M19-502 Intermediate Epidemiology (3 credits)
Fall 2 2020 (10/20/20 – 12/10/20)
Tuesday & Thursday, 9 AM – 12 Noon
Synchronous lectures/activities: Zoom meetings 9AM-10:45AM

INSTRUCTORS
Instructor
Yin Cao, MPH, ScD
Assistant Professor of Surgery
Division of Public Health Sciences
314-747-3925
yin.cao@wustl.edu

Teaching Assistant
TBD

Office hour
Immediate after each lecture or by appointment.

GUEST SPEAKERS
Confirmed
Graham Colditz, Professor of Surgery; Chief, Division of Public Health Sciences
Ryan Fields, Professor of Surgery; Chief, Section of Surgical Oncology
Yikyung Park, Associate Professor of Surgery; Division of Public Health Sciences
Min Lian, Assistant Professor of Epidemiology and Medicine, Division of General Medical Sciences

PREREQUISITES
Introduction to SAS for Clinical Research, Introductory Biostatistics, and Introduction to Clinical Epidemiology. SAS will be used throughout the course.

TARGET AUDIENCE
Students enrolled in the Master's level public health degree program who have successfully completed Introduction to Biostatistics/Epidemiology.

COURSE DESCRPRITION & OBJECTIVES
This is the second course in the Epidemiology series which builds upon the basic principles and methods of epidemiology and introduces additional tools and concepts that are critical to a comprehensive understanding of epidemiologic methods and application. In addition, the students will also learn how to leverage existing data for epidemiologic research, the state-of-the-art of research in subfields of epidemiology, and the key issues/considerations for leading an epidemiologic study.

We will utilize a combination of pre-recorded lectures and synchronous Zoom meetings every Tuesday/Thursday (9:00-10:45 am) to achieve these learning goals. Students are expected to complete the assigned reading and lectures, participate in class activities and guest lectures, work in groups, and complete all the assignments in a timely manner.

COMPETENCIES
At the end of this course, students will be able to:
- ✓ Critically interpret epidemiologic studies that apply advanced methods in study design and analyses
- ✓ Employ appropriate epidemiologic methods and statistical programming to conduct an epidemiologic analysis and draft the manuscript in preparation for a peer-reviewed publication

- ✓ Develop an overall understanding of methods/tools from the major subfields of epidemiology and how they can be leveraged in clinical research
- ✓ Understand the key issues/considerations across the full spectrum of leading an epidemiologic study

GRADING
Your grade will be based on:

Class participation and attendance (15%)
All students are expected to attend the synchronous lectures and actively engage in classroom discussions. Students should be prepared to ask questions, raise concerns, and interact with fellow students during each class. Participation in guest lectures will be recorded. Frequency: **each class.**

Homework (15%)
Three sets of homework using SAS will be distributed in early weeks of the class. Frequency: **weekly for wk 2-4.**

Mid-term exam (25%)

Class Project (45%)
Students will form groups of 3 to conduct an epidemiology analysis, interpret the findings, and write up the manuscript in preparation for publication in a peer-reviewed journal. The manuscript should include an abstract (250 words), main text that include the Introduction, Methods, and Results (2000 words) (Discussion is optional), and Tables/Figures. The students could choose from a list of topics/datasets provided or choose their own topics/datasets. If the latter, the analyses should not have been done before the course started.

Grading Scale:
A+	97-100	B+	88-89	C+	78-79	F	≤69
A	93-96	B	84-87	C	73-77		
A-	90-93	B-	80-83	C-	70-72		

ATTENDANCE AND PARTICIPATION
Class attendance is required. As a courtesy to other students, you are expected to arrive on time for Zoom meetings. More than two unexcused absences from class may result in a lowered grade. Readings assigned for each class should be read ahead of the class and students should be prepared to discuss the material from readings.

POLICY ON LATE ASSIGNMENTS
Late assignments will result in a deduction of one grade point (e.g. A+ down to A) for each day late (including weekends) unless prior approval is obtained from the instructor or a compelling situation prevents prior approval (i.e. documented health issues or family emergencies).

DROP DATES
You may drop for any reason during the course of the semester. However, you may only receive a partial or no tuition reimbursement depending upon how far into the semester you drop the course. See the MPHS Student Handbook. Late withdrawals will appear on your transcript as a withdrawal.

Course Schedule ([Zoom meetings 9-10:45 am on each class day](#))

PR: Pre-recorded lecture; GL: guest lecture

*Synchronous lecture/activities.

DATE	Topic/Activity (Tentative)	ASSIGNMENTS (Tentative)
10/20 (Tu)	**Course overview*** **Power of descriptive epidemiology***	
10/22 (Th)	**PR: SAS lab 1 (case-control)** **Advanced topics in case-control studies***	
10/27 (Tu)	**PR: SAS lab 2 (cohort)** **Advanced topics in cohort studies***	**Due: Homework 1**
10/29 (Th)	**PR: SAS lab 3 (survival)** **Advanced topics in other study design***	
11/3 (Tu)	**Modeling beyond the basics*** **Final project/dataset***	**Due: Homework 2**
11/5 (Th)	**GL: Propensity score analyses***	
11/10 (Tu)	**Advanced topics in validity and bias/causal inference***	**Due: Homework 3**
11/12 (Th)	**GL: Geospatial epidemiology***	
11/17 (Tu)	**GL: Leveraging large database*** **Progress on final project***	
11/19 (Th)	**GL: Nutritional epidemiology***	
11/24 (Tu)	**Midterm (no class)**	**Exam due 11/24 (@11:59 pm)**
11/26 (Th)	**Thanksgiving holiday (no class)**	
12/1 (Tu)	**GL: Real-time/COVID19 epidemiology***	**Due: Preliminary tables for final project**
12/3 (Th)	**GL: Biobank***	
12/8 (Tu)	**GL: Future of clinical epidemiology***	
12/10 (Th)	**Project presentation*** **Summary***	**Final report due 12/13 (@11:59 pm)**

MPHS Academic Policy Guidelines:

Guidelines regarding MPHS course registration and enrollment, grades, tuition obligation, and academic leave are consolidated in the **MPHS Student Handbook**. Please review this document.

MPHS Guidelines for Academic and Non-Academic Transgressions:

By registering for this course you have agreed to the terms of the **MPHS Academic Integrity Policy, outlined below and in more detail in the MPHS Student Handbook**. Please review this policy before submitting your first graded assignment.

Academic Integrity/Plagiarism Policy:
- Academic dishonesty is a serious offense that may lead to probation, suspension, or dismissal from the University. Academic dishonesty includes plagiarism (the use of someone else's ideas, statements, or approaches without proper citation). Academic dishonesty also includes copying information from another student, submitting work from a previous class for a new grade without prior approval from your instructor, cheating on exams, etc. You are responsible for reviewing WashU's academic integrity resources to become aware of all the actions that constitute academic dishonesty.
- All instances of academic dishonesty will be reported to the Office of the Registrar for investigation and potential disciplinary action. In addition, the instructor will make an independent decision about the student's grade on any assignment in question. The MPHS process regarding academic dishonesty is described in the MPHS Student Handbook.

DISABILITY RESOURCES

It is the goal of Washington University to assist students with disabilities in removing the barriers their disabilities may pose and provide support in facing the challenge of pursuing an education at Washington University.

Washington University recognizes and accepts its professional, legal and moral responsibility to avoid discrimination in the acceptance and education of qualified students with disabilities and to provide reasonable accommodations to such students consistent with the principles embodied in the law. These guidelines apply to students seeking admittance as well as to those who become disabled while they are enrolled.

Washington University makes every effort to insure that all qualified applicants and students can participate in and take full advantage of all programs and opportunities offered within the university. Washington University encourages and gives full consideration to all applicants for admission. Washington University does not discriminate in access to its programs and activities on the basis of age, sex, sexual orientation, race, disability, religion, color or national origin.

To learn more about services provided to students with disabilities, initiate the process of formal documentation and/or to arrange for accommodations, please review the Disability Resources for the Med School at the start of the course.

MENTAL HEALTH RESOURCES
Mental Health Services' professional staff members work with students to resolve personal and interpersonal difficulties, many of which can affect the academic experience. These include conflicts with or worry about friends or family, concerns about eating or drinking patterns, and feelings of anxiety and depression. See: shs.wustl.edu/MentalHealth.

SEXUAL ASSAULT RESOURCES

You can also speak confidentially and learn about available resources by contacting Dr. Gladys Smith, PhD, Sexual Violence Prevention Therapist and Licensed Psychologist at the Medical Campus, (314) 362-2404. Additionally, you can report incidents to the Office of Student Affairs or by contacting WUSM Protective Services 314-362-4357 or your local law enforcement agency.

BIAS RESOURCES
The University has a process through which students and staff who have experienced or witnessed bias, prejudice or discrimination against a student can report their experiences to the University's Bias Report and Support System (BRSS) team. For details see: diversityinclusion.wustl.edu/brss/.

Office of the Associate Vice Chancellor for Diversity, Equity and Inclusion (DEI)
The DEI Training Team designs, facilitates and leads diversity education programming for faculty, staff and students on a wide range of topics including: creating a climate of respect, the value of diversity and the role of biases in our day-to-day lives.
diversity.med.wustl.edu/training/

The Office of Diversity Programs promotes diversity among and prepares medical students to lead in a global society. A priority for the Office of Diversity Programs is to cultivate and foster a supportive campus climate for students of all backgrounds, cultures and identities.
mddiversity.wustl.edu/

The Diversity and Inclusion Student Council promotes an inclusive campus environment for all School of Medicine students.
sites.wustl.edu/disc/

The Office for International Students and Scholars embraces the university's mission of welcoming promising students from around the world.
wumma.wustl.edu/