QBS 130/Biol 072: Foundations of Epidemiology I

Professor: Diane Gilbert-Diamond, ScD, Associate Professor of Epidemiology at the Geisel School of Medicine at Dartmouth
- Office location: Dartmouth Hitchcock Medical Center (DHMC), Rubin, Rm 853; 1 Rope Ferry, Rm. 104 or 112
- Office hours: Tues and Thurs, 12:15-1:00 pm (Rope Ferry 104/112); or by appointment

Graduate Teaching Assistant:
- Jennifer Luyapan (Office Hour: Mondays 1-2 pm, DHMC Williamson Room 323)
- Daniel Mattox (Office Hour: Mondays 11:30-12:30, Sudikoff Rm 114)
- Robert Quon (Office Hour: Monday 2pm-3pm, DHMC Borwell 503E)

COURSE MEETINGS: Attendance is expected at all lectures and class participation constitutes a substantial proportion of the course grade. Class meetings will take place on Tuesdays and Thursdays, 10:10-12:00 PM in Rm. 205 at the Life Sciences Building.

COURSE OBJECTIVES: The primary goal of this first course of a two-part sequence on Foundations of Epidemiology is to introduce basic epidemiological theory and methods. The second course in the series provides in-depth understanding of epidemiologic theory and methods. The two courses provide a strong foundation that can be used to conduct sound epidemiological research. We specifically seek to:
1. Demonstrate why epidemiology is an interesting and useful scientific discipline
2. Develop proficiency in the following concepts and skills used by practicing epidemiologists, including:
   - Describing population features and factors influencing population membership.
   - Calculating and interpreting measures of disease frequency.
   - Understanding key characteristics of epidemiological study designs (e.g. case-control, cohort) and which designs are most appropriate to answer certain research questions.
   - Precisely defining hypotheses that relate specific exposures to disease outcomes.
   - Describing several characteristics of people, time periods, and geographic areas that often influence disease risks.
   - Understanding the types of evidence that support a causal exposure-disease relationship and interpreting the causality of associations presented in epidemiological studies.
   - Calculating and interpreting measures of excess risk of disease related to a specific exposure in various epidemiological study designs.
   - Understanding types of measurement error (e.g. differential and non-differential), how it can arise in epidemiological studies, and how it can influence study results.
   - Understanding criteria for confounding of exposure-disease associations, how it arises, evidence of confounding, how it may impact the interpretation of study results, and basic methods to control for confounding.
   - Understanding effect modification in exposure-disease associations, how effect modification differs from confounding and basic methods to examine effect modification.
3. Develop the ability to effectively describe and interpret primary papers in epidemiology both orally and in writing using the language of epidemiology.

COURSE PHILOSOPHY: The professor and students are partners who share a mutual goal of advancing the students’ mastery of basic epidemiological theory and methods. The professor’s role is to create a course structure and environment that will best enable students to gain mastery of the
material. The student’s role is to actively use that course structure and environment to learn course material as well as to repeatedly apply and practice using that material. Evaluations of the student’s proficiency with the course material are important to understand and address any deficits; in addition to formal evaluations by the professor, students should continually evaluate their mastery of the material to best guide their learning process.

RESPONSIBILITIES & EXPECTATIONS:

Students in this course are expected to:
1. Read the appropriate textbook material before each lecture.
2. Attend all lectures and actively participate by asking and answering questions.
3. Do not use electronic devices during class meetings.
4. Demonstrate understanding of course material on problem sets.
5. Keep track of course activities and announcements via our Canvas site.
6. Seek help from the Professor or TA when needed.

Professor Gilbert-Diamond can be expected to:
1. Be organized and well prepared throughout the course.
2. Explain course material clearly and efficiently.
3. Answer student questions thoroughly.
4. Be available for consultations regarding course material and assessments outside of class.
5. Use evaluation methods that provide a representative test of student knowledge and understanding of the course material.
6. Grade student work fairly and return it promptly.

The Teaching Assistant can be expected to:
1. Master the material presented at lecture.
2. Grade homework assignments fairly and return them promptly.
3. Provide assistance with course material upon request.
4. Serve as a liaison between students and the professor.

Student Accommodations: Students with disabilities, including invisible disabilities such as chronic illnesses and learning disabilities, are encouraged to arrange for accommodations that might be helpful. Please meet with the professor as soon as possible to discuss possible accommodations. Students can also consult the Student Accessibility Services office (205 Collis Student Center, 646-9900, Student.Accessibility.Services@Dartmouth.edu) if they have questions about academic adjustments and services. All discussions with the student accessibility office and/or the professor will be confidential.

Religious Observances: Some students may wish to take part in religious observances that occur during this academic term. If you have a religious observance that conflicts with your participation in the course, please meet with the professor as soon as possible to discuss appropriate accomodations.

COURSE REQUIREMENTS & GRADING: Final grades will be based on problems sets, midterm exam, final exam, and course participation.

<table>
<thead>
<tr>
<th>Method of Assessment</th>
<th>Contribution to Final Grade</th>
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<tbody>
<tr>
<td>Problem Sets</td>
<td>20%</td>
</tr>
<tr>
<td>Midterm Exam</td>
<td>35%</td>
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<tr>
<td>Final Exam</td>
<td>35%</td>
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<tr>
<td>Course participation (including presentation)</td>
<td>10%</td>
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</tbody>
</table>

The percentile to letter grade conversion is:

<table>
<thead>
<tr>
<th>Undergraduate Student Grade1,2</th>
<th>Graduate Student Grade3</th>
</tr>
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<tbody>
<tr>
<td>94 - 100% A</td>
<td>Excellent mastery of the course material</td>
</tr>
<tr>
<td>90 - &lt;94% A-</td>
<td>HP (High Pass)</td>
</tr>
<tr>
<td>87 - &lt;90% B+</td>
<td>Good mastery of the course material</td>
</tr>
<tr>
<td>83 - &lt;87% B</td>
<td>P (Pass)</td>
</tr>
<tr>
<td>80 - &lt;83% B-</td>
<td>Acceptable mastery of the course material</td>
</tr>
<tr>
<td>77 - &lt;80% C+</td>
<td>LP (Low Pass)</td>
</tr>
<tr>
<td>73 - &lt;77% C</td>
<td>Work which is acceptable for graduate credit, but in which the student exhibited one or more serious deficiencies</td>
</tr>
<tr>
<td>70 - &lt;73% C-</td>
<td>NC (No Credit)</td>
</tr>
<tr>
<td>67 - &lt;70% D+</td>
<td>Deficient mastery of the course material</td>
</tr>
<tr>
<td>63 - &lt;67% D</td>
<td>Unsatisfactory work, not acceptable for graduate credit</td>
</tr>
<tr>
<td>60 - &lt;63% D-</td>
<td>Serious deficiency in mastery of the course material</td>
</tr>
<tr>
<td>0 - &lt;60% E</td>
<td>E</td>
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1In accordance with Dartmouth College’s policies
2The appendage of a “+” or “-” to the grade indicates mastery slightly above or below the norm for that grade, respectively.
3In accordance with Dartmouth’s Guarini School of Graduate and Advanced Studies’ policies

Problem Sets: Problem Sets will be one of the primary mechanisms for learning the course material. Each problem set will be based on textbook or supplemental readings and will be completed and submitted via Canvas. Discussing problem sets with classmates is encouraged as a way to promote learning. After discussing problems and concepts, each student is expected to write up solutions separately. You should list individuals with whom you collaborated on your homework assignment. Late assignments will be penalized 10% for each 24-hour period (or part thereof). Please address requests for re-grading to Professor Gilbert-Diamond.

<table>
<thead>
<tr>
<th>Problem Set</th>
<th>Text Chapters</th>
<th>Primary Topic(s)</th>
<th>Date Due</th>
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<tbody>
<tr>
<td>1</td>
<td>2-4</td>
<td>Population Characteristics, Measures of Disease Frequency</td>
<td>9/25</td>
</tr>
<tr>
<td>2</td>
<td>5-7</td>
<td>Study Designs; Person, place, and time characteristics associated with disease outcomes</td>
<td>10/2</td>
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Exams: There will be an in-class midterm and final exam that will be used to assess mastery of the course materials through multiple choice questions, short answer questions, and longer essay questions. The midterm will take place in class on 10/18/18. The date of the final will be scheduled by the College registrar later in the term. The exams will require recall and synthesis of the course material, critical thinking using the concepts and skills covered in the class, as well as precise and concise communication using appropriate epidemiological terminology. Collaboration is not permitted on the midterm or final exams. All questions about the exam should be directed to the professor.

Course participation: Active participation by students in this course is essential and will be evaluated through contributions to the class discussion throughout the term. In addition, each student will present on a disease or condition for 5 minutes and the lightning presentation performance will factor into the course participation grade.

HONOR PRINCIPLE: Honesty is the foundation of the academic pursuit of knowledge. In recognition of this, the faculty will not overlook any violations of the Academic Honor Principle (http://www.dartmouth.edu/judicialaffairs/honor/index.html). Indeed, the Faculty of Dartmouth College and the Geisel School of Medicine at Dartmouth are obligated to report potential violations of the Academic Honor Principle.

PRINCIPLES OF COMMUNITY: At Dartmouth, we value integrity, responsibility, and respect for the rights and interests of others, all central to our Principles of Community. We are dedicated to establishing and maintaining a safe and inclusive campus where all have equal access to the educational and employment opportunities Dartmouth offers. We strive to promote an environment of sexual respect, safety, and well-being. In its policies and standards, Dartmouth demonstrates unequivocally that sexual assault, gender-based harassment, domestic violence, dating violence, and stalking are not tolerated in our community. These principles are also enumerated in the Professionalism Policy for the Undergraduate Medical Education Program at Geisel.

The Sexual Respect Website (sexual-respect.dartmouth.edu) at Dartmouth provides a wealth of information on your right with regard to sexual respect and resources that are available to all in our community. Please note that, as a faculty member, I am obligated to share disclosures regarding conduct under Title IX with Dartmouth's Title IX Coordinator.

Should you have any questions, please feel free to contact Dartmouth’s Title IX Coordinator (Kristi.Clemens@Dartmouth.edu) or the Deputy Title IX Coordinator for Geisel (Leslie.Henderson@Dartmouth.edu) or for Guarini (Gary.Hutchins@Dartmouth.edu).