

- Course Title:** Intermediate Epidemiologic Research Methods
- Course Number:** EPID 0656
- Course Location:** Piscataway: SPH room 3A/B; Newark: Stanley S. Bergen Building room 741,
In Piscataway using LIFESIZE to Newark (Instructors will rotate locations weekly)
Student should attend class on the campus where they registered to do so.
Permission to attend class on the other campus must be obtained from Dr. Graber by email no later than 6:00pm the Monday preceding the class.
- Course Date & Time:** Tuesday, 6:00 to 8:00pm Spring 2018
This course requires 30 minutes of online learning and exercises each week before the in-class lecture.
- Course Instructor:** Judith Graber, PhD, MS, Assistant Professor, Department of Epidemiology, Rutgers School of Public Health,
graber@eohsi.rutgers.edu (**Do not** email the course instructor through Moodle)
Office: 848-445-0190; Cell phone for emergency contact only: 207-441-3862
- Course Assistant:** Riddhi Babel, MPH
Email: rab364@sph.rutgers.edu
- Office Hours:** *Office hours for either Dr. Graber or the Course Assistant may be changed –if this occurs the class will be notified vis email*

Dr. Graber:
Piscataway: Mondays 11:00 am to 12:00pm; Location: Environmental Occupational Health Sciences Institute (EOHSI), 320 (see Map on course Moodle website)
Newark: Dr. Graber: Tuesday when on campus (see syllabus) 5:00 pm-6:00 pm
Location TBD

Office hours can also be made at other times by appointment with Dr. Graber to meet by phone or (face-to-face video chat via Moodle)

Ms. Babel:
Piscataway or via the Big Blue Button (face-to-face video chat via Moodle)
Mondays 5:00 to 6:00pm; SPH
Jan. 16 and 23: SPH Swing Office B (first floor SPH)
Jan. 30th through May 8th: Swing Office A (first floor SPH)
- Required Course Text:** Moyses Szklo and F Javier Nieto, Epidemiology: Beyond the Basics. 3rd edition
- Additional/Supplemental Readings/Resources:** Vandenbroucke JP, von Elm E, Altman DG, Gøtzsche PC, Mulrow CD, Pocock SJ, Poole C, Schlesselman JJ, Egger M; STROBE Initiative. Strengthening the Reporting of Observational Studies in Epidemiology (STROBE): explanation and elaboration. *PLoS Med.* 2007 Oct 16;4(10): e297. PMID: 17941715
<http://www.plosmedicine.org/article/info:doi/10.1371/journal.pmed.0040297>
Additional Readings will be assigned throughout the semester and will be provided on the course Moodle website.

Course Description: This is an intermediate-level epidemiologic methods course that builds on information and skills learned in the introductory-level PHCO Epidemiology course. The course will focus on study design, possible threats to validity, and how threats can be minimized.

Selected Concentration Competencies Addressed: Each Concentration identifies competencies for each degree offered. The competencies addressed in this course for the MPH in *Epidemiology* include:

- Critique epidemiologic literature, assess its strengths and weaknesses, and determine if conclusion(s) are supported.
- Use epidemiologic techniques to quantitatively assess patterns and changes in disease occurrence.
- Formulate a specific hypothesis and determine an appropriate study design.
- Communicate and present study findings to professional audiences.

Please visit the Concentration webpages on the School of Public Health’s website at sph.rutgers.edu for additional competencies addressed by this course for other degrees and concentrations.

Course Objectives: By the completion of this course, students will be able to:

- Identify epidemiologic study designs and apply the appropriate epidemiologic study design to a research question.
- Identify potential bias threats to validity in epidemiologic studies and strategies to address them.
- Identify, calculate, interpret, and differentiate between epidemiologic measures of occurrence and association.
- Identify and assess how exposure-disease relationships are impacted by covariates including by confounding, interaction, and mediation.
- Be able to critically review published epidemiological literature.
- Be able to discuss how theories of causation play a role in epidemiology, public policy and public health interventions

Course Moodle Site: The course Moodle site can be found after logging in to <http://moodle.rutgers.edu/>.

Please test your access to the site as soon as possible. **Important course materials will be posted there including lectures and class assignments.** If you cannot access the site, let Dr. Graber **know as soon as possible**. There are training materials available to help you with Moodle and can be accessed from your Moodle homepage or you can reach out to moodlehelp@ca.rutgers.edu for assistance.

Course Requirements and Grading:

Grade value for assessments	
Participation (in class and online)	10%
Homework assignments (4)	20%
Journal article critique	15%
Midterm exam	25%
Final Exam	30%
	100%

Weekly assignments:

- **Prior to each class students are expected to:**
 - Access, review, and complete the online learning activity (estimated 30 minutes; Access to these files is tracked in Moodle)
 - Complete any online forum discussion questions. You will only see other students' replies to the forum question once you have submitted yours.
 - Complete assigned readings. Exercises from the text book are recommended to assess your comprehension of the material presented. Select exercises may be discussed in class each week.
- **During class students are expected to:**
 - Participate in class discussions
 - Participate in group assignments

Homework assignments:

- There are 4 homework (HW) assignments given throughout the semester. They will be posted on the Moodle site per the course syllabus.
- **All assignments are due before class on the due date, and are to be submitted electronically via the Moodle Dropbox.**
 - If you experience computer/internet/Moodle related issues, you must contact Dr. Graber before class and then may hand a hard copy of your assignment to Dr. Graber by the start of class on the due date.
 - Because the homework answers are reviewed in class, **late assignments will not be accepted.**
- You may work in groups on HW assignments, but each student must hand-in their own finished product in their own words or on no credit will be given for the entire homework.
- To provide individual feedback, assignments must be completed using MSWord (.docx or .doc format).
- Completed HW assignments must be uploaded into the corresponding Moodle assignment box.
- Use the following naming convention for your homework file:
 - StudentLastName.StudentFirstName_HW#, for example: Rossi.Maya_HW1

Journal article critique assignment:

- These are individual assignments. Students will be assigned one of 5 articles (selected by the instructor) to critique.
 - The report is limited to 3 pages (single side; 1" margins; no less than 11-point font)
- Students are welcome to discuss their articles, but the work must be their own.
- Guidelines for the critique and presentations will be distributed as per the course syllabus.

Exams: There will be two in-class exams; a midterm and a final.

- Exams will include material covered during classes and material from the readings.
- The final exam will be cumulative but will emphasize material covered since the midterm.
- Exams must represent individual work only.
- The exams will be held in the regular classroom on the dates indicated on the course schedule.
- Student will have 2 hours in class to complete the midterm exam and 3 hours to complete the final exam.
 - The exams are closed book, but students can bring one 2-sided page of notes in any format to use during the test.
 - Students must bring their Student ID (A number) to use to identify themselves on the exam. Student may NOT write their name on the exam.

Course Schedule: This is a general schedule and **is subject to change/updates** as needed throughout the semester. Please attend class and the Moodle site weekly for updates. All readings other than the text will be posted on the Moodle course site.

Date (2018)	Topics	Readings	Online learning activity	Assignments
01/16 Week 1	Course Introduction Causal inference	Course syllabus; review class paper Bradford Hill AB. The environment and disease: association and causation. Proc R Soc Med 1965; 58:295-300	<u>Online:</u> Study design discussion forum due 1/22 6pm <u>In-class lecture:</u> Association and causality	HW 1 posted
01/23 Week 2	Study Designs in Epidemiology	Vandenbroucke JP, et al.; STROBE Initiative. PLoS Med. 2007 Oct 16;4(10) Pages: 1628-1630; Box 1 Savitz DA & Westreich D. Editorial: Innovations in Study Design—A Call for Creative Solutions. Am J Epidemiol. 2017;186(9):1024–1025	<u>Online lecture:</u> Threats to validity: random chance <u>In-class lecture:</u> Review of basic study designs	Journal critique assignment rubric posted; review In-class
01/30 Week 3	Measures of Disease Occurrence	Szklo & Nieto: Chapter 2	<u>Online lecture:</u> Review of incidence and prevalence <u>In-class lecture:</u> More measures of occurrence	
02/06 Week 4	Measures of Association	Szklo & Nieto: Chapter 3 Schmidt C., Kohlmann T. When to use the odds ratio or the relative risk? International Journal of Public Health 53(2008) 165-167	<u>Online lecture:</u> Review HW 1; Review of measures of association <u>In-class lecture:</u> More on measures of association	HW 1 due; HW 2 posted
02/13 Week 5	Case Control Studies	Szklo pp 23-38; IARC: Case control studies	<u>Online lecture:</u> Case-based studies <u>In-class lecture:</u> Other case control study designs	
02/20 Week 6	Longitudinal Studies	Szklo pp 19-23; IARC: Cohort studies	<u>Online lecture:</u> Review HW 2; Cross sectional studies <u>In-class lecture:</u> Longitudinal studies Review FOR MIDTERM	HW 2 due;
02/27 Week 7	EXAM	Covers readings and class material through (and including) week 6		

03/06 Week 8	Bias	Szklo & Nieto: Chapter 4 Lim, S., et. al, (2013). Estimating nonresponse bias in a telephone-based surveillance survey in New York City. Am. J Epi, 178(8); 1337-1341.	<u>Online lecture:</u> Bias overview; Selection bias <u>In-class lecture:</u> Measurement bias Midterm review	HW 3 posted
03/13 SPRING BREAK				
03/20 Week 9	Confounding	Szklo & Nieto: Chapter 5 Howards, P.P.,et. al., (2012). Toward a clearer definition of confounding; revisited with directed acyclic graphs. AJE 176(6); 506-511.	<u>Online lecture:</u> Review HW 3; Confounding <u>In class lecture:</u> Minimizing confounding, mediation, DAGS	
03/27 Week 10	Interaction	Szklo & Nieto: Chapter 6 Ahlbom A, Alfredsson L. Interaction: A word with two meanings creates confusion. Eur J Epidemiol. 2005;20(7):563-4.	<u>Online lecture:</u> Interaction Part 1 <u>In-class lecture:</u> Interaction Part 2	HW 3 due HW 4 posted
04/03 Week 11	Stratification	Szklo & Nieto: Chapter 7	<u>Online:</u> Discussion forum due by 4/9 6pm <u>In class lecture:</u> Stratification	
04/10 Week 12	Quality Assurance and Control	Szklo & Nieto: Chapter 8 Tumlinson K, et. Al. Accuracy of standard measures of family planning service quality: findings from the simulated client method. Stud Fam Plann. 2014 Dec; 45(4):443-70.	<u>Online:</u> Discussion forum due by 4/16 6pm <u>In class lecture:</u> Quality Assurance and Control	Journal critique assignment due
04/17 Week 13	Epi and PH Disease Clusters	CDC. Investigating Suspected Cancer Clusters and Responding to Community Concerns. MMWR; 2013. 62(8) NJDOH. Case-control Study of Childhood Cancers in Dover Township (Ocean County), New Jersey. 2003	<u>Online lecture:</u> Review HW 4; CDC Guidelines for investigating a suspected cancer cluster <u>In-class lecture:</u> Toms River	HW 4 due
04/24 Week 14	Communication Evaluating Evidence Course Review	Szklo & Nieto: Chapter 9	<u>Online Lecture:</u> Communicating Evidence <u>In-class lecture:</u> Course review	
05/01 Week 14	FINAL EXAM – Cumulative but will emphasize material covered since the midterm.			

Learning Management System: Moodle will be used extensively throughout the semester for course syllabus, assignments, announcements, communication and/or other course-related activities. It is the student's responsibility to familiarize themselves with Moodle and check it regularly. If you have difficulties accessing Moodle, please inform the instructor and Moodle Support (moodlehelp@ca.rutgers.edu). Moodle is accessible at moodle.rutgers.edu.

School of Public Health Honor Code: The School of Public Health Honor Code is found in the student bulletin (sph.rutgers.edu/academics/catalog/index.html). Each student bears a fundamental responsibility for maintaining academic integrity and intellectual honesty in his or her graduate work. For example, all students are expected to observe the generally accepted principles of scholarly work, to submit their own rather than another's work, to refrain from falsifying data, and to refrain from receiving and/or giving aid on examinations or other assigned work requiring independent effort. In submitting written material, the writer takes full responsibility for the work as a whole and implies that, except as properly noted by use of quotation marks, footnotes, etc., both the ideas and the works used are his or her own. In addition to maintaining personal academic integrity, each student is expected to contribute to the academic integrity of the school community by not facilitating inappropriate use of her/his own work by others and by reporting acts of academic dishonesty by others to an appropriate school authority. It should be clearly understood that plagiarism, cheating, or other forms of academic dishonesty will not be tolerated and can lead to sanctions up to and including separation from the Rutgers School of Public Health.

Students with Disabilities: Rutgers University welcomes students with disabilities into all of the University's educational programs. In order to receive consideration for reasonable accommodations, a student must Apply for Services by first completing a Registration Form with the Rutgers Office of Disability Services (ODS) at ods.rutgers.edu. The student will also be required to participate in an ODS intake interview and provide documentation. If reasonable accommodations are granted, ODS will provide you with a Letter of Accommodations which should be shared with your instructors as early in your courses as possible.

Graduate Student Computer Policy: Students are required to possess a personal laptop, no older than approximately two years, that must meet minimum requirements which may be found online at: sph.rutgers.edu/student_life/computer_requirements.html

Policy Concerning Use of Recording Devices and Other Electronic Communications Systems: When personally owned communication/recording devices are used by students to record lectures and/or classroom lessons, such use must be authorized by the faculty member or instructor who must give either oral or written permission prior to the start of the semester and identify restrictions, if any, on the use of mobile communications or recording devices.

Withdrawal/Refund Schedule: Students who stop attending their course(s) without processing an [Add/Drop Course](#) form will receive a failing grade. Furthermore, students dropping to zero credits for the semester are considered withdrawn and must submit a completed [Leave of Absence](#) form from the School of Public Health's Office of Student Affairs. The School of Public Health refunds tuition only. Administrative and technology fees are non-refundable. You may find the Withdrawal/Refund Schedule on the School of Public Health website at: sph.rutgers.edu/academics/registration/school_calendars.html