the course instructor. It should be written as a position paper, discussing the pros and cons of your position. References are required, but no specific reference style should be used. The maximum limit is two pages. Both a draft and a final revised version will be graded. The grading rubric for the draft version will be based on adherence to requirements and effort. The grading rubric for the final version will be based on writing style, such as grammar, cohesiveness, and logic; and content, such as a balanced discussion of the pros and cons of your position and its public health implications.

Late assignments:

All assignments are due in class at the designated time due date. Failure to submit the assignment when it is due will result in a loss of one point per day that the assignment is late. Assignments that are more than 5 days late will not be accepted. If there are circumstances that will preclude you from turning in assignments on the due date, it is imperative that you discuss the situation with the instructor prior to the due date.

Grades:

First examination	25%
Second examination	25%
Cumulative final examination	30%
Paper	8%
Quizzes	10%
Participation	2%
Total:	100%

RECOMMENDED TEXTS

Battle CU. *Essentials of Public Health Biology*. Sudbury, Massachusetts: Jones and Bartlett Publishers, 2009.

The text is available at the University Medical Bookstore or it can be ordered from an online book source.

COURSE POLICIES AND RELEVANT UNIVERSITY POLICIES**VIOLATIONS OF ACADEMIC INTEGRITY:**

Students who are suspected of academic dishonesty will be dealt with severely in accordance with the Department and University Policy. This may include a grade of zero for an assignment and/or failure in a course and may lead to the inability to graduate.

Academic Integrity at UB Means:

"The University has a responsibility to promote academic honesty and integrity and to develop procedures to deal effectively with instances of academic dishonesty. Students are responsible for the honest completion and representation of their work, for the appropriate citation of sources, and for respect for others' academic endeavors. By placing their name on academic work, students certify the originality of all work not otherwise identified by appropriate acknowledgments." (*Adapted from University of Wisconsin, "Student Disciplinary Guidelines," and University of Delaware, "Academic Comment Honesty and Dishonesty."*)

The University at Buffalo and I view academic integrity as an essential part of your career development. Please familiarize yourself with the University's academic integrity policies and information on plagiarism available on the websites below. Disciplinary

action, as outlined in the University's policies, will be undertaken should there be a suspected breach of academic integrity. Please do not hesitate to ask questions about this.

<http://academicintegrity.buffalo.edu/policies/index.php> <http://library.buffalo.edu/libraries/asl/guides/plagiarism.html>

Academic Dishonesty: Actions that compromise academic integrity include, but are not limited to the following examples:

- *Previously submitted work:* Submitting academically required material that has been previously submitted – in whole or in substantial part – in another course, without prior and expressed consent of the instructor.
- *Plagiarism.* Copying or receiving material from any source and submitting that material as one's own, without acknowledging and citing the particular debts to the source (quotations, paraphrases, basic ideas), or in any other manner representing the work of another as one's own.
- *Cheating.* Soliciting and/or receiving information from, or providing information to, another student or any other unauthorized source (including electronic sources such as cellular phones and PDAs), with the intent to deceive while completing an examination or individual assignment.
- *Falsification of academic materials.* Fabricating laboratory materials, notes, reports, or any forms of computer data; forging an instructor's name or initials; resubmitting an examination or assignment for reevaluation which has been altered without the instructor's authorization; or submitting a report, paper, materials, computer data, or examination (or any considerable part thereof) prepared by any person other than the student responsible for the assignment.
- *Misrepresentation of documents.* Forgery, alteration, or misuse of any University or Official document, record, or instrument of identification.
- *Confidential academic materials.* Procurement, distribution or acceptance of examinations or laboratory results without prior and expressed consent of the instructor.
- *Selling academic assignments.* No person shall sell or offer for sale to any person enrolled at the University at Buffalo any academic assignments, or any inappropriate assistance in the preparation, research, or writing of any assignment, which the sellers knows, or has reason to believe, is intended for submission in fulfillment of any course or academic program requirement.
- *Purchasing academic assignments.* No person shall purchase an academic assignment intended for submission in fulfillment of any course or academic program requirement.

STUDENTS WITH DISABILITIES POLICY

If you have any disability which requires reasonable accommodations to enable you to participate in this course, please contact the Office of Accessibility Resources, 25 Capen Hall, 645-2608, and also the instructor of this course during the first week of class. The office will provide you with information and review appropriate arrangements

for reasonable accommodations. <http://www.ub-disability.buffalo.edu/>. Students with documented disabilities must make their needs known to the instructor.

POLICY ON INCOMPLETE GRADES FOR THE COURSE

Incomplete grades will be given only if there are extenuating circumstances (i.e. severe illness) that preclude the student from completing the course. The student must have satisfactorily completed all course work and successfully passed all exams ("B" or better) up until the time an incomplete is requested.

UNIVERSITY POLICY ON INCOMPLETE GRADES

A grade of incomplete ("I") indicate that additional course work is required to fulfill the requirements of a given course. Students may only be given an "I" grade if they have a passing average in coursework that has been completed and have well-defined parameters to complete the course requirements that could result in a grade better than the default grade. An "I" grade may not be assigned to a student who did not attend the course. Prior to the end of the semester, students must initiate the request for an "I" grade and receive the instructor's approval. Assignment of an "I" grade is at the discretion of the instructor.

The instructor must specify a default letter at the time the "I" grade is submitted. A default grade is the letter grade the student will receive if no additional coursework is completed and/or a grade change form is not filed by the instructor. "I" grades must be completed within 12 months. Individual instructors may set shorter time limits for removing an incomplete than the 12-month time limit. Upon assigning an "I" grade, the instructor shall provide the student specification, in writing or by email, of the requirements to be fulfilled, and shall file a copy with the appropriate departmental office.

Students must not re-register for courses for which they have received an "I" grade. The "I" must be changed to a grade before the degree conferral date if the student plans to graduate in that semester. A default grade can be "A-," "B+," "B-," "C+," "C-," "D+," "D," or "F."

STUDENT HANDBOOK: All students are required to read the student handbook. An online version is available on the "Current Students" page of your department website.

COMMUNICATION: If you have multiple email accounts, please be sure that you access (or forward) your UB email. Your UB email is the account I will use to send course-related materials.

COURSE SCHEDULE: This schedule is subject to revision due to unforeseen events. Any course schedule changes or additional readings will be posted on UBlearns and will be announced in class as time permits. Note: Additional required readings may be assigned and will be assigned at least one week prior to the class for which they are assigned.

COURSE SCHEDULE		
Date	Topics	Readings/Assignments
January 29	Health and Disease; Cells and Tissues	Ethics of Genetic Testing Video Case Study
February 5	Cells and Tissues, Cellular Response Genetics	Case Study: The Mediterranean Diet
February 12	Genetics	Battle, Chapter 3
February 19	No Class	
February 26	Genetics, Neoplasms, Smoking and Lung Cancer	Battle, Chapter 10, 19, 13 Case Study: Smoking and Lung Cancer Quiz
March 5	EXAMINATION 1	
March 12	Inflammation, Immunity, Immunizations	Battle, Chapter 16, 17 DRAFT OF PAPER DUE
March 19	No Class: Spring Recess	
March 26	Immunity, Immunizations	
April 2	Immunity, Immunizations Pathogenic Agents	Case Study: Immunizations and Autism Quiz
April 9	Pathogenic Agents, Infectious Diseases, HIV/AIDS	Battle, Chapter 4, 24, 25, 26
April 16	Infectious Diseases: HIV/AIDS, Tuberculosis	Battle, Chapter 23 Case Study: Tuberculosis Outbreak Quiz
April 23	EXAMINATION 2	
April 30	Cardiovascular System, Coronary Artery Disease	Battle, Chapter 10, 34
May 7	Cardiovascular System, CAD: Diabetes, Obesity	Battle, Chapter 36, 10 Case Study: Cardiovascular Disease Prevention Quiz
May 14	CUMULATIVE FINAL EXAM	

COURSE LEARNING OBJECTIVES

PUBLIC HEALTH BIOLOGY Upon graduation, it is increasingly important that a student with an MPH be able to...

Accreditation / Program Competency Should be able to:	Objectives: knowledge, skills, and behaviors	Instructional Method	Assessment Methods
Specify the role of the immune system in population health.	Know the characteristics of and explain function of the immune system Identify immune responses to pathogens; manipulation of immune response for vaccines Know the administrative challenges and consequences of unvaccinated populations.	Lecture: cover some basic anatomy and physiology, parts of body involved in the immune system; passive and active immunity; innate and adaptive responses; how to interpret health information which is in immunological terms	Exam
Identify the ethical, social and legal issues implied by public health biology.	Know the ethical, legal and cultural issues associated with populations that have a genetic predisposition to disease	Lectures which includes examples of how genetic differences among populations explain differences in disease occurrence; social, economic and population consequences of genetic diseases	Exam Paper Video case study
Explain the biological and molecular basis of public health.	Explain the biological and/or molecular characteristics of cancer, heart disease, and other chronic diseases.	Lecture on cancer, heart disease, and the immune system Lecture on obesity and cardiovascular disease, and their effect on population health	Exam Case study Quiz

PUBLIC HEALTH BIOLOGY Upon graduation, it is increasingly important that a student with an MPH be able to...

Competency Should be able to:	Objectives: knowledge, skills, and behaviors	Instruction method	Assessment
Explain the role of biology in the ecological model of population-based health.	Discuss the biology of major determinants of population health, e.g. smoking and obesity Know the most prevalent global diseases in terms of patterns, etiology, risk factors, clinical aspects and major issues in prevention and control. Relate the biological factors with other components of the ecological model for emerging infections in the global environment	Lecture on obesity and cardiovascular disease, and their effect on population health Lecture on HIV/AIDS Lecture on emerging and reemerging infectious diseases, in particular tuberculosis Lecture on the mechanism of cancer induction with a focus on tobacco smoking and tobacco related cancers	Exam Case studies Quizzes
Integrate general biological and molecular concepts into public health.	Discuss the multiple factors that influence infectious disease epidemics.	Lecture on changing biology of pathogens, global population growth, impact of HIV on populations and life expectancy	Exam

PUBLIC HEALTH BIOLOGY Upon graduation, it is increasingly important that a student with an MPH be able to...

Competency Should be able to:	Objectives: knowledge, skills, and behaviors	Instruction method	Assessment
Explain how genetics and genomics affect disease processes and public health policy and practice.	Define the basic terms, vocabulary, and underlying principles associated with genetics. Determine the role of genetic factors in the susceptibility to and progression of disease. Discuss cancer as a genetic disease.	Lecture on genetics and public health covering epidemiology of genetic abnormalities and particular attention to subpopulations at higher risk, molecular basis of mutations, and potential implications for public health of the Human Genome project Lecture on the mechanism of cancer induction with a focus on tobacco smoking and tobacco related cancers	Exam Paper

Course Title/Number: EEH (SPM) 536 3T

Department Name: Epidemiology and Environmental Health (Social and Preventive Medicine)

Program Name: Master of Public Health 3T

Semester: Spring Year: 2013-2014

Class Day/Time:	Tuesday, 6:50-9:30 PM			
Class Location:	Farber Hall, Room 182			
Format(s):	LEC	REC		
Prerequisite(s):	3T			

Instructor(s) of Record:	Michael F. Noe, MD, MPH	Patricia Marcus, MBA	Stephen Walter, MBA
Office:	414 Kimball	BlueCross BlueShield of WNY	M & T Insurance Agency
Phone Number(s):	829-6941	3T	3T
Email:	mnoe@buffalo.edu	Marcus.Patricia@healthnow.org	Walter, Steve SWALTER@mandtinsurance.com
Office Hours:	By appointment	3T	3T
Teaching Assistant (TA):	3T	3T	3T
TA Office:	3T	3T	3T
TA Phone Number:	3T	3T	3T
TA Email:	3T	3T	3T
TA Office Hours:	3T	3T	3T
Prerequisite(s):	3T	3T	3T

Additional Information: 3T

I. (a) Course Description:

The course, delivered in three modules, is designed to make the student familiar with basic principles and practices in three areas of importance to the management functions in a public health or healthcare organization: human resource management, financial management, and quality management/quality improvement. The course will be taught by knowledgeable practitioners with long experience in their respective areas of practice and expertise. It is expected that the student will develop sufficient basic knowledge of key principles in each of these areas to enhance awareness of their role and importance to the management function in the organization; the ability to appropriately apply them in their work; and the ability to work more effectively with individuals in the organization who specialize in these areas. Instructors use a combination of lecture, recitation, discussion of examples from the literature, and classroom exercises. The current challenges faced by public health and healthcare organizations as pertain to these areas will also be highlighted. The competencies to be developed and the specific objectives are described below.

II. Course Objectives / Competency / Instructional Method(s) / Assessment of Student Learning

fundamentals, including financial statements and the accounting process. 3. Develop and understanding of governmental financial statements. 4. Develop and understanding of the budgeting process. 5. Describe the role of the Board of Directors and their responsibilities with respect to financial reporting.	honesty. K. Program Planning K.8 Prepare a program budget with justification		
Quality Module Further the student's understanding of the context and relevance of recent Institute of medicine reports on the quality of health care in the United States. 2. Impart and understanding of the significance of medical error as a	Quality Module D. Health Policy and Management D.5. Apply the principles of program management and evaluation in organizational initiatives. D.7. Apply quality and performance improvement concepts to address organizational performance issues. D.8. Apply systems thinking for resolving organizational problems.	Quality Module Lecture, discussion, readings, classroom exercise	Quality module Participation (40%); project (30%); exam (30%)

public health problem. 3. Explore current and traditional concepts of quality and its measurement in the delivery of health care and in public health practice. 4. Describe the role of regulatory, accrediting and other relevant agencies in promoting the improvement of quality in health care . 5. Explore the relative value and impact of strategies to improve quality. 6. Introduce the basic concepts, principles, and methods of continuous quality improvement; establish familiarity with the basic tools and techniques and their application in health care and public health. 7. Provide the student with a framework for	G. Diversity and Culture G.7. Differentiate among availability, acceptability, and accessibility of health care across diverse populations H. Leadership H.9. Develop strategies to motivate others for collaborative problem-solving, decision-making and evaluation. J. Professionalism J. 3. Apply evidence-based principles and a scientific knowledge base to critical evaluation and decision-making in public health. J.5. Promote high standards of personal and organizational integrity, honesty and respect. K. Program Planning K.7. Differentiate between quantitative and qualitative evaluation methods in relation to their strengths, limitations and appropriate uses. L. Systems Thinking L.7. Illustrate how changes in public health systems (including input, processes, and output) can be measured.		
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evaluating reports
in the published
literature on
quality
improvement
projects and
activities.

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III. Textbooks /Equipment /Required Technologies

Textbook	Required	Notes
Crossing the Quality Chasm: A New Health System for the 21st Century. National Academy Press. Washington, DC. (Required reading in the Quality Management Module. It is my understanding that this text may be rented at the University Medical Bookstore, Harriman Hall, Lower Level.	Yes, for Quality Module	It is my understanding that this text may be rented at the University Medical Bookstore, Harriman Hall, Lower Level.
Novick and Morrow's Public Health Administration: Principles for Population-Based Management. Ed. Leiyu Shi and James A. Johnson. Jones and Bartlett Publishers. Third Ed. 2014 (See especially chapters 1, 2, 9, 10,11,12,16, 17, 18, 19, 26)	Strongly recommended for each of the three modules.	Available in the University Medical Book store.

Lab fee information: None

IV. Course Learning Activities

These will include: lecture, assigned readings, presentations, group exercises, and examinations. Students are expected to do required readings and to be prepared to discuss specific reading assignments in class.

V. Course and Instructor Eval

The course and instructors will be evaluated on a form to be sent to students electronically in the E-Value System two weeks before the course is scheduled to end.

VI. Grading

The final grade in the course will be a composite of grades assigned in each of the three modules. The basis of the development of the grade in each module is specified above.

Course Component	Due date	Percentage
3T	3T	3T
3T	3T	3T
Course Evaluation Completion		1%

Total: 100%

Final Grade Determination

Approximate cutpoints:

92 -	100	A	70-	73.9	C
90-	91.9	A-	68-	69.9	C-
88-	89.9	B+	65-	67.9	D+
80-	87.9	B	63-	64.9	D
76-	79.9	B-	60-	62.9	D-
74-	75.9	C+	3T	<60	F

VII. Other course related information

None

VIII. Communication

If you have multiple email accounts, please be sure that you access (or forward) your UB email. Your UB email is the account I will use to send course-related materials.

IX. Policy Regarding Absences, Attendance, Assignments, Exams, and University Policy on Incompletes in Courses

- **Class Attendance and Absences**

As many in-class activities will be completed throughout the semester, class attendance is expected. In the case of exceptional circumstances that result in you being late or absent, you must contact the professor prior to the start of class (either by email or by leaving a telephone message). Please be aware that an absence from class under these circumstances does not excuse you from any required assignments.

- **Late Assignments**

All assignments are due in the Digital Dropbox or otherwise according to the direction of the professor at the designated time and due date.

Failure to submit the assignment when due will result in a loss of 5 points per day that the assignment is late. Assignments that are more than 3 days late will not be accepted. If there are circumstances that will preclude you from turning in assignments on the due date, it is imperative that you discuss the situation with the instructor prior to the due date.

- **Exams and Final Exam**

An exam will be given at the end of the Finance Module (covering content in that area) and at the end of the Quality Module (covering content in that area).

- **Policy on Incomplete Grades for the Course**

Incomplete grades will be given only if there are extenuating circumstances (i.e. severe illness) that preclude the student from completing the course. The student must have satisfactorily completed all course work and successfully passed all exams (B or better) up until the time an incomplete is requested.

- **University Policy on Incomplete Grades**

A grade of incomplete ("I") indicate that additional course work is required to fulfill the requirements of a given course. Students may only be given an "I" grade if they have a passing average in coursework that has been completed and have well-defined parameters to complete the course requirements that could result in a grade better than the default grade. An "I" grade may not be assigned to a student who did not attend the course. Prior to the end of the semester, students must initiate the request for an "I" grade and receive the instructor's approval. Assignment of an "I" grade is at the discretion of the instructor.

The instructor must specify a default letter at the time the "I" grade is submitted. A default grade is the letter grade the student will receive if no additional coursework is completed and/or a grade change form is not filed by the instructor. "I" grades must be completed within 12 months. Individual instructors may set shorter time limits for removing an incomplete than the 12-month time limit. Upon assigning an "I" grade, the instructor shall provide the student specification, in writing or by electronic mail, of the requirements to be fulfilled, and shall file a copy with the appropriate departmental office.

Students must not re-register for courses for which they have received an "I" grade.

Applicable dates regarding the 12-month provision:

Courses taken in (semester):	Will default in 12 months on:
Fall	December 31
Spring	May 31
Summer	August 31

The "I" must be changed to a grade before the degree conferral date if the students plans to graduate in that semester. At any time prior to the default date, students may elect to change the "I" grade to the default grade using the Grade Retrieval Form.

A default grade can be "A-," "B+," "B-," "C+," "C-," "D+," "D," or "F." (If a student selected an S/U grading option, it will replace the default letter grade when the grade defaults.)

Disability Policy

If you have any disability which requires reasonable accommodations to enable you to participate in this course, please contact the Office of Accessibility Resources, 25 Capen Hall, 645-2608, and also the instructor of this course during the first week of class. The office will provide you with information and review appropriate arrangements for reasonable accommodations. <http://www.ub-disability.buffalo.edu/>

Netiquette

This course may utilize UBlearns to facilitate online communication between course participants. Please keep in mind the following “Rules of Netiquette” when communicating online.

1. **The rules of the classroom are the same regardless of location.** Remember just because you’re interacting online, doesn’t mean you stop having respect for your professors, and fellow classmates. You’re communicating with a real person, not a computer screen.
2. **Remember your audience.** When communicating online it’s important to remember who you’re communicating with. When sending a message to a professor, please refrain from using “text speak”. For example, Shakespeare never intended for you to type “2B or not 2B”. Also, stay away from typing in all capital letters; it will appear as if you’re shouting.
3. **Avoid strong language.** Language can easily be misinterpreted in an online setting. Be sure to review your work before submitting, making sure the reader won’t be able to misinterpret it as strong, or offensive. Sarcasm doesn’t translate well online. Your audience can’t see your facial expressions, or body language. Try to be as straight forward and professional as possible.
4. **Read everything, twice.** Be sure to thoroughly read all course materials before beginning to work on your assignments. If you have a question, or need clarification, re-read the materials. You may have glanced over an important detail the first time. If you’re still having difficulties, then e-mail your professor.
5. **Review all materials before submitting.** When responding to discussion board posts,
be sure to read all previous postings before you post your own. This way you won’t duplicate someone else’s comments. Also, it’s a good idea to write, and save your work in Microsoft Word first. In case of a technical issue, you have a backup copy.

Academic Integrity

Students who are suspected of academic dishonesty will be dealt with severely in accordance with the Department and University Policy. This may include a grade of 0 for an assignment and/or failure in a course.

Academic Dishonesty: Actions that compromise academic integrity include, but are not limited to the following examples:

- *Previously submitted work:* Submitting academically required material that has been previously submitted – in whole or in substantial part – in another course, without prior and expressed consent of the instructor.
- *Plagiarism.* Copying or receiving material from any source and submitting that material as one's own, without acknowledging and citing the particular debts to the source (quotations, paraphrases, basic ideas), or in any other manner representing the work of another as one's own.
- *Cheating.* Soliciting and/or receiving information from, or providing information to, another student or any other unauthorized source (including electronic sources such as cellular phones and PDAs), with the intent to deceive while completing an examination or individual assignment.
- *Falsification of academic materials.* Fabricating laboratory materials, notes, reports, or any forms of computer data; forging an instructor's name or initials; resubmitting an examination or assignment for reevaluation which has been altered without the instructor's authorization; or submitting a report, paper, materials, computer data, or examination (or any considerable part thereof) prepared by any person other than the student responsible for the assignment.
- *Misrepresentation of documents.* Forgery, alteration, or misuse of any University or Official document, record, or instrument of identification.
- *Confidential academic materials.* Procurement, distribution or acceptance of examinations or laboratory results without prior and expressed consent of the instructor.
- *Selling academic assignments.* No person shall sell or offer for sale to any person enrolled at the University at Buffalo any academic assignments, or any inappropriate assistance in the preparation, research, or writing of any assignment, which the sellers knows, or has reason to believe, is intended for submission in fulfillment of any course or academic program requirement.
- *Purchasing academic assignments.* No person shall purchase an academic assignment intended for submission in fulfillment of any course or academic program requirement.

Student Handbook: All students are required to read the student handbook. An online version is available on the 'Information For Current Students' page of your department website.

COURSE SCHEDULE

This schedule is subject to revision due to unforeseen events. Any course schedule changes or additional readings will be posted on UBlerns and will be announced in class as time permits. Note: Additional required readings may be assigned and will be assigned at least one week prior to the class for which they are assigned.

<u>Date</u>	<u>Topic</u>	<u>Required Readings/Assignments</u>
3T	3T	3T

CONTENT OF MODULES

HUMAN RESOURCE MANAGEMENT

Module Dates: January 28, February 4, February 11, February 18

January 28

Planning for Organizations, Jobs, People

- Strategic Human Resources Management
- Human Resources Planning
- HR Structure
- Mission/Vision
- HR Management Systems
- Job Analysis

February 4

Acquiring Human Resources

- EEO and the Legal Environment (ADA, FMLA, Sexual Harassment, Retaliation etc.)
- Recruiting and Job Search
- Social Networking and Personality Tests
- Immigration Issues/Proof of Citizenship

February 11

Building Performance/Rewarding Employees

- Human Resources Development
- Approaches to Improving Competitiveness
- Performance Appraisals and the Performance Management Cycle
- Compensation and Benefits-Plan Design and Trends
- Positive Employee Relations

February 18

Labor Relations

- Labor Relations/Collective Bargaining

FINANCIAL MANAGEMENT

Module Dates: February 25, March 4, March 11, March 25

February 25 Not-for Profit Financial Reporting

Open discussion on what we want to accomplish during the next 5 weeks
Where Financial Reporting/Accounting fit into the organization
Managers' Responsibilities
Fund Accounting – Restricted and Non-Restricted
Reporting Requirements of Grants
Monitoring Financial Performance

March 4 Financial Reports

Financial Statements:

- Income Statements
- Balance Sheets
- Accounts Payables, Accounts Receivables, and Other Reports

Audit:

- Internal
- External

Interim Financial Reports

March 11 Budgeting

Parties Involved
Timing
Human Resource Costs
Comparison of Budget to actual Costs
Cash flow

March 25 Dealing with the Board of Directors on Financial Reporting

Financial Duties and Responsibilities of the Board
Changing Board members
Directors and Officers Insurance

April 1 Final Review

Final Exam for Module
Tax returns, Governmental regulations
Closing comments

QUALITY MANAGEMENT

Module Dates: April 8, April 15, April 22, April 29, May 6

April 8: Perspectives on Quality and Performance Measures in Health Care

- definitions
- traditional and current approaches to defining and improving quality
- factors affecting quality in health care

Disquality and Medical Error: A Public Health Issue

April 15: The Measurement of Quality

- challenges and issues

Performance Evaluation in Public Health

April 22: Strategies to Improve Quality

Regulatory, Accrediting and Other Agencies - an overview

- New York State Health Department
- Peer Review Organizations
- Joint Commission on Accreditation of Healthcare Organizations
- National Committee on Quality Assurance and HEDIS

Accountable Care Organizations

A Framework for Critical Evaluation of the Literature on Quality

April 29: Continuous Quality Improvement: Rationale, Tools and Techniques

May 6: Continuous Quality Improvement

Case Study: Sexually Transmitted Disease in Adolescents

Student Presentations

May 13: Exam

University of Buffalo
Department of Social & Preventive Medicine
SPM 539 - Introduction to Health Economics
(Also MGH 633/LAW 676)
Spring 2014

BASIC INFORMATION:

Class Times: Mondays 6:00 PM – 8:40 PM
Classroom: Farber 182 South Campus

CONTACT INFORMATION:

Instructor: Mr. Walter Ludwig
Email: wludwig@chsbuffalo.org
Daytime Phone: 447-6335

COURSE DESCRIPTION:

The purpose of this course is to provide students with the skills necessary to understand economic analysis in all aspects of health and healthcare. It will examine the supply and demand for health services, and the economic analysis of healthcare systems and current healthcare policies. It will also examine the economic evaluation of healthcare technologies, the impact of HMO's and health insurance policies, the effects of regulation on both private and public health programs, and the Patient Protection and Affordable Care Act (aka Obamacare). Where appropriate, discussion will also include local and regional issues as well as current events regarding these topics and healthcare reform.

REQUIRED TEXT:

A Health Economics Primer
Copyright 2006
Shirley Johnson-Lans
Published by Addison Wesley Publishers
ISBN: 0-321-13669-1
(Available at Main Street Campus Medical Bookstore)

Additional Resources on-line:

Many additional student resources are available on line from Addison Wesley, Publisher at <http://www.aw-bc.com>. Please help yourself to these materials. Additional reading material will also be assigned.

COURSE OBJECTIVES:

Health Economics is a discipline of applying the general principles of economics (supply, demand, resources, and production) to the issues of organization, finance, regulation, and the delivery of healthcare services to our communities. Students will learn to:

1. Develop an understanding of basic economic concepts and how they are applied to the healthcare industry.
2. Analyze the financial and regulatory aspects of healthcare
3. Understand and evaluate how health policy affects future economic decisions
4. Understand and discuss current healthcare policy issues

COURSE ASSIGNMENTS:

- **Quizzes** **30 %**
Three quizzes will be given throughout the semester covering recent material.

- **Paper** **35 %**
Students will pick a topic of interest from current news stories in the healthcare arena. The general theme will be the application of economic principles to analyze a topic related to public health. A list of suggested topic areas will be provided. Students may use any relevant material as a subject for the paper. Papers will be 10 – 15 pages in length, double spaced with 1" margins. More information on the paper will be discussed in class. A topic area for the paper is due by the 9th week of class (Mar 31st). Papers are due April 14th. All students will present their paper in a formal fashion (overheads or PowerPoint) to class. An option to do your paper and presentation in a group will also be offered.
Student presentations will be discussed further in class and will be considered part of the overall class content.

- **Final Exam** **25 %**
Final exam will cover all materials discussed in class throughout the year with additional emphasis on the last 4 lectures.

- **Class participation** **10 %**
Includes class attendance, participation in class discussion, and discussion of relevant topical healthcare economic issues. Each student is expected to discuss at least one current article they have found in the lay press or journal regarding healthcare economic issues.

GRADING:

Quizzes	30%
Paper & presentation	35%
Final Exam	25%
Class Participation	10 %
	=====
	100%

Policies regarding S/U grades, incomplete work and academic dishonesty are presented in the University graduate manuals and will be strictly adhered to in this course.

Paper & Presentation Grading Criteria

The paper and presentation account for 35 points in your grade.

Grading will be according to the following guidelines:

Paper: Up to 27.5 points

- | | |
|------------|---|
| 5 points | Neat and presentable paper of > 10 and < 15 pages
(Overuse of graphs or charts to fill pages will result in deductions) |
| 5 points | Issue or problem well defined and outlined |
| 5 points | Correlation with specific economic issues involved
(i.e. Affect on supply or demand of service, pricing of service, productivity, etc) |
| 5 points | Factual data, studies, or interview summaries presented to support or explain your issue. |
| 5 points | Valid conclusion supported by the data presented |
| 2.5 points | List of references |

Presentation: Up to 7.5 points

- | | |
|------------|---|
| 1.5 points | Interesting presentation of 10-15 minutes |
| 1.0 points | Good use of presentation materials |
| 5.0 points | Ability to answer questions on your topic |

Paper may also be completed by a group of two students. With a group project, paper should be 15 – 20 pages in length and presentation should be 15-20 minutes.

SOME SAMPLE PAPER TOPICS:

1. Emergency Room Crisis
2. Physician owned health care facilities
3. Health Care Reform/Affordable Care Act – many topics are available under this heading
4. Increasing the nursing or physician workforce
5. Economic issues regarding the healthcare needs of specific populations (i.e. Baby boomers)
6. Direct to consumer advertising of prescription drugs/medical supplies
7. Health insurance models in Western NY
8. Consumer directed health insurance
9. Pay for Performance in Physician compensation models
10. Accountable Care Organizations
11. Financial incentives for Improving Quality
12. Improving price transparency in healthcare
13. Issues in insurance coverage for mental health
14. Comparative Effectiveness research

I would prefer not to have multiple papers on the same topic (with some minor exceptions). Topics will be approved on a first come first serve basis.

INTRODUCTION TO HEALTH ECONOMICS

SCHEDULE SPRING 2014

DATE	WEEK	SUBJECT	READINGS	QUIZ
1/27/14	1	Introduction and Overview Basic Microeconomic Concepts	Text: Pgs 315-325 Other: The Complexities of Comparing Medicare Choices. Uwe Reinhardt, <i>The New York Times</i> . January 4, 2013 Freakonomics: A rogue economist explores the hidden side of everything. Steven D Levitt, 2006. Pgs 41-47	
2/3/14	2	Why is the Healthcare Industry Different? Application of basic economics to healthcare	Text: Pgs 3-28 Other: The Cost Conundrum; Annals of Medicine. Atul Gawande, <i>The New Yorker</i> . June 2009 Volume 85; Issue 16 What Is Different About the Market for Health Care? , Wells et al, <i>JAMA</i> . 2007;298(23):2785-2787 National Health Spending In 2012: Rate Of Health Spending Growth Remained Low For The Fourth Consecutive Year. Martin, et al, <i>Health Affairs</i> , 33, no.1 (2014):67-77 High and rising health care costs: Demystifying US health care spending. Paul B. Ginsberg, The Robert Wood Johnson Foundation, Research Synthesis Report No. 16, Oct 2008: pgs 10-19	
2/10/14	3	The production and demand of Medical Care	Pgs 29-39, Chapter 9 Other: Economic evaluations of medical care interventions for cancer patients: How, why, and what does it mean? Shih, et al, <i>CA Cancer J Clin</i> 2008;58:231-244 Cost-Benefit Analysis of a Strategy to Vaccinate Healthy Working Adults against Influenza. Kristin Nichol, <i>Arch Intern Med</i> . 2001; 161: 749-759 What is a QALY? Philips, et al, <i>Hayward Medical Communications 2001, Evidence Based Medicine</i> ; Vol 1, No 6:1-6 Should Patients Receive Secondary Prevention Medications For Free After A Myocardial Infarction? An Economic Analysis. Choudhry, et al. <i>Health Affairs</i> 26, no. 1 (2007): 186-194	

2/17/14	4	Health Insurance Markets	Chapters 3,4	X
2/24/14	5	Health Insurance: Government Programs	Chapter 5 Kaiser Family Foundation - Establishing Health Insurance Marketplaces: An Overview of State Efforts, May 2013 Kaiser Family Foundation – Explaining Health Reform:Health Insurance Exchanges, April 2010 Kaiser Family Foundation – Medicaid: A Primer, March 2013 <i>(Review briefly)</i> Kaiser Family Foundation – Medicare: A Primer, April 2010 <i>(Review briefly)</i>	
3/3/14	6	The Physician Practice & Medical Malpractice	Chapters 6,7 Congressional Budget Office Background Paper, Medical Malpractice Tort Limits and Healthcare Spending, April 2006, pgs 1-36 Congressional Budget Office Letter to Honorable Orrin G. Hatch, October 9, 2009 Michello Mello et al, National Costs of the Medical Liability System. <i>Health Affairs</i> 29, no. 9 (2010):1569-157	
3/10/14	7	Hospital Economics/Prep for International View of Healthcare	Chapter 12/ Sicko Assignment http://www.filmsforaction.org/watch/sicko/ Brill, Steven, The Bitter Pill. <i>Time</i> vol 181, no. 8 (2013): 16-55 (Review for Class #8 on the Hospital.)	
3/17/14		NO SCHOOL	SPRING BREAK	
3/24/14	8	The Hospital Economic Model	Chapter 8	X
3/31/14	9	Universal Coverage: Initial Models to Obamacare (Paper Topic Due)	Chapter 14 Summary of the New Health Care Law, Henry J Kaiser Family Foundation, Publication # 8061. March 26, 2010, pgs 1-13	
4/7/14	10	Health Policy Issues: Technology	Skinner, et al, Is Technological Change in Medicine Always Worth it? The Case of Acute Myocardial Infarction <i>Health Affairs</i> 25, no. 2 (2006):w34-w47	

			Claudia Williams, Farzad Mostashari, Kory Mertz, Emily Hogin and Parmeeth Atwal From The Office Of The National Coordinator: The Strategy For Advancing The Exchange Of Health Information <i>Health Affairs</i>, 31, no.3 (2012):527-536 Julie Appleby, The Case of CT Angiography: How Americans View and Embrace New Technology <i>Health Affairs</i>, 27, no. 6 (2008): 1515-1521 Keeler, Emmett, Effects of Cost Sharing on Use of Medical Services and Health Rand Capital Health Policy Program, 1992: 317-321	
4/14/14	11	Quality & Economics (PAPERS DUE)	David Blumenthal, Quality of Care – What is it? <i>New England Journal of Medicine</i>, Vol 355, no. 12 (Sept 19, 1996):891-894 Committee on Redesigning Health Insurance Performance Measures, Payment, and Performance Improvement Programs, Rewarding Provider Performance: Aligning Incentives in Medicare <i>National Academies Press</i>, 2007:1-14 Anna D. Sinaiko, et al. How Report Cards On Physicians, Physician Groups, And Hospitals Can Have Greater Impact On Consumer Choices <i>Health Affairs</i>, 31, no.3 (2012):602-611	X
4/21/14	12	International View (cont)/Presentations	Chapter 12	
4/28/14	13	Regulation in Healthcare/Presentations	Gregory Pawlson, et al. Professionalism, Regulation, and the Market: Impact on Accountability for Quality of Care <i>Health Affairs</i> , 21, no. 3 (2002):200-207	
5/5/14	14	Miscellaneous Healthcare Economic Topics/Presentations		
5/12/14		Final Exam		

**Additional articles may be
assigned on any week.**

School of Public Health and Health Professions

Course Title/Number: Health Policy in the United States/15826 (SPM 542)

Health Policy in the United States/24084 (LAW 715)

Health Policy in the United States/11914 (MGH 634)

Semester: Spring; Year: 2014

Class Day/Time:	Fridays, 9:00 a.m.-11:40 a.m.
Class Location:	182 Farber Hall
Format(s):	LEC
Prerequisite(s):	None
Instructor of Record:	Kristina M. Young, MS-Clinical Assistant Professor
Office:	268C Farber Hall, South Campus
Phone Number(s):	716-829-5365/631-1219
Email:	kmy@buffalo.edu/kmy427@aol.com
Office Hours:	By appointment
Teaching Assistant (TA):	None

I. (a) Course Description:

This course explores the U.S. public policymaking process and its impacts upon the determinants of population health including environmental, socio-cultural, ethnic, demographic, economic, lifestyle, service access and other factors. With the incremental evolution of U.S. health policy as the context, the course discusses individual and societal values concerning health and the operation of the political system framed in a cyclical process of agenda-setting through policy modification. Each step of the policymaking process highlights the roles of key players in the legislative, judiciary and executive branches of government, and the manner in which they influence the process. The course identifies and characterizes the array of health care system stakeholders ranging from private citizens to powerful industry lobbying organizations and the means and methods used to influence the formulation, implementation and modification of health policy. The course concludes with a discussion of the characteristics and role of political competence in the U.S. policymaking process.

1. (b) Course Rationale/Relationship to Respective Schools' Curricula:

This three-credit elective course provides a foundation of information about the introduction, formulation, implementation and modification of U.S. health policy. The course emphasizes complex values, political and other factors that interplay to influence health policy effects on population groups, the nation's economy and its systems of social justice. As such, the course is highly relevant to the major functions and services of the public health system in American society.

The matrix below aligns "Learning Objectives" with "Course Objectives and Program Competencies."

II. Learning Objectives /Course Objectives and Program Competencies / Instructional Method(s) / Assessments of Student Learning

Learning Objectives	Accreditation/ Program Competencies	Instructional Method(s)	Assessment Method(s)
- Describe purposes of public policymaking in addressing population health needs. - Describe various ways of identifying public policy to improve health. -Discuss and characterize the incremental nature of U.S. policymaking. - Define forms of health policy: laws, rules, regulations. - Define, describe and contrast allocative and regulatory policies. -Describe the cyclical nature of U.S. health policymaking in terms of: 1) role of executive, legislative and judiciary branches of governments, 2) Power and influence in the political market place (legitimate, expert, referent, coercive powers), 3) Policymaking phases: agenda setting, formulation, legislation development, implementation and modification. - Define and characterize principles of policy competency: 1) involving key stakeholders, 2) developing operational objectives, strategies, plans and timing, 3) identifying personnel and other resources, 4) identifying responsible parties , budget, and establishing measureable evaluation criteria and reporting schedules, 5)anticipating obstacles and	Health Policy and Management 1. Identify the main components and issues of the organization, financing and delivery of health services and public health systems in the U.S. 2. Describe the legal and ethical bases for public health and health services. 4. Discuss the policy process for improving the health status of populations. 5. Apply the principles of program planning, development, budgeting, management, and evaluation, organization and community initiatives. 6. Apply principles of strategic planning and marketing to public health. 8. Apply "systems thinking" for resolving organizational issues. 9. Communicate health policy and management issues using appropriate channels and technologies. 10. Demonstrate leadership skills for building partnerships.	Text reading; lectures and classroom discussions of instructor-provided resources	Written exams; project papers as applicable

remediation strategies, 6) scanning current policy environments, 7) monitoring ongoing developments, 8) forecasting future directions of policy issues. - Identify and describe roles of health policy <i>suppliers</i> (executive, legislative, judiciary branches and <i>demanders</i> (individuals, interest groups).			
- Define the role and attributes of competent leaders in health policy implementing organizations. - Define and characterize overall organization/unit /department mission, vision and core values in practical terms as the “language” of leadership. - Define and describe conceptual and technical managerial skills required for leadership performance. - Define and contrast <i>transactional</i> versus <i>transformational</i> leadership in terms of leaders’ responsibilities in policy-implementing organizations. - Recognize that health policies are rarely implemented by a single organization, requiring diplomatic leadership skills across multiple organizations. - Identify knowledge and skills required to forge collaborative relationships among organizations to successfully implement program goals: 1) articulate and instill common vision, mission and values, 2) manage ideological and interpersonal conflicts, 3) negotiate win-win multiparty agreements, 4) emphasize organizations’ shared values and visions and minimize differences. - Define and characterize ethical principles and practices in the political marketplace with	Leadership 1. Describe the attributes of leadership in public health. 2. Describe alternative strategies for collaboration and partnership among organizations, focused on public health goals. 3. Articulate an achievable mission, set of core values, and vision. 4. Engage in dialogue and learning from others to advance public health goals. 5. Demonstrate team building, negotiation and conflict management skills. 6. Demonstrate transparency, integrity and honesty in all actions. 7. Use collaborative methods for achieving organizational and community health goals. 8. Apply social justice and human rights principles when addressing community needs. 9. Develop strategies to motivate others for collaborative problem solving, decision-making, and evaluation.	Text reading; lectures and classroom discussions of instructor-provided resources	Written exams; project papers as applicable

examples related to principles of autonomy, justice, beneficence, and non-maleficence.			
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-Describe and discuss how media reports on health services, clinical and biomedical research developments influence public policy makers' perceptions of problems and potential solutions and suggest input to legislation development.	Communication and Informatics 1. Describe how societal, organizational and individual factors influence and are influenced by public health communications.	Text reading; lectures and classroom discussions of instructor-provided resources	Written exams; project papers as applicable
- Outline and describe the process of legislation implementation by governmental executive agencies: 1) rule making, 2) roles of interest groups, 3) clarifying policy goals and objectives, 4) management competencies, 5) agency capacities, 6) agency budgetary resources. - Describe the components and significance of legislative oversight on program implementation.	Program Planning 2. Describe the tasks necessary to assure that program implementation occurs as intended. 3. Explain how the findings a program evaluation can be used. Differentiate among goals, measureable objectives, related activities, and expected outcomes for a public health program.	Text reading; lectures and classroom discussions of instructor-provided resources	Written exams; project papers as applicable
-Explain ways in which lifestyles and biology impact population morbidity & mortality; explain the rationale for public policy intervention to improve population health. -Identify and discuss the contributions of scientific advances on the causes and prevention of diseases as reflected in health policy interventions, e.g. tobacco control, air and water pollution regulations	Public Health Biology 2. Describe how behaviors alter human biology. 5. Explain the role of biology in the ecological model of population-based health. 9. Apply evidence-based biological and molecular concepts to inform public health laws, policies and regulations.	Text reading; lectures and classroom discussions of instructor-provided resources	Written exams; project papers as applicable
- Identify and discuss the contributions of scientific advances on the causes and prevention of diseases as reflected in health policy interventions, e.g. tobacco control,			

air and water pollution regulations			
-Define and characterize the origins and effects of health disparities in populations on health outcomes and population health status. -Identify the diverse array of current and potential future stakeholders in the outcomes of health policy legislation and their roles in influencing policy implementation.	Social and Behavioral Sciences 2. Identify the causes of social and behavioral factors that affect health of individuals and populations. 4. Identify critical stakeholders for planning, implementation and evaluation of public health programs, policies and interventions. 6. Describe the role of social and community factors in both the onset and solution of public health problems.	Text reading; lectures and classroom discussions of instructor-provided resources	Written exams; project papers as applicable

III. Textbooks /Equipment /Required Technologies

Resources	Required	Notes
<i>Health Policymaking in the United States, 5th edition; Beaufort Longest, Jr. 2010, Health Administration Press</i>	Yes	Available at UB Medical Bookstore, Harriman Hall lower level Rm. 20 and online
Instructor-provided PowerPoint outlines of textbook chapters	No, but strongly recommended	Use as study guides for key concepts, terms and exams
Instructor-provided articles from current literature and professional organization and media reports on health policy developments.	Yes	Electronic copies and web links provided by instructor

IV. Course Learning Activities

- A. Students are expected to read assigned chapters prior to each class according to the schedule attached to this syllabus.
- B. Students are expected to review instructor-provided articles and discussion questions in advance of each class to prepare for in-class participation.
- C. Small-group-produced term papers of up to 20 pages in length on instructor-approved topics, require students to synthesize major concepts pertinent to health policy including the topic's significance to stakeholders, costs and relevant ethical impacts. Discussion of potential future scenarios is required. The instructor provides written guidelines for paper development. Each group is required to conduct a 20-minute presentation of its paper to the full class. The instructor intends that all members of each group receive the same

grade. However, the instructor requires group member to anonymously rate performance of their other group members on participation level and specific contributions to the final work on a form she provides. This peer rating may affect individual students' final paper grade.

V. Course and Instructor Evaluations

Detailed evaluations of the course and instructor will be conducted: for MPH students via the "CourseEVAL" online evaluation system; **for Law students** via the "TEACHING/COURSE FEEDBACK FORM: ANONYMOUS REMARKS" and **for MBA students**, via the UBCATS course evaluation system. All students are required to complete their respective evaluations. Students will be notified of the availability of evaluation reporting by their respective Schools near the end of the semester. Student evaluations are the bases for improvements in course content and instructor proficiency and as such are **VERY** important!

VI. Grading

Course Component	Due date	Percentage
Mid-term exam	March 14, 2014	30%
Project Paper	Hardcopy and electronic version: May 2, 2014	35%
Final exam	May 16, 2014	35%

Total: 100%

Final Grade Determination

Approximate grading points for letter grades:

92.0- 100	A	72.0- 77.9	C
90.0- 91.9	A-	70.0- 71.9	C-
88.0- 89.9	B+	68.0- 69.9	D+
82.0- 87.9	B	62.0- 67.9	D
80.0- 81.9	B-	<62.0-	F
78.0- 79.9	C+		

VII. Other course related information

It is students' responsibility to bring any difficulties with course material, assignments or Project Paper work to the instructor's attention at the earliest possible time in order to assist resolution. The instructor does not provide "make-up" opportunities for students to raise grades earned on mid-term exams, Project papers or final exams.

VIII. Communication

Students with multiple email accounts must access or forward emails to their UB email. Unless specifically requested otherwise in writing, the instructor will send all course- related materials to students' UB email addresses.

The instructor uses both her corporate (kmy427@aol.com) and UB email (kmy@buffalo.edu) addresses to send student communications; email addresses are linked, so either address works.

IX. Policy Regarding Absences, Attendance, Assignments, Exams, and University Policy on Incompletes in Courses

- **Class Attendance and Absences**

Attendance at all classes is required. In exceptional circumstances that result in a late class arrival or absence, students are required to contact the instructor prior to class either by voicemail or email. Class absence does excuse students from any assigned requirements due on the date of absence.

- **Late Assignments**

The Project Paper is due in both hardcopy and electronic format at the date and time noted in VI., above. Failure to submit the paper on time will result in a loss of 5 points per 24 hour period that the paper is late. **Papers more than 72 hours late will not be accepted and students will receive no points toward their final grade for the assignment.** Because the Project Paper is assigned several weeks in advance of the due date, any circumstances that will prevent meeting the deadline must be communicated to the instructor in writing at the earliest date and at least 72 hours prior to the deadline date and time. Granting of a deadline extension is at the instructor's discretion. The instructor does not allow "make-up" work to compensate for grade deductions due to late or failed Project Paper submission.

- **Exams and Final Exam**

There will be a mid-term and final exam as listed in VI. above and on the Course Schedule. The mid-term and final exams will be completed on the dates noted unless, due to extraordinary circumstances, the instructor will arrange to administer an exam at a different time in response to student request(s) at least 14 days in advance of the scheduled exam date. Special arrangements may be made in the event of a student's illness or incapacity. The determination of extraordinary circumstances will be at the instructor's discretion; student convenience does not construe "extraordinary circumstances." Final examinations will be completed during the University-designated exam week at the usual class time. Mid-term and final exams will consist of multiple choice and true/false items. Exam responses will be recorded on optically scanned forms for which the instructor will provide advance instructions.

- **Policy on Incomplete Grades for the Course**

Incomplete grades will be given only if there are extenuating circumstances (i.e. severe illness) that preclude the student from completing the course. The student must have satisfactorily completed all course work and successfully passed all exams (B or better) up until the time an incomplete is requested.

- **University Policy on Incomplete Grades**

A grade of incomplete ("I") indicate that additional course work is required to fulfill the requirements of a given course. Students may only be given an "I" grade if they have a passing average in coursework that has been completed and have well-defined parameters to complete the course requirements that could result in a grade better than the default grade. An "I" grade may not be assigned to a student who did not attend the course. Prior to the end of the semester, students must initiate the request for an "I" grade and receive the instructor's approval. Assignment of an "I" grade is at the discretion of the instructor.

The instructor must specify a default letter at the time the "I" grade is submitted. A default grade is the letter grade the student will receive if no additional coursework is completed and/or a grade change form is not filed by the instructor. "I" grades must be completed within 12 months. Individual instructors may set shorter time limits for removing an incomplete than the 12-month time limit. Upon assigning an "I" grade, the instructor shall provide the student specification, in writing or by electronic mail, of the requirements to be fulfilled, and shall file a copy with the appropriate departmental office.

Students must not re-register for courses for which they have received an "I" grade.

Applicable dates regarding the 12-month provision:

Courses taken in (semester):	Will default in 12 months on:
Fall	December 31
Spring	May 31
Summer	August 31

The "I" must be changed to a grade before the degree conferral date if the students plans to graduate in that semester. At any time prior to the default date, students may elect to change the "I" grade to the default grade using the [Grade Retrieval Form](#).

A default grade can be "A-," "B+," "B-," "C+," "C-," "D+," "D," or "F." (If a student selected an S/U grading option, it will replace the default letter grade when the grade defaults.)

Disability Policy

Students with any disability requiring reasonable accommodations to participate in this course must contact the Office of Disability Services, 25 Capen Hall, 645-2608, and also the course instructor during the first week of class. The ODS will provide information and review appropriate arrangements for reasonable accommodations. Please see: <http://www.student-affairs.buffalo.edu/ods/> for additional information that applies to both the Law School and School of Management.

Academic Integrity

Students who are suspected of academic dishonesty will be dealt with severely in accordance with the Department and University Policy. This may include a grade of 0 for an assignment and/or failure in a course.

Infractions may also include other more severe sanctions as outlined on the website provided in the last bullet of this section.

Academic Dishonesty: Actions that compromise academic integrity include, but are not limited to the following examples:

- *Previously submitted work:* Submitting academically required material that has been previously submitted – in whole or in substantial part – in another course, without prior and expressed consent of the instructor.
- *Plagiarism.* Copying or receiving material from any source and submitting that material as one's own, without acknowledging and citing the particular debts to the source (quotations, paraphrases, basic ideas), or in any other manner representing the work of another as one's own.
- *Cheating.* Soliciting and/or receiving information from, or providing information to, another student or any other unauthorized source (including electronic sources such as cellular phones and PDAs), with the intent to deceive while completing an examination or individual assignment.
- *Falsification of academic materials.* Fabricating laboratory materials, notes, reports, or any forms of computer data; forging an instructor's name or initials; resubmitting an examination or assignment for reevaluation which has been altered without the instructor's authorization; or submitting a report, paper, materials, computer data, or examination (or any considerable part thereof) prepared by any person other than the student responsible for the assignment.
- *Misrepresentation of documents.* Forgery, alteration, or misuse of any University or Official document, record, or instrument of identification.
- *Confidential academic materials.* Procurement, distribution or acceptance of examinations or laboratory results without prior and expressed consent of the instructor.
- *Selling academic assignments.* No person shall sell or offer for sale to any person enrolled at the University at Buffalo any academic assignments, or any inappropriate assistance in the preparation, research, or writing of any assignment, which the sellers knows, or has reason to believe, is intended for submission in fulfillment of any course or academic program requirement.
- *Purchasing academic assignments.* No person shall purchase an academic assignment intended for submission in fulfillment of any course or academic program requirement.
- **Law students:** Please review: <http://www.law.buffalo.edu/current/academicpolicies/conduct.html>
- **MBA students:** Please review: <http://mgt.buffalo.edu/programs/new-york-mba/Handbook/AcademicIntegrity/CodeofEthics>

- **SPM Students:** Please review:
<http://sphhp.buffalo.edu/content/dam/sphhp/social-and-preventive-medicine/pdf/grad-student-handbook/grad-student-handbook-current.pdf>

Student Handbooks: As noted above, online versions are available for each of your schools. These handbooks contain critical information and answers to many questions that will arise during the course of your studies at UB, including graduation requirements. The instructor strongly recommends uploading the respective handbook to your e-files for future reference.

COURSE SCHEDULE

This schedule below is subject to revision due to course progress and other factors. The instructor will inform students via email of any schedule or assignment changes. Additional required readings may be assigned and if so, will be assigned prior to the class at which they will be discussed.

Date	Topics	Readings/Assignments
Jan. 31	Introduction and Course Overview; schedule, syllabus, course requirements	
Feb. 7	Definitions and dimensions of health; health policy definition; the roles of Chapter 1; Review Appendix 3 Government branches; forms and categories of health policy; health policy objectives; states' roles; interrelationship among policy formulation, Implementation and modification; PROJECT GROUP ASSIGNMENTS	
Feb. 14	The political marketplace: demanders and suppliers of health policy; policy domains ; Federal and state policymaking; political marketplace relationships; operations of political markets; elite and pluralistic perspectives; interest group influences; ethics in the political marketplace.	Chapter 2: Discussion Ques.;
Feb. 21	Policy formulation phases; agenda setting; the role of research; individual vs. interest group influences; interest group tactics; chief executives' role in agenda setting.	Chapter 3; DVD: "Obama's Deal"
Feb. 28	PROJECT GROUP meetings: Topic determination for outline submission to Instructor.	Confer with assigned group members.
Mar. 7	Choreography of legislation development; interest group and individual roles influencing legislative development; origins of public policy ideas; drafting legislative proposals; introducing legislation to Congress: committees and sub-committees' membership;. PROJECT OUTLINES DUE TO INSTRUCTOR.	Chapter 4, Part 1; pp. 81-91; Discussion Questions.
March 14	Mid-term exam: Chapters 1-4	
Mar. 21	SPRING RECESS- NO CLASS	

Mar. 28	Congressional committees with health policy jurisdiction; committee and subcommittee operations; Committee and sub-committee operations; presidential actions on proposed legislation; Conference committee actions; presidential action on proposed legislation; Federal budget example.	Chapter 4, Part 2; pp. 81-121
Apr. 4	Enactment of laws: Transition between policy formulation and implementation; implementation activities; Executive's responsibilities; legislative oversight; judicial branch responsibilities; rules of rulemaking.	Chapter 5, Part 1, pp.101-118; Discussion Questions
Apr. 11	Roles of interest groups in rulemaking; interactions between rulemakers and those affected by rules.	Chapter 5, Part 2, pp.118-122: Discussion Questions
Apr. 18	Policy implementation: management undertaking; elements of successful implementation; key variables; AOA example; policy hypothesis; implementing organization fit with policy design.	Chapter 6; Discussion Questions
Apr. 25	Background of policy modification; policy modification triggers; incremental policy-making; NIH example; mechanics of policy modification; modification in each phase of policy-making; Government branch oversight; types of policy analysis that propel modification (ex-ante, ex-post analyses); responsibilities for policy evaluations.	Chapter 7; Discussion Questions
May 2	Developing policy competence: health policy and health-related organizations; policies in a market economy; policy interests of primary and secondary providers; interest groups' influence; organization design supporting policy competence; best practices.; analyzing public policy environments and limitations: procedural steps; logic models in analyzing policies; ethics of influencing policy-making; "mapping" to sharpen focus. PROJECT PAPERS DUE.	Chapter 8, Part 1: Text pp. 181-194
May 9	Analyzing public policy environments and limitations: procedural steps; logic models in analyzing policies; ethics of influencing policy-making; "mapping" to sharpen focus. STUDENT PROJECT PAPER PRESENTATIONS.	Chapter 8, Part 2: Text pp. 195-215
May 16	Final Exam-Chapters 5-8	



Course Title/Number: Public Health Practice: The real world/543

Department Name: Epidemiology and Environmental Health

Program Name: Health Services Administration

Semester: Spring Year: 2014

Class Day/Time:	Monday/ 1:00-3:50PM
Class Location:	Farber Rm. 182
Format(s):	LEC
Prerequisite(s):	none

Instructor(s) of Record:	Donald W. Rowe	Caryn Sobieski-VanDelinder
Office:	Kimball Tower Rm. 420	Kimball Tower Rm. 616
Phone Number(s):	716-829-6776	716-829-6701
Email:	dwrowe@buffalo.edu	sobieski@buffalo.edu
Office Hours:	By appointment	By appointment

Additional Information: [Click here](#) and enter additional instructions if needed.

I. (a) Course Description:

The course is designed to provide students with the practice-based knowledge and skills necessary for the functional management of local, state, and federal health agencies. Topics include: administrative structure, governance, management issues, financing of public health programs, budgetary development and approval process, political and medical influence on public health programs, intergovernmental relations, public/private sector collaborations and partnerships, application of legislative and regulatory principles, public health program overview, “Hot Topics”, homeland security, public health media relations and risk communications.

Guest speakers will present on special topics such as public health laboratory structure and function, public health in states other than NY, and homeland security etc.

Course material will be taken principally from the required text, internet and web site sources and the practical experience of the presenter(s).

Health Policy and Management competencies listed below will be listed by number in section II

Health Policy and Management competencies:

1. Identify the main components and issues of the organization, financing and delivery of health services and public health systems in the US.
2. Describe the legal and ethical bases for public health and health services.
3. Explain methods of ensuring community health, safety and preparedness.
4. Discuss the policy process for improving the health status of populations.
5. Apply the principles of program planning, development, budgeting, management and evaluation in organizational and community initiatives.
6. Apply principles of strategic planning and marketing to public health.
7. Apply quality and performance improvement concepts to address organizational performance issues.
8. Apply "systems thinking" for resolving organizational problems.
9. Communicate health policy and management issues using appropriate channels and technologies.
10. Demonstrate leadership skills for building partnerships.
11. Recognize and address legal and ethical issues in the context of delivery of public health and health services.

II. Course Objectives / Competency / Instructional Method(s) / Assessment of Student Learning

Objective	Accreditation/ Program Competency	Instructional Method(s)	Assessment Method(s)

Students will be able to describe the major components of public health organizations at the federal, state and local level	Competency: 1	Choose an item. lecture	Choose an item. exam
Students will be able to Define public health and population health, Describe public health functions and services, Understand systems thinking perspective, Understand roles and responsibilities, Be familiar with core competences, Identify purpose and goals of Healthy People 2020	Competency 8	lecture	exam
Students will be able to define key terms such as population health, public health, social determinants of health, public policy. Assess impact of public health on population health, Understand relationship between public health and social determinants of health, Enumerate instances where public health influences social determinants of health	Competencies 1	lecture	exam
Students will be able to Describe how public health programs are financed, Compare the allocation of health resources to medical care and public health, Explain the role of federal federalism in funding, Discuss variations in public health funding, Identify most important public health financial management skills	Competency 1	lecture	exam
Students will be able to Understand leadership in public health organizations, Understand various theories of leadership Develop skills useful in leadership positions, Appreciate environment public health works in, Learn roles and responsibilities	Competency 10	lecture	exam
Students will be able to Understand role and purpose of law in public health, Be familiar with key laws and regulations, Understand local vs federal powers, Gain perspective on the complexity of the legal system and public health, Be familiar with public health law reform	Competency 2, 11	lecture	exam

Students will be able to Articulate the reasons for collaborations, Describe the basic elements of successful collaborations, Articulate the challenges facing public health collaborations, Describe two successful collaborations in New York State	Competency 5, 6, 8, 10	lecture	exam
Students will be able to Understand ethics in public health practice as a way to analyze the moral dimensions of and provide justifications for public health interventions, Gain competence in the use of ethical principles, including the Public Health Code of Ethics, and vocabulary relevant to the practice of public health, Explore public health case scenarios using a framework to analyze ethical issues	Competency 2,	lecture	exam
Students will be able to Understand the cross cutting importance of effective communication in each of the 10 essential services, Develop population specific communication strategies that are culturally sensitive, Differentiate risk communication principles from standard communication methods and formats	Competency 9, 3	lecture	exam
Students will be able to understand the emerging importance of social media as a communication and research tool, Differentiate which social media sites are most suited for specific public health applications,	Competency 9, 6	lecture	exam
Students will be able to understand the roles and responsibilities of public health resource management, Identify the key components of effective HR management.	Competency 1	lecture	exam
Students will be able to articulate the basic components of grant writing, Write a grant proposal, Orally defend the proposal. Describe the importance to public health financing.	Competency 1,	lecture	exam
Students will be able to	Click here and enter	other, please specify	Choose an item.

	your competency numbers.		
Click here to enter text.	Click here and enter your competency numbers.	other, please specify	Choose an item.

III. Textbooks /Equipment /Required Technologies

Resource	Required	Notes
Novick and Morrow, (2014) Public Health Administration, Principles of Population-Based Management, 3rd Edition MA. Jones and Bartlett Learning	Y	Click here to enter text.

Lab fee information: Click here and enter lab fee information if needed.

IV. Course Learning Activities

Required- grant writing and oral presentation. Discussion of “Hot Topics” based upon emergency and emerging public health issues reported by national, state and local media.

V. Course and Instructor Eval

Students will be required to complete the course and teacher evaluation

VI. Grading

Class attendance is not required, however, class participation grades will be difficult to achieve in your absence. If you cannot attend, please notify the instructor in advance.

Course Component	Due date	Percentage
Exam 1	Week 7	25%
Exam 2	University exam week	25%
Written Grant proposal	Last day of class	15%
Oral grant defense	Last day of class	15%
Class participation	Throughout semester	9%
Course Evaluation Completion		1%

Total: 100%

Final Grade Determination

Approximate cutpoints:

95- 100	A	73- 76	C
90- 94	A-	70- 72	C-
87- 89	B+	66- 69	D+
83- 86	B	63- 65	D
80- 82	B-	60- 62	D-
77- 79	C+	55- 59	F

VII. Other course related information

Hot topics discussion based on emergent public health issues.

VIII. Communication

If you have multiple email accounts, please be sure that you access (or forward) your UB email. Your UB email is the account I will use to send course-related materials.

IX. Policy Regarding Absences, Attendance, Assignments, Exams, and University Policy on Incompletes in Courses

- **Class Attendance and Absences**

As many in-class activities will be completed throughout the semester, class attendance is expected. In the case of exceptional circumstances that result in you being late or absent, you must contact me prior to the start of class (either by email or by leaving a telephone message). Please be aware that an absence from class under these circumstances does not excuse you from any required assignments.

- **Late Assignments**

All assignments are due in the Digital Dropbox at the designated time and due date. Failure to submit the assignment when due will result in a loss of 5 points per day that the assignment is late. Assignments that are more than 3 days late will not be accepted. If there are circumstances that will preclude you from turning in assignments on the due date, it is imperative that you discuss the situation with the instructor prior to the due date.

- **Exams and Final Exam**

There will be 2 exams, one midterm and one at the end of the semester

- **Policy on Incomplete Grades for the Course**

Incomplete grades will be given only if there are extenuating circumstances (i.e. severe illness) that preclude the student from completing the course. The student must have

satisfactorily completed all course work and successfully passed all exams (B or better) up until the time an incomplete is requested.

- **University Policy on Incomplete Grades**

A grade of incomplete ("I") indicate that additional course work is required to fulfill the requirements of a given course. Students may only be given an "I" grade if they have a passing average in coursework that has been completed and have well-defined parameters to complete the course requirements that could result in a grade better than the default grade. An "I" grade may not be assigned to a student who did not attend the course. Prior to the end of the semester, students must initiate the request for an "I" grade and receive the instructor's approval. Assignment of an "I" grade is at the discretion of the instructor.

The instructor must specify a default letter at the time the "I" grade is submitted.

A default grade is the letter grade the student will receive if no additional coursework is completed and/or a grade change form is not filed by the instructor. "I" grades must be completed within 12 months. Individual instructors may set shorter time limits for removing an incomplete than the 12-month time limit. Upon assigning an "I" grade, the instructor shall provide the student specification, in writing or by electronic mail, of the requirements to be fulfilled, and shall file a copy with the appropriate departmental office.

Students must not re-register for courses for which they have received an "I" grade.

Applicable dates regarding the 12-month provision:

Courses taken in (semester):	Will default in 12 months on:
Fall	December 31
Spring	May 31
Summer	August 31

The "I" must be changed to a grade before the degree conferral date if the students plans to graduate in that semester. At any time prior to the default date, students may elect to change the "I" grade to the default grade using the [Grade Retrieval Form](#).

A default grade can be "A-," "B+," "B-," "C+," "C-," "D+," "D," or "F." (If a student selected an S/U grading option, it will replace the default letter grade when the grade defaults.)

Disability Policy

If you have any disability which requires reasonable accommodations to enable you to participate in this course, please contact the Office of Accessibility Resources, 25 Capen Hall, 645-2608, and also the instructor of this course during the first week of class. The office will provide you with information and review appropriate arrangements for reasonable accommodations.

<http://www.ub-disability.buffalo.edu/>

Netiquette

This course may utilize UBlerns to facilitate online communication between course participants. Please keep in mind the following "Rules of Netiquette" when communicating online.

1. **The rules of the classroom are the same regardless of location.** Remember just because you're interacting online, doesn't mean you stop having respect for your professors, and

fellow classmates. You're communicating with a real person, not a computer screen.

2. **Remember your audience.** When communicating online it's important to remember who you're communicating with. When sending a message to a professor, please refrain from using "text speak". For example, Shakespeare never intended for you to type "2B or not 2B". Also, stay away from typing in all capital letters; it will appear as if you're shouting.
3. **Avoid strong language.** Language can easily be misinterpreted in an online setting. Be sure to review your work before submitting, making sure the reader won't be able to misinterpret it as strong, or offensive. Sarcasm doesn't translate well online. Your audience can't see your facial expressions, or body language. Try to be as straight forward and professional as possible.
4. **Read everything, twice.** Be sure to thoroughly read all course materials before beginning to work on your assignments. If you have a question, or need clarification, re-read the materials. You may have glanced over an important detail the first time. If you're still having difficulties, then e-mail your professor.
5. **Review all materials before submitting.** When responding to discussion board posts, be sure to read all previous postings before you post your own. This way you won't duplicate someone else's comments. Also, it's a good idea to write, and save your work in Microsoft Word first. In case of a technical issue, you have a backup copy.

Academic Integrity

Students who are suspected of academic dishonesty will be dealt with severely in accordance with the Department and University Policy. This may include a grade of 0 for an assignment and/or failure in a course.

Academic Dishonesty: Actions that compromise academic integrity include, but are not limited to the following examples:

- *Previously submitted work:* Submitting academically required material that has been previously submitted – in whole or in substantial part – in another course, without prior and expressed consent of the instructor.
- *Plagiarism.* Copying or receiving material from any source and submitting that material as one's own, without acknowledging and citing the particular debts to the source (quotations, paraphrases, basic ideas), or in any other manner representing the work of another as one's own.
- *Cheating.* Soliciting and/or receiving information from, or providing information to, another student or any other unauthorized source (including electronic sources such as cellular phones and PDAs), with the intent to deceive while completing an examination or individual assignment.
- *Falsification of academic materials.* Fabricating laboratory materials, notes, reports, or any forms of computer data; forging an instructor's name or initials; resubmitting an examination or assignment for reevaluation which has been altered without the instructor's

- authorization; or submitting a report, paper, materials, computer data, or examination (or any considerable part thereof) prepared by any person other than the student responsible for the assignment.
- *Misrepresentation of documents.* Forgery, alteration, or misuse of any University or Official document, record, or instrument of identification.
 - *Confidential academic materials.* Procurement, distribution or acceptance of examinations or laboratory results without prior and expressed consent of the instructor.
 - *Selling academic assignments.* No person shall sell or offer for sale to any person enrolled at the University at Buffalo any academic assignments, or any inappropriate assistance in the preparation, research, or writing of any assignment, which the sellers knows, or has reason to believe, is intended for submission in fulfillment of any course or academic program requirement.
 - *Purchasing academic assignments.* No person shall purchase an academic assignment intended for submission in fulfillment of any course or academic program requirement.

Student Handbook: All students are required to read the student handbook. An online version is available on the 'Information For Current Students' page of your department website.

COURSE SCHEDULE

This schedule is subject to revision due to unforeseen events. Any course schedule changes or additional readings will be posted on UBlerns and will be announced in class as time permits. Note: Additional required readings may be assigned and will be assigned at least one week prior to the class for which they are assigned.

EEH 543 lecture topics and associated competencies

Please note that the order of the lectures, presentations and projects may be altered from their scheduled time. When possible, notification will be posted on UB Learns a week in advance. Hot topics discussions may occur at any time since they are media dependent.

Competencies are listed by number after the presentation/lecture title

- 1) Core Public Health functions and their relationship to the 10 essential services
- 2) Overview of Public Health Administration, 8,1
- 3) Public Health and Social Determinants of Health, 1,4,9
- 4) Organization of the Public Health System, 1
- 5) Public Health Finance, 1
- 6) Public Health Leadership, 10
- 7) Collaborations, 1,2,4,5, 7-10
- 8) Professionalism and Ethics in Public Health, 2, 10
- 9) Human Resource Management, 1,5,7
- 10) Overview of Public Health Nursing and Environmental Health, 1
- 11) Public Health Law, 2,4,10

- 12) Grant Writing and oral presentation,1,5
- 13) Public Health Communication, 2,3,4,5,6,9
- 14) Public Health Applications of Social Media, 5,6,9
- 15) Disaster Preparedness and Public Health Response (guest lecture). 3, 8,10

Course Title/Number: SPM 549 Environmental Health

Department Name: Social & Preventive Medicine

Program Name: MPH Program

Semester: Spring 2014

Class Day/Time:	Monday, 9:00-11:40 AM
Class Location:	Farber Hall 182
Format(s):	LEC
Prerequisite(s):	None
Instructor(s):	Lina Mu, MD, PhD, Associate Professor
Office:	Farber Hall 273A
Phone Number(s):	(716) 829-5381
Email:	linamu@buffalo.edu
Office Hours:	By appointment only

I. (a) Course Description:

An introductory course that explores the role of environmental factors in health. The course uses a systems science approach to environmental health issues and is organized around three general themes: (1) ***Risk assessment of environmental hazards***. The 4-step National Academy of Sciences risk assessment paradigm, application of toxicological and epidemiologic methods to risk assessment, uncertainties in the risk assessment process, and use of risk assessment in environmental health policy and decision-making. (2) ***Creating sustainable environments that protect and promote health***. A systems-based ecological approach is used to examine the influence of human activity, including energy use, manufacturing, food production, and urbanization, on availability and quality of food, air, and water and to explore sustainable strategies for meeting individual and societal needs while protecting the environment and public health. (3) ***Environmental justice and community health***. Inequities in sharing the burden of environmental hazards and the role of community organizing and advocacy in creating legislative and regulatory change to address environmental health problems in specific communities.

Environmental biological, chemical, and physical hazards of public health importance are used to illustrate general principles, and regulatory policies relevant to each topic are discussed.

II. Course Objectives / Competency / Instructional Method(s) / Assessment of Student Learning

Objective	Accreditation/Program Competency	Instructional Method(s)	Assessment Method(s)
Define health from a systems/ ecological perspective and explain the interplay of genetic and environmental factors in influencing health as defined in this way	Public Health Biology: - Explain the role of biology in the ecological model of population-based health - Explain how genetics and genomics affect disease processes and public health policy and practice	- Powerpoint presentation, discussion. Topics are introduced in the first class and applied throughout the rest of the course.	- Exam
Outline the National Academy of Sciences risk assessment paradigm and describe the application of toxicologic and epidemiologic methods to risk assessment, including the limitations and uncertainties inherent in these methods	Environmental Health Sciences: - Specify current environmental risk assessment methods - Specify approaches for assessing, preventing and controlling environmental hazards that pose risks to human health and safety Epidemiology: - Explain the importance of epidemiology for informing scientific, ethical, economic, and political discussion of public health issues. - Apply the basic terminology and definitions of epidemiology	- Powerpoint presentation & discussion in classes 2, 3, & 4. - Text reading: Chapter 2, pp. 5-12 & 18-61 - Case study: Benzene emissions from Tonawanda Coke Corp. in Tonawanda, NY	- Exam
For biological, chemical, and physical hazards: - Describe pathways and routes of exposure by which environmental hazards gain access to the body. - Explain general processes by which the body responds to exposure to environmental hazards (e.g. toxicokinetics and health outcomes)	Environmental Health Sciences: - Describe the direct and indirect human, ecological, and safety effects of major environmental and occupational agents - Describe genetic, physiologic, and psychosocial factors that affect susceptibility to adverse health outcomes following exposure to environmental hazards - Explain the general mechanisms of toxicity in eliciting a toxic response to various environmental exposures	- Powerpoint presentations & discussions throughout the course - Text reading: Scattered throughout text. Students should consult the text index as each topic arises.	- Exam - Exam
For biological, chemical, and physical hazards (continued): - Explain how the above apply to specific environmental hazards of public health importance	Public Health Biology: - Specify the role of the immune system in population health - Explain the biological and molecular basis of public health - Articulate how biological, chemical, and physical agents affect human health - Integrate general biological and molecular concepts into public health	- Powerpoint presentations & discussions throughout the course - Text reading: Scattered throughout text. Students should consult the text index as each topic arises.	- Exam - Exam

II. Course Objectives / Competency / Instructional Method(s) / Assessment of Student Learning

Objective	Accreditation/Program Competency	Instructional Method(s)	Assessment Method(s)
Describe the relationship between food production and health from a systems perspective, including: - Systems by which humans obtain food - Relationships between food procurement systems and the environment and effects of this relationship on safety and adequacy of the food supply - Effects of the industrial food production system on the environment and human health	Environmental Health Sciences: - Describe the direct and indirect human, ecological, and safety effects of major environmental and occupational agents - Describe genetic, physiologic, and psychosocial factors that affect susceptibility to adverse health outcomes following exposure to environmental hazards - Explain the general mechanisms of toxicity in eliciting a toxic response to various environmental exposures - Describe federal and state regulatory programs, guidelines and authorities that control environmental health issues	- Powerpoint presentation & discussion in classes 5 & 6. - Text reading: Relevant parts of Chapter 3, especially pp. 85-92; Chapter 6	- Exam
Describe the relationship between food production and health from a systems perspective (continued): - For selected food-borne biological, chemical, and physical hazards, explain the means by which exposure occurs, health effects of public health importance, and control measures, including laws and regulatory policies, of public health importance	Public Health Biology: - Articulate how biological, chemical, and physical agents affect human health - Apply biological principles to development and implementation of disease prevention, control, or management programs - Integrate general biological and molecular concepts into public health	- Powerpoint presentation & discussion in classes 5 & 6. - Text reading: Relevant parts of Chapter 3, especially pp. 85-92; Chapter 6	- Exam
Describe the relationship between human activity and air quality from a systems perspective, including: - Natural processes that influence air quality (e.g. volcanism, weather, fires, natural cleansing processes)	Environmental Health Sciences: - Describe the direct and indirect human, ecological, and safety effects of major environmental and occupational agents - Describe genetic, physiologic, and psychosocial factors that affect susceptibility to adverse health outcomes following exposure to environmental hazards	- Powerpoint presentation & discussion in classes 7 & 8. - Text reading: pp. 12-13; pp. 103-104; Chapter 4	- Exam
Describe the relationship between human activity and air quality from a systems perspective (continued): - The impact of human activity, such as energy use, transportation, manufacturing, and urbanization, on air quality and consequent effects on human health. - For selected air-borne biological, chemical, and physical hazards, explain the means by which exposure occurs, health effects of	Environmental Health Sciences (continued): - Explain the general mechanisms of toxicity in eliciting a toxic response to various environmental exposures - Describe federal and state regulatory programs, guidelines and authorities that control environmental health issues Public Health Biology: - Articulate how biological, chemical, and physical agents affect human	- Powerpoint presentation & discussion in classes 7 & 8. - Text reading: pp. 12-13; pp. 103-104; Chapter 4	- Exam

II. Course Objectives / Competency / Instructional Method(s) / Assessment of Student Learning

Objective	Accreditation/Program Competency	Instructional Method(s)	Assessment Method(s)
public health importance, and control measures, including laws and regulatory policies, of public health importance	health - Apply biological principles to development and implementation of disease prevention, control, or management programs - Integrate general biological and molecular concepts into public health		
Describe the relationship between human activity and water availability and quality from a systems perspective, including: - Natural processes that influence water availability and quality (e.g. climate, water cycle, natural cleansing processes) - The impact of human activity, such as agriculture, manufacturing, and urbanization, on water quality and consequent effects on human health - For selected water-borne biological and chemical hazards, explain the means by which exposure occurs, health effects of public health importance, and control measures, including laws and regulatory policies, of public health importance	Environmental Health Sciences: - Describe the direct and indirect human, ecological, and safety effects of major environmental and occupational agents - Describe genetic, physiologic, and psychosocial factors that affect susceptibility to adverse health outcomes following exposure to environmental hazards - Explain the general mechanisms of toxicity in eliciting a toxic response to various environmental exposures - Describe federal and state regulatory programs, guidelines and authorities that control environmental health issues Public Health Biology: - Articulate how biological, chemical, and physical agents affect human health - Apply biological principles to development and implementation of disease prevention, control, or management programs - Integrate general biological and molecular concepts into public health	- Powerpoint presentation & discussion in classes 8 & 9. - Text reading: pp. 14-18; pp. 80-85; pp. 217-229; Chapter 7, pp. 285-328.	- Exam
Explain the use of risk assessment information, despite its incompleteness and uncertainties, in risk management, including development of exposure standards, risk communication, risk reduction strategies, and regulatory policy	Environmental Health Sciences: - Describe federal and state regulator programs, guidelines and authorities that control environmental health issues - Specify approaches for assessing, preventing, and controlling environmental hazards that pose risks to human health and safety - Discuss various risk management and risk communication approaches in relation to issues of environmental justice and equity Communication and Informatics: - Describe how societal, organizational, and individual factors influence or are influenced by public health communications - Apply theory and strategy-based communication principles across different settings and audiences	- Powerpoint presentation & discussion in classes 10 & 11. - Text reading: pp. 52-66; Laws and regulatory policies related to each topic are covered in the corresponding chapter in the textbook.	Exam

II. Course Objectives / Competency / Instructional Method(s) / Assessment of Student Learning

Objective	Accreditation/Program Competency	Instructional Method(s)	Assessment Method(s)
Explain the meaning of environmental justice and describe strategies, including community-based participatory research and community organizing, for addressing environmental justice issues	Environmental Health Sciences: - Discuss various risk management and risk communication approaches in relation to issues of environmental justice and equity Diversity and Culture: - Describe the roles of history, power, privilege, and structural inequality in producing health disparities - Apply the principles of community-based participatory research to improve health in diverse populations.	- Powerpoint presentation & discussion in class 12. - Corburn, <i>Street Science</i>, Introduction.	- Exam
Describe the relationship between human activity and global environmental change, such as acid rain, ozone depletion, global warming, deforestation, and desertification, and link these changes to public health. In particular, explain the concepts of carrying capacity and sustainability and their importance in public health	Environmental Health Sciences: - Describe the direct and indirect human, ecological, and safety effects of major environmental and occupational agents - Specify approaches for assessing, preventing, and controlling environmental hazards that pose risks to human health and safety Public Health Biology: - Explain the role of biology in the ecological model of population-based health - Integrate general biological and molecular concepts into public health	- Powerpoint presentation & discussion in class 13.	- Exam

III. Textbooks /Equipment /Required Technologies

Resource	Required	Notes
Maxwell NI. Understanding Environmental Health: How We Live in the World, 2nd Edition. Jones and Bartlett Publishers, 2014.	Yes	Order online from Barnes & Noble, amazon.com, or Abe Books
Frumkin H, Editor. <i>Environmental Health, From Global to Local</i> , 2 nd Edition. Jossey-Bass, 2010.	No	Helpful in studying for the Certified in Public Health exam.
Friis RH. <i>Essentials of Environmental Health</i> , 2 nd Edition. Jones & Bartlett Learning, 2010.	No	Helpful in studying for the Certified in Public Health exam.
Yassi A, Kjellstrom T, de Kok T, Guidotti TL. <i>Basic Environmental Health</i> . Oxford University Press, 2001.	No	Helpful in studying for the Certified in Public Health exam.

IV. Course Learning Activities

- Students will be expected to read the Powerpoint presentation, text assignment, and reading material posted on UB Learns Blackboard before coming to class. Class format will be lecture to clarify the material and class discussion and activities to reinforce concepts.
- Structured discussions will be conducted about case studies and situations posed in class.

V. Grading

Course Component	Due date	Percentage
Class participation		10%
Exam #1	March 10th	45%
Exam #2	May 12th	45%

Total: 100%

Final Grade Determination

Cutpoints:

92.0-	100	A	72.0-	77.9	C
90.0-	91.9	A-	70.0-	71.9	C-
88.0-	89.9	B+	68.0-	69.9	D+
82.0-	87.9	B	62.0-	67.0	D
80.0-	81.9	B-	<62.0		F
78.0-	79.9	C+			

VI. Communication

If you have multiple email accounts, please be sure that you access (or forward) your UB email. Your UB email is the account will be used to send course-related materials.

VII. Policy Regarding Absences, Attendance, Assignments, Exams, and University Policy on Incompletes in Courses

- **Class Attendance and Absences**

As many in-class activities will be completed throughout the semester, class attendance is required. In the case of exceptional circumstances that result in your being late or absent, you must contact me prior to the start of class (either by email or by leaving a telephone message). Please be aware that an absence from class under any circumstance does not excuse you from completing required assignments.

- **Policy on Incomplete Grades for the Course**

Incomplete grades will be given only if there are extenuating circumstances (i.e. severe illness) that preclude the student from completing the course. The student must have satisfactorily completed all course work and successfully passed all exams (B or better) up until the time an incomplete is requested.

- **University Policy on Incomplete Grades**

A grade of incomplete ("I") indicate that additional course work is required to fulfill the requirements of a given course. Students may only be given an "I" grade if they have a passing average in coursework that has been completed and have well-defined parameters to complete the course requirements that could result in a grade better than the default grade. An "I" grade may not be assigned to a student who did not attend the course. Prior to the end of the semester, students must initiate the request for an "I" grade and receive the instructor's approval. Assignment of an "I" grade is at the discretion of the instructor.

The instructor must specify a default letter at the time the "I" grade is submitted.

A default grade is the letter grade the student will receive if no additional coursework is completed and/or a grade change form is not filed by the instructor. "I" grades must be completed within 12 months. Individual instructors may set shorter time limits for removing an incomplete than the 12-month time limit. Upon assigning an "I" grade, the instructor shall provide the student specification, in writing or by electronic mail, of the requirements to be fulfilled, and shall file a copy with the appropriate departmental office.

Students must not re-register for courses for which they have received an "I" grade.

Applicable dates regarding the 12-month provision:

Courses taken in (semester):	Will default in 12 months on:
Fall	December 31
Spring	May 31
Summer	August 31

The "I" must be changed to a grade before the degree conferral date if the students plans to graduate in that semester. At any time prior to the default date, students may elect to change the "I" grade to the default grade using the Grade Retrieval Form.

A default grade can be "A-," "B+," "B-," "C+," "C-," "D+," "D," or "F." (If a student selected an S/U grading option, it will replace the default letter grade when the grade defaults.)

Disability Policy

If you have any disability which requires reasonable accommodations to enable you to participate in this course, please contact the Office of Accessibility Resources, 25 Capen Hall, 645-2608, and also the instructor of this course during the first week of class. The office will provide you with information and review appropriate arrangements for reasonable accommodations. <http://www.ub-disability.buffalo.edu/>

Netiquette

This course may utilize UBlerns to facilitate online communication between course participants. Please keep in mind the following "Rules of Netiquette" when communicating online.

1. **The rules of the classroom are the same regardless of location.** Remember just because you're interacting online, doesn't mean you stop having respect for your professors, and fellow classmates. You're communicating with a real person, not a computer screen.
2. **Remember your audience.** When communicating online it's important to remember who you're communicating with. When sending a message to a professor, please refrain from using "text speak". For example, Shakespeare never intended for you to type "2B or not 2B". Also, stay away from typing in all capital letters; it will appear as if you're shouting.
3. **Avoid strong language.** Language can easily be misinterpreted in an online setting. Be sure to review your work before submitting, making sure the reader won't be able to misinterpret it as strong, or offensive. Sarcasm doesn't translate well online. Your audience can't see your facial expressions, or body language. Try to be as straight forward and professional as possible.
4. **Read everything, twice.** Be sure to thoroughly read all course materials before beginning to work on your assignments. If you have a question, or need clarification, re-read the materials. You may have glanced over an important detail the first time. If you're still having difficulties, then e-mail your professor.
5. **Review all materials before submitting.** When responding to discussion board posts, be sure to read all previous postings before you post your own. This way you won't duplicate someone else's comments. Also, it's a good idea to write, and save your work in Microsoft Word first. In case of a technical issue, you have a backup copy.

Academic Integrity

Students who are suspected of academic dishonesty will be dealt with severely in accordance with the Department and University Policy. This may include a grade of 0 for an assignment and/or failure in a course.

Academic Dishonesty: Actions that compromise academic integrity include, but are not limited to the following examples:

- *Previously submitted work:* Submitting academically required material that has been previously submitted – in whole or in substantial part – in another course, without prior and expressed consent of the instructor.
- *Plagiarism.* Copying or receiving material from any source and submitting that material as one's own, without acknowledging and citing the particular debts to the source (quotations, paraphrases, basic ideas), or in any other manner representing the work of another as one's own.
- *Cheating.* Soliciting and/or receiving information from, or providing information to, another student or any other unauthorized source (including electronic sources such as cellular phones and PDAs), with the intent to deceive while completing an examination or individual assignment.
- *Falsification of academic materials.* Fabricating laboratory materials, notes, reports, or any forms of computer data; forging an instructor's name or initials; resubmitting an examination or assignment for reevaluation which has been altered without the instructor's authorization; or submitting a report, paper, materials, computer data, or examination (or any considerable part thereof) prepared by any person other than the student responsible for the assignment.
- *Misrepresentation of documents.* Forgery, alteration, or misuse of any University or Official document, record, or instrument of identification.
- *Confidential academic materials.* Procurement, distribution or acceptance of examinations or laboratory results without prior and expressed consent of the instructor.
- *Selling academic assignments.* No person shall sell or offer for sale to any person enrolled at the University at Buffalo any academic assignments, or any inappropriate assistance in the preparation, research, or writing of any assignment, which the sellers knows, or has reason to believe, is intended for submission in fulfillment of any course or academic program requirement.
- *Purchasing academic assignments.* No person shall purchase an academic assignment intended for submission in fulfillment of any course or academic program requirement.

Student Handbook: All students are required to read the student handbook. An online version is available on the 'Information For Current Students' page of your department website.

COURSE SCHEDULE

This schedule is subject to revision due to unforeseen events. Any course schedule changes or additional readings will be posted on UBlerns and will be announced in class as time permits. Note: Additional required readings may be assigned and will be assigned at least one week prior to the class for which they are assigned.

<u>Date</u>	<u>Topic</u>	<u>Required Readings/Assignments</u>	<u>Instructure</u>
January 27	- What Is Environmental Health?	- Text reading: Chapter 1 - <i>Environmental Health</i>	Dr. Mu
February 3	- Overview of Risk Assessment - Application of Epidemiology to Risk Assessment	- Text reading: Chapter 2, pp. 5-8 and pp. 37-52 - Benzene case study	Dr. Olson
February 10	- Introduction to Chemical Hazards - Application of Toxicology and Exposure Assessment to Risk Assessment	- Text reading: Chapter 2, pp. 9-12 and pp. 18-37	Dr. Ren
February 17	- Risk Characterization and Setting Exposure Standards	- Text reading: Chapter 2, pp. 52-61	Dr. Ren
February 24	- Introduction to Biological, Hazards - Food Safety	- Text reading: Chapter 3, pp. 71-102	Dr. Scheider
March 3	- The Food System and Environmental Health	- Text reading: Chapter 6; pp. 309-318	Dr. Scheider
March 10	- Examination #1	- All material up to this point	Dr. Mu
March 17	- Spring Break		
March 24	- Introduction to Physical Hazards - Energy Production, Manufacturing	- Text reading: pp. 12-13; pp. 103-104; pp. 106-114; pp. 210-217; pp. 328-339; Chapter 4	Dr. Bonner
March 31	- Air Quality - Urbanization	- Text reading: pp. 14-18; pp. 80-85; pp. 286-309	Dr. Bonner
April 7	- Urbanization, Waste Production, and Water Availability and Quantity (continued)	- Text reading: pp. 217-229; pp. 309-328	Dr. Ren
April 14	- Risk Perception, Communication, and Management	- Text reading: pp. 59-66	Dr. Scheider
April 21	- Environmental Laws and the Regulatory System	- Text reading: the corresponding chapter in the textbook.	Dr. Olson
April 28	- Environmental Justice, Community Organizing and Advocacy in Environmental Health	- Reading: Jason Corburn, <i>Street Science</i> , Introduction	Dr. Heaney
May 5	- Human Activity, the Environment, and Health: A Global Systems Perspective	- Handout: <i>A Systems Approach to Sustainable Development and Environmental Health and Justice, Locally to Globally</i>	Dr. Mu
May 12	- Examination #2	- All material since Examination #1	Dr. Mu

University at Buffalo
The State University of New York
School of Public Health and Health Professions
Department of Social and Preventive Medicine

Epidemiologic Applications to Environmental Health

(SPM 551)

Fall 2013 Syllabus

Time	Wednesday, 1:00-3:40pm
Location	180 Farber Hall
Instructor	Lina Mu, MD, Ph.D
Office	273A Farber Hall
Telephone(s)	(716) 829-5381
E-mail	linamu@buffalo.edu
Office Hour	By appointment only

Course Description:

This course will provide epidemiology and environmental health students a working knowledge of epidemiologic theory and practice applied to issues of environmental health. Special study designs, biological response pathways, biomarkers, exposure assessment related to environmental research will be emphasized. The course will cover the five major environmental issues including air pollution, water pollution, heavy metals, environment hormones, radiation as well as contemporary and controversy issues in environmental epidemiology. Case studies will be used to illustrate the application of epidemiologic theory to understand the role of environmental factors in the etiology of disease.

Prerequisites:

SPM 501 (Introduction to epidemiology) is a prerequisite for this course. Students who have not taken SPM 501 must obtain approval from the instructor.

Specific Learning Objectives:

- To apply epidemiologic theory to the investigation of environmental exposures and explore their associations with health effects
- To understand the basic principle of environmental epidemiology
- To define major environmental contaminants that affect human health
- To describe the major special study designs commonly used in environmental epidemiological studies
- To understand the basic data analysis and results interpretation related to special study designs
- To describe the major biological response pathways related to environmental exposure
- To describe the major types of biomarkers used in environmental health related studies
- To understand the potential methodological issues in the application of different types of biomarkers
- To understand the concept, basics methods in exposure assessment
- To describe the challenges occurring in the risk assessment of different environmental agents
- To define major ambient air pollutants and related health effects
- To describe the air pollution related regulations
- To describe the traditional and modern indoor air pollution issues
- To be able to design epidemiological study to investigate air pollution related health issues and understand the major challenge in exposure measurement of air pollution
- To define major water pollutants, issues in water treatment and major health effects.
- To be able to design epidemiological study to investigate water pollution related health issues
- To describe the major challenge in exposure measurement of water pollution.
- To define essential and nonessential metals
- To describe interactions between heavy metal and human body and major health effects in different populations
- To define Ionizing and non-ionizing radiation, their interaction with human body and related health effects in different populations
- To describe the exposure measurement issues in studying radiation.
- To define environment hormones, their interactions with human body and major health effects in different populations
- To understand the health effect of environmental exposure on pregnant women and children

- To describe the contemporary issues in environmental health
- To understand the controversies in environmental health and learn how to evaluate and interpret results from previous studies

Textbooks and Readings

- No required textbook
- Books recommended as possible resources:
 - o Baker D, Nieuwenhuijsen MJ. Environmental Epidemiology –Study Methods and Application. Oxford, 2008
 - o Merrill RM. Environmental Epidemiology-Principles and Methods. Jones and Bartlett Publishers, 2008
 - o Frunkin H. Environmental Health: From global to local. Jossey-Bass, 2010
 - o Yassi A, Kjellstrom T, de Kok T, Guidotti TL. Basic Environmental Health. New York NY: Oxford University Press, 2001
- Readings:
 - o Selected book chapters
 - o Journal review articles
 - o Journal articles
 - o Unless noted otherwise, all readings for each class can be found under the folder of “Course documents” on the UB Learns Blackboard
- Recommended Journals:
 - o Environmental Health Perspectives
 - o Epidemiology
 - o Journal of Toxicology and Environmental Health
 - o Environmental Research
 - o Archives of Toxicology

Teaching Format:

- Lectures
 - o Each class will start from an at least one-hour lecture.
 - o Slides will be handed out to student or posted on UB Learns.

- Several guest lectures are invited on special topics.
- Journal Article Discussion
 - Assigned readings will be discussed in class.
 - Students will be assigned randomly to lead the discussion for each article.
- Student Presentations and Discussion
 - Each student is required to present a journal article in class for about 20 minutes.
 - Discussion after presentation.

Student Evaluation

- Class Participation (10%):
 - Student who cannot attend the class needs to notify the instructor.
 - In class discussion is strongly encouraged and participation is evaluated.
- Presentation (20%):
 - Each student is required to present a journal article in the class. Student can choose an article from an article pool provided by instructor or select an article by him/herself to present with the approval by instructor
 - The presentation should include background, hypothesis, methods, major results, discussion and critiques.
 - All students in the class participate in the evaluation of the presentations and it counts for 10% of the overall grade. Instructor's evaluation accounts for another 10%.
- Quiz (10%):
 - Questions regarding reading materials
- Midterm Exam (20%):
 - Midterm exam includes multiple choice questions, short answer questions and a mini proposal
- Final Exam (20%):
 - Final exam includes multiple choice questions and short-answer questions
- Written Assignments (20%):
 - Student is required to submit a six-page proposal following the format of NIH R21.
 - Instructor provides a few topics for student. But students also have the option to propose a topic of their interest.

- o All students are encouraged to discuss the potential proposal topics with instructor before developing their proposals.
- o Student is required to submit the specific aim page to instructor. After reviewing the specific aims, the instructor will meet student individually at least once to provide suggestions and discuss the proposal.
- o After discussion, a full proposal need to developed and submitted at the end of the semester. Only the final proposal will be graded.
- Assignment of letter grades

A = $\geq 92\%$	C+ = 78-79.9%
A- = 90-91.9%	C = 72-77.9%
B+ = 88-89.9%	C- = 70-71.9%
B = 82-87.9%	D = 60-69.9%
B- = 80-81.9%	F = <60%

Course Schedule:

Date	Topics	Assignment	Instructor
8/28	Course overview and introduction to environmental epidemiology • Course outline • Student evaluation • Introduction - o Environment: Definition and major environmental issues - o Environmental Health: Definition; Role in Public Health; Review: Basic Principles of Environmental Health - o Environmental Epidemiology: Definition; History of environmental epidemiology; Review: Principles of Environmental Epidemiology; Environmental epidemiology related fields	Student presentation assigned	Mu

9/ 4	Study designs and analysis in environmental epidemiology		Mu
	• Types of Study - o Descriptive studies - o Analytical studies - o Experimental studies • Special Study Designs in Environmental Epidemiology - o Time-series Studies - o Panel Studies - o Disease Cluster - o Spatial Studies: guest speaker (Nie)	Assigned readings on UB learns	
9/ 11	Biomarkers in Environmental Epidemiology		Mu
	• Biomarkers in exposure assessment • Biomarkers of diseases • Biomarkers of susceptibility • Gene-environmental interaction • Methodological issues in application of those biomarkers	Assigned readings on UB learns	
9/18	Air Pollution		Mu
	• Major Ambient Air Pollutants and Sources - o Criteria pollutants - o Hazardous air pollutants - o Indoor Air Pollution • Issues in Exposure Assessment of Air Pollution	Assigned readings on UB learns; Book chapters	
9/25	Exposure Assessment		Olson
	• Definition • Challenge in exposure assessment • Case discussion: exposure assessment of pesticide among applicators	Assigned readings on UB learns	

10/ 2 **Midterm Examination**

10/ 9 **Environmental Impacts on Reproductive Health** Mendola

- Major reproductive health related to environmental exposure
 - Special about study design
 - Methodological issues
 - An example
- Handout
(hard
copies)

10/ 16 **Metals** Mu

- Definition of heavy metals
 - Essential metals
 - Nonessential metals
 - Examples of heavy metals:
 - Lead
 - Mercury
- Assigned
readings on
UB learns

10/23 **Ionizing and Non-ionizing Radiation** Bonner

- Define ionizing and non-ionizing radiation
 - Radiation related mechanism
 - Exposure assessment
- Assigned
readings on
UB learns;

10/ 30 **Water Pollution** Ren and
Mu

- Water and Health
 - Major Water Contaminants
 - Monitoring Water and Safe Water Drinking
 - Challenge in Epidemiological Studies in Relation to Water
- Assigned
readings on
UB learns;
book
chapter

11/ 6 **Environment Hormones** Mu

- Definition of environmental hormones
-

	• Health effects • Major environmental hormones • Current research		
11/13	Environmental impacts on occupational workers		Mu \$ Lei
	• Concept of occupational health • Major occupational issues • Occupational epidemiologic studies		
11/20	Controversies in Environmental Health		Mu
	• A case analysis of controversies in environmental health • How we evaluate data and interpret results	Assigned readings on UB learns	
11/27	No class		
12/12	Final Examination	Deadline for proposal	Mu

Accommodations for Disabilities: Reasonable accommodations to students will be provided, on a flexible and individualized basis, to students who have disabilities that may affect their ability to participate in course activities or to meet course requirements. Students must be registered with UB's Office of Disability Services (stu-disability@buffalo.edu) to determine which accommodations are needed to ensure full participation in the course. Students with disabilities are encouraged to contact me as soon as possible to discuss their individual needs for accommodations as some accommodations take time to implement.

Grade Disputes: Students wishing to dispute an assigned grade must present their dispute to the instructor IN WRITING within one week after the date when the exam or paper is returned. The dispute must include a specific rationale for why the student's answer is correct (e.g., a reference to a specific page in the textbook).

Academic Integrity: This class will adhere to the UB policy on academic dishonesty. Any work

submitted by a student must represent his/her own intellectual contribution and efforts. Any student found to be engaged in cheating, plagiarism, or any other act of academic dishonesty will be subject to a failing grade in the assignment and/or the course and to further disciplinary action.

All students are expected to be familiar with and abide by the University's academic integrity policies, both Undergraduate and Graduate

<http://undergrad-catalog.buffalo.edu/policies/course/integrity.shtml>

<http://ublib.buffalo.edu/libraries/asl/guides/plagiarism.html>

<http://academicintegrity.buffalo.edu/video/index.php>

Please see the Graduate School's web-based Policies & Procedures Manual located at <http://www.grad.buffalo.edu/policies/index.php>. (section on *Academic Integrity Policies and Procedures*.)

Plagiarism detection software may be used by individual instructors or the institution to aid in determining the originality of student work. All papers will be required in electronic form as they will be run through the software for plagiarism detection.



Course Title/Number: SPM 553 Fundamentals of Grant Development

Department Name: Social & Preventive Medicine

Program Name: PhD, MS and MPH Program

Semester: Spring Year: 2013

Class Day/Time:	Thursdays, 1:00-3:40 PM
Class Location:	Farber 180
Format(s):	LEC
Instructor(s) of Record:	Amy E. Millen, PhD, Associate Professor
Office:	Farber Hall 270 F
Phone Number(s):	(716) 829-5377
Email:	aemillen@buffalo.edu
Office Hours:	By appointment please
Prerequisite(s):	SPM 501, SPM 502, SPM 505, SPM 506 (and receiving a 'B' or better in these courses)

I. (a) Course Description:

This course is targeted for advanced PhD students who are committed to obtaining extramural support for scientific research. The prerequisites include SPM 501, SPM 502, SPM 505, and SPM 506 (and receiving at least a 'B' in these courses) or Permission of the Instructor. This course will involve interactive class discussion of readings focused on planning and writing grants, with emphasis on funding from the National Institutes of Health (NIH). This class will cover how to obtain information on funding opportunities, understanding the language of grants, development of the common sections of grant proposals, and understanding the grant review process. This course will also involve an introduction to budget planning and Institutional Review Board (IRB) requirements for grant submission. All students will be required to design and write a research proposal of their choice (with the Instructor's approval) according to NIH guidelines. Students who enroll in the course should have a grant proposal topic of interest to them at the start of class. In addition to class discussions on assigned readings, class time will also be used as a workshop for grant writing and feedback on grant drafts.

II. Course Objectives / Competency / Instructional Method(s) / Assessment of Student Learning

Objective	Accreditation/Program Competency	Instructional Method(s)	Assessment Method(s)
Discuss the core terminology of grantsmanship¹	None	-Readings -Discussion of reading materials	-Discussion -Questioning of students within class
“[Discuss] what makes an idea fundable” and identify funding sources.¹	Epidemiology C.9. Draw appropriate inferences from epidemiologic data. C.10. Evaluate the strengths and limitations of epidemiologic reports. Communication and Informatics F.8. Use information technology to access, evaluate, and interpret public health data. Leadership H.3. Articulate an achievable mission, set of core values, and vision. H.4. Engage in dialogue and learning from others to advance public health goals	-Readings -Discussion of reading materials	-Discussion -Questioning of students within class
“Identify common elements of grant proposals”¹ and what needs to be addressed within each section of the grant.	Biostatistics A.7. Apply descriptive and inferential methodologies according to the type of study design for answering a particular research question. Epidemiology C.3. Describe a public health problem in terms of magnitude, person, time and place. C.8. Communicate epidemiologic information to lay and professional audiences. C.9. Draw appropriate inferences from epidemiologic data. C.10. Evaluate the strengths and limitations of epidemiologic reports.	Readings -Examples of funded grants -Discussion of reading materials -Writing of Grant Proposal	-Discussion -Questioning of students -Written grant proposal -Student evaluation of each other’s grants.
“[Discuss] the review criteria for NIH grant applications and what parts of the grant application are most relevant to them.”²	Epidemiology C.10. Evaluate the strengths and limitations of epidemiologic reports.	-Readings -Examples of grant reviews -Discussion of reading materials	-Discussion -Questioning of students -Student evaluation of other each other’s grants
Identify common problems found in proposals including fatal flaws and pitfalls.¹	Epidemiology C.10. Evaluate the strengths and limitations of epidemiologic reports.	-Readings -Discussion of reading materials	-Discussion -Questioning of students -Student evaluation of each other’s grants

Objective	Accreditation/Program Competency	Instructional Method(s)	Assessment Method(s)
“Explain the benefits of a grant-writing team” and how to “[work] effectively on a grant-writing team.”¹	Leadership H.4. Engage in dialogue and learning from others to advance public health goals. H.5. Demonstrate team building, negotiation, and conflict management skills. Professionalism J.10. Appreciate the importance of working collaboratively with diverse communities and constituencies (e.g. researchers, practitioners, agencies and organizations).	-Readings -Discussion of reading materials -Development of grant team	-Discussion -Questioning of students -Student development and justification for Co-Investigators, Collaborators and Consultants on their grant -Student evaluation of each other’s grants
Write a budget and budget justification for a grant proposal and the common terminology used with such budgets.	Communication and Informatics F. 7. Demonstrate effective written and oral skills for communicating with different audiences in the context of professional public health activities.	-Readings -Discussion of reading materials -Examples of grant budgets -Written grant budget	-Discussion -Questioning of students -Student’s written grant -Budget
Write a Biosketch	Communication and Informatics F. 7. Demonstrate effective written and oral skills for communicating with different audiences in the context of professional public health activities.	-Readings -Discussion of reading materials -Examples of biosketches -Written biosketch	-Discussion -Questioning of students -Student’s written grant -Biosketch
Describe the IRB requirements for grant proposals.^{1,2}	Epidemiology C.5. Comprehend basic ethical and legal principles pertaining to the collection, maintenance, use and dissemination of epidemiologic data. Professionalism J.2. Apply basic principles of ethical analysis (e.g. the Public Health Code of Ethics, human rights framework, other moral theories) to issues of public health practice and policy.	-Lecture -Readings -Discussion of reading materials	-Discussion -Questioning of students

III. Textbooks /Equipment /Required Technologies

Resource	Required	Notes
Laura N. Gitlin and Kevin J. Lyons. Successful Grant Writing – Strategies for Health and Human Service Professionals, 4th Edition. Springer Publishing Company, 2014.	Yes	Available at the UB Medical Bookstore or order online (e.g., amazon.com) - Kindle version also available
Stephen W. Russell and David C. Morrison. The Grant Application Writer's Workbook. © 2010 Grant Writers' Seminars & Workshops LLC.	Yes	Purchase at http://www.grantcentral.com/workbook_nih_sf424_shortened.html

IV. Course Learning Activities

- a. Students are expected to come to class prepared and ready to interact and learn. Grades are partially determined by class attendance and participation. Students should bring laptops to class each day to participate in grant writing exercise.
- b. **Class Readings and Discussion:** Students are expected to have completed the required readings for each class and to come to class with questions pertaining to the assigned readings. Any additional reading or class materials beyond what is assigned in the two required books will be posted on UB Learns Blackboard. Students are responsible for checking this site each week for class materials.
 - a. Class discussions on the assigned reading materials and class activities will be conducted each week to reinforce the concepts covered in the readings.
 - b. Each student will be responsible for leading at least one class discussion on assigned readings (under the guidance of the course instructor to ensure that key concepts are covered). This will guide in helping students develop communication and presentation skills.
- c. **Grant Applications:** All students will be expected to complete a grant application for their final project.
 - a. The grant application will be written in sections throughout the semester. Students will be expected to complete different sections of the grant proposal (e.g., specific aims, significance, innovation, approach, budget, biosketch, etc.) as these sections are covered in class.
 - b. Students will be expected to hand in drafts of these sections to the course instructor at indicated due dates throughout the semester. Students will be graded on their drafts, given feedback for improvement, and expected to revise and resubmit grant sections for re-evaluation throughout the semester.
 - c. Students will also be expected to share their writing with other students in the class and to peer-review each other's grants.
 - d. Time will be given during most classes for students to work on their grants in a workshop environment. Different goal-oriented activities will be planned to structure this writing time to make it productive for students and to reinforce learning objective for that week.

d. Guest Lecturers:

- a. Additionally, one class will be devoted to a panel discussion from invited faculty within the School with the experience of having received funding from different funding agencies (e.g., NIH, Department of Defense, and Private Foundations [Komen, Bill Gates Foundation]) and/or from different NIH funding mechanisms (e.g., R01, R21, K-Award Training Grant). These guest lecturers will help to clarify information for students on the variety of funding mechanisms available to researchers.
- b. Guest lecturers will present information on grant budgets, electronic submission interfaces and Institutional Review Board (IRB) requirements for grant submission. These guest lecturers will help to clarify the reading materials on budgets and IRB.

V. Course and Instructor Eval

Evaluation of the course and instructor will be conducted at the end of the semester. Students will receive an email prompting them to fill out an online evaluation (CourseEval). The faculty member/course instructor will not have access to student evaluations until grades are submitted. The course/instructor evaluations are anonymous.

VI. Grading

The final course grade will be determined based on the following factors:

Course Component	Due date	Percentage
Class Attendance	Every day there is class	5%
Class Participation	Every day there is class	20%
Grant Specific Aims (1 st draft)	February 20 th	10%
Grant Significance and Innovation (1 st draft) + Revised Specific Aims (2 nd + draft)	March 6 th	10%
Grant Approach (1 st draft) + Revised other Previously Drafted Sections (2 nd + draft)	March 27 th	10%
Biosketch (draft), Budget/Budget Justification (draft) + Revised Grant Body (2 nd + draft)	April 17 th	15%
Final Grant (Grant Body, Budget, and Biosketch)	May 1 st	20%
Peer Review of Fellow Student Grants	May 8 th	10%

Total: 100%

Final Grade Determination

Cutpoints:

92.0-	100	A	72.0-	77.9	C
90.0-	91.9	A-	70.0-	71.9	C-
88.0-	89.9	B+	60.0-	69.9	D
82.0-	87.9	B	<60.0		F
80.0-	81.9	B-			
78.0-	79.9	C+			

VII. Other course related information**Citation Style**

We will be following the *American Journal of Epidemiology's* (AJE) citation style for when you cite others work. Please see the following link at AJE's website under "Manuscript Instruction for Authors" http://www.oxfordjournals.org/our_journals/aje/for_authors/general.html.

This section describes their instructions for references and gives reference style examples. Points will be deducted for not following this reference style.

Hard Copies for Class

Please type all assignments. Also bring a hard copy of work to class each week in case class exercises involve peer-review. We will make copies of drafts for circulation.

VIII. Communication

Dr. Millen will be available after class weekly, from 3:40-4:00 to answer any brief questions the students may have. Students are also welcome to email Dr. Millen to schedule an appointment. Please allow 24 hours for responses to emails on weekdays and 48 hours on weekends. However, I usually respond to emails promptly. When sending emails to the instructor, please put "SPM 553" in the subject of the email (with or without additional text). This will help me easily identify emails from class.

IX. Policy Regarding Absences, Attendance, Assignments, Exams, and University Policy on Incompletes in Courses

- Class Attendance and Absences**

As many in-class activities will be completed throughout the semester, thus class attendance is required and students are expected to be present at the start of class. Students will be allowed one (1) excused absence without penalty. In such a case of exceptional circumstances that results in you being late or absent, you must contact me prior to the start of class (either by email or by leaving a telephone message). Please be aware that an absence from class under these circumstances does not excuse you from any required assignments.

- **Late Assignments**

- a. All assignments are due in the Digital Dropbox at the designated time and due date. Assignments will be turned in on UBLearn under “**Grants**”. There are assignment folders for each version of the grant you will turn in. All submissions will be run through plagiarism software.
- b. For all assignments, if a student turns the assignment in late, he/she will receive a 20% deduction in the grade for each day the assignment is late. Assignments that are more than 4 days late will not be accepted.
- c. Please type all homework assignments and follow the citation rules noted above.

- **Exams and Final Exam**

There will be no exams in this course.

- **Policy on Incomplete Grades for the Course**

Incomplete grades will be given only if there are extenuating circumstances (i.e. severe illness) that preclude the student from completing the course. The student must have satisfactorily completed all course work and successfully passed all exams (B or better) up until the time an incomplete is requested.

- **University Policy on Incomplete Grades**

A grade of incomplete (“I”) indicate that additional course work is required to fulfill the requirements of a given course. Students may only be given an “I” grade if they have a passing average in coursework that has been completed and have well-defined parameters to complete the course requirements that could result in a grade better than the default grade. An “I” grade may not be assigned to a student who did not attend the course. Prior to the end of the semester, students must initiate the request for an “I” grade and receive the instructor’s approval. Assignment of an “I” grade is at the discretion of the instructor.

The instructor must specify a default letter at the time the “I” grade is submitted.

A default grade is the letter grade the student will receive if no additional coursework is completed and/or a grade change form is not filed by the instructor. “I” grades must be completed within 12 months. Individual instructors may set shorter time limits for removing an incomplete than the 12-month time limit. Upon assigning an “I” grade, the instructor shall provide the student specification, in writing or by electronic mail, of the requirements to be fulfilled, and shall file a copy with the appropriate departmental office.

Students must not re-register for courses for which they have received an “I” grade.

Applicable dates regarding the 12-month provision:

Courses taken in (semester):	Will default in 12 months on:
Fall	December 31
Spring	May 31
Summer	August 31

The “I” must be changed to a grade before the degree conferral date if the students plans to graduate in that semester. At any time prior to the default date, students may elect to change the “I” grade to the default grade using the [Grade Retrieval Form](#).

A default grade can be "A-," "B+," "B-," "C+," "C-," "D+," "D," or "F." (If a student selected an S/U grading option, it will replace the default letter grade when the grade defaults.)

Disability Policy

If you have any disability which requires reasonable accommodations to enable you to participate in this course, please contact the Office of Accessibility Resources, 25 Capen Hall, 645-2608, and also the instructor of this course during the first week of class. The office will provide you with information and review appropriate arrangements for reasonable accommodations. <http://www.ub-disability.buffalo.edu/>

Netiquette

This course may utilize UBlerns to facilitate online communication between course participants. Please keep in mind the following "Rules of Netiquette" when communicating online.

1. **The rules of the classroom are the same regardless of location.** Remember just because you're interacting online, doesn't mean you stop having respect for your professors, and fellow classmates. You're communicating with a real person, not a computer screen.
2. **Remember your audience.** When communicating online it's important to remember who you're communicating with. When sending a message to a professor, please refrain from using "text speak". For example, Shakespeare never intended for you to type "2B or not 2B". Also, stay away from typing in all capital letters; it will appear as if you're shouting.
3. **Avoid strong language.** Language can easily be misinterpreted in an online setting. Be sure to review your work before submitting, making sure the reader won't be able to misinterpret it as strong, or offensive. Sarcasm doesn't translate well online. Your audience can't see your facial expressions, or body language. Try to be as straight forward and professional as possible.
4. **Read everything, twice.** Be sure to thoroughly read all course materials before beginning to work on your assignments. If you have a question, or need clarification, re-read the materials. You may have glanced over an important detail the first time. If you're still having difficulties, then e-mail your professor.
5. **Review all materials before submitting.** When responding to discussion board posts, be sure to read all previous postings before you post your own. This way you won't duplicate someone else's comments. Also, it's a good idea to write, and save your work in Microsoft Word first. In case of a technical issue, you have a backup copy.

Academic Integrity

Students who are suspected of academic dishonesty will be dealt with severely in accordance with the Department and University Policy. This may include a grade of 0 for an assignment and/or failure in a course.

Academic Dishonesty: Actions that compromise academic integrity include, but are not limited to the following examples:

- *Previously submitted work:* Submitting academically required material that has been previously submitted – in whole or in substantial part – in another course, without prior and expressed consent of the instructor.
- *Plagiarism.* Copying or receiving material from any source and submitting that material as one's own, without acknowledging and citing the particular debts to the source (quotations, paraphrases, basic ideas), or in any other manner representing the work of another as one's own.
- *Cheating.* Soliciting and/or receiving information from, or providing information to, another student or any other unauthorized source (including electronic sources such as cellular phones and PDAs), with the intent to deceive while completing an examination or individual assignment.
- *Falsification of academic materials.* Fabricating laboratory materials, notes, reports, or any forms of computer data; forging an instructor's name or initials; resubmitting an examination or assignment for reevaluation which has been altered without the instructor's authorization; or submitting a report, paper, materials, computer data, or examination (or any considerable part thereof) prepared by any person other than the student responsible for the assignment.
- *Misrepresentation of documents.* Forgery, alteration, or misuse of any University or Official document, record, or instrument of identification.
- *Confidential academic materials.* Procurement, distribution or acceptance of examinations or laboratory results without prior and expressed consent of the instructor.
- *Selling academic assignments.* No person shall sell or offer for sale to any person enrolled at the University at Buffalo any academic assignments, or any inappropriate assistance in the preparation, research, or writing of any assignment, which the sellers knows, or has reason to believe, is intended for submission in fulfillment of any course or academic program requirement.
- *Purchasing academic assignments.* No person shall purchase an academic assignment intended for submission in fulfillment of any course or academic program requirement.

Student Handbook: All students are required to read the student handbook. An online version is available on the 'Information For Current Students' page of your department website.

COURSE SCHEDULE

This schedule is subject to revision due to unforeseen events. Any course schedule changes or additional readings will be posted on Ublearns and will be announced in class as time permits. Note: Additional required readings may be assigned and will be assigned at least one week prior to the class for which they are assigned.

Date	Topic	Required Readings/Assignments	Learning Objectives	Deliverables
January 30th	-Class Overview -Why Write a Grant? -How to Develop an Idea for Funding	<u>Successful Grant Writing</u> -Introduction: pgs. xvii-xx. -Part I: Getting Started, pgs.1-2 -Chapter 1: Why Write a Grant? pgs. 3-25 -Chapter 3: Developing Your Ideas for Funding, pgs. 51-62. <u>Grant Writer's Workbook</u> -Overview Part One: Before you begin to write, pg. 1. -Chapter 2: How to Develop an Irresistible Idea for your Grant Application, pgs. 8-13.	Discuss the core terminology of grantsmanship. ¹ Discuss development of your own professional growth plan. ¹ "[List] key attributes of successful researchers." ¹ "[Discuss] what makes an idea fundable." ¹ "Describe strategies for identifying fundable ideas." ¹	Be prepared to discuss class readings. Begin to research grant topic area & read background information.
February 6th	-Funding Sources and Grant Mechanisms - Panel Discussion on Types of Grants, Insight from Principal Investigators	<u>Successful Grant Writing</u> -Chapter 2: Becoming Familiar with Funding Sources, pgs. 27-49. <u>Grant Writer's Workbook</u> -Chapter 1: Finding NIH Funding Opportunities and Responding to Them, pgs. 2-7. -Chapter 3: How to Find the Appropriate Program and Grant Mechanism for your Idea, pgs. 14-21.	"Identify sources of funding." ¹ "[Differentiate between] an NIH Parent Announcement, Program Announcement, and Requests for Applications." ² "Explain a call for proposals." ¹ "[Explain] how to track funding opportunities." ¹ Explain what is appropriate for a scientist to say to a program officer. ¹	Be prepared to discuss class readings. Be prepared to interact with the panel and have questions for the participating faculty. Continue to research grant topic area & read background information.

<u>Date</u>	<u>Topic</u>	<u>Required Readings/Assignments</u>	<u>Learning Objectives</u>	<u>Deliverables</u>
February 13 th	Overview of Common Sections of a Grant Proposal	<u>Successful Grant Writing</u> -Part II: Writing a Competitive Grant Application, pgs. 77-78 -Chapter 5: Common Sections of Proposals, pgs.79-104. <u>Grant Writer's Workbook</u> -Chapter 4: Influence of the NIH Review Process on Writing for Success, pgs. 22-44. <u>CLASS WORKSHOP TIME:</u> Remaining time allotted for in class research on grant topic.	"Identify common elements of grant proposals."¹ List formatting requirements for NIH applications.² "Determine what content belongs in proposal sections."¹ "[Discuss] the review criteria for NIH grant applications and what parts of the grant application are most relevant to them."² Describe the scoring method used for NIH grant reviews.² Identify the most qualified study section for review of your proposal."²	Be prepared to discuss class readings. Continue to research grant topic area & read background information. <u>DUE:</u> Grant topic (needs to be discussed and approved by Dr. Millen by the start of class).
February 20 th	Creating a Writing Schedule Specific Aims	<u>Grant Writer's Workbook</u> -Chapter 6: Create a Writing Schedule, pgs. 56-59. -Overview Part Two: The template for your research plan, pgs. 60-61. -Chapter 7: Specific aims section: conceptual overview & creating a bullet outline, pg. 62-70. -Chapter 8: Writing the Specific aims section, pgs. 71-76. <u>CLASS WORKSHOP TIME</u> – Refinement of specific aims.	Describe how to plan for a grant submission deadline.² "[Discuss] the strategy that underlies [the specific aims] section."² "[Describe] the purpose of each component that makes up the specific aims section."²	Be prepared to discuss class readings. Continue to research grant topic area & read background information. <u>DUE:</u> First draft of specific aims section.

<u>Date</u>	<u>Topic</u>	<u>Required Readings/Assignments</u>	<u>Learning Objectives</u>	<u>Deliverables</u>
February 27 th	Significance & Innovation	Grant Writer's Workbook Chapter 9: Significance and innovation subsections of the research strategy sections, pgs. 77-82. <u>CLASS WORKSHOP TIME</u> – Begin to develop significance & innovation sections.	“[Define] the definition of ‘significance’ and of ‘innovation’.”² Describe how to structure and present these grant subsections so as to 1) “clearly and directly [address] the related core review criteria” and 2) minimize reviewer burnout.²	Be prepared to discuss class readings. Continue to research grant topic area & read background information. <u>RETURNED:</u> Specific aim comments.
March 6 th	Significance & Innovation Strategies for Effective Writing & Pitfalls to Avoid	<u>Successful Grant Writing</u> -Chapter 6: Strategies for Effective Writing, pgs. 105-116. -Chapter 7: Common Pitfalls in Writing Proposals, pgs. 117-125. <u>CLASS WORKSHOP TIME</u> – Development of significance & innovation sections.	“Identify grant writing strategies.”¹ “[List ways] to overcome writers block.”¹ “Explain the benefits of a grant-writing team” and how to “[work] effectively on a grant-writing team.”¹ Identify common problems found in proposals including fatal flaws and pitfalls.¹ “Identify strategies for addressing pitfalls.”¹	Be prepared to discuss class readings Continue to refine grant sections. <u>DUE:</u> First draft of significance & innovation section and revised specific aims.

<u>Date</u>	<u>Topic</u>	<u>Required Readings/Assignments</u>	<u>Learning Objectives</u>	<u>Deliverables</u>
March 13 th	Approach & Pilot Data	Grant Writer's Workbook -Overview Part Three: Development of the rest of your application, pg. 83. -Chapter 10: Approach subsection of research strategy: Research design, expected outcomes and potential problems & alternative strategies, pgs. 84-92. -Chapter 11: Approach subsection of research strategy: Review of literature: Preliminary studies; Progress report; bibliography & References cited section, pgs. 93-105. <u>CLASS WORKSHOP TIME</u> – Begin to develop approach section.	Describe the format of the approach section and review criterion.² Write the Research Design subsection for each aim “with meaningful, but not excessive or mindless, detail.”² Explain how to address potential problems and alternative strategies within the approach section.² Describe the need for preliminary data and how to best present such data.²	Be prepared to discuss class readings Continue to refine grant sections. <u>RETURNED:</u> First draft of significance & innovation section and revised specific aims section.
March 20 th	Spring Break – no class			
March 27 th	Approach & Pilot Data	<u>Successful Grant Writing</u> -Part III: Preparing a Budget, pgs. 147-148. -Chapter 10: Developing a Budget, pgs.149-165. <u>CLASS WORKSHOP TIME</u> – Continued development of approach section and/or start to develop grant budget and budget justifications.	“[List] components of a budget.”¹ “[Write] a budget justification.”¹ “Determine when to use an NIH modular budget format.”¹	Be prepared to discuss class readings Continue to refine grant sections. <u>DUE:</u> First draft of approach section and revised specific aims, significance & innovation sections.

<u>Date</u>	<u>Topic</u>	<u>Required Readings/Assignments</u>	<u>Learning Objectives</u>	<u>Deliverables</u>
April 3 rd	Budget & Facilities Guest Lecturer from SPHPH Research Administrative Services (Traci Jackson or Pam Shultz)	<u>Grant Writer's Workbook</u> -Chapter 13: PHS 398 Modular budget component and Budget Justification, pgs. 121-129. -Chapter 14: SF424 R & R [Breakout] budget component and Subaward/consortial budget, pgs. 130-150. -Chapter 15: Project/Performance site locations, facilities & other resources section and Equipment section, pgs. 151-162. <u>CLASS WORKSHOP TIME</u> – Development of budget and budget justification.	Describe what is meant by direct costs, indirect costs, and total costs. ² Describe what is meant by a consortial or contractual relationship on a grant. ² Describe what is meant by Senior/Key Persons and Other Personnel. ² Explain what is meant by a Project/Performance Site. ² Summarize what you need to describe in a Facilities and Other Resources section. ²	Be prepared to discuss class readings Continue to refine grant sections. <u>RETURNED:</u> First draft of approach section and revised specific aims, significance & innovation sections.
April 10 th	Biosketches and Research Team (Co-Investigators, Consultants, etc.)	<u>Successful Grant Writing</u> -Chapter 15: Forming a collaborative team, pgs. 213-226. <u>Grant Writer's Workbook</u> -Chapter 12: Senior key person profile(s), biographical sketches, and multiple PI Leadership Plan, pgs. 106-120. <u>CLASS WORKSHOP TIME</u> – Development of your Biosketch.	"Identify strategies for forming an effective collaborative team." ¹ "Derive effective solutions for common problems that arise when working on a team." ¹ Demonstrate how to write a biosketch. ²	Be prepared to discuss class readings Continue to refine grant sections.

<u>Date</u>	<u>Topic</u>	<u>Required Readings/Assignments</u>	<u>Learning Objectives</u>	<u>Deliverables</u>
April 17 th	IRB – Human Subjects Guest Lecturer from MAS, Quality Assurance/Quality Improvement Administrator Health Sciences Institutional Review Board (HSIRB) (Dorothy Wright)	<u>Successful Grant Writing</u> -Chapter 16: Learning about your institution, pgs. 229-242. <u>Grant Writer's Workbook</u> -Chapter 16: Human Subjects, etc. pgs. 163-169.	Describe the IRB requirements for grant proposals. ^{1,2} Describe the necessary components of the PHS98 Research Plan – Human Subject Section. ²	Be prepared to discuss class readings <u>DUE:</u> Draft of your Biosketch, Budget/budget justification & revised grant body.
April 24 th	-Submitting – Electronic Considerations/Institution -Appendix materials Guest Lecturer from SPHHP Research Administrative Services (Traci Jackson or Pam Shultz) -Project summary & narrative -Letters of Support -Cover letter	<u>Successful Grant Writing</u> -Chapter 17: Electronic Considerations, pgs. 243-250. <u>Grant Writer's Workbook</u> -Chapter 17: SF 424 Cover Component, PHS 398 Cover Page Supplement and Appendix Material. -Chapter 18: How to create a compelling, informative title for your proposal, pgs. 177-180. -Chapter 19: Project Summary/Abstract, Project Narrative, and Propriety/Privileged Information, pgs. 180-185. -Chapter 20: Cover letter Component and Letters of support, page. 186-191.	List the other components of a grant application needed besides the grant body, biosketch and budget. ² Known that NIH grants are submitted electronically. ^{1,2} "Identify strategies to avoid or address common problems with electronic solutions." ¹	Be prepared to discuss class readings <u>RETURNED:</u> Biosketch, Budget/budget justification & revised grant body.

Date	Topic	Required Readings/Assignments	Learning Objectives	Deliverables
May 1st	Pre-Submission Review of your Application	<u>Grant Writer's Workbook</u> -Chapter 21: Pre-Submission Review of Your Application, pgs. 192-195. <u>CLASS WORKSHOP TIME:</u> Time allotted for reading grants.	Know that having an external grant review prior to submission is helpful. ²	Be prepared to discuss class readings <u>DUE:</u> Full Grant (Body, Budget, Biosketch) <u>Assigned:</u> Fellow student's grants for Grant Review
May 8th	Grant Review	<u>Successful Grant Writing</u> -Chapter 18: Understanding the Review Process, pgs. 251-264.	Demonstrate that you understand the grant review process by reviewing your fellow students' grants.	<u>DUE:</u> Grant Reviews

Reference List: Learning objectives noted above in syllabus are referenced as being taken from the following sources

(1) Laura N. Gitlin and Kevin J. Lyons. Successful Grant Writing – Strategies for Health and Human Service Professionals, 4th Edition. Springer Publishing Company, 2014.
(2) Stephen W. Russell and David C. Morrison. The Grant Application Writer's Workbook. © 2010 Grant Writers' Seminars & Workshops LLC.

**Advanced Cancer Epidemiology and Prevention
Spring Term, 2011 (Thursdays 9-11:40)**

Designed for advanced students who are interested in focusing their research on the epidemiology and prevention of neoplastic diseases. Major emphasis will be on understanding of and critical evaluation of current literature regarding epidemiology in etiology, prevention and prognosis of cancer as well as understanding of methodological issues in the epidemiology of benign and malignant neoplastic lesions, their etiology and prevention.

Course requirements

The course format will be a seminar style discussion. Each student will prepare and make a presentation on one topic for discussion for each class period; those presentations will be assigned each week. In some cases, the class discussion will focus on responses to analytic questions regarding cancer epidemiology.

Grades

Students will be evaluated by the following criteria for the final grade: 1) quality of presentations, 2) quality of participation in seminars. Missing class will adversely affect your grade. Please contact instructor in advance of class if you will not be able to attend.

Disability Policy

If you have any disability which requires reasonable accommodations to enable you to participate in this course please contact the Office of Disability Services (ODS), 25 Capen Hall, 645-2608, and also the instructor of this course during the first week of class. ODS will provide you with information and review appropriate arrangements for reasonable accommodations.

Faculty

The instructor for this course is Jo Freudenheim. Dr. Freudenheim has an office at 270 Farber Hall, 829-5375, email jfreuden@buffalo.edu. There are no specific office hours for the course. Please make an appointment if you would like to meet with me or feel free to email me or contact me by phone.

Course Objectives and assessment

<u>Learning Objectives</u>	<u>Program Competency</u>	<u>Instructional Methods</u>	<u>Assessment methods</u>
After completion of this course, the student will be able to:			
Demonstrate knowledge and application of epidemiologic methods in cancer research	Demonstrate knowledge and application of epidemiologic methods	Class discussion, assigned readings	Student presentations, class discussion
Critically summarize and evaluate published literature in cancer epidemiology with a focus on study methodology	Based on a critical review of the relevant literature, synthesize epidemiologic knowledge to identify meaningful gaps in knowledge and original key hypotheses, and to demonstrate an understanding of the epidemiology, pathophysiology and/or molecular biology in one area of chronic or infectious disease epidemiology	Class discussion, assigned readings	Student presentations, class discussion
Demonstrate knowledge of hypothesized mechanisms for observed associations in cancer epidemiology	Based on a critical review of the relevant literature, synthesize epidemiologic knowledge to identify meaningful gaps in knowledge and original key hypotheses, and to demonstrate an understanding of the epidemiology, pathophysiology and/or molecular biology in one area of chronic or infectious disease epidemiology	Class discussion, assigned readings	Student presentations, class discussion
Demonstrate knowledge of hypothesized endogenous and exogenous exposures in cancer etiology and their proposed mechanism of action; critically evaluate the strength of the existing literature regarding those relationships	Based on a critical review of the relevant literature, synthesize epidemiologic knowledge to identify meaningful gaps in knowledge and original key hypotheses, and to demonstrate an understanding of the epidemiology, pathophysiology and/or molecular biology in one area of chronic or infectious disease epidemiology	Class discussion, assigned readings	Student presentations, class discussion
Interpret research results, make appropriate inferences based on results, and determine the relevance of the results to epidemiologic research or evidence-based public health practice.	Interpret research results, make appropriate inferences based on results, and determine the relevance of the results to epidemiologic research or evidence-based public health practice.	Class discussion, assigned readings	Student presentations, class discussion

Date	Topic (about half hour presentations unless otherwise indicated)
1/20	Introduction, discussion of class aims, plans for other classes
1/27	No class
2/3	Epidemiology methods in cancer research (include discussion of bias, reliability, validity, using clinical data) Cohort studies/prognostic studies: AL Case control studies/case-case studies: KD Randomized trials/prevention/community trials: JG Biomarkers/ cross sectional studies: YL Biobanks: RC
2/10	Site specific cancer biology and epidemiology Breast: KD Prostate: RC Gastrointestinal: YL Lung: AL Pancreatic: AL
2/17	Site specific cancer biology and epidemiology (cont) Gynecological: RC Hematological: JG Bladder: KD Liver: YL Thyroid: JG
2/24	Mechanisms/pathways of carcinogenesis (45-50 min each; 3-4 presentations per week depending on available time) Inflammation/infection: JG Oxidative stress: KD DNA damage/repair: RC Apoptosis/ cell cycle regulation: AL
3/3	Mechanisms/pathways of carcinogenesis (45-50 min each; 3-4 presentations per week depending on available time) (cont) Apoptosis/ cell cycle regulation: AL Epigenetics: YL Risk factors Early life exposures: KD Infection: JG

Date	Topic
3/10	Risk factors (45-50 min each; 3-4 presentations per week depending on available time) (cont) Diet: RC Physical activity: AL Air pollution: YL Radiation/UV: KD
3/17	Spring recess
3/24	Risk factors (45-50 min each; 3-4 presentations per week depending on available time) (cont) Alcohol: YL Genetics: JG Obesity: RC
3/31	Screening and prevention (approx 15-20 min each) Colon cancer: YL Breast cancer: RC Prostate cancer: JG Cervical cancer: KD Vaccinations: YL Smoking cessation: AL Diet interventions: RC Physical activity interventions: JG Genetic screening: KD Impact of screening on risk: AL
4/7	Epidemiologic issues and approaches to treatment and survival Breast: RC Lung: AL Prostate: JG Ovary: YL Bladder: KD
4/14	Cancer disparities Race/ethnicity: RC Gender: YL Socio-economic status: RC Access/utilization/insurance: AL Policy and cancer epidemiology Advertising: KD Clean indoor air legislation: AL Evidence required for policy (recent IOM report): JG Recommendations for screening: KD
4/21	Gaps and new advances in cancer epidemiology
4/28	Discuss answers to cancer prelim questions

SPM 602

Advanced Epidemiologic Study Designs Fall Term, 2014 (Tuesdays 12-2:40PM)

The focus of this course is an examination of methodological issues in the planning, execution, and interpretation of results from research using cohort, case-control, and clinical trial study designs. The course will be delivered in three sections, each dedicated to one of the above study designs. Practical examples as well as discussions of theoretical issues will be the focus.

This course is designed for advanced graduate students in the PhD in epidemiology; advanced students in the MS program may request instructor permission to take the course. Other students with advanced understanding of the theory and practice of epidemiologic, public health, and biomedical research may also be interested in this course with instructor permission.

Text

There are no required textbooks for this course. However, several texts contain discussion and examples of the material to be covered in this course, and therefore may be helpful resources.

The following books are recommended:

Friedman L, Furberg CD, DeMets DL. Fundamentals of clinical trials, 3rd ed. Springer-Verlag, 1998

Rothman KJ, Greenland S. Modern epidemiology, 3rd edition. Wolters Kluwer, Lippincott, 2008

Schlesselman JJ. Case control studies, New York: Oxford University Press, 1982

Readings from the scientific literature also will be assigned for class discussions.
These will include (most will be made available on UBLearn):

Overview

Von Elm E, Altman DG, Egger M, Pocock SJ, Gøtzsche PC, Vandenbroucke JP, for the STROBE initiative. The strengthening the reporting of observational studies in epidemiology (STROBE) statement: guidelines for reporting observational studies. *Lancet* 2007;370:1453-57.

Cohort Studies

Koepsell TD, Weiss N. Chapter 14 Cohort Studies; In *Epidemiologic Methods*. Oxford University Press, 2003.

Cummings SR, Ernster V, Hulley SB. Designing a New Study I. Cohort Studies. In: *Designing Clinical Research* Eds: Hulley SB, Cummings SR. Williams & Wilkins. 1988.

White E, Hunt JR, Casso D. Exposure measurement in cohort studies: The challenges of prospective data collection. *Am J Epidemiol* 1998;20: 43-56.

Bild DE, Bluemke DA, Burke GL, et al. Multi-Ethnic study of atherosclerosis: Objectives and design. *Am J Epidemiol* 2002;156: 871-891.

Schatzkin A, Subar AF, Thompson FE, et al. Design and serendipity in establishing a large cohort with wide dietary intake distributions. The NIH-AARP Study. *Am J Epidemiol* 2001;154: 1119-25.

Riboli E, Hunt KJ, Slimani N, et al. European Prospective Investigation into cancer and nutrition (EPIC): study populations and data collection. *Public Health Nutr* 2002;5(6B): 1113-24.

Samet J, Munoz A. Evolution of the cohort study. *Am J Epidemiol* 1998;20:1-14.

Blair A, Stewart P, Lubin JH, Forastiere F. Methodological issues regarding confounding and exposure misclassification in epidemiological studies of occupational exposures. *Am J Industrial Med* 2006;1-9.

Hu FB, Stampfer MJ, Rimm E et al. Dietary fat and coronary heart disease: A comparison of approaches for adjusting for total energy intake and modeling repeated dietary measurements. *Am J Epidemiol* 1999;149:531-40.

Jurek AM, Greenland S, Maldonado G. How far from non-differential does exposure or disease misclassification have to be to bias measures of association away from the null? *Int J Epid* 2008;1-4.

Greenland S. Basic methods for sensitivity analysis of biases. *Internat J Epidemiol*;25:1107-16

Mitrou PN, Kipnis V, Thiebaut ACM, et al. Mediterranean dietary pattern and prediction of all-cause mortality in a US population. *Arch Intern Med* 2007;167:2461-68.

Trichopoulou A, Orfanos P, Norat T, et al. Modified Mediterranean diet and survival: EPIC-elderly prospective cohort study. *BMJ* 2005;1-7.

Numoz A, Gange SJ. Methodological issues for biomarkers and intermediate outcomes in cohort studies. *Epid Reviews*. 1998;20:29-42.

Tager I. Outcomes in cohort studies. *Epid Reviews* 1998;20:15-28.

Whitney CW, Lind BK, Wahl PW. Quality assurance and quality control in longitudinal studies. *Epid Reviews* 1998;20:71-80.

Rimm EB, Stampfer MJ, Colditz GA, et al. Effectiveness of various mailing strategies among nonrespondents in a cohort study. *Amer J Epidemiol* 1990;131:1068-71.

Johnson TP, Wilson JS. Response rates and nonresponse errors in surveys. *JAMA* 2012;324: 1805-6.

Edwards P, Roberts I, Clarke M, et al. Increasing response rates to postal questionnaires: systematic review. *BMJ* 2002;324:1183-85.

Meiklejohn J, Connor J, Kypri K The effect of low survey response rates on estimates of alcohol consumption in a general population survey. *Plos One* 2012;7(4): e35527.

Case control studies

Wacholder S et al Selection of Controls in Case-control studies. I. Principles. Am J Epidemiol 1992;135:1019-28.

Wacholder S et al Selection of Controls in Case-control studies. II. Types of controls. Am J Epidemiol 1992;135:1029-41.

Wacholder S et al Selection of Controls in Case-control studies. III. Design Options. Am J Epidemiol 1992;135:1042-50.

Parr CL, et al. Recall Bias in melanoma risk factors and measurement error effects: a nested case control study within the Norwegian women and cancer study. Am J Epidemiol 2009;160:257-66.

Gefeller O. Invited commentary: Recall bias in melanoma—much ado about almost nothing? Am J Epidemiol 2009; 169:267-70.

Marshall JR, Hastrup JL. Mismeasurement and the resonances of strong confounders: uncorrelated errors. Am J Epidemiol 1996; 143:1069-78.

Marshall JR, Hastrup JL, Ross JS. Mismeasurement and the resonance of strong confounders: correlated errors. Am J Epidemiol 1999; 150:88-96.

Randomized Clinical Trials

Writing Group for the Women's Health Initiative Investigators. Risks and Benefits of Estrogen Plus Progestin in Healthy Postmenopausal Women. Principal Results from the Women's Health Initiative Randomized Controlled Trial. JAMA 2002; 288(3): 321-333. [PMID: 12117397]

Prentice RL, Langer RD, Stefanick ML, Howard BV, Pettinger M, Anderson G, Barad D, Curb JD, Kotchen JM, Kuller L, Limacher M, Wactawski-Wende J. Combined postmenopausal hormone therapy and cardiovascular disease: toward resolving the discrepancy between observational studies and the WHI clinical trial. Am J Epidemiol 2005; 162: 404-414. [PMID: 16033876]

Wactawski-Wende J, Kotchen JM, Anderson GL, Assaf AR, Brunner RL, O'Sullivan, MJ, Margolis KL, Ockene JK, Phillips L, Pottern L, Prentice RL, Robbins J, Rohan TE, Sarto GE, Sharma S, Stefanick ML, Van Horn L, Wallace RB, Whitlock E, Bassford T, Beresford SA, Black HR, Bonds DE, Brzyski RG, Caan B, Chlebowski RT, Cochrane B, Garland C, Gass M, Hays J, Heiss G, Hendrix SL, Howard BV, Hsia J, Hubbell FA, Jackson RD, Johnson KC, Judd H, Kooperberg CL, Kuller LH, LaCroix AZ, Lane DS, Langer RD, Lasser NL, Lewis CE, Limacher MC, Manson JE; Women's Health Initiative Investigators. Calcium plus vitamin D supplementation and the risk of colorectal cancer. NEJM 2006; 354(7): 684-96. [PMID: 16481636]

Jackson RD, LaCroix AZ, Gass M, Wallace RB, Robbins J, Lewis CE, Bassford T, Beresford SA, Black HR, Blanchette P, Bonds DE, Brunner RL, Brzyski RG, Caan B, Cauley JA, Chlebowski RT, Cummings SR, Granek I, Hays J, Heiss G, Hendrix SL, Howard BV, Hsia J, Hubbell FA, Johnson KC, Judd H, Kotchen JM, Kuller LH, Langer RD, Lasser NL, Limacher MC, Ludlam S, Manson JE, Margolis KL, McGowan J, Ockene JK, O'Sullivan MJ, Phillips L, Prentice RL, Sarto GE, Stefanick ML, Van Horn L, Wactawski-Wende J, Whitlock E, Anderson GL, Assaf AR, Barad D; Women's Health Initiative Investigators. Calcium plus Vitamin D

Supplementation and Risk of Fracture: The Women's Health Initiative Randomized Trial. NEJM 2006; 354(7): 669-83. [PMID: 16481635]

Prerequisites:

Successful completion (B or better grade) in SPM501 and SPM502. Equivalent courses at other institutions can also be considered. Permission of instructor is required.

Course Format:

The course will include discussion, lectures, assigned reading and exercises to be completed by the student. The outside readings and exercises will serve to emphasize the materials that are presented in class and occasionally some of the outside readings will be only briefly discussed in class, although all assigned readings are required.

There are three major projects for this course. Students will identify one hypothesis and then design three studies using each of the study designs, due at the end of each section of the course. Each student will present a study design once and each student will be the primary reviewer for another student's design once. Further details of these projects will be provided.

All assignments are due on pre-announced dates. In rare cases, if you have a conflict with one of those dates, another date may be scheduled. The rescheduling must occur at least one week before the assignment is due. In certain (rare) circumstances, a different assignment may be created; otherwise it is expected that students will complete all assignments. We will be discussing the readings and homework assignments as part of the class so it is essential that homework be completed before class. Students will be expected to present their assignments and be able to discuss assigned readings. Similarly, projects are due on dates indicated. In rare cases, if you have a conflict with one of those dates, another date may be scheduled. The rescheduling must occur at least one week before the assignment is due.

Course Grading:

There will not be an exam in this course. Grading will be based on completion of three class projects and other assignments, an oral presentation, and class participation.

The final course grade will be determined based on the following factors:

Class assignments = 60% (20% for each of 3 written papers)

Class participation = 20%

Oral presentation = 20%

Grades will be based on the following scale:

93-100	A
90-92	A-
86-89	B+
81-85	B
78-80	B-
75-77	C+
72-74	C
70-71	C-
65-69	D
<65	F

Absences:

Class attendance and participation is mandatory. At the beginning of the year, everyone starts with 100 points for class participation. For *each* class missed there will be a 10 point reduction in your class participation grade. Your class participation points are then factored into your overall grade on the above scale. Excusable absences will be taken into consideration based on the reason for absence. However, email notification of the absence (with reason) is REQUIRED BEFORE class to be considered for an exemption. You are responsible for obtaining the class materials, assignments and notes, for meeting with the instructor to discuss the merits of the absence, and for making up any assigned work.

Plagiarism:

Students should by the second class have read UB Policy on Academic Integrity & Plagiarism and view the following websites:

<http://ublib.buffalo.edu/libraries/asl/guides/plagiarism.html>

<http://academicintegrity.buffalo.edu/video/index.php>

<http://academicintegrity.buffalo.edu/index.php>

It will be the responsibility of the students to read and understand the policy. Those who commit plagiarism will be penalized appropriately.

Plagiarism detection software may be used by instructors to aid in detection of the originality of student work (your work will be archived as part of the resources for detection of future plagiarism).

Disability Policy

If you have any disability which requires reasonable accommodations to enable you to participate in this course, please contact the Office of Disability Services (ODS), 25 Capen Hall, 645-2608, and also the instructor of this course during the first week of class. ODS will provide you with information and review appropriate arrangements for reasonable accommodations.

Faculty

The instructors for this course are Jo Freudenheim, Richard Donahue and James Marshall.

Dr. Freudenheim has an office at 268L Farber Hall, 829-5375, email jfreuden@buffalo.edu.

Dr. Donahue's office has an office at 268F Farber Hall, 829-5368, email rpd1@buffalo.edu

Dr. Marshall can be contacted by email at James.Marshall@roswellpark.org

Each course instructor will be available after their classes for questions regarding the course. Students are also welcome to email the instructors to schedule an appointment to discuss any questions related to the course or to the assignments.

Course Objectives and assessment

<u>Learning Objectives</u>	<u>Program Competency</u>	<u>Instructional Methods</u>	<u>Assessment methods</u>
After completion of this course, the student will be able to:			
Demonstrate advanced understanding and application of methodologic issues used in the planning, execution, and interpretation of results from varied epidemiologic research study designs; including the ability to critically evaluate these designs in both the review of literature and the development of research study proposals.	Demonstrate advanced understanding and application of methodologic issues used in the planning, execution, and interpretation of results from varied epidemiologic research study designs; including the ability to critically evaluate these designs in both the review of literature and the development of research study proposals.	Class discussion, assignments	Student presentations and assignments, class discussion
Demonstrate proficiency on the development of the common sections of research study proposals (including grant proposals) that could be reviewed by an external group.	Demonstrate proficiency on the development of the common sections of research study proposals (including grant proposals) that could be reviewed by an external group.	Class discussion, assignments	Student presentations and assignments, class discussion
Utilize understanding of biological basis of disease to develop an hypothesis to be tested using the three study designs (cohort, case control, randomized trial)	Demonstrate basic knowledge of at least one content area within epidemiology	Class discussion, assignments	Student presentations and assignments, class discussion

Discuss and apply criteria for quality of evidence	Apply evidence-based principles and the scientific knowledge base to critical evaluation and decision-making in public health	Class discussion, assignments	Student presentations and assignments, class discussion
Demonstrate skill in written and oral communication of research findings. Discuss how to structure tables, interpret data.	Communicate, in written and oral formats, the background, description and results of an epidemiologic study (to professional and lay audiences).	Class discussion, assignments	Student presentations and assignments, class discussion
Interpret research results, make appropriate inferences based on results, and recognize the implications of the research results.	Interpret research results, make appropriate inferences based on results, and recognize the implications of the research results.	Class discussion, assignments	Student presentations and assignments, class discussion
Formulate an original and key hypothesis or statement of the research problem.	Formulate an original and key hypothesis or statement of the research problem.	Class discussion, assignments	Student presentations and assignments
Describe basic approaches for the collection of primary data, the use of secondary data, and the assessment of the quality of data collection and measurements	Describe basic approaches for the collection of primary data, the use of secondary data, and the assessment of the quality of data collection and measurements	Class discussion, assignments	Student presentations and assignments

Write a written study protocol identifying strengths and weaknesses regarding sampling, confounding, interaction, questionnaire tools, reliability, tracking and tracing study subjects, data management.	Develop and/or implement a plan for data collection, including identifying a study population, standardizing case definitions, selecting an appropriate study design, identifying measurement techniques, calculating sample size requirements	Class discussion, assignments	Student presentations and assignments
Identify appropriate biostatistical analytic methods for each study design for the study question chosen by the student.	Apply descriptive and inferential methodologies according to the type of study design for answering a particular research question.	Class discussion, assignments	Student presentations and assignments

Class	Date	Topics that will be included	Assignments
1	August 26 (All faculty/ Donahue)	Introductions; Review syllabus and course expectations; Projects (deadlines, expectations, act as presenter and reviewer; Identifying research topics; developing research questions; defining study variables; reviewing the literature; Discussion of student proposed exposure-disease class topic ideas. Assign presentation weeks.) Categories of scientific evidence (STROBE guidelines); Cohort studies: Overview cohort designs	Exposure-Disease question final selection due by class 2 (all instructor approval); choice of date for presentation and critique class 1
2	September 2 (Donahue)	Cohort studies: Continued discussion of overview cohort designs; feasibility considerations; research questions; comparison of cohort studies	Exposure-Disease selection for all papers due
3	9 (Donahue)	Exposure assessment: sources of data, selecting, recruiting and enrolling participants; single and serial measures; minimizing within-person error.	
4	16 (Donahue)	Follow-up: ascertaining valid outcomes; standardization of case definitions; sources of data; participant retention & losses to follow-up; bias & confounding, response rates and selection bias; informed consent considerations; presenting and interpreting study findings; retrospective and nested case-control designs	
5	23 (Drs. Freudenheim, Donahue, Millen)	In-class presentations of cohort research studies	Study design paper #1 due
6	30 (Freudenheim)	Case-Control studies: Introduction to case-control studies; sampling frame; selection of cases and controls	Read 3 Wacholder papers; Assignment on study base

7	October 7 (Freudenheim)	More on control selection; bias and confounding	Read: Marshall et al, Marshall et al, Parr et al, Gefeller Assignment on published case control studies
8	14 (Freudenheim)	Design issues: protocols, day-to-day operations, power issues, ethical issues, analysis issues, presentation of data; other related designs	
	21 (Drs. Freudenheim, Donahue, Bonner)	In-class presentation of case control research studies	Study design paper #2 due
10	28 (Marshall)	Introduction to clinical trials; design of clinical trials; types of trials; what is the study question; study populations; sample size determination	
11	November 4 (Marshall)	Implementation; protocol development and manual of operations; randomization; blinding; recruitment; IRB; data collection and quality; monitoring adverse events; outcomes assessment; adherence; stopping rules; close-out	
12	11 (Drs Freudenheim, Donahue, Ochs-Balcom)	In-class presentation of case control research studies	
13	18 (Marshall)	Data analysis – survival analysis (intent to treat, per protocol, sensitivity, interaction assessment); reporting/publishing results; issues in conducting multi-centered trials Costs; obtaining funding for trials	
14	25 (Faculty)	Interpreting and harmonizing discrepant findings on the same exposure-disease pair examined in different study designs	Read: Wactawski et al, Jackson et al papers; WHI Writing group paper (JAMA); Prentice AJE

15	December 2 (Drs. Freudenheim, Donahue, LaMonte)	In-class presentations of clinical trial research studies	Study design paper #3 due
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Department of Epidemiology and Environmental Health

Course Title/Number: SPM 604, Fundamentals of Genetic Epidemiology

Semester: Spring 2014

Course no. and credit hours:	SPM 604: 3 credits
Format:	Lecture
Lecture Day/Time/Location:	Tuesdays, 9-11:40 am 180 Farber Hall Select Tuesdays 10:30-11:40 113 Kimball Hall (Computer Lab)
Prerequisites:	SPM 501, SPM 502, SPM 505, or permission of instructor
Instructor:	Heather Ochs-Balcom, PhD, Assistant Professor
Office:	268D Farber Hall
Telephone:	716-829-5338
Email:	hmochs2@buffalo.edu
Office Hours:	By appointment

I. (a) Course Description

This course is an overview of the field of genetic epidemiology including how to study the genetic causes of phenotypic variation. Topics include human genetics, molecular genetics, and population genetics as they apply to the conduct of a genetic epidemiology study. The concepts of heritability and linkage disequilibrium are covered. The course covers more detailed aspects of segregation, linkage, and association as they are used in family- and population-based studies to search for disease-causing genes. Current concepts in the genetics of complex traits as well as an exploration of online databases used in genetic epidemiology are included. The course includes in-class computer laboratory exercises using standard software tools to analyze genetic data and critical discussion of published literature.

(b) Course Rationale/ Relationship to Curriculum Design:

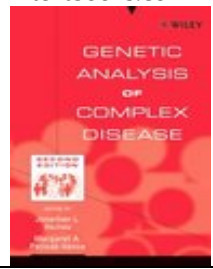
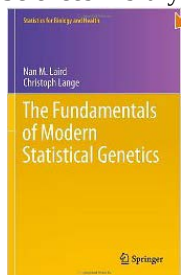
This three credit course is designed for 2nd year (or beyond) students enrolled in the MPH-Epidemiology concentration, MS Epidemiology or PhD Epidemiology programs and allows students to become proficient in the design and analysis of genetic contributors to any trait or disease. The vast amount of genetic data available requires well-trained genetic epidemiologists, and this course is an entry into a career into genetic epidemiology or an introduction to the field of genetic epidemiology that could enhance future collaborations in those not wishing to pursue a primary focus in genetic epidemiology. Students will come to appreciate the potential of genetic epidemiology to improve our knowledge of underlying disease processes, uncover gene-environment interactions, and appreciate how genetic epidemiology interfaces with personalized medicine. As genetic knowledge continues to permeate the public domain, epidemiology students need to possess knowledge on the ethical, legal and cultural issues involved as well as how to critically evaluate and interpret results from genetic epidemiology studies.

II. Course Objectives / Competency / Instructional Method(s) / Assessment of Student Learning

Learning Objectives	Program Competency	Instructional method(s)	Assessment
Apply knowledge of inheritance to understanding the etiology of a variety of diseases and health conditions.	Biostatistics A.7. Apply descriptive and inferential methodologies according to the type of study design for answering a particular research question. Epidemiology C.8. Communicate epidemiologic information to lay and professional audiences. Public Health Biology I.4. Explain the biological and molecular basis of public health. I.7. Articulate how biological, chemical and physical agents affect human health.	Powerpoint presentations, readings from textbook and published literature	• Quizzes • Exams • Paper critiques • Final paper
Interpret descriptive and inferential statistics from studies in published genetic epidemiology literature.	Biostatistics A.10. Develop written and oral presentations based on statistical analyses for both public health professionals and educated lay audiences.	In class discussions of published literature	• Paper critiques • Exams • Final paper
Describe the importance of evaluating interactions among genes, environmental factors, and behaviors, and their roles in health and disease.	Environmental Health Sciences B.2. Describe genetic, physiologic and psychosocial factors that affect susceptibility to adverse health outcomes following exposure to environmental hazards.	Powerpoint presentation	• Quizzes • Exams
Explain the fundamental principles and theories in genetic epidemiology.	Epidemiology C.8. Communicate epidemiologic information to lay and professional audiences.	Powerpoint presentations	• Quizzes • Exams
Describe the major genetic epidemiologic research study designs and their advantages and limitations and apply epidemiological and statistical approaches to the study of risk factors and diseases with a genetic component.	Epidemiology C.9. Draw appropriate inferences from epidemiologic data.	Powerpoint presentations, readings from textbook and published literature	• Paper critiques • Quizzes • Exams • In-class participation • Computer exercises
Compare research study designs appropriate for investigating genetics of complex traits, including genetic association studies, linkage studies, and gene-environment interaction.	Epidemiology C.10. Evaluate the strengths and limitations of epidemiologic reports	Powerpoint presentations, readings from textbook and published literature	• Paper critiques • Quizzes • Exams
Describe the legal, ethical and social issues that may be associated with the collection and application of genetic and genomic information.	Public Health Biology I.6. Explain how genetics and genomics affect disease processes and public health policy and practice. Epidemiology C.5. Comprehend basic ethical and legal principles pertaining to the collection, maintenance, use and dissemination of epidemiologic data.	Powerpoint presentations, readings from published literature	• Paper critiques • Quizzes • Exams
Critically read and evaluate	Public Health Biology	Readings from	• Paper critiques

quantitative research findings contained in genetics, medical and public health journals.	I.9. Apply evidence-based biological and molecular concepts to inform public health laws, policies, and regulations.	published literature	
Write a research proposal including rationale for a specific genetic epidemiologic investigation, including a clear description of methods, and strengths and limitations of the proposed study.	Public Health Biology I.10. Integrate general biological and molecular concepts into public health.	Powerpoint presentations, readings from textbook and published literature	• Final paper
Describe the relevance of population genetics such as selection, drift, admixture and Hardy-Weinberg equilibrium in the study of genetic determinants of disease.	Public Health Biology I.6. Explain how genetics and genomics affect disease processes and public health policy and practice.	Powerpoint presentations, readings from textbook and published literature	• Paper critiques • Quizzes • Exams
Demonstrate proficiency in conducting common statistical analyses of genetic epidemiologic data.	Biostatistics A.7. Apply descriptive and inferential methodologies according to the type of study design for answering a particular research question.		• Computer exercises
Describe the relevance of bioinformatics in the study of complex phenotypes.	Public Health Biology I.10. Integrate general biological and molecular concepts into public health.	Powerpoint presentation, readings from published literature	• Quizzes • Exams

III. Textbooks

Text	Required	Notes
Haines JL, Pericak-Vance MA. <u>Genetic Analysis of Complex Disease</u> , 2nd Edition. Wiley, 2006.	Yes	Available at UB Medical Bookstore or textbooks.com 
Laird NM and Lange C. <u>The Fundamentals of Modern Statistical Genetics</u> Springer 2011.	No	On reserve at UB Health Sciences Library. 
Strachan T and Read AP. <u>Human Molecular Genetics 3</u> . New York, NY: Garland Science, 2004.	No	On reserve at UB Health Sciences Library.

The field of genetic epidemiology is evolving rapidly so the few textbooks that are written quickly become out of date and no one textbook adequately covers the material that will be presented in this class. We will use selected other published materials to supplement the lecture notes.

IV. Course Learning Activities

Class Participation. We will be reading and discussing several published papers; you are expected to participate in each discussion.

Reading Assignments/Discussion Format: Each week you will be assigned readings from the text and/or additional readings related to the topic. All reading assignments should be completed before the lecture, and this material will be covered on quizzes and the exam even if I do not implicitly discuss it. The objective of the discussion time is to discuss study design, data collection, statistical analysis and interpretation with your peers. Each student is expected to participate in a class discussion focused on the selected papers.

Homework: Throughout the semester there will be homework assignments that involve writing a summary and critique of published relevant literature, guided by questions prepared by the instructor. You may also be asked to answer specific questions relevant to the material (not specifically based on the literature) and are asked to do so in a clear and concise manner. Part of your grade on assignments is based on writing style and ability to convey understanding in a coherent manner. Homework should be turned in at the beginning of the session. Late homework and homework submitted via email will not be accepted under any circumstances. Work should be prepared in a professional manner and should be typed instead of hand written.

Computer Exercises: We will conduct several computer laboratory exercises using genetic analysis software, providing hands-on experience in the application of statistical methods discussed in class and interpreting their results. Students will use sample datasets to check for Mendelian inconsistencies and relationship errors in pedigree data, compute familial correlations, estimate allele and genotype frequencies, and perform linkage and association analyses. Power calculations will also be performed for different study types.

Quizzes: There will be four quizzes. Quizzes will be administered at the beginning of the class period. Students arriving late to class will have limited time to complete quizzes. Students who are not present will not receive credit for that particular quiz. Quizzes will cover both lecture material and assigned readings and may cover any material previously covered in class (not limited to the most recent material).

Midterm Exam. There will be one midterm exam. There is no opportunity for make-up exams nor is it possible to take the exam at a different time. If you are sick, you need to contact the instructor before the exam; documentation for any illness or extenuating circumstances is strictly required. No excuses will be accepted after the exam.

Presentation. Each student will develop a 20 minute presentation on a hot topic in the field of genetic epidemiology. Students will pick their topics from a list provided by the instructor early in the semester. Students are charged with gaining expertise in that topic and on their ability to present it to the class in a clear and understandable way.

Final Paper. You will be asked to write a paper on a disease or phenotype of your choosing (with prior approval by Instructor). Briefly, this will involve characterizing the current state of knowledge on evidence for a genetic contribution to the trait and designing a study to further investigate genetic variance using the knowledge gained during the semester.

Student Evaluation

Course Component	Percentage
Homework	30%
Computer exercises	10%
Quizzes	10%
Midterm exam	20%
Presentation	10%
Final paper	20%
Total:	100%

Assignment of letter grades:	
A = ≥92%	C+ = 78-79.9%
A- = 90-91.9%	C = 72-77.9%
B+ = 88-89.9%	C- = 70-71.9%
B = 82-87.9%	D = 60-69.9%
B- = 80-81.9%	F = <60%

V. Course and Instructor Evaluation

All students are strongly encouraged to complete the online course evaluation (CourseEval) at the end of the course. You will receive an email notification and request to complete the course evaluation in the final weeks of the semester. We look forward to your constructive comments regarding the overall course as well as effectiveness of the instructor. CourseEval procedures protect the anonymity of student respondents. The instructor will not receive the final evaluation reports (ratings and comments) before grades are submitted, and student names are never included on the evaluation reports.

VI. Communication

Please be sure that you access and regularly monitor your UB email; you will receive updates and class cancellations in case of an emergency to your UB email address. In the event that you are having difficulties with course material or want further information about a topic, please contact Dr. Ochs-Balcom.

VII. Attendance

Class attendance is required. Please arrive on time and silence your cell phones. Class begins promptly at 9 am. Arriving late is a distraction to the instructor and other students. If you miss a class you should obtain lecture notes from a classmate or UBLeans. If you must miss a class please send a courtesy email to Dr. Ochs-Balcom BEFORE class. If you miss a class where a quiz or exam was scheduled, you will need to submit documentation of personal illness or documentation of personal or family emergencies in order to be excused. Your attendance may be taken into account when determining final grades.

VIII. Policy Regarding Accessibility Resources, Academic Integrity

Accessibility Resources. If you have any disability which requires reasonable accommodations to enable you to participate fully in this course, please contact UB's Accessibility Resources office located in 25 Capen Hall (North Campus), 645-2608, and also Dr. Ochs-Balcom during the first week of class. See <http://www.student-affairs.buffalo.edu/ods/> for more information regarding the requirement to register with that office to receive accommodation for physical and learning disabilities.

Academic Integrity. Each student is expected to abide by the code of conduct that includes the highest standards of academic integrity. Failure may result in failure of the course or dismissal from the program according to UB procedures. For further information on the UB Academic Integrity policy, see <http://www.grad.buffalo.edu/policies/academicintegrity.php>. Students who are suspected of academic dishonesty will be dealt with severely in accordance with the Department, SPHP and University Policy. This may include a grade of 0 for an assignment and/or failure of the course.

Actions that compromise academic integrity include, but are not limited to the following examples:

- *Previously submitted work.* Submitting academically required material that has been previously submitted -- in whole or in substantial part -- in another course, without prior and expressed consent of the instructor.
- *Plagiarism.* Copying or receiving material from any source and submitting that material as one's own, without acknowledging and citing the particular debts to the source (quotations, paraphrases, basic ideas), or in any other manner representing the work of another as one's own.

- *Cheating.* Soliciting and/or receiving information from, or providing information to, another student or any other unauthorized source (including electronic sources such as cellular phones and PDAs), with the intent to deceive while completing an examination or individual assignment.
- *Falsification of academic materials.* Fabricating laboratory materials, notes, reports, or any forms of computer data; forging an instructor's name or initials; resubmitting an examination or assignment for reevaluation which has been altered without the instructor's authorization; or submitting a report, paper, materials, computer data, or examination (or any considerable part thereof) prepared by any person other than the student responsible for the assignment.
- *Misrepresentation of documents.* Forgery, alteration, or misuse of any University or Official document, record, or instrument of identification.
- *Confidential academic materials.* Procurement, distribution or acceptance of examinations or laboratory results without prior and expressed consent of the instructor.
- *Selling academic assignments.* No person shall sell or offer for sale to any person enrolled at the University at Buffalo any academic assignment, or any inappropriate assistance in the preparation, research, or writing of any assignment, which the seller knows, or has reason to believe, is intended for submission in fulfillment of any course or academic program requirement.
- *Purchasing academic assignments.* No person shall purchase an academic assignment intended for submission in fulfillment of any course or academic program requirement.

SPM 604 – Spring 2014 Schedule					
Week	Date	Lecture Topic	Lecturer	Activity	Reading/Homework Assignment/Quiz
1	1/28	Course overview, introduction, terminology, genetics review	Ochs-Balcom	<u>Case study</u> : sickle cell anemia	Haines and Pericak-Vance Ch 1 Laird and Lange Ch 1
2	2/4	Mendelian inheritance, phenotype, genetic models	Ochs-Balcom	<u>Computer lab</u> : pedigree files and errors, SAGE PEDINFO, FCOR	Haines and Pericak-Vance Ch 2 Laird and Lange Ch 2 Malats 2003, Calafell 2003
3	2/11	Determining genetic component of a disease, heritability	Ochs-Balcom	<u>Paper discussion</u> : Lichtenstein 2000, Visscher 2008, Karohl 2010 Wk 2 lab	Haines and Pericak-Vance Ch 3 Laird and Lange Ch 4 Quiz 1
4	2/18	Ascertainment, segregation analysis, population genetics	Ochs-Balcom	<u>Paper discussion</u> : Beall 2010; Chakravarti 1999; Nielsen and Clark 2007	Haines and Pericak-Vance Ch 4 Laird and Lange Ch 3 Hwk 1
5	2/25	Types and measurement of genetic variation; genotype QC; practical issues	Sucheston	<u>Computer lab</u> : SAGE MARKERINFO, FREQ	Haines and Pericak-Vance Ch 5,6 Quiz 2
6	3/4	Linkage analysis	Ochs-Balcom	<u>Computer lab</u> : SAGE SIBPAL (SAGE manual Ch 9, 18) Wk 5 lab	Haines and Pericak-Vance Ch 9,11 Laird and Lange Ch 5 & 6 Hwk 2
7	3/11	MIDTERM EXAM			
8	3/18	SPRING BREAK			
9	3/25	Association studies; general principles, candidate gene studies, tag SNPs	Ochs-Balcom	<u>Computer lab</u> : PLINK (estimation of allele and genotype frequencies; testing for HWE) Wk 6 lab	Haines and Pericak-Vance Ch 12 Laird and Lange Ch 7, 11 Clarke et al 2011 Balding 2006
10	4/1	GWAS, multiple testing, permutation, missing heritability	Tritchler	<u>Paper discussion</u> : Byrne 2013, Hirschhorn and Daly 2005, Visscher et al 2008, Manolio 2009	Laird and Lange Ch 10 Quiz 3
11	4/8	Complex genetic interactions (epistasis, gene-environment interaction), power, pharmacogenetics	Ochs-Balcom	<u>Paper discussion</u> : Xu 2001, Thomas 2010, Hutter 2013, Weinshilboum 2003 <u>Computer lab</u> : PLINK and QUANTO	Haines and Pericak-Vance Ch 13,14 Laird and Lange Ch 10 Hwk 3
12	4/15	Beyond GWAS; follow up “hits,” consortia, meta-analyses, rare variants, Mendelian randomization	Ochs-Balcom	<u>Paper discussion</u> : Dumitrescu 2013, Ingelsson 2010, Davey Smith 2003 Wk 11 lab	Quiz 4
13	4/22	Population substructure, ancestry estimation, admixture mapping	Sucheston	<u>Computer lab</u> : ancestry estimation	Laird and Lange Ch 8 Mountain and Risch 2004 Barnholtz-Sloan 2008 Hwk 4
14	4/29	Student presentations (pleiotropy, common disease-common variant hypothesis, GWAS in diverse pops, pathway approaches, rare variant mapping approaches) Wk 13 lab			
15	5/6	Public health genetics/ethical and legal issues	Smith	<u>Paper discussion</u> : TBD	
Finals week	5/13	Final paper due, 12 pm			

Molecular Epidemiology
(SPM 614)
Fall 2012

Time: Thursdays, 9:00am –11:40pm

Location: 182 Farber Hall

Instructor: Matthew Bonner, Ph.D., M.P.H.
Associate Professor
Department of Social and Preventive Medicine
277 Farber Hall
(716) 829-5385
mrbonner@buffalo.edu

Office Hours: Tuesdays, 11:00- Noon and by appointment

Course Description

This course deals with the contribution of genetic and environmental risk factors identified at the molecular and biochemical level, to the etiology, distribution, and control of disease in populations. An understanding of molecular mechanisms involved in disease etiology, and their potential uses in epidemiology will be the focus of this course.

Prerequisites

Principles of Epidemiology (SPM 501)
Application of Biostatistics to Epidemiology I (SPM 505)

Course Objectives

Upon completion of this course, students will:

- (1) understand basic classical and molecular genetics
- (2) develop a basic knowledge of the molecular basis of disease
- (3) understand the role of biochemical and molecular markers in epidemiology
- (4) develop a basic knowledge of techniques employed to assess gene-environment interactions
- (5) comprehend and critically evaluate molecular epidemiologic studies
- (6) design a research proposal, utilizing molecular markers, to investigate disease etiology

Teaching Format

This course will consist of didactic lectures and discussion sessions. The lectures are designed to cover the basic concepts pertinent to using molecular markers in epidemiologic studies, while the discussion sessions will provide the opportunity to explore and discuss issues in more detail and depth.

Student Evaluation

Student evaluations will be based on written assignments (50%), oral presentations (20%), Mid-term exam (20%) and class participation (10%).

Written Assignments (50%)

Students will be required to submit a 15 page term paper on a topic approved by the instructor (40%).

Several written critiques and exercises will also be required throughout the semester (10%).

Mid-term Exam (20%)

In Class, scheduled for October 18th.

Oral Presentation (20%)

Each student will give several presentations during the course and a presentation based on their term paper.

Class Participation (10%)

Class attendance and participation is required and will be calculated into the class participation grade. Each absence from class will result in a 5 point deduction from the class participation grade.

Assignment of letter grades

A = $\geq 92\%$	C+ = 78-79.9%
A- = 90-91.9%	C = 72-77.9%
B+ = 88-89.9%	C- = 70-71.9%
B = 82-87.9%	D = 60-69.9%
B- = 80-81.9%	F = <60%

Readings

Readings are largely from the open literature and chapters from relevant texts.

Reference Texts

Molecular Epidemiology of Chronic Diseases, ed. Wild C, Vineis P, Garte S, Oxford University Press, 2008.

Application of Biomarkers in Cancer Epidemiology, ed, Toniolo P, et al. IARC Press, Lyon, France 1997.

Molecular Epidemiology, ed. Schulte P, Perera F, Academic Press, Reprint edition, 1998.

Course Outline

Date	Topic
8/30	Introduction to Molecular Epidemiology Reading: 1) (1987). "Biological markers in environmental health research. Committee on Biological Markers of the National Research Council." <u>Environ Health Perspect</u> 74: 3-9. 2) Vandenbroucke, J. P. (1988). "Is 'the causes of cancer' a miasma theory for the end of the twentieth century?" <u>Int J Epidemiol</u> 17(4): 708-709. 3) Chapter 1- Introduction: Why Molecular Epidemiology?
9/6	Molecular markers and epidemiologic study designs Reading: 1) Chapter 2-Study Design 2) Chapter 3-Molecular Epidemiology Studies Nested Within Cohorts 3) Chapter 2-Basic Concepts of Molecular Genetics
9/13	Genetic Markers I Reading: 1) Guttmacher, A. E. and F. S. Collins (2002). "Genomic medicine--a primer." <u>N Engl J Med</u> 347(19): 1512-1520. 2) Sellers, T. A. (2004). "Genetic ancestry and molecular epidemiology." <u>Cancer Epidemiol Biomarkers Prev</u> 13(4): 499-500. 3) Hirschhorn, J. N. and M. J. Daly (2005). "Genome-wide association studies for common diseases and complex traits." <u>Nat Rev Genet</u> 6(2): 95-108. 4) Chapter 4-Family Studies, Haplotypes and Gene Association Studies 5) Chapter 8-Principles of Population Genetics
9/20	Genetic Markers II Reading: 1) Smith, G. D. and S. Ebrahim (2004). "Mendelian randomization: prospects, potentials, and limitations." <u>Int J Epidemiol</u> 33(1): 30-42. 2) Taylor, J. A., Z. L. Xu, et al. (2006). "How well do HapMap haplotypes identify common haplotypes of genes? A comparison with haplotypes of 334 genes resequenced in the environmental genome project." <u>Cancer Epidemiol Biomarkers Prev</u> 15(1): 133-137. 3) Trikalinos, T. A., G. Salanti, et al. (2006). "Impact of violations and deviations in Hardy-Weinberg equilibrium on postulated gene-disease associations." <u>Am J Epidemiol</u> 163(4): 300-309.
9/27	Epidemiologic analysis of genetic data I Reading: 1) Rothman, N. and R. B. Hayes (1995). "Using biomarkers of genetic susceptibility to enhance the study of cancer etiology." <u>Environ Health Perspect</u> 103 Suppl 8: 291-295. 2) Lewis, C.M. (2002). "Genetic association studies: Design, analysis, and interpretation." <u>Briefings in Bioinformatics</u> 3(2): 146-153.

10/4	Epidemiologic analysis of genetic data II Reading: 1) Wacholder, S., S. Chanock, et al. (2004). "Assessing the probability that a positive report is false: an approach for molecular epidemiology studies." <u>J Natl Cancer Inst</u> 96(6): 434-442. 2) Wacholder, S., N. Rothman, et al. (2000). "Population stratification in epidemiologic studies of common genetic variants and cancer: quantification of bias." <u>J Natl Cancer Inst</u> 92(14): 1151-1158. 3) Chapter 5-Individual Susceptibility and Gene-Environment Interaction
10/11	Inherited Susceptibility and Pharmacokinetics Reading: 1) Wolff, M. S., H. A. Anderson, et al. (2007). "Pharmacokinetic variability and modern epidemiology--the example of dichlorodiphenyltrichloroethane, body mass index, and birth cohort." <u>Cancer Epidemiol Biomarkers Prev</u> 16(10): 1925-1930.
10/18	Mid-term Exam
10/25	Non-Genetic Biomarkers Reading: 1) Dalle-Donne, I., R. Rossi, et al. (2006). "Biomarkers of oxidative damage in human disease." <u>Clin Chem</u> 52(4): 601-623.
11/1	Biomarkers of Disease Reading: 1) Schatzkin, A., et al., <i>Surrogate end points in cancer research: a critique</i>. Cancer Epidemiol Biomarkers Prev, 1996. 5(12): p. 947-53.
11/8	Specimen collection in Epidemiologic studies Reading: 1) Landi, MT and Caporaso, N. Sample collection, processing, and storage. In <u>Application of Biomarkers in Cancer Epidemiology</u>, ed, Toniolo P, et al. IARC Press, Lyon, France 1997.
11/15	Validity in Molecular Epidemiologic Studies **15-page Term paper Due Reading: 1) Chapter 3-Validation 2) Chapter 4-Technical Variability in Laboratory Data 3) Barr, D. B., L. C. Wilder, et al. (2005). "Urinary creatinine concentrations in the U.S. population: implications for urinary biologic monitoring measurements." <u>Environ Health Perspect</u> 113(2): 192-200. 4) Heavner, D. L., W. T. Morgan, et al. (2006). "Effect of creatinine and specific gravity normalization techniques on xenobiotic biomarkers in smokers' spot and 24-h urines." <u>J Pharm Biomed Anal</u> 40(4): 928-942. 5) Lubin, J. H., J. S. Colt, et al. (2004). "Epidemiologic evaluation of measurement data in the presence of detection limits." <u>Environ Health Perspect</u> 112(17): 1691-

	1696. 6) Tworoger, S. S. and S. E. Hankinson (2006). "Use of biomarkers in epidemiologic studies: minimizing the influence of measurement error in the study design and analysis." <i>Cancer Causes Control</i> 17 (7): 889-899.
11/22	No Class – Thanksgiving
11/29	Ethical Conduct of Molecular Epidemiologic Studies Reading: 1) The Belmont Report
12/6	Student Presentations

Accommodations for Disabilities: Reasonable accommodations to students will be provided, on a flexible and individualized basis, to students who have disabilities that may affect their ability to participate in course activities or to meet course requirements. Students must be registered with UB's Office of Disability Services (stu-disability@buffalo.edu) to determine which accommodations are needed to ensure full participation in the course. Students with disabilities are encouraged to contact me as soon as possible to discuss their individual needs for accommodations as some accommodations take time to implement.

Grade Disputes: Students wishing to dispute an assigned grade must present their dispute to the instructor IN WRITING within one week after the date when the exam or paper is returned. The dispute must include a specific rationale for why the student's answer is correct (e.g., a reference to a specific page in the textbook).

Academic Misconduct: Academic misconduct in any form is a very serious matter and will not be tolerated. Academic misconduct is broadly defined as being any action on the part of the student that violates the rights of another student in academic work or that involves misrepresentation of your own work. Such misconduct includes (but is not limited to): cheating on assignments or examinations; plagiarizing, which means misrepresenting as your own work any part of work done by another; submitting the same paper, or substantially similar papers, to meet the requirements of more than one course without the approval and consent of all instructors concerned; depriving another student of necessary course materials; or interfering with another student's work.

The UB Graduate School policies for academic misconduct (<http://www.grad.buffalo.edu/policies/academicintegrity.php#preamble>) will be followed.

GEOGRAPHIC MEDICINE
APY 710 / SPM 615
Fall 2013 course syllabus
180 Farber Hall Thursdays, 3:45 – 6:00

Ann McElroy, PhD
Office: 376 Spaulding Bldg 4, Ellicott Complex
Phone: 645-0420

e-mail: mcelroy@buffalo.edu
Office hours: Tuesdays 1:00-3:00 pm
or by appointment

TEXTS Available at the UB Medical Bookstore, on South Campus

- 1) Ann McElroy and Patricia K. Townsend, 2009. *Medical Anthropology in Ecological Perspective*, Fifth Edition. Westview Press. Do **not** use previous editions.
- 2) Katherine A. Dettwyler, 1994. *Dancing Skeletons: Life and Death in West Africa*. Waveland Press.
- 3) Melinda Meade and Michael Emch, 2010. *Medical Geography*, Third Edition. The Guilford Press. Do **not** use previous editions.
- 4) Richard V. Lee, 2005. *Outside Rounds: Essays on Medical Life Beyond Hospital and Clinic*. Xlibris Corporation.

COURSE DESCRIPTION

This course deals with global and regional aspects of health and environment with integrated, multi-disciplinary frameworks drawn from medical anthropology, geographic medicine, and international public health. We will examine human physical and behavioral evolution as a range of biocultural adaptations to various environments and ecosystems and whether current health problems reflect our past as a species. As global warming alters ecosystems over the coming decades, how will humans cope with changes in access to resources? How will human birth rates, demographic patterns, and life expectancy change in the 21st century? How will biomedicine meet the challenges of new forms of disease and increased pollutants in our air and water? These and other questions will create the core issues for our class this semester.

The small seminar format, about 10 to 12 students, allows class discussion of assigned readings, writing and presentation of papers, and library research on individualized topics. There are no exams. In the first half of the semester, students write two short papers on an issue of their choice related broadly to environment and health. In the second half, students carry out an individual project on a topic of their choice that integrates environmental science, the social sciences, and clinical sciences (medicine, public health, nursing, pharmacy, rehabilitation science, dentistry, etc.). These projects will be presented as Power Point talks in mid-November and then developed into medium-length final papers to be submitted on the last day of class, December 5.

Learning Outcome	Student Assessment
1. Proficiently apply theory and methodology in medical anthropology & geography	Research papers, presentation Class discussion
2. Demonstrate critical thinking, hypothesis construction, and application of scientific method	Research papers Class discussion
3. Utilize analytical skills and qualitative/quantitative methodologies (appropriate to discipline)	Research papers, presentation
4. Apply field/laboratory skills required for successful research	NA
5. Demonstrate effective oral presentation skills for the dissemination of scientific results	Class presentation
6. Hone written communication skills for the dissemination of scientific results	Research papers
7. COURSE GOAL: develop models of interdisciplinary research	Class discussion Presentations

GRADING CRITERIA

	Weight	Total
Short papers (2)	15%	30%
Class presentation	25%	25%
Final paper	25%	25%
Discussion, participation ¹	20%	20%

COURSE REQUIREMENTS AND DATES:

1. Two short papers on cases related to environment and health:

- Paper #1 due in class *Sept. 19*
- Paper #2 due in class *Oct. 17*
- Three to four pages each, double-spaced, with at least five references in a bibliography
- Examples should be specific rather than generalized²
 - o Each paper should focus on a specific health problem found in a certain environment
 - o Do not use examples or cases covered in our texts or lectures
 - o Do not use a case that you have already thoroughly studied or that is the primary topic of your MA, MS, MPH, or PhD research

2. A semester-long project and final paper:

- An in-depth discussion of a health issue drawing on the methods and theoretical perspectives of the environmental, social, and clinical sciences
- Should be distinct from short papers #1 and 2
- One-page proposal *due September 26*; send to instructor by e-mail
- Give a 25 to 30 minute presentation to class on *November 7 or 14*.³

¹ Participation includes a) attending regularly, b) submitting papers on time, c) coming to class well-prepared with questions, criticisms, etc., on the assigned readings, and d) responding to material presented by guest lecturers and the course instructor with questions, examples, challenges, etc.

² A specific example would be “factors affecting asthma on Buffalo’s West Side near the Peace Bridge;” a generalized example would be “asthma and air pollution in the United States” (too broad!).

- Use questions and comments from the class after the presentation plus the instructor's written evaluation to revise and expand the project
- Write up the project as an 8 to 10 page paper (maximum 12 pp) with at least 10 citations in a bibliography
- Hand in final paper on December 5, the last day of class

3. Participate fully in the class:

- do the readings for the dates assigned, come to class with questions and comments, and participate in discussions about the readings, lectures, and student presentations
- hand work in on time, including the proposal on Sept. 26 (if you are uncertain about a topic, list several that you are considering)
- as appropriate, discuss your own current or planned research, health-related employment, international travel, and/or opinions about recent news events related to health and environment

4. Attendance:

Students are expected to attend all classes. Those who are absent due to illness or injury are asked to notify the instructor and to explain the absence by e-mail or by phoning 645-0420, preferably before class begins.

5. Apply professional standards to your written work:

Edit your papers and Power Point text carefully. Don't hand in first drafts. Put quote marks around anything that you have copied and cite the sources.

Your final project papers should be neither too broad nor too specific. An example of an *overly broad* topic is "childhood mortality in Africa." This could not possibly be covered in a single presentation or an 8-page paper. A better subject would be "immunization projects and change in child mortality rates in Mali between 1983 and 2008." On the other hand, an *overly specific* topic is "West Nile virus cases in birds in Erie County between 2000 and 2006." The geographic scope is too narrow, and the topic doesn't directly relate to human health and doesn't bring in social and cultural dimensions. A suitable alternative would be "Community health education in the Northeastern U.S. for prevention of arthropod-borne pathogens such as West Nile virus."

Although this course predominantly focuses on specific diseases and their history, distribution, and etiology, public health and nutritional science topics are also suitable. Examples of past work by students in this course include a history of plumbing and sanitation (including toilets) in Europe from classic Roman times to the 1800s; health hazards of asbestos exposure and methods of asbestos removal from buildings; concepts of trauma and stress-related syndromes in the military over the last 200 years; toxic substances (including radon) found in houses and public buildings; obesity and diabetes in Puerto Rican migrants to the U.S.; environmental health impacts of disasters such as Chernobyl; development and applications of telemedicine; predicted long-term health impacts of development projects such as the Three Gorges Dam in China; use of anthrax in biological warfare; and dozens of other topics.

³ Students who mail their presentations to themselves as email attachments often need several minutes to access and download the file. These steps don't always go smoothly, so it is best to copy your presentation onto a USB flash drive and bring it to class. We will probably be using one of the PC laptops provided to instructors, so if you have prepared your presentation on an Apple computer, save it in Microsoft Office format or else test the file on a PC before the day of your presentation. Don't try to bring in an Apple laptop and try to hook it up to the projector or transfer the file to the PC because the time involved (often 5-10 minutes) reduces your presentation time.

Based on the feedback to your proposal for the talk and medium-length paper, you may decide to modify your topic. If this happens, submit a revised proposal by October 10 or before. **Avoid making major changes to your topic after October 17.**

CLASS SCHEDULE AND READING ASSIGNMENTS

Note: the readings in our four texts are listed as weekly chapter and page assignments throughout the semester. However, the short books by Katherine Dettwyler and Richard Lee are quick reads, so feel free to read them straight through closer to the beginning of the semester if you have time.

Aug 29: Introduction to the course: basic concepts of medical anthropology and medical geography. Discussion of course requirements.

Sept 5: No class; Rosh Hashana

Readings for Sept 12:

McElroy & Townsend, chaps 1, 2; Meade & Emch, chaps 1, 2; Lee, pp. 3-10; Dettwyler, chaps 1, 2

Sept 12: Differences and similarities in focus and method: anthropology and geography.

Readings for Sept 19:

McElroy & Townsend, chap 3; Meade & Emch, chaps 3, 4; Lee, pp. 16-32; Dettwyler, chap 3

Assignment for Sept 19: Short paper #1

Sept 19: Geography and evolution of disease; concepts of adaptation.
Short paper #1 due in class.

Guest speaker: Dr. Patricia Townsend.

Readings for Sept 26:

McElroy & Townsend, chap 4; Meade & Emch, chap 5; Dettwyler, chaps 4, 5

Assignment for Sept 26: 1-page proposal for semester project

Sept 26: Paleopathology, demography, and epidemiology
Proposal due; prepare to summarize and discuss your proposal in class

Readings for Oct. 3:

Meade & Emch, chaps 6, 7; Lee, pp. 33-37; Handout #1

Oct 3: Climate change, pollution, and other industrial hazards

Readings for Oct 10:

McElroy & Townsend, chap 5; Meade & Emch, chap 8; Dettwyler, chaps 6, 7, 8; Lee pp. 37-45

Oct 10: Nutritional diseases in underdeveloped, developing, and affluent countries

Readings for Oct 17:

McElroy & Townsend, chapt 6; Meade & Emch, review vignette 6.2, "Seasonality of Birth;" Lee, pp. 46-50; Dettwyler, chapt 9, 10

Assignment for Oct 17: Short paper #2

Oct 17: Biocultural aspects of human reproduction
Short paper #2 due in class.

Readings for Oct 24:

McElroy & Townsend, chapt 7, 8; Meade & Emch, chapt 9, 10; Handout #2

Oct 24: Stress and mental illness; Health care in changing cultures and displaced populations

Readings for Oct 31:

McElroy & Townsend, chapt 9, 10; Meade & Emch, chapt 11, 13 (12 optional); Dettwyler, chapt 11, 12, 13, 14; Lee pp. 51-72

Oct 31: Globalization and health; applied medical anthropology and health geography

Nov 7: Student presenters, semester projects

Nov 14: Student presenters, semester projects

Nov 21: Topic: to be announced; guest speaker may be announced

Nov 28: No class; Thanksgiving
Prepare to hand in final paper on Dec 5

Dec 5: last day of class; general discussion and evaluation of the course; hand in final papers

SPM 618: Perinatal Epidemiology
Fall 2013; Wednesdays 9:00 – 11:40, 182 Farber.

Instructor	Carole B. Rudra, PhD MPH		
Office Hours	By request	E-mail	cbrudra@buffalo.edu

Course schedule

Class	Date	Topic	Assignments due by start of class
1	8/28	Class overview Overview of pregnancy Ethical considerations	None
2	9/4	Study designs & methods Birth registries and other datasets	1) Reading questions 2) Select top 4 preferences for leading in-class discussions. Note days you know you will be absent.
3	9/11	Conception and early pregnancy loss	Reading questions
4	9/18	Measures of fetal growth	Reading questions
5	9/25	Measures of perinatal morbidity and mortality	Reading questions
6	10/2	Maternal and infant nutrition	Reading questions
7	10/9	<i>Call the Midwife</i> screening	None
8	10/16	Race and ethnicity	1) Reading questions 2) <i>Call the Midwife</i> response
9	10/23	Overweight and metabolic disorders in pregnancy	1) Reading questions 2) Select project topic and submit list of 5-10 project references via email.
10	10/30	Environmental & paternal exposures	Reading questions
11	11/6	Complications of delivery	1) Reading questions 2) Submit pdf files of two papers for oral presentation via email.
12	11/13	Birth defects and prenatal screening	Reading questions
13	11/20	No lecture	Oral presentations
	11/27	<i>No class: fall break</i>	
14	12/4	Life-course epidemiology and the Barker hypothesis	Reading questions Written report due <u>12/11</u> at 5:00 pm by email

Prerequisites: SPM 501, STA 527.

Course objectives:

1. **Students will become familiar with the current field of perinatal epidemiology.** Topics will include terminology, study designs, exposure and outcome measurement, data resources, and methodological challenges most relevant to the field.

This goal addresses the following epidemiology degree program competencies:

- o interpreting results of statistical analyses found in public health studies
- o identifying key sources of data for epidemiologic purposes
- o comprehending basic ethical and legal principles pertaining to the collection, maintenance, use and dissemination of epidemiologic data
- o applying the basic terminology and definitions of epidemiology
- o calculating basic epidemiology measures

2. **Students will learn about various perinatal events in human populations.** These include achieving pregnancy, pregnancy and delivery complications, maternal and fetal morbidities and mortality, and maternal and paternal exposures of interest.

This goal addresses the following epidemiology degree program competencies:

- o describing how behavior alters human biology
- o articulating how biological, chemical, and physical agents affect human health
- o integrating general biological and molecular concepts into public health
- o describing how social, behavioral, environmental, and biological factors contribute to specific individual and community health outcomes
- o describing the direct and indirect human, ecological and safety effects of major environmental and occupational agents
- o identifying the principles and limitations of public health screening programs
- o demonstrating basic knowledge of at least one content area within epidemiology
- o demonstrating an understanding of the epidemiology, major epidemiologic studies, and general physiology and pathophysiology in one area of chronic or infectious disease epidemiology in a project, thesis, or dissertation topic area
- o demonstrating mastery of a substantive area, including knowledge and application of that knowledge in conducting original research related to a specific topic

3. **Students will increase skills related to scientific inquiry,** including reading and discussing primarily literature, identifying and critically interpreting the literature regarding a research question, and formulating and defending a position on an unresolved scientific question.

This goal addresses the following epidemiology degree program competencies:

- o communicating, in written and oral formats, the background, description and results of an epidemiologic study (to professional and lay audiences)
- o interpreting results of statistical analyses found in public health studies
- o describing a public health problem in terms of magnitude, person, time and place
- o explaining the importance of epidemiology for informing scientific, ethical, economic and political discussion of health issues
- o drawing appropriate inferences from epidemiologic data
- o evaluating the strengths and limitations of epidemiologic reports
- o interpreting research results, making appropriate inferences based on results, and recognizing the implications of the research results
- o determining the relevance of the results to epidemiologic research or public health practice.

Course objectives will be achieved through attending lectures, reading epidemiologic literature, leading and participating in discussions, identifying and critically evaluating literature on a topic of interest, giving an oral presentation, and preparing a written report, as described below.

Class structure

Each class except those on 8/28, 10/9, and 11/20 will consist of the following:

- o ~70-minute lecture on one or two topics. Lecture slides will be available on UBLearns on the day before the lecture.
- o 15-minute break
- o ~70-minute discussion on reading assignments

Requirements and assessment

1. **Class participation (5% of final grade).** Students are expected to attend class and to actively participate in class discussions and presentations. *Active* participation includes asking and answering questions, offering opinions, and identifying strengths and limitations of the literature under discussion.

Students will be evaluated in participation (yes/no) at the end of each class by the instructor. The final score for this requirement will be calculated as (no. classes with participation / 12) * 5.

2. **Reading questions and *Call the Midwife* response (5% of final grade).** Students will be assigned several readings each week, including primary literature and book chapters or excerpts. Reading assignments will be available on UBLearns (<https://ublearns.buffalo.edu/>) at least one week before class.

At the *beginning* of every class on which readings were assigned (with the exception of the first class), students will be expected to turn in 3 questions regarding any of the assigned primary literature (noted with a * on UBLearns).

An episode of *Call the Midwife* will be screened on 10/9. No reading questions will be required at the start of the class session. A written response to questions about the episode, due 10/16, will be substituted for that week's discussion questions.

The final score for this requirement will be calculated as (no. assignments turned in / 10) * 5.

3. **Leading discussions (10% of final grade).** Each student will lead class discussions of two assigned primary literature readings (noted with a * on UBLearns). Three papers will be discussed per session. Each student is responsible for discussing 2 papers, either both in one session or split over two sessions. A student may volunteer to lead an extra discussion on a first come/first served basis; if so, the lowest of the three discussion grades will be discarded. The format for discussion will be similar to a journal club, and will be illustrated by the instructor during the second class session on 9/4.

Students will be evaluated using a 10-point scale, with up to two points earned for each of the following. The final score for this requirement will be the average of scores for the two discussions.

- o was prepared to lead the discussion
- o described the biologic rationale for the studies
- o summarized the methods and results accurately and clearly
- o thoughtfully summarized the strengths and limitations of the studies
- o critically evaluated the quality of the studies and authors' conclusions

4. **Oral presentation (40% of final grade).** Students will select a topic related to perinatal epidemiology. This topic will consist of an etiologic question (“Does X cause Y?”) with conflicting evidence (see examples below). There should be at least 5 published epidemiologic studies on the topic.

Students may propose their own topic or choose one from the list below. Suggested topics are on a first come/first served basis. The topic must be approved by the instructor. Students must propose a topic and mail the instructor a bibliography of 5-10 references by 10/23. Students must mail pdf files of the 2 references discussed in the oral presentation by 11/6.

For the 20 minute oral presentation, students will choose 2 epidemiologic studies of the topic that come to conflicting conclusions (i.e., an association versus no association). Students will summarize the studies and present potential explanations for their differing conclusions. Students will also present their judgment of whether there is a causal association based on these 2 studies.

After each presentation, the class will participate in a 5-minute discussion. Students in the audience will ask questions and provide their own judgments of a causal association based on the presented evidence.

Students will be evaluated using a 40-point scale:

- o 2 points: on-time topic selection and submission of references and pdfs
- o 5 points: described background and biologic rationale
- o 5 points: summarized methods and results
- o 8 points: identified strengths and limitations
- o 10 points: identified reasons for differing conclusions
- o 5 points: justification of whether a causal association exists
- o 5 points: presentation skills

5. **Written report (40% of final grade).** Students will write a qualitative review of the epidemiologic literature regarding their topic of interest. The aim of the review is to succinctly summarize the literature and to support a conclusion of whether a causal association exists. The structure will be similar to the oral presentation, with the exception that students should summarize 5-10 studies on the topic rather than only two studies. If students exclude some studies from their report, they must justify their exclusion criteria (e.g., insufficient sample size, non-English publication). The report should be approximately 15 double-spaced pages in length. Students should submit an electronic version by email (.pdf, .doc, or .docx format).

Students will be evaluated using a 40-point scale:

- o 5 points: described background and biologic rationale
- o 5 points: summarized methods and results
- o 8 points: identified strengths and limitations
- o 8 points: identified reasons for differing conclusions
- o 5 points: justification of whether causal association exists
- o 5 points: writing style
- o 4 points: appropriate bibliography and citations using *Am J Epidemiol* format

Grade distributions:

A	93-100	C+	78-79
A-	90-92	C	70-77
B+	88-89	D+	68-69
B	83-87	D	60-67
B-	80-82	F	<60

Text: There is no required textbook for this class.

Good supplemental references include the following:

1. Kiely M. Reproductive and perinatal epidemiology. Boca Raton: CRC Press, 1991.
2. Bracken MB. Perinatal epidemiology. New York: Oxford University Press, 1984.
3. Weinberg CR, Wilcox AJ. Methodologic Issues in Reproductive Epidemiology. In *Modern Epidemiology*. Rothman KJ, Greenland S, Lash TL, eds. Philadelphia: Wolters Kluwer Health/Lippincott Williams & Wilkins, 2008.
4. Goldman MB, Hatch M. Women and health. San Diego: Academic Press, 2000.
5. Cunningham FG, Williams JW. Williams obstetrics. New York: McGraw-Hill Professional, 2005.
6. Adams MM, Alexander GR, Kirby RS, Wingate MS. Perinatal Epidemiology for Public Health Practice. Springer.

Good journals include *Paediatric and Perinatal Epidemiology*, *American Journal of Epidemiology*, *Maternal and Child Health Journal*, and *Epidemiology*. The Society for Pediatric and Perinatal Epidemiology (SPER) publishes the first journal and sponsors a conference each year immediately before the Society for Epidemiologic Research (SER) conference. Both are good conferences for students.

Academic honesty

I have no tolerance for academic dishonesty and plagiarism. I follow the UB policy on academic dishonesty and will use all resources available to me to determine if academic dishonesty has occurred. Please see the SPM graduate student handbook and <http://www.ub-judiciary.buffalo.edu/art3a.shtml>. If you have any questions about plagiarism or proper citation methods, please talk to the instructor or a librarian **before** you begin working on your final project.

Suggested class project topics:

- o Does traffic-related air pollution exposure cause low birthweight?
- o Does a change in partner after a pregnancy influence the risk of subsequent preeclampsia?
- o Does maternal methylmercury exposure via fish consumption during pregnancy cause infant neurological damage?
- o Can physical activity during pregnancy prevent preeclampsia?
- o Does lead exposure at current allowable occupational levels cause male reproductive dysfunction?

- o Does use of oral contraceptives during early pregnancy increase the risk of fetal death?
- o Does maternal obesity increase the risk of oral clefts?
- o Does low birthweight increase the risk of childhood asthma?
- o Does maternal obesity cause preterm delivery?
- o Is low birthweight causally associated with increased mortality in adulthood?
- o Does living near a hazardous waste site increase the risk of cardiac birth defects?
- o Does multivitamin use protect against preeclampsia?
- o Does birthweight influence the risk of acute lymphoblastic leukemia?
- o Does pregnancy intention influence risk of postpartum depression?'
- o Does C-section cause childhood asthma?

Syllabus

PMY 626: Toxicology Principles and Practices – 2 Credit Hours, First Half of Fall Semester 2013.

PMY 627: Toxicology at Target Organs – 2 Credit Hours, Second Half of Fall Semester 2013

Tuesdays 3:00 – 4:50 PM 124 Farber Hall

Thursdays: 3:00 - 4:50 PM 124 Farber Hall

PMY 626 is designed to introduce students to the basic principles and practice of toxicology. Chemical mutagenesis and carcinogenesis will also be included, with an emphasis on understanding mechanisms for these responses. An Overview of risk assessment will include quantitative aspects of cancer and non-cancer based risk assessments. The topics to be covered are listed on the following page.

PMY 627 is organized based on a systemic approach to toxicology. The adverse effects of several classes of chemicals will be investigated at specific target organs. An emphasis will also be placed on understanding the mechanism(s) for the adverse responses of specific agents at a given target site. The topics to be covered are listed on the following page.

Format:

The course will primarily follow a lecture/discussion format and will meet during 2 – 120 minute sessions each week.

Text:

Casarett and Doull's Toxicology - The Basic Science of Poisons (7th Edition)

Edited by: Klaassen, Curtis D. © 2008 McGraw-Hill

Available online through UB Library

Prerequisites:

Consent of instructor is required.

Student Evaluation:

The performance on two examinations, problem sets and student presentations will serve as the basis for student evaluation.

Faculty:

Drs. Matthew Bonner, Peter Bradford, Richard Browne, Bruce Davidson, Paul Kostyniak, James Olson, Xuefeng Ren, Kate Rittenhouse-Olson, Richard Rabin, Jerome Roth, David Shubert, Jeff Slawson.

Contact:

Dr. Jim Olson, 13 Cary Hall or 233 Farber Hall, Main Street Campus, phone 829-2319, e-mail jolson@buffalo.edu for further information.

Schedule PMY 626 (2 credits)

**TOXICOLOGY PRINCIPLES AND PRACTICE
Fall 2013 – first half of semester**

Tuesday 3:00 – 4:50 PM 124 Farber

Thursday 3:00 – 4:50 PM 124 Farber

<u>DATE</u>	<u>TOPIC</u>	<u>INSTRUCTOR</u>
8/27	Introduction to Toxicology Evaluation of Safety/Regulatory Philosophies Dose/Response (LOAEL, NOEL)	Kostyniak
8/29	Dose/Response Relationships	Kostyniak
9/3	Toxicokinetics 1	Kostyniak
9/5	Rosh Hashanah NO CLASS	
9/10	Toxicokinetics 2	Kostyniak
9/12	Risk Assessment for Metals	Kostyniak
9/17	Biotransformation of Xenobiotics	Olson
9/19	Chemical Carcinogens	Olson
9/24	Chemical Carcinogens	Olson
9/26	EXAM	
10/1	Ionizing Radiation	Slawson
10/3	Environmental Epidemiology	Bonner
10/8	Oxidative Stress	Browne
10/10	Cancer and Non-Cancer Based Risk Assessment Persistent organic pollutants (POPs)	Olson
10/15	EXAM	

Schedule PMY 627 (2 credits)

**TOXICOLOGY AT TARGET ORGANS
Fall 2013– second half of semester**

Tuesday 3:00 – 4:50 PM 124 Farber

Thursday 3:00 – 4:50 PM 124 Farber

<u>DATE</u>	<u>TOPIC</u>	<u>INSTRUCTOR</u>
10/17	Epigenetic Mechanisms of Toxicity	Ren
10/22	Toxic Responses of the Liver	Olson
10/24	Toxic Effects of Alcohol	Rabin
10/29	Toxic Responses of the Kidney	Kostyniak
10/31	Toxic Responses of the Blood & Skin	Ren
11/5	Toxic Responses of the Respiratory System	Davidson
11/7	EXAM	
11/12	Reproductive and Developmental Toxicity	Olson
11/14	Reproductive and Developmental Toxicity	Shubert
11/19	Toxic Responses of the Nervous System	Roth
11/21	Toxic Responses of the Nervous System	Roth
11/26	Toxic Responses of the Immune System	Rittenhouse-Olson
11/28	NO CLASS Happy Thanksgiving	
12/3	Endocrine Disruptors	Bradford
12/5	Student Presentations	
FINAL	EXAM	

COMPETENCIES

CROSS-CUTTING/INTERDISCIPLINARY AND CORE COMPETENCIES:

PUBLIC HEALTH BIOLOGY

Competency Should be able to:	Objectives: knowledge, skills, and behaviors	Instruction method	Assessment
Specify the role of the immune system in population health.	- Describe effects of chemical exposure on the immune system	One class (lecture/discussion) is devoted to toxic responses of the immune system	Quizzes and final exam
Explain the biological and molecular basis of public health.	- Explain the responses of the body to chemical exposure, including toxicokinetics and metabolism of chemicals and health effects of chemicals on the body - Explain the response of the body to radiation exposure	- Most of both courses (lecture/discussion) is devoted to this. - One class (lecture/discussion) in PMY 626 is devoted to ionizing radiation.	Quizzes, final exams, and presentations
Explain how genetics and genomics affect disease processes and public health policy and practice.	- Explain the role of genetics in the body's responses to chemical exposures	- One class (lecture/discussion) is devoted to toxicogenomics	Quiz and final exam
Articulate how biological, chemical and physical agents affect human health.	- Explain the responses of the body to chemical exposure, including toxicokinetics and metabolism of chemicals and health effects of chemicals on the body - Explain the response of the body to radiation exposure	Most of both courses (lecture/discussion) is devoted to this. - One class (lecture/discussion) in PMY 626 is devoted to ionizing radiation.	Quizzes, final exams, and presentations
Apply biological principles to development and implementation of disease prevention, control, or management programs.	- Describe the risk assessment process and how it is used to inform risk management strategies.	- One lecture each is devoted to cancer and non-cancer risk assessment and risk assessment of metals, respectively. - Part of one class is devoted to evaluation of safety and regulatory philosophies and development of exposure standards.	
Apply evidence-based biological and molecular concepts to inform public health laws, policies, and regulations.	- Describe safety and regulatory philosophies for using toxicologic information in policy-making	- Part of one class is devoted to evaluation of safety and regulatory philosophies and development of exposure standards.	Quiz and final exam Written assignment
Integrate general biological and molecular concepts into public health.	- Describe the risk assessment process and the role of toxicologic studies in that process.	- One lecture each is devoted to cancer and non-cancer risk assessment and risk assessment of metals, respectively.	Quiz and final exam Written assignment

COMMUNICATION AND INFORMATICS Competencies:

Competency: Should be able to:	Objectives: knowledge, skills, and behaviors	Instruction method	Assessment
Demonstrate effective written and oral skills for communicating with different audiences in the context of professional public health activities.	- Prepare and give an effective presentation	Students give a presentation for each course.	Presentation

PROFESSIONALISM

Competency: Should be able to:	Objectives: knowledge, skills, and behaviors	Instruction method	Assessment
Apply evidence-based principles and the scientific knowledge base to critical evaluation and decision-making in public health.	- Apply principles of toxicology and risk assessment to critical evaluation and decision-making regarding specific environmental hazards and health.	- Two classes of PMY 626 are devoted to cancer and noncancer risk assessment and risk assessment for metals, respectively.	Quizzes and final exam Written assignment

ENVIRONMENTAL HEALTH SCIENCES Competencies:

Competency -Should be able to:	Objectives: knowledge, skills, and behaviors	Instruction method	Assessment
Describe the direct and indirect human, ecological and safety effects of major environmental and occupational agents.	- Explain basic concepts and methods used in toxicokinetics - Describe the effects of specific chemicals on the body - Describe the effects of radiation on the body - Describe the role of genetic factors in the body's response to chemical exposures - Describe the responses of body systems to chemical exposures	- Two classes of PMY 626 (lecture/discussion) are devoted to toxicokinetics - Several classes (lecture/discussion) of PMY 626 are devoted to dose-response, biotransformation, chemical carcinogens, oxidative stress, and metals. Two classes of PMY 627 (lecture/discussion) are devoted to endocrine disruptors and alcohol, respectively. - One class of PMY 626 (lecture/discussion) is devoted to ionizing radiation - One class in PMY 627 is devoted to toxicogenomics - Most of PMY 627 is devoted to covering the responses to chemical exposures of the kidney, respiratory system, liver, immune system, nervous system, blood and skin, and reproductive function and outcomes.	Quizzes, final exam
Describe genetic, physiologic and psychosocial factors that affect susceptibility to adverse health outcomes following exposure to environmental hazards.	- Describe the role of genetic factors in the body's response to chemical exposures - Describe the responses of body systems to chemical exposures	- One class in PMY 627 is devoted to toxicogenomics - Most of PMY 627 is devoted to covering the responses to chemical exposures of the kidney, respiratory system, liver, immune system, nervous system, blood and skin, and reproductive function and outcomes.	Quizzes, final exam
Specify current environmental risk assessment methods.	- Describe and apply principles of risk assessment	- Two classes of PMY 626 are devoted to cancer and noncancer risk assessment and risk assessment for metals, respectively.	Quizzes, final exam

Explain the general mechanisms of toxicity in eliciting a toxic response to various environmental exposures.	- Explain the general mechanisms of toxicity in eliciting a toxic response to various environmental exposures.	- Woven throughout the courses, including classes on toxicokinetics, biotransformation, carcinogenesis, oxidative stress, and a survey of toxic effects by organ system.	Quizzes, exam
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ENVIRONMENTAL HEALTH CONCENTRATION-SPECIFIC COMPETENCIES:

Competency: Should be able to:	Objectives: knowledge, skills, and behaviors	Instruction method	Assessment
Describe the activity and impact of biological, chemical, and physical hazards on the human body, including the role of genetic factors, pathways and routes of exposure, fate within the body, and adverse health effects.	- Explain basic concepts and methods used in toxicokinetics - Describe the effects of specific chemicals on the body - Describe the effects of radiation on the body - Describe the role of genetic factors in the body's response to chemical exposures - Describe the responses of body systems to chemical exposures	- Two classes of PMY 626 (lecture/discussion) are devoted to toxicokinetics - Several classes (lecture/discussion) of PMY 626 are devoted to dose-response, biotransformation, chemical carcinogens, oxidative stress, and metals. Two classes of PMY 627 (lecture/discussion) are devoted to endocrine disruptors and alcohol, respectively. - One class of PMY 626 (lecture/discussion) is devoted to ionizing radiation - One class in PMY 627 is devoted to toxicogenomics - Most of PMY 627 is devoted to covering the responses to chemical exposures of the kidney, respiratory system, liver, immune system, nervous system, blood and skin, and reproductive function and outcomes.	Quizzes, final exam
Describe and apply epidemiologic principles and methods to investigation of the relationships between environmental agents and adverse health outcomes	- Describe the use of epidemiologic methods in environmental health, including exposure assessment, definition of health outcomes, study design, and calculation and interpretation of risk measures	- These topics are introduced in a class devoted to the application of epidemiology to environmental health. The instructional method is lecture/discussion.	Exam
Read and interpret critically scientific literature in the environmental health sciences, including epidemiology, toxicology, and relevant topics in biology, chemistry, and medicine.	- Read and interpret critically epidemiologic literature relating to environmental hazards	- Reading and critically evaluating research articles is a major component of the course. Articles illustrate research on each of the topics covered by the course.	Student participation on discussion
Integrate the above to analyze environmental health problems in specific population groups, including magnitude and distribution of exposures and adverse health outcomes, the role of contributing biological, psychological, sociocultural, economic, and political factors as	- Describe and apply principles of risk assessment	- Two classes of PMY 626 are devoted to cancer and noncancer risk assessment and risk assessment for metals, respectively.	Quizzes and final exam

appropriate, and development and testing of hypotheses to link environmental hazards with adverse health outcomes.			
Communicate results of scientific analysis of environmental health problems to appropriate organizations and stakeholders, including the public, legislative bodies, government agencies, industry, advocacy organizations, and academia, to inform development and implementation of strategies for preventing and controlling those problems.	- Present scientific information effectively by written and oral means	- Students are required to make an oral presentation in both PMY 626 and PMY 627. Students also provide written answers on examinations	Oral presentation and written exams

Course Title/Number: MGH/SPM 632

Department Name: Social and Preventive Medicine

Program Name: Health Services Administration

Semester: Spring Year: 2014

Class Day/Time:	Thursday 6:00 – 8:40 PM			
Class Location:	Farber 180			
Format(s):	LEC	SEM		
Prerequisite(s):	Graduate level courses in management or administration and some health background			

Instructor(s) of Record:	Kenneth A Rogers	CJ Urlaub	3T
Office:	none	none	3T
Phone Number(s):	716.881.0753	716.828.2008	3T
Email:	karogers@buffalo.edu	cjurlaub@chsbuffalo.org	3T
Office Hours:	By appointment	By appointment	3T

I. (a) Course Description:

SPM/MGH 632 is a management process course that provides practical applications to strategic and operational issues faced by health care managers in their organizations. The course uses a case and problem study approach to hone the practical skills of future health care managers in situation analysis, strategic thinking, and organizational/operational response. Health strategy and operations is a fluid area of study. The course reading is a combination of cutting edge readings and a few “classic” readings and cases. We use one text, cases and supporting published scholarly articles. Lectures and class discussion are targeted at stimulating thinking around case issues as well as current issues in the experience of the faculty, and exploring alternative roads which were not chosen or have yet to be taken. A major purpose of the course is to discuss how decisions are made and why certain policies/actions are chosen. THEREFORE, READING THE ASSIGNMENTS IS CRUCIAL TO IN-CLASS SUCCESS. In the classroom setting the instructor will provide complementary analysis of the management issues. At times this analysis will not agree with the perspectives of the students – in some cases simply to provoke discussion, and in other cases because there is real disagreement. For this reason, it is important to attend the classes; most learning and stimulation of thought will occur in the

classroom. Attendance will be monitored. Unsatisfactory attendance will result in an incomplete grade for the course. Emphasis is placed on the application of concepts and procedures to the problem and/or case situations. Both oral and written presentations will be required throughout the semester, on the assigned topics.

II. Course Objectives / Competency / Instructional Method(s) / Assessment of Student Learning

Objective	Accreditation/Program Competency	Instructional Method(s)	Assessment Method(s)
Leadership			
Discuss leadership in a constantly changing environment	Describe the attributes of leadership in public health.	lecture, case review	Case presentation, case summary, discussion
Grasp concepts related to the value of collaboration as a strategy, types of collaborative and cooperative efforts.	Describe alternative strategies for collaboration and partnership among organizations, focused on public health goals.	In-class exercise, lecture, case review	Case presentation, case summary, discussion
Discuss all planning concepts, including belief system. Be able to write vision, mission, core values statements.	Articulate an achievable mission, set of core values, and vision.	In-class exercise, lecture, case review	Case presentation, case summary, discussion
Discuss the concept of a learning organization as it applies to both public and private health organizations	Engage in dialogue and learning from others to advance public health goals.	Lecture, case review	Case presentation, case summary, discussion
Discuss how power, politics and organizational structure require different strategies for success	Demonstrate team building, negotiation, and conflict management skills.	Lecture, case review, in-class exercise	Case presentation, case summary, discussion
Analyze the importance of core ethical principles as they relate to actions in selection of strategies and implementation. - discuss difference between values and ethics - application of medical ethics in a management context	Demonstrate transparency, integrity, and honesty in all actions.	Lecture, case review, in-class exercise	Case presentation, case summary, discussion
Demonstrate ability to apply collaborative strategies to various case-related situations.	Use collaborative methods for achieving organizational and community health goals.	Lecture, case review	Case presentation, case summary, discussion

Objective	Accreditation/Program Competency	Instructional Method(s)	Assessment Method(s)
Demonstrate concern for social justice as integral to the discussing alternative strategies	Apply social justice and human rights principles when addressing community needs.	Lecture, case review	Class participation
Discuss leaders as having a higher purpose beyond their organizations, and the motivation of that higher purpose for creating the best possible solutions.	Develop strategies to motivate others for collaborative problem solving, decision-making, and evaluation.	Lecture, case review	Class participation
COMMUNICATION AND INFORMATICS			
Discuss personal health records and strategies for increasing personal accountability for health care status improvement	Discuss the influences of social, organizational and individual factors on the use of information technology by end users.	Lecture, case review	Case summary, discussion, class participation
Students demonstrate skill in communication of their ideas to specific audiences.	Demonstrate effective written and oral skills for communicating with different audiences in the context of professional public health activities.	Lecture, class exercises	Each student is graded on a formal class presentation around case
HEALTH POLICY AND MANAGEMENT			
Discuss how the best choices depend on a clearly defined set of alternatives. Discuss the potential of social marketing for changing health behaviors	Apply principles of strategic planning and marketing to public health.	Lecture, case review, classroom exercises	Case summary, discussion, class participation
Discuss continuous improvement as an ideal of health care delivery and a means of gaining competitive advantage	Apply quality and performance improvement concepts to address organizational performance issues.	Lecture, case review, classroom exercises	Quiz, case summary, discussion, class participation
Discuss theory/concepts of systems thinking and applications of systems thinking to organizational challenges	Apply "systems thinking" for resolving organizational problems.	Lecture, case review	Case summary, discussion, class participation
PROGRAM PLANNING			
Discuss outcomes as measurable objectives within general aims or goals	Differentiate among goals, measurable objectives, related activities, and expected outcomes for a public health program.	Lecture, case review	Case summary, discussion, class participation
PROFESSIONALISM			
These values are to be demonstrated	Promote high standards of personal and organizational	Lecture, case review, class	Class participation

Objective	Accreditation/Program Competency	Instructional Method(s)	Assessment Method(s)
throughout the entire course.	integrity, compassion, honesty and respect for all people.	discussion	
These values are to be demonstrated throughout the entire course.	Appreciate the importance of working collaboratively with diverse communities and constituencies (e.g., researchers, practitioners, agencies and organizations).	Lecture, case review, class discussion	Class participation
SYSTEMS THINKING			
Discuss theory/concepts of systems thinking and applications of systems thinking to organizational challenges	Identify characteristics of a system.	Lecture, case review, class discussion	Case summary, class participation
SOCIAL AND BEHAVIORAL SCIENCES			
Discuss how to carry out a Situation Analysis in the context of a strategic planning process	Identify individual, organizational and community concerns, assets, resources and deficits for social and behavioral science interventions.	Lecture, case review, class discussion	Case summary, class participation, quizzes

III. Textbooks /Equipment /Required Technologies

Resource	Required	Notes
Shortell, Stephen and Arnold D. Kaluzny Health Care Management: Organization Design & Behavior, Delmar Publishers, 2012 (6th Edition)	Required	Available at the UB Health Book Store

IV. Course Learning Activities

This is a case-based course. Primary learning activities are built around the presentation and discussion of cases – presentation skills, analysis, assessment, business writing.

Classes are generally broken into three segments: Case presentation, case discussion, lecture and/or learning activity. Each class has required textbook and supplementary readings. Small group sessions require interdisciplinary discussion. The term paper is a learning activity as the student is expected to do graduate level research in preparing the paper.

VI. Grading

Assignments:

Individual case preparation --

On most weeks a case or problem analysis is assigned. For each case or problem a one page, 1½ - spaced and typed analysis will be required with your recommendations as follows:

(1) identification/description of one key issue or problem requiring a decision or solution, (2) a brief summary of the available solution alternatives or choices that the manager can select from (should be mutually exclusive if at all possible), and (3) the position you would take as a manager and the major justification for that position. The summaries will be collected at the end of each class and will be evaluated on an excellent (+), satisfactory (), or unsatisfactory (-) basis.

Besides assuring us that you have read and understood the case, the assignments also prepare the student to participate in class and ask pertinent questions. A side benefit is that we will help to hone your skills in business writing. I encourage the use of bullet headings and concise language.

Case assignments:

Each student will be responsible for preparing an in-depth case/problem analysis and presentation, playing the role of consultant to the class. The presentation should be from the point of view of a management consultant brought in to analyze the situation. It should include (1) a full summary of the situation at the time your firm was brought in, (2) analysis of the basic underlying major problems or issues that the firm is going to address, (3) alternative solutions that you looked at for each of the problem areas, (4) your recommendations and rationale for your recommendations, and (5) a statement of actions that should be taken to implement these recommendations. Major emphasis in the presentation should be on identifying and examining critical issues that are pertinent to the topic being discussed. Typical presentations are about 20 minutes in length with 10 minutes for class discussion and questions. The report should be presented using a PowerPoint projection show. Copies of the slides will be made available to the instructor. *A 3-5 page written summary should also be provided to the instructor.*

Pop Quizzes:

There will be two short pop quizzes during the semester to ascertain student discussing of the readings for that day.

Term Paper:

While we are to be looking at many different areas of health care strategic and operations management, the expectation is that students will have the capacity and knowledge to formulate opinions and support around some of the big strategic issues facing health care organizations.

Cases and specific term paper expectations will be made available by the third week in class. A list of possible big questions will be provided, but students are urged to formulate their own big questions as areas of inquiry. Papers will be developed differently, depending on the area of your interest. Originality and good research are valued. Term papers will be due at the end of the semester. A detailed reading list/bibliography will be required along with the term paper. Library research journals and books are available through the Health Sciences and Lockwood libraries.

The term paper proposal consisting primarily of the complete question you intend to address (a paragraph will suffice) is due on March 21, 2014, and the ***paper is due on May 15, 2014*** at 4:30 p.m. You can bring the paper to class on April 25th, or drop it off with Marcia Wopperer in room 270 Farber.

Course Component	Due date	Percentage
Written summary of cases	Most weeks	20%
Class participation	Continuous	10%
Quizzes	Surprise	9%
Analysis of case and presentation	Assigned	15%
Final research paper	May 15, 2014	45%
Course Evaluation Completion	May 8, 2014	1%

Total: 100%

VII. Other course related information

The approach to readings comes from a slightly different philosophy for this course. The instructor uses the readings to supplement your general health management knowledge as well as the specific topic and/or the case for the following session. The readings may sometimes appear to be tangential to the topic at hand, but are important in helping you to better understand strategic options and perspectives. The instructor does not usually review the readings in class. It is assumed that you have read the assignment and that we can go on from there. There is a textbook and a folio of reprints from which the readings will be drawn. Reprints are all available through the course Drop Box account. Each student will be invited to share a Drop Box file which contains the course materials. If a student is dropped from the course his or her access to the Drop Box file will be revoked. The Drop Box file also contains supplemental readings for those who wish to brush up on aspects of health care strategy.

Each student will be assigned to a multi-disciplinary team. The team will be assigned dates to sit at the “board table” for in-depth discussion of several cases. In addition the team will be responsible for an in-depth presentation of one case.

VIII. Communication

If you have multiple email accounts, please be sure that you access (or forward) your UB email. Your UB email is the account I will use to send course-related materials.

IX. Policy Regarding Absences, Attendance, Assignments, Exams, and University Policy on Incompletes in Courses

- **Class Attendance and Absences**

As many in-class activities will be completed throughout the semester, class attendance is expected. In the case of exceptional circumstances that result in you being late or absent, you must contact me prior to the start of class (either by email or by leaving a telephone message). Please be aware that an absence from class under these circumstances does not excuse you from any required assignments.

- **Late Assignments**

All assignments are due at the designated time and due date. Assignments that are more than 3 days late will not be accepted. If there are circumstances that will preclude you from turning in assignments on the due date, it is imperative that you discuss the situation with the instructor prior to the due date.

- **Exams and Final Exam**

There will be no exams in this course.

- **University Policy on Incomplete Grades**

A grade of incomplete ("I") indicate that additional course work is required to fulfill the requirements of a given course. Students may only be given an "I" grade if they have a passing average in coursework that has been completed and have well-defined parameters to complete the course requirements that could result in a grade better than the default grade. An "I" grade may not be assigned to a student who did not attend the course. Prior to the end of the semester, students must initiate the request for an "I" grade and receive the instructor's approval. Assignment of an "I" grade is at the discretion of the instructor.

The instructor must specify a default letter at the time the "I" grade is submitted. A default grade is the letter grade the student will receive if no additional coursework is completed and/or a grade change form is not filed by the instructor. "I" grades must be completed within 12 months. Individual instructors may set shorter time limits for removing an incomplete than the 12-month time limit. Upon assigning an "I" grade, the instructor shall provide the student specification, in writing or by electronic mail, of the requirements to be fulfilled, and shall file a copy with the appropriate departmental office.

Students must not re-register for courses for which they have received an "I" grade.

Applicable dates regarding the 12-month provision:

Courses taken in (semester):	Will default in 12 months on:
Fall	December 31
Spring	May 31
Summer	August 31

The "I" must be changed to a grade before the degree conferral date if the students plans to graduate in that semester. At any time prior to the default date, students may elect to change the "I" grade to the default grade using the [Grade Retrieval Form](#).

A default grade can be "A-," "B+," "B-," "C+," "C-," "D+," "D," or "F." (If a student selected an S/U grading option, it will replace the default letter grade when the grade defaults.)

Disability Policy

If you have any disability which requires reasonable accommodations to enable you to participate in this course, please contact the Office of Accessibility Resources, 25 Capen Hall, 645-2608, and also the instructor of this course during the first week of class. The office will provide you with information and review appropriate arrangements for reasonable accommodations. <http://www.ub-disability.buffalo.edu/>

Netiquette

This course may utilize UBlearns to facilitate online communication between course participants. Please keep in mind the following “Rules of Netiquette” when communicating online.

1. **The rules of the classroom are the same regardless of location.** Remember just because you’re interacting online, doesn’t mean you stop having respect for your professors, and fellow classmates. You’re communicating with a real person, not a computer screen.
2. **Remember your audience.** When communicating online it’s important to remember who you’re communicating with. When sending a message to a professor, please refrain from using “text speak”. For example, Shakespeare never intended for you to type “2B or not 2B”. Also, stay away from typing in all capital letters; it will appear as if you’re shouting.
3. **Avoid strong language.** Language can easily be misinterpreted in an online setting. Be sure to review your work before submitting, making sure the reader won’t be able to misinterpret it as strong, or offensive. Sarcasm doesn’t translate well online. Your audience can’t see your facial expressions, or body language. Try to be as straight forward and professional as possible.
4. **Read everything, twice.** Be sure to thoroughly read all course materials before beginning to work on your assignments. If you have a question, or need clarification, re-read the materials. You may have glanced over an important detail the first time. If you’re still having difficulties, then e-mail your professor.
5. **Review all materials before submitting.** When responding to discussion board posts, be sure to read all previous postings before you post your own. This way you won’t duplicate someone else’s comments. Also, it’s a good idea to write, and save your work in Microsoft Word first. In case of a technical issue, you have a backup copy.

Academic Integrity

Students who are suspected of academic dishonesty will be dealt with severely in accordance with the Department and University Policy. This may include a grade of 0 for an assignment and/or failure in a course.

Academic Dishonesty: Actions that compromise academic integrity include, but are not limited to the following examples:

- *Previously submitted work:* Submitting academically required material that has been previously submitted – in whole or in substantial part – in another course, without prior and expressed consent of the instructor.
- *Plagiarism.* Copying or receiving material from any source and submitting that material as one's own, without acknowledging and citing the particular debts to the source (quotations, paraphrases, basic ideas), or in any other manner representing the work of another as one's own.
- *Cheating.* Soliciting and/or receiving information from, or providing information to, another student or any other unauthorized source (including electronic sources such as cellular phones and PDAs), with the intent to deceive while completing an examination or individual assignment.
- *Falsification of academic materials.* Fabricating laboratory materials, notes, reports, or any forms of computer data; forging an instructor's name or initials; resubmitting an examination or assignment for reevaluation which has been altered without the instructor's authorization; or submitting a report, paper, materials, computer data, or examination (or any considerable part thereof) prepared by any person other than the student responsible for the assignment.
- *Misrepresentation of documents.* Forgery, alteration, or misuse of any University or Official document, record, or instrument of identification.
- *Confidential academic materials.* Procurement, distribution or acceptance of examinations or laboratory results without prior and expressed consent of the instructor.
- *Selling academic assignments.* No person shall sell or offer for sale to any person enrolled at the University at Buffalo any academic assignments, or any inappropriate assistance in the preparation, research, or writing of any assignment, which the sellers knows, or has reason to believe, is intended for submission in fulfillment of any course or academic program requirement.
- *Purchasing academic assignments.* No person shall purchase an academic assignment intended for submission in fulfillment of any course or academic program requirement.

Student Handbook: All students are required to read the student handbook. An online version is available on the 'Information For Current Students' page of your department website.

COURSE OUTLINE AND READING ASSIGNMENTS: Spring Semester 2014

Notes on Assignments:

1. All readings and cases should be complete on the day of the class indicated; they will be discussed in class.
2. Guest speakers are indicated as possible at syllabus publication, and are subject to change.
3. Shortell refers to the Health Care Management text
4. *Indicates a “classic” article that changed strategic thinking in the health field

X Indicates board table assignment [X1] = presenting group

Week 1 (1.30.14): Overview, context and concepts related to strategic and operations management and decision-making in health care organizations

Week 2 (2.06.14): Systems strategy and organizational design in developing health care organizations (Case approach will be discussed)

Shortell, Chapters 1 and 2

Berwick, Donald M *Seeking Systemness* in Healthcare Forum Journal March/April 1992*

Week 3 (2.13.14): Issues in effective health care organizational leadership [C.J. Urlaub, President & CEO, Mercy Hospital]

A

York, Robert; Kaufman, Kenneth; and Grube, Mark *Where Have all the Inpatients Gone?* In Health Affairs Blog, January 2014

Chassin, Mark R and Loeb, Jerod M. *The Ongoing Quality Improvement Journey* in Health Affairs April 2011

CASE #1: *Watergate Nursing Home* [C3]

Week 4 (2.20.14): The BIG picture – belief systems as a framework for strategy making in health care organizations

B

Shortell, Chapter 10

The Governance Institute *Engaging the Board in Strategic Planning: Rationale, Tools and Techniques*, Summer 2007

CASE #2: *Mueller-O’Keefe Memorial Home and Retirement Village* [C2]

Week 5 (2.27.14): Power, politics and governance

A

(Note that paper topic choices will be handed out and discussed this evening)

Shortell: Chapters 3 and 7

CASE #3: *The Day After* [C1]

Week 6 (3.06.14): Delivery of quality and patient safety in the health care field [C.J. Urlaub]

C

Shortell, Chapter 9

Fuchs, Victor R. *Major Trends in the US Health Economy Since 1950* in the New England Journal of Medicine, March 2012

Berwick, Donald M. M.D. *Continuous improvement as an ideal in health care* in The New England Journal of Medicine **320:53-56**; 1/5/89*

Engelberg Center for Health care Reform at Brookings, *Bending the Curve*, August 2009

Rau, Jordan *Hospital report cards can be flawed, confusing experts say* in Kaiser Health News March 20, 2013

CASE #4: Hoffman, K. Douglas *Rude Awakening* [B3]

Week 7 (03.13.14): Making a real difference: competition in health care delivery

A

Creswell, Judy and Abelson, Reed *A Hospital War Reflects a Bind for Doctors in the US* New York Times November 2012

Dash, Penelope and Meredith, David *When and How Provider Competition Can Improve Health Care Delivery* in McKinsey Quarterly October 2010

CASE #5: *Calumet Community Hospital* [B2]

SPRING BREAK

Week 8 (03.27.14): Making a real difference: cooperation, mergers & alliances

C

Shortell, Chapter 11

Weller-Ferris, Linda *How to Create a Successful Joint Venture in Oncology* August 2002

CASE #6: *Attica Memorial Hospital, The Ingelson Burn Center* [B1]

Week 9 (04.03.14): Change management and leadership

B

Shortell, Chapter 8

Reinertsen, James L. M.D. *A Theory of Leadership for the Transformation of Health Care Organizations*. January 14, 2004 (Unpublished Manuscript)

CASE #7: *Pleasant Valley Community Hospital* [A4]

TERM PAPER TOPICS DUE

Week 10 (04.10.14): Human resources strategy for the 21st century health care organization

C

Shortell, Chapters 4 and 5

CASE #8: *Mercy Hospital* [A3]

Week 11 (04.17.14): Market and brand building for health service organizations

B

Shortell, Chapter 14

MacStravic, Scott *Head to Head* in Marketing Health Services Summer 2004 (DB)

Dickson, Francesca *The Mayo Mystique in Marketing Health Services*, Spring 2012 (DB)

CASE #9: *A New "Brand" for Senior Health Plus* [A2]

Week 12 (04.24.13): Hospital Tour and Patient Safety [C.J. Urlaub]

CLASS WILL MEET AT MERCY HOSPITAL AT 5:00 P.M. in South Buffalo (directions will be provided)

Kumar, Sanjaya M.D. Fatal Care 2008 (excerpts – 2 parts)

Grote, Kurt; Paul D. Mango and Saumya S. Sutaria *Transforming US hospitals* The McKinsey Quarterly February 2007

Week 14 (05.01.14): After care, long-term care and related paradigms for caring for older adults

CLASS WILL MEET AT TOWN SQUARE FOR AGING AT 5:00 AT WEINBERG CAMPUS

American Hospital Association *Maximizing the Value of Post-acute Care* November 2010

Gross, Jane *Health Care Delivered as it Should Be* in The New York Times, January 8, 2009

Rauch, Jonathan *Letting Go of My Father* in The Atlantic April 2010

Town Squares for Aging

Week 14 (05.18.14): Where to from here? Future opportunities for the health care sector

A

Shortell, Chapter 15

Montgomery, Cynthia A *How Strategists Lead* in McKinsey Quarterly July 2012

CASE #10: *Emanuel Medical Center* [A1]



Course Title/Number: Advanced Environmental Health Sciences/SPM649

Department Name: Social and Preventive Medicine

Program Name: MPH program

Semester: Spring Year: 2014

Class Day/Time:	Monday, 1:00-3:40pm	
Class Location:	182 Farber Hall	
Format(s):	LEC	Literature Review and Discussion
Prerequisite(s):	SPM 501 Principles of Epidemiology SPM 549 Environmental Health	

Instructor(s) of Record:	Xuefeng Ren, MD, PHD, Assistant Professor
Office:	276 Farber
Phone Number(s):	716-829-5384
Email:	xuefengr@buffalo.edu
Office Hours:	By appointment only

I. (a) Course Description:

This is an advanced course designed to provide students with an integrated view and in-depth discussion of the environmental factors that contribute to illness, injury, or death, and that affect the health status of individuals and populations. The course includes a detailed examination of environmental hazards, exposure assessment, human susceptibility, biological response pathways, application of biomarkers in environmental health studies and the disease burden of environmental exposure. Emphasis is placed on the assessment, evaluation and control of environmental risks related to public health. Discussion topics include air, water and solid waste pollution plus food safety, environment epidemiology, hazardous wastes, environmental impacts and environmental health laws and regulations.

II. Course Objectives / Competency / Instructional Method(s) / Assessment of Student Learning

Objective	Accreditation/Program Competency	Instructional Method(s)	Assessment Method(s)
Discuss the impact of human activity on global environment, and their consequences, in particular, how the changes of global environments affect human health.	<u>Environmental Health Sciences:</u> - Describe how the direct and indirect human activities that changes global environment. - Articulate the means by which exposure occurs, health effects of public health importance - Understanding of the dispersion of contaminants in the air, water, and land phases of the environment and how these contaminants affect human health	Powerpoint presentation & discussion in class 1. Principles are introduced in the first class and applied throughout the course.	1. Class participation 2. Discussion of reading materials 3. Final Exam 4. Term paper
For chemical hazards: - Describe pathways and routes of exposure by which environmental hazards gain access to the body. - Explain general processes by which the body responds to exposure to environmental hazards	<u>Environmental Chemistry</u> - Describe the general knowledge of Environmental Chemistry. - Explain chemical and physiologic characteristics of chemicals and their associations with	• Powerpoint presentation & discussion in class 2.	1. Class participation 2. Discussion of reading materials 3. Final Exam 4. Term paper

	varied toxic response to various environmental exposures. <u>Environmental Health Sciences:</u> - Explain the general mechanisms of toxicity in eliciting a toxic response to various environmental exposures		
Apply epidemiologic theory to the investigation of environmental exposures and explore their associations with health effects	<u>Environmental Epidemiology</u> - Understand the principle and methodology of environmental epidemiology. - Describe the major special study designs commonly used in environmental epidemiological studies. <u>Environmental Health Sciences:</u> - Describe approaches for assessing, preventing and controlling environmental hazards that pose risks to human health and safety - Critically analyze the environmental health literature, identify environmental health problems	• Powerpoint presentation & discussion in class 3.	1. Class participation 2. Discussion of reading materials 3. Final Exam 4. Term paper
Define major environmental carcinogens, and discuss their possible mechanisms and exposure pathways	<u>Environmental Toxicology:</u> - Explain the general mechanisms of toxicity in eliciting a toxic response to environmental	• Powerpoint presentation & discussion in class 4.	1. Class participation 2. Discussion of reading materials 3. Final Exam 4. Term paper

	carcinogens <u>Environmental Health Sciences:</u> - Describe the known and major environmental carcinogens - Describe approaches for assessing, preventing and controlling environmental carcinogens - Critically analyze the environmental health literature, identify environmental health problems - Describe genetic, physiologic, and psychosocial factors that affect susceptibility to adverse health outcomes following exposure to environmental carcinogens		
For biological, chemical, and physical hazards in water, air: - Describe pathways and routes of exposure by which environmental hazards gain access to the body. - Explain general processes by which the body responds to exposure to environmental hazards (e.g. toxicokinetics and health outcomes) - Knowledge of the essentials of environmental health and toxicology and ability to apply these principles to the	<u>Environmental Health Sciences:</u> - Describe the direct and indirect human, ecological, and safety effects of major environmental and occupational agents - Describe genetic, physiologic, and psychosocial factors that affect susceptibility to adverse health outcomes following exposure to environmental hazards - Explain the general mechanisms of toxicity	• Powerpoint presentation & discussion in class 5-7.	1. Class participation 2. Discussion of reading materials 3. Final Exam 4. Term paper

occurrence of diseases among human populations	in eliciting a toxic response to various environmental exposures - Communicate new knowledge through the published literature - Understanding of the dispersion of contaminants in the air, water, and land phases of the environment and how these contaminants affect human health		
Discuss major environmental contaminants and their impact on human health	<u>Environmental Health Sciences:</u> - Describe environmental contaminants of heavy metals and pesticides - Describe approaches for assessing, preventing and controlling environmental carcinogens - Critically analyze the environmental health literature, identify environmental health problems - Describe genetic, physiologic, and psychosocial factors that affect susceptibility to adverse health outcomes following exposure to environmental carcinogens <u>Environmental Toxicology:</u> - Explain the general mechanisms of toxicity in eliciting a toxic	• Powerpoint presentation & discussion in class 8-9.	1. Class participation 2. Discussion of reading materials 3. Final Exam 4. Term paper

	response to heavy metal and pesticides		
Describe risk assessment paradigm and describe the application of toxicologic and epidemiologic methods to risk assessment, including the limitations and uncertainties inherent in these methods	<u>Environmental Health Sciences:</u> - Specify current environmental risk assessment methods - Specify approaches for assessing, preventing and controlling environmental hazards that pose risks to human health and safety - Communicate new knowledge through the published literature - Understanding environmental policies, processes, and technology, to minimize the impact of human activities on the environment and on human health	• Powerpoint presentation & discussion in class 10.	1. Class participation 2. Discussion of reading materials 3. Final Exam 4. Term paper
Describe the food production and its related public health issues: - Systems by which humans obtain food - Relationships between food procurement systems and the environment and effects of this relationship on safety and adequacy of the food supply - Effects of the industrial food production system on the environment and human health - Describe risk assessment methods specified to food hazards	<u>Environmental Health Sciences:</u> - Describe the direct and indirect human, ecological, and safety effects of major environmental and occupational agents - Describe genetic, physiologic, and psychosocial factors that affect susceptibility to adverse health outcomes following exposure to environmental hazards - Explain the general mechanisms of toxicity in eliciting a toxic response to various	• Powerpoint presentation & discussion in class 11-12.	1. Class participation 2. Discussion of reading materials 3. Final Exam 4. Term paper

	environmental exposures - Describe federal and state regulatory programs, guidelines and authorities that control environmental health issues		
Discuss various risk management and risk communication approaches in relation to issues of environmental justice and equity	- Communicate new knowledge through the published literature - Understanding environmental policies, processes, and technology, to minimize the impact of human activities on the environment and on human health - Describe federal and state regulatory programs, guidelines and authorities that control environmental health issues	• Powerpoint presentation & discussion in class 13.	1. Class participation 2. Discussion of reading materials 3. Final Exam 4. Term paper

III. Textbooks /Equipment /Required Technologies

Resource	Required	Notes
Journal articles, government documents, and other readings specific to each topic	Required	Assigned readings and Handout
Environmental health: from global to local / Howard Frumkin, editor. 2010	Recommended	Available from UB Health Sciences Library
Casarett and Doull's Toxicology - The Basic Science of Poisons/ Klaassen CD.	Selective	Available from UB Health Sciences Library
Environmental Epidemiology/ Merrill RM.	Selective	Available from UB Health Sciences Library
Environmental Health/ Moeller DW.	Selective	Available from UB Health Sciences Library

Lab fee information: None

IV. Course Learning Activities

- a. Students will be expected to read the Powerpoint presentation, text assignment, and reading material sent by instructor before coming to class. Class format will be lecture to clarify the material and class discussion and activities to reinforce concepts.
- b. Structured discussions will be conducted about topics covered in the class and assigned literatures.
- c. A 2000-words paper written will require students place the course material into the context of their personal understanding of environmental health.
- d. A final exam will be used to evaluate students' understanding of the principles and new knowledge of environmental health sciences.

V. Course and Instructor Eval

Formative evaluation of the course and instructor will be conducted via the SPHHP online course evaluation (CourseEval). All students are required to complete the online course evaluation. Students who complete an online evaluation as reported to the instructor by the SPHHP CourseEval Administrator will be awarded an additional 1% in their overall course average. The instructor will receive a list of names of students who have submitted evaluations. CourseEval procedures protect the anonymity of student respondents: no faculty member receives evaluation reports (ratings and comments) before grades are submitted and student names are not included on evaluation reports.

VI. Grading

Course Component	Due date	Percentage
Class Participation	4T	20%
Discussion of reading materials	4T	25%
Written assignment		20%
Final examination		35%
Course Evaluation Completion		Additional 1%

Total: 100%

Final Grade Determination

Approximate cutpoints:

92.0- 100	A	72.0- 77.9	C
90.0- 91.9	A-	70.0- 71.9	C-
88.0- 89.9	B+	68.0- 69.9	D+
82.0- 87.9	B	62.0- 67.0	D
80.0- 81.9	B-	<62.0	F
78.0- 79.9	C+		

VII. Other course related information

None

VIII. Communication

IX. Policy Regarding Absences, Attendance, Assignments, Exams, and University Policy on Incompletes in Courses

- **Class Attendance and Absences**

As many in-class activities will be completed throughout the semester, class attendance is expected. In the case of exceptional circumstances that result in you being late or absent, you must contact me prior to the start of class (either by email or by leaving a telephone message). Please be aware that an absence from class under these circumstances does not excuse you from any required assignments.

- **Late Assignments**

All assignments are due in my email box (xuefengr@buffalo.edu) at the designated time and due date. Failure to submit the assignment when due will result in a loss of 5 points per day that the assignment is late. Assignments that are more than 3 days late will not be accepted. If there are circumstances that will preclude you from turning in assignments on the due date, it is imperative that you discuss the situation with the instructor prior to the due date.

- **Exams and Final Exam**

There will be one final exam in this course.

- **Policy on Incomplete Grades for the Course**

Incomplete grades will be given only if there are extenuating circumstances (i.e. severe illness) that preclude the student from completing the course. The student must have satisfactorily completed all course work and successfully passed all exams (B or better) up until the time an incomplete is requested.

- **University Policy on Incomplete Grades**

A grade of incomplete ("I") indicate that additional course work is required to fulfill the requirements of a given course. Students may only be given an "I" grade if they have a passing average in coursework that has been completed and have well-defined parameters to complete the course requirements that could result in a grade better than the default grade. An "I" grade may not be assigned to a student who did not attend the course. Prior to the end of the semester, students must initiate the request for an "I" grade and receive the instructor's approval. Assignment of an "I" grade is at the discretion of the instructor.

The instructor must specify a default letter at the time the "I" grade is submitted.

A default grade is the letter grade the student will receive if no additional coursework is completed and/or a grade change form is not filed by the instructor. "I" grades must be

completed within 12 months. Individual instructors may set shorter time limits for removing an incomplete than the 12-month time limit. Upon assigning an "I" grade, the instructor shall provide the student specification, in writing or by electronic mail, of the requirements to be fulfilled, and shall file a copy with the appropriate departmental office.

Students must not re-register for courses for which they have received an "I" grade.

Applicable dates regarding the 12-month provision:

Courses taken in (semester):	Will default in 12 months on:
Fall	December 31
Spring	May 31
Summer	August 31

The "I" must be changed to a grade before the degree conferral date if the students plans to graduate in that semester. At any time prior to the default date, students may elect to change the "I" grade to the default grade using the [Grade Retrieval Form](#).

A default grade can be "A-," "B+," "B-," "C+," "C-," "D+," "D," or "F." (If a student selected an S/U grading option, it will replace the default letter grade when the grade defaults.)

Disability Policy

If you have any disability which requires reasonable accommodations to enable you to participate in this course, please contact the Office of Accessibility Resources, 25 Capen Hall, 645-2608, and also the instructor of this course during the first week of class. The office will provide you with information and review appropriate arrangements for reasonable accommodations. <http://www.ub-disability.buffalo.edu/>

Netiquette

This course may utilize UBlearns to facilitate online communication between course participants. Please keep in mind the following "Rules of Netiquette" when communicating online.

1. **The rules of the classroom are the same regardless of location.** Remember just because you're interacting online, doesn't mean you stop having respect for your professors, and fellow classmates. You're communicating with a real person, not a computer screen.
2. **Remember your audience.** When communicating online it's important to remember who you're communicating with. When sending a message to a professor, please refrain from using "text speak". For example, Shakespeare never intended for you to type "2B or not 2B". Also, stay away from typing in all capital letters; it will appear as if you're shouting.
3. **Avoid strong language.** Language can easily be misinterpreted in an online setting. Be sure to review your work before submitting, making sure the reader won't be able to misinterpret it as strong, or offensive. Sarcasm doesn't translate well online. Your audience can't see your facial expressions, or body language. Try to be as straight forward and professional as possible.

4. **Read everything, twice.** Be sure to thoroughly read all course materials before beginning to work on your assignments. If you have a question, or need clarification, re-read the materials. You may have glanced over an important detail the first time. If you're still having difficulties, then e-mail your professor.
5. **Review all materials before submitting.** When responding to discussion board posts, be sure to read all previous postings before you post your own. This way you won't duplicate someone else's comments. Also, it's a good idea to write, and save your work in Microsoft Word first. In case of a technical issue, you have a backup copy.

Academic Integrity

Students who are suspected of academic dishonesty will be dealt with severely in accordance with the Department and University Policy. This may include a grade of 0 for an assignment and/or failure in a course.

Academic Dishonesty: Actions that compromise academic integrity include, but are not limited to the following examples:

- *Previously submitted work:* Submitting academically required material that has been previously submitted – in whole or in substantial part – in another course, without prior and expressed consent of the instructor.
- *Plagiarism.* Copying or receiving material from any source and submitting that material as one's own, without acknowledging and citing the particular debts to the source (quotations, paraphrases, basic ideas), or in any other manner representing the work of another as one's own.
- *Cheating.* Soliciting and/or receiving information from, or providing information to, another student or any other unauthorized source (including electronic sources such as cellular phones and PDAs), with the intent to deceive while completing an examination or individual assignment.
- *Falsification of academic materials.* Fabricating laboratory materials, notes, reports, or any forms of computer data; forging an instructor's name or initials; resubmitting an examination or assignment for reevaluation which has been altered without the instructor's authorization; or submitting a report, paper, materials, computer data, or examination (or any considerable part thereof) prepared by any person other than the student responsible for the assignment.
- *Misrepresentation of documents.* Forgery, alteration, or misuse of any University or Official document, record, or instrument of identification.
- *Confidential academic materials.* Procurement, distribution or acceptance of examinations or laboratory results without prior and expressed consent of the instructor.
- *Selling academic assignments.* No person shall sell or offer for sale to any person enrolled at the University at Buffalo any academic assignments, or any inappropriate assistance in the preparation, research, or writing of any assignment, which the sellers knows, or has reason to believe, is intended for submission in fulfillment of any course or academic program requirement.
- *Purchasing academic assignments.* No person shall purchase an academic assignment intended for submission in fulfillment of any course or academic program requirement.

Student Handbook: All students are required to read the student handbook. An online version is available on the 'Information For Current Students' page of your department website.

COURSE SCHEDULE

This schedule is subject to revision due to unforeseen events. Any course schedule changes or additional readings will be posted on Ublearns and will be announced in class as time permits. Note: Additional required readings may be assigned and will be assigned at least one week prior to the class for which they are assigned.

<u>Date</u>	<u>Topic</u>	<u>Instructor</u>	<u>Required Readings/Assignments</u>
1/27	Course overview • Course outline • Student evaluation Human and Environment: Impact of each other • How Human Impact the Environment • Natural, Municipal, Industrial, and Hazardous Waste and interaction with humans	Dr. Xuefeng Ren	Assigned readings and Handout
2/3	Environmental Chemistry of Pollution • Introduction of Environmental Chemistry • Describe how varied chemical and physiologic characteristics of chemicals can have different impact on human health • Case discussion	Dr. Diana Aga	Assigned readings and Handout
2/10	Methodology in Environmental Epidemiological Investigation • Study designs in environmental epidemiology • Limitation and challenge of environmental epidemiology study • Case discussion	Dr. Matthew Bonner	Assigned readings and Handout
2/17	Environmental Carcinogenesis • Major categories of environmental carcinogens • Carcinogen metabolism and roles in carcinogenesis • Case discussion	Dr. Matthew Bonner	Assigned readings and Handout
2/24	Air quality, pollution & Health effects • Characterization and analysis of major air pollutants • Case discussion	Dr. Xuefeng Ren	Assigned readings and Handout
3/3	Greenhouse gases (Climate change) • Discuss global environmental change, in particular, acid rain, ozone depletion, greenhouse gases, and link these changes	Dr. Xuefeng Ren	Assigned readings and Handout

SPM 649 Advanced Environmental Health Sciences Syllabus

<u>Date</u>	<u>Topic</u>	<u>Instructor</u>	<u>Required Readings/Assignments</u>
	to public health. • Case discussion		
3/10	Water and Health • Water-borne contaminate agents • Water pollution and health • Case discussion	Christina Crabtree from Dr. Ram's group	Assigned readings and Handout
3/17	Spring Recess		
3/24	Heavy metal contamination in water bodies • Characterization and analysis of major heavy metal pollutants (Pb, Hg and Cd) • Case discussion	Dr. Xuefeng Ren	Assigned readings and Handout Written assignment
3/31	Pesticide and Health • Pesticide Use and Regulation • Pesticide Exposure and Health Effects • Case discussion	Dr. James Olson	Assigned readings and Handout
4/7	Environmental exposure measurement and assessment • Environmental exposure measurement and risk assessment • Methodology and related issues of environmental risk assessment • Case discussion	Dr. James Olson	Assigned readings and Handout
4/14	Food Safety: - Biological hazards and food • Pathways of exposure to biological hazards: fecal-oral, anaerobically packaged low-acid food, and other (nasal, infected lesions, etc.) • Survey of biological hazards in relation to food: Bacteria, viruses and other (protozoans, parasites, mold, algae, prion) - Foodborne illness • Investigation of foodborne outbreaks • Control of foodborne illness, including the Hazard Analysis and Critical Control Point (HACCP) framework • Case discussion	Dr. Williams Scheider	Assigned readings and Handout
4/21	Risk assessment for food hazards • Review of the National Academy of Sciences/National Research Council risk assessment process and development of exposure standards • Health effects, risk assessment issues and	Dr. Williams Scheider	Assigned readings and Handout

SPM 649 Advanced Environmental Health Sciences Syllabus

<u>Date</u>	<u>Topic</u>	<u>Instructor</u>	<u>Required Readings/Assignments</u>
	uncertainties, and the regulation.		
4/28	Environmental management and policy • Environmental Health: Policy & Law • Environmental health and safety and management	Dr. Williams Scheider	Assigned readings and Handout
5/5	Final Exam		

SPM 650 ENVIRONMENTAL TOXICOLOGY AND RISK ASSESSEMNT

Spring 2014; Thursdays 1-2:50 pm 240 Farber Hall; 2 credits

Course Director:

James R. Olson, Ph.D.
U.B. Distinguished Professor
Departments of Pharmacology and Toxicology and Social and Preventive Medicine
Director, Environmental Health Sciences Division
Phone: (716) 829-2319
Email: jolson@buffalo.edu

DESCRIPTION FOR CATALOG

Welcome to SPM 650, ENVIRONMENTAL TOXICOLOGY AND RISK ASSESSEMNT. This 2-credit course introduces students to the fundamentals of environmental toxicology and environmental risk assessment.

The first part of the course examines the principles and theories of environmental toxicology. Students learn to understand physical and chemical properties of common environmental contaminants of public health importance, environmental fate of these compounds, the primary exposure routes, and the mechanisms of action. The latter part introduces the basic scientific components of environmental and occupational health risk assessment. It focuses on the four major components of risk assessment: hazard identification, dose-response assessment, exposure assessment, and risk characterization.

The course will include lectures, a series of instructor and student lead discussions of primary literature, ATSDR Public Health Assessment documents for a selected Superfund Site and US EPA Integrated Risk Information System (IRIS) documents for selected chemicals.

COURSE OUTLINE

Course Objectives and Competencies:

By the conclusion of this course, students will:

- 1) Define the major classes of chemicals and metals as well as their sources through which they invade the environment.
- 2) Describe properties, characteristics, and environmental processes (chemical, photolytic, hydrolytic, etc.) that impact environmental fate of chemicals and influence the major routes of exposure among humans.

- 3) Describe the mechanisms of action through which environmental chemicals that potentiate adverse health effects.
- 4) Use scientific information about the sources of environmental chemicals and metals, their physical and chemical properties, and mechanisms of action to conduct a basic risk characterization
- 5) Describe the theory and methods of four major components of risk assessment: hazard identification, dose-response assessment, exposure assessment, and risk characterization.
- 6) Prepare and present a risk assessment project that identifies, characterizes and predict environmental health risk for a student selected environmental health science problem.

Spring Semester Schedule for 2014

Date	Topic	Instructor
Week 1 January 30	Introduction to Environmental Toxicology and Risk Assessment, Overview of the Course, Discussion of Course Goals	Olson
Week 2 February 6	Background and Hazard Identification for pesticides, focusing in greater depth on chlorpyrifos	Olson
Week 3 February 13	Background and Hazard Identification for heavy metals, focusing in greater depth on lead	Olson
Week 4 February 20	Background and Hazard Identification for volatile organics, focusing in greater depth on formaldehyde	Olson
Week 5 February 27	Background and Hazard Identification for persistent organic pollutants, focusing in greater depth on 2,3,7,8-TCDD (dioxin)	Olson
Week 6 March 6	Student lead presentations on chlorpyrifos, lead, and formaldehyde	Olson
Week 7 March 13	Review of US EPA IRIS documents for formaldehyde and 2,3,7,8-TCDD (dioxin)	Olson
Week 8 March 20	Spring break, No class	
Week 9 March 27	Risk Assessment I (hazard identification, evaluation of molecular structure-activity relationships, in vitro and in vivo bioassays)	Olson
Week 10 April 3	Risk Assessment II (Dose-response analysis and quantification of risk, Exposure assessment)	Olson
Week 11 April 10	Risk Assessment III (Risk characterization and Risk communication (integration of hazard identification, dose-response and exposure assessment; communicating the results of risk assessments to scientific and non-scientific audiences)	Olson
Week 12 April 17	Discuss ATSDR 2012. Public Health Assessment. San Jacinto River Waste Pits Channelview, Harris County,	Olson

	Texas. EPA Facility ID: TXN000606611 October 30, 2012.	
Week 13 April 24	Continue Discussion of exposure characterization and cancer and non-cancer risk assessment for ATSDR Public Health Document related to 2,3,7,8-TCDD	Olson
Week 14 May 1	Student Presentations	Olson
Week 15 May 8	Student Presentations and Written Reports	Olson

Required reading:

Selected primary and review articles on lead, formaldehyde, and chlorpyrifos

ATSDR 2012. Public Health Assessment. San Jacinto River Waste Pits Channelview, Harris County, Texas. EPA Facility ID: TXN000606611 October 30, 2012.

2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD); CASRN 1746-01-6
USEPA, 2012. Integrated Risk Information System (IRIS). U.S. Environmental Protection Agency. Available online at: <http://www.epa.gov/iris/subst/1024.htm>

Formaldehyde (CASRN 50-00-0)
USEPA, 2012. Integrated Risk Information System (IRIS). U.S. Environmental Protection Agency. Available online at: <http://www.epa.gov/iris/subst/0419.htm>

Books Recommended As Resources:

Casarett and Doull's Toxicology: the basic science of poisons
By Louis J. Casarett, Curtis D. Klaassen, John Doull

Journals of Specific Interest in Environmental Health:

Environmental Health Perspectives

Course Evaluation

1. Participation in instructor led discussions (15%)
2. Participation in student led discussions (15%)
3. Two In-class presentations (total of 40%; 20% each)
4. Whitten report on selected chemical agent (30%) (20-25 pages including tables, figures and references).

Assignment of letter grades:

A	≥92.0%	C+	=78.0-79.9%
A-	=90.0-91.9%	C	=72.0-77.9%
B+	=88.0-89.9%	B-	=70.0-71.9%

B	=82.0-87.9%	D	=60.0-69.9%
C-	=80.0-81.9%	F	=<60.0%

Accommodations for Disabilities: Reasonable accommodations to students will be provided, on a flexible and individualized basis, to students who have disabilities that may affect their ability to participate in course activities or to meet course requirements. Students must be registered with UB's Office of Disability Services (stu-disability@buffalo.edu) to determine which accommodations are needed to ensure full participation in the course. Students with disabilities are encouraged to contact me as soon as possible to discuss their individual needs for accommodations as some accommodations take time to implement.

Grade Disputes: Students wishing to dispute an assigned grade must present their dispute to the instructor IN WRITING within one week after the date when the exam or paper is returned. The dispute must include a specific rationale for why the student's answer is correct (e.g., a reference to a specific page in the textbook).

Academic Misconduct: Academic misconduct in any form is a very serious matter and will not be tolerated. Academic misconduct is broadly defined as being any action on the part of the student that violates the rights of another student in academic work or that involves misrepresentation of your own work. Such misconduct includes (but is not limited to): cheating on assignments or examinations; plagiarizing, which means misrepresenting as your own work any part of work done by another; submitting the same paper, or substantially similar papers, to meet the requirements of more than one course without the approval and consent of all instructors concerned; depriving another student of necessary course materials; or interfering with another student's work.

The UB Graduate School policies for academic misconduct (<http://www.grad.buffalo.edu/policies/academicintegrity.php#preamble>) will be followed.

RATIONALE

Environmental Toxicology and Risk Assessment (SPM6500) is a 2-credit course offered by Department of Social and Preventive Medicine. This course provides students with advanced-level education in the physical and chemical properties of common environmental contaminants of public health importance, environmental fate of these compounds, the primary exposure routes, and the mechanisms of action. In addition, course also will educate students on synthesizing relevant scientific evidence to conduct risk characterization and assessment to inform risk management, communication, and policy actions to mitigate environmental health hazards.

DUPLICATION CHECK

Department of Social and Preventive Medicine
SPM 549 Environmental Health

Course description: "An introductory course that explores the role of environmental factors in health with an emphasis on characterization, assessment, and control of environmental hazards. Topics include application of toxicologic and epidemiologic

methods in assessing risk and setting exposure limits; the nature of and control of hazards associated with food, water, air, solid and liquid waste, occupation, and radiation; risk communication and management, environmental justice; and environmental laws. The course concludes by examining the impact of human activity, such as energy use and pollution, on the environment and how human-induced environmental change, in turn, impacts public health and that of the planet as a whole.” SPM 549 is an introductory course offered to all MPH students. The course provides basic knowledge and a broad overview of environmental issues and health effects. SPM 650 offers an in-depth treatment of toxicology and risk assessment that substantially builds on these topics that were introduced in SPM 549.

SPM 551 Epidemiologic Applications to Environmental Health

Course description: “Provides epidemiology and environmental health students a working knowledge of epidemiologic theory and practice applied to issues of environmental health. Case studies and specific environmental issues will be used to illustrate the application of epidemiologic theory to understand the role of environmental factors in the etiology of disease.”

SPM 551 is an advanced course offered for PhD students in epidemiology and specifically addresses the application of epidemiologic research methods to investigate environmental exposures. There is no overlap between SPM 551 and SPM650.

SPM 649 Advanced Environmental Health Sciences

Course description: “This is an advanced course is to provide students with the latest knowledge and an in-depth discussion of how the environment interacts with human biological systems and potentiates various health effects over the life cycle. The course includes a detailed examination of environmental hazards, exposure assessment, human susceptibility, biological response pathways, application of biomarkers in environmental health studies and the disease burden of environmental exposure. The course focuses on three major environmental topics: air pollution, water pollution and food safety”. While there is topic overlap with SPM649, it does not conflict with SPM 650 because the content in SPM 650 diverges into more detailed and advanced discussions surrounding toxicology of environmental chemicals, environmental fate, risk characterization and risk assessment as they relate to human health effects.

UB Department of Civil Structural and Environmental Engineering

CIE 662 Methods of Pollutant Analysis (3)

Course description: “This course covers fundamental and practical aspects of chemical and physical analysis methods in environmental matrices. Emphasis is placed on chemical and data analysis techniques applicable to drinking water, municipal wastewater, and industrial waste samples. Laboratory sessions and heavy reliance on the current literature will extend the material developed in the lectures and class discussions”. LEC/LAB.

CIE 662 differs from SPM 650 because CIE 662 only covers analysis of environmental agents, and no human health effects are included.

UB Department of Urban and Regional Planning

PD 305 Environmental Education and Communication. (For undergraduate students)

Course description:” Explores various approaches with influencing public knowledge, awareness, and understanding toward our natural and urban environments. Develops competency and skills for environmental design practitioners and community planners who have an interest in, or a responsibility for, presenting environmental information and planning outcomes. Involves lectures, discussions, and fieldwork. May be offered on an intermittent basis.”

SPM 650 will not conflict with PD 305 since PD 305 doesn't cover human health effects, and only provides information regarding urban environment with a focus of design and planning.

UB School of Medicine

No similar course offered

CROSSLISTING: No cross listing