I. COURSE DOMAIN AND BOUNDARIES

The purpose of this course is to present fundamentals of Epidemiology as a framework for using evidence-based approaches in addressing population health issues. Students will learn the role of epidemiological approaches for describing and quantifying health problems, and methodological approaches for assessing risk factors and disease etiology. Specifically, epidemiology seeks to: 1) identify biological to societal level factors/exposures that impact health to provide a scientific basis for preventing disease and injury and promoting health; 2) determine the relative importance of causes of illness, disability and death to establish priorities for research and action; 3) identify population sub-groups that have the greatest risk of ill health and the factors/exposures that cause it so that health protecting actions can be directed appropriately; and 4) contribute to developing and evaluating the effectiveness of public health programs and services to improve the health of the population.

The objective of this course is to provide students with an introduction to the field of Epidemiology, a core public health discipline. At the conclusion of the course, students will be able to:

1. Apply and explain the basic terminology and definitions of epidemiology for informing discussion of health issues, and identify key sources of data for epidemiologic purposes.
2. Describe the role that epidemiology plays in the understanding of the etiology and in the prevention of health-related conditions.
3. Know the difference between descriptive epidemiology and analytic epidemiology and explain the importance of each.
4. Define and interpret a public health problem in terms of magnitude, person, time, and place.
5. Describe the purposes and methods of surveillance systems, and draw appropriate inferences from data.
6. Understand how to standardize incidence and mortality rate and why standardization is important when comparing rates between populations.
7. Identify the principles and limitations of public health screening programs.
8. Explain the main study designs used in epidemiological research and their associated strengths and weaknesses.
9. Calculate basic epidemiology measures including measures of association and attributable risk.
10. Assess the presence and understand the implications of confounding bias, selection and information bias, and effect modification.
11. Evaluate evidence for causal relationships.
12. Use online public health databases to derive epidemiologic information.
13. Evaluate the strengths and limitations of epidemiologic reports through formal critiques.
14. Convey epidemiologic information to lay-persons as well as other health professionals.

II. MPH FOUNDATIONAL KNOWLEDGE AND COMPETENCIES ADDRESSED IN THIS COURSE:

A. Foundational Knowledge
   3. Explain the role of quantitative and qualitative methods and sciences in describing and assessing a population’s health.
   4. List major trends of morbidity and mortality in the US and globally.
   5. Discuss the science of primary, secondary, and tertiary prevention in public health, including health promotion, screening, etc.
   6. Explain the critical importance of evidence in advancing public health knowledge.

B. Foundational Competencies
   1. Apply epidemiological methods to the breadth of settings and situations in public health
   2. Select quantitative and qualitative data collection methods appropriate for a given health context.
   4. Interpret results of data analysis for public health research, policy or practice.
   19. Communicate audience-appropriate public health content, both in writing and through oral presentation.

III. BROWN SCHOOL ACADEMIC POLICIES

Academic Integrity: If a faculty member or student suspects that academic or professional integrity has been violated, they are required to submit an Academic Integrity or Professional Integrity Violation form found on Inside Brown for review by the Assistant Dean of the program. The Assistant Dean or designated representative will aid in the investigation of the violation, which includes but is not limited to gathering relevant evidence; conversations with the instructor, student(s) involved, witnesses, and others as necessary. Depending on the seriousness of the case, the Assistant Dean may choose to refer the matter directly to the University Student Conduct Board. This referral procedure will generally be followed if it is believed that the penalty is likely to involve suspension or expulsion from the University. The Assistant Dean for the program or designated
representative will offer to meet privately with the student(s) against whom the complaint has been made. It is the student’s responsibility to familiarize themselves with the behaviors that constitute an academic integrity violation requiring referral.

**Student Handbook 2019**

**Accommodations:** If you have a learning, sensory, or physical disability or any other diagnosis that requires accommodations and/or assistance in lectures, reading, written assignments, and/or exam taking, please work with the Disability Resource Center, a University-wide resource that provides academic accommodations support and referrals. After requesting academic accommodations by providing appropriate documentation, students approved for accommodations will provide an Accommodation Letter to the instructor and are encouraged to work directly with the instructor to discuss specific course needs. The student’s Academic Advisor and/or the Assistant Dean for Academic Affairs can support a student through this process.

**Pronouns:** The Brown School embraces and promotes gender expansiveness as reflective of the lived experiences of many students, staff, faculty and members of our expanded community. The correct use of an individual’s pronouns is a critical part of an individual’s identity and of building an inclusive community. Students, faculty and staff are encouraged to use pronouns during introductions, are expected to use expressed pronouns of all Brown School community members, and are encouraged to apologize when mistakes are made. Educational resources are available at: https://campuslife.wustl.edu/lgbtqia/lgbt-resources/gender-pronouns/

**English Language Proficiency:** If your English language proficiency is such that you may need special assistance in lectures, reading, written assignments, and/or exam taking, please communicate these needs to your instructor who may refer you to the Brown Communications Lab. If you would like help seeking additional English language resources, please visit the Global Programs Suite in Brown 309. You may also find the Academic Assistance resources available through the Office for International Students and Scholars to be helpful.

**Professional Use of Electronic Devices in the Classroom:** Computers or other electronic devices, including "smart pens" (devices with an embedded computer and digital audio recorder that records the classroom lecture/discussion and links that recording to the notes taken by the student), may be used by students at the discretion of the faculty member to support the learning activities in the classroom. These activities include taking notes and accessing course readings under discussion. If a student wishes to use a smart-pen or other electronic device to audio record lectures or class discussions, they must notify the instructor in advance of doing so. Permission to use recording devices is at the discretion of the instructor, unless this use is an accommodation approved by Disability Resources.

Nonacademic use of laptops and other devices and use of laptops or other devices for other coursework is distracting and seriously disrupts the learning process for other people in the classroom. Neither computers nor other electronic devices are to be used in the classroom during class for nonacademic reasons or for work on other coursework. Nonacademic use includes emailing, texting, social networking, playing games, instant messaging, and use of the Internet. Work on other coursework may include, but is not limited to, use of the Internet, writing papers, using statistical software, analyzing data, and working on quizzes or exams. The nonacademic use of cell phones during class time is prohibited, and they should be set on silent before class begins. In the case of an emergency, please step out of the room to take the call. The instructor has the right to hold students accountable for meeting these expectations, and failure to
do so may result in a loss of participation or attendance points, a loss of the privilege of device use in the classroom, or being asked to leave the classroom.

**Religious Holidays:** The Brown School recognizes the individual student’s choice in observing religious holidays that occur during periods when classes are scheduled. Students are encouraged to arrange with their instructors to make up work missed as a result of religious observance, and instructors are asked to make every reasonable effort to accommodate such requests.

**IV. WASHINGTON UNIVERSITY ACADEMIC SUPPORT POLICIES**

**Accommodations based upon relationship or sexual violence, including sexual harassment and stalking:** The University is committed to offering reasonable accommodations to students who are victims of relationship or sexual violence. Students are eligible for accommodations regardless of whether they seek criminal or disciplinary action. Depending on the specific nature of the allegation, such accommodations may include but are not limited to implementation of a no-contact order, emergency housing, course/classroom assignment changes, assignment extensions and other academic support services. If you need to request such accommodations, please direct your requests to rsvpcenter@wustl.edu or call directly to 314-935-3445.

There are four licensed RSVP counselors who serve as confidential resources. However, to implement requests for accommodations, limited information will be shared with the appropriate university administrator and/or faculty. The University will maintain as confidential any accommodations or protective measures provided to an individual student so long as it does not impair the ability to provide such measures.

If a student comes to me to discuss or disclose an instance of sexual assault, sex discrimination, sexual harassment, dating violence, domestic violence or stalking, or if I otherwise observe or become aware of such an allegation, I will keep the information as private as I can, but as a faculty member of Washington University, I am required to immediately report it to my Department Chair or Dean or directly to Ms. Jessica Kennedy, the University’s Title IX Director. If you would like to speak with directly Ms. Kennedy directly, she can be reached at (314) 935-3118, jwkennedy@wustl.edu, or by visiting the Title IX office in Umrath Hall. Additionally, you can report incidents or complaints to the Office of Student Conduct and Community Standards or by contacting WUPD at (314) 935-5555 or your local law enforcement agency. See: Title IX

You can also speak confidentially and learn more about available resources at the Relationship and Sexual Violence Prevention Center by calling (314) 935-3445 for an appointment or visiting the 4th floor of Seigle Hall. See: RSVP Center

**Bias Reporting:** The University has a process through which students, faculty, staff and community members who have experienced or witnessed incidents of bias, prejudice or discrimination against a student can report their experiences to the University’s Bias Report and Support System (BRSS) team. See: brss.wustl.edu.

**Mental Health:** 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 Mental Health Resources.

**Center for Diversity and Inclusion (CDI):** The Center of Diversity and Inclusion (CDI) supports and advocates for undergraduate, graduate, and professional school students from underrepresented
and/or marginalized populations, creates collaborative partnerships with campus and community partners, and promotes dialogue and social change. One of the CDI’s strategic priorities is to cultivate and foster a supportive campus climate for students of all backgrounds, cultures and identities. See: diversityinclusion.wustl.edu/

Additional Issues or Concerns: If you feel that you need additional supports in order to be successful in your time at Brown, beyond the mentioned accommodations, please contact your Academic Advisor or Danielle Bristow, Assistant Dean for Academic Affairs. They can assist you in navigating a myriad of concerns.

V. READINGS

Required textbook (on reserve at the Brown School Library):


VI. ORGANIZATION OF COURSE

The course will be primarily lectures, examples, in-class exercises and discussion. Students will perform problem sets that reinforce the epidemiologic principles and methods that are presented in class. There will also be three exams, a presentation, and an article critique exercise to assess students’ mastery of the course objectives.

**Common elements of Foundations of Epi Sections:**

Pedagogical elements common to all sections of this course include:

- Lecture
- Discussion
- Problem sets
- Written Exams

VII. ROLE OF FACULTY AND STUDENT

**Student Expectations and Requirements:**

I expect students to:

- Read the course syllabus, project descriptions and associated grading rubrics in their entirety.
- arrive in class on time, prepared to discuss the problem set and any assigned readings, and to be engaged in class lectures, discussion, and activities.
- submit assignments by the due date and time.
- complete their own work. *Please read the Academic Integrity Policy in the Student Handbook and ask for guidance when you are uncertain about this issue.*
- submit formal mid- and end-of-semester course evaluations.
- be respectful of other students, the instructors, and the general learning environment in and out of the classroom.
Instructor Expectations and Requirements:

- I expect myself to:
  - arrive in class on time, prepared, organized, and enthusiastic.
  - respect all students and their identities.
  - maintain an inclusive learning environment.
  - provide constructive feedback and grades on assignments and tests in a timely fashion, generally one week after submission.
  - make myself available to answer any questions or concerns that students have about the course. (I will generally respond to questions within 24 hours.)
  - be adaptive to student learning needs and adjust the course content and structure accordingly.

Teaching Assistant Expectations

- I expect TAs to:
  - respect all students and their identities.
  - maintain an inclusive learning environment.
  - be available for students during regular office hours.
  - aid in grading of problem sets, exams, and other assessments.
  - hold external review sessions before exams 1 and 2.

VIII. ASSIGNMENTS AND GRADING CRITERIA

Problem Sets (15% of final grade):

This course includes completion of ten problem sets. Each problem set focuses on the information provided in the prior lectures and readings and provides students with an opportunity to develop the skills to master the competencies and/or objectives associated with each lecture. Students receive up to 2-4 points for each assignment.

Grading criteria: Grades for all problem sets require completion (2 points), earned with full completion of each problem and its subparts, showing work for all calculations unless instructions state otherwise, and providing an interpretation where applicable.

I encourage students to discuss the problem sets with me, the TA, and fellow students as needed; however, problem sets are individual assessments. **Therefore, students must submit their own unique answers for each assignment** (i.e., cutting and pasting another student’s answer is not acceptable.)

Submit problem sets via Canvas by the start of class on the date due (1pm for Tuesday, 9am for Thursday). Late submissions without prior notification may receive a maximum of 50% of the allotted points.

We will review answers in class. Please bring a hard copy or your computer with you. Since problem sets are graded for completion and not accuracy, and since we review answers in class, detailed, individual feedback will not be provided unless requested.
Epidemiology in the News Presentation (5% of final grade):

In teams of 4 to 5, students will choose one current (within 4 months of presentation time) news item that presents epidemiologic information and compare what is reported in the news with the original research (journal article). The purpose of this assignment is for students to 1) examine how media outlets communicate epidemiologic research to the public and how this reporting has potential implications for health beliefs and behaviors and 2) to gain practice facilitating group discussions around scientific research.

Grading criteria: Presentation grades include an assessment for appropriateness of article choices, quality of content comparison between news and journal article, quality of presentation and discussion facilitation, adherence to time limits, and peer assessment. A detailed project description and grading rubric will be provided, and I will distribute team assignments during the second week of class.

Article editorial/critique (10%): This assignment will assess the students’ synthesis of material covered in the course including but not limited to: descriptive and analytical epidemiology, study design, measures of disease frequency and association, systematic bias, confounding, effect modification (where applicable), and causality. Students will work in groups of 2-3 to write an 800-1000 word editorial for a technical audience on a published manuscript (to be posted on Canvas). A detailed project description and grading rubric will be provided.

Exams (60% of final grade; 20% each):

Students will complete three in-class examinations. Each exam assesses students’ mastery of learning objectives and competencies covered in this course and may include some combination of true/false, multiple choice, calculations, short answer questions, and case-based questions, with the majority of questions designed to engage students in higher-level, applied practice of epidemiological theories and methods. Make-up exams are not permitted unless under extraordinary circumstances.

With the exclusion of a grading error, submit any requests for re-grading of exam items first via email with a detailed explanation of why you believe your answer is correct.

Professionalism (10% of final grade):

Professionalism grade includes in the following:

(1) Preparedness for and Participation in class discussions, review of problem sets, and group activities: I expect students to engage and participate in class discussions, including during student presentations. Use of technology for non-class purposes (academic or non-academic) will result in a deduction in participation points.

(2) Punctuality and Attendance: I expect students to attend class and arrive on time. Missing more than one class session or being late to class more than twice will result in a deduction of points.
(3) Other: Other disruptive or disrespectful behaviors may also result in a deduction of points.

**Extra Credit:**

Students will receive extra credit on exam 2 and on the final exam (2 points of extra credit per exam) upon completion of the online course evaluations (midterm and end of semester). *I do not give other opportunities to earn extra credit in this course.*

**Grading Scale:**

<table>
<thead>
<tr>
<th>Score Range</th>
<th>Grade</th>
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<tbody>
<tr>
<td>95-100</td>
<td>A*</td>
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<tr>
<td>90-94</td>
<td>A-</td>
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<tr>
<td>88-89</td>
<td>B+</td>
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<td>82-87</td>
<td>B</td>
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<td>80-81</td>
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<td>77-79</td>
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<td>74-76</td>
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<td>70-73</td>
<td>C-</td>
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<td>69 &amp; below</td>
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*What constitutes A work:* A’s are earned for outstanding work that exceeds expectations for performance in graduate study.

**IX. MPH COMPETENCY ALIGNMENT TO ASSESSMENT OPPORTUNITY**

<table>
<thead>
<tr>
<th>MPH Competency(ies)</th>
<th>Assessment Opportunity</th>
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<tbody>
<tr>
<td>F1. Apply epidemiological methods to the breadth of settings and situations in public health</td>
<td>All problem sets and exams</td>
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<tr>
<td>F2. Select quantitative and qualitative data collection methods appropriate for a given health context.</td>
<td>Study design problem set, exams 2 and 3</td>
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<td>F4. Interpret results of data analysis for public health research, policy or practice.</td>
<td>All problem sets and exams</td>
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<td>F19. Communicate audience-appropriate public health content, both in writing and through oral presentation.</td>
<td>Epi in the News presentation, Article critique.</td>
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<td>Semester Week</td>
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