

**M19-502 Intermediate Epidemiology (3 credits)**

Fall 2 2020 (10/20/20 – 12/10/20)

Tuesday & Thursday, 9 AM – 12 PM

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](mailto:yin.cao@wustl.edu)

**Teaching Assistant**

**Xiaoyan Wang, PhD candidate**

Public Health Sciences Program at Brown School

314-203-5375

[xiaoyan.wang@wustl.edu](mailto:xiaoyan.wang@wustl.edu)

**Chao Cao, PhD candidate**

Program in Physical Therapy

[caochao@wustl.edu](mailto:caochao@wustl.edu)

**Office hours**

Tuesday after each lecture (up to 12PM) or by appointment.

**GUEST SPEAKERS**

**Graham Colditz**, Professor of Surgery; Chief, Division of Public Health Sciences

**Ryan Fields**, Professor of Surgery; Chief, Section of Surgical Oncology

**Randi Foraker**, Associate Professor, Division of General Medical Sciences

**Yikyung Park**, Associate Professor of Surgery; Division of Public Health Sciences

**Ryan Bogdan**, Associate Professor in Psychological and Brain Sciences

**Su-Hsin Chang**, Assistant Professor of Surgery; Division of Public Health Sciences

**Fei Wan**, Assistant 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.

**COURSE DESCRIPTION & 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.

### **Mid-term exam (30%)**

### **Class project (55%; proposal 15%, presentation 10%, final report 30%)**

Students will form groups (up to 3 per group) to conduct an epidemiology analysis, interpret the findings, and write up the manuscript in preparation for publication in a peer-reviewed journal. A brief research proposal (no more than 2 pages) is required. The final report should include an abstract (250 words), main text that include the Introduction, Methods, and Results (no more than 2000 words), and Tables/Figures. Discussion is optional. Groups are also required to present their findings (8 min) in the last day of class. 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 starts.

### **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:**

PR: Pre-recorded; GL: Guest lecture

DATE	TOPIC/ACTIVITY	ASSIGNMENT
10/20 (Tu)	<b>Overview</b> <b>Advanced topics in descriptive epidemiology</b>	
10/22 (Th)	<b>Advanced topics in cohort studies</b> <i>Discussion: Final project/dataset</i>	
10/27 (Tu)	<b>Advanced topics in case-control studies</b> <i>SAS lab 1 (PR)</i>	<b>Group sign-up (10/27)</b>
10/29 (Th)	<b>Causal inference (GL)</b>	
11/3 (Tu)	<b>Election day (No class)</b>	
11/5 (Th)	<b>Stress, genetic variations, and psychopathology: integrative and intergenerational approaches (GL)</b> <i>SAS lab 2 (PR)</i>	
11/10 (Tu)	<b>Propensity score &amp; instrumental variables (GL)</b>	<b>Project proposal (11/9)</b>
11/12 (Th)	<b>Modeling beyond the basics</b> <i>SAS lab 3 (optional, handout only)</i>	
11/17 (Tu)	<b>Coordinating local, regional, and national data-driven responses to a pandemic (GL)</b> <i>Discussion: Progress on final project</i>	
11/19 (Th)	<b>Nutritional epidemiology (GL)</b>	
11/24 (Tu)	<b>Midterm (No class)</b>	<b>Exam (11/24)</b>
11/26 (Th)	<b>Thanksgiving (No class)</b>	
12/1 (Tu)	<b>Geospatial epidemiology (GL)</b>	<b>Tables (12/1, optional)</b>

12/3 (Th)	<b>Biobank (GL)</b>	
12/8 (Tu)	<b>Future of clinical epidemiology (GL)</b>	
<b>12/10 (Th)</b>	<b>Project presentation</b>	<b>Report due 12/13</b>

## **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](https://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/](https://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/](https://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.

[mdiversity.wustl.edu/](https://mdiversity.wustl.edu/)

**The Diversity and Inclusion Student Council** promotes an inclusive campus environment for all School of Medicine students.

[sites.wustl.edu/disc/](https://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/](https://wumma.wustl.edu/)