Clinical Epidemiology

Course Outline

General Information

Course #: EPIB 600-002
Section #: None
Term: June
Year: 2021
Course prerequisites: All students MUST have a strong clinical background in medicine or an allied health profession
Preference will be given to residents and fellows enrolled in postgraduate medical training programs at McGill University.
Previous course work in epidemiology or research experience is not required.
Course co-requisites: None
Course schedule: May 31 to June 25, 2021, Mondays, Wednesdays, Fridays, 9:00 am to 12:00 pm
Number of credits: 3 credits

Course Coordinator
Dr. Maida Sewitch, Associate Professor, Department of Medicine
[e-mail: maida.sewitch@mcgill.ca]

Virtual office hours
Mondays 1:30-3:30 by zoom*

Course Co-Instructor
Dr. Natalie Dyan, Associate Professor, Department of Medicine
[email: natalie.dyan@mcgill.ca]

To arrange an appointment with your Instructor
Send an email to book a time to avoid waiting online.
*Students can send questions by email anytime and we will respond within the day.

Course Overview
This is a basic course in clinical epidemiology that aims to provide a basic understanding of the methods of epidemiology, as applied to clinical research. Issues to be addressed include measurement issues, study design and methodology, and basic concepts in biostatistics. Students will have the opportunity to apply these concepts to their own areas of interest.

Course Objectives
By the end of the course, the student will be able to:
1. Understand basic epidemiologic concepts and principles
2. Critically evaluate the medical literature
Instructional Method
This course is designed to be highly interactive. Synchronous presentations and discussions as well as asynchronous readings and assignments (done prior to each session) are the main methods of instruction. Discussions will be recorded for those who miss the synchronous sessions.

Presentations and discussions are centred around a lecture, publication and an accompanying worksheet. Discussions are led by student teams.

Course Content
We will critically appraise 1 published paper at each session. Published papers are of different study designs and include the following: cohort, case-control, ecologic, randomized controlled trial and systematic review/meta-analysis.

Reference Texts and Readings
No textbook is required. If students wish to purchase a resource, Fletcher, Clinical Epidemiology: The Essentials (2020) is available at both the McGill Bookstore and online at: https://mcgill.on.worldcat.org/oclc/1137809074. Lecture notes, assignments, and links to articles will be available on myCourses. All readings will appear on myCourses. If students have difficulty accessing myCourses, contact one of the course instructors and she will email the materials to you.

How the course is taught:
There are 12 sessions that run from 9:05 AM to 12:00 PM on Mondays, Wednesdays and Fridays from May 31st to June 25th. The session on June 25th is a presentation on how to conduct a literature search that is given by a McGill library staff.

Student Teams: At the first session, students will be divided by the course instructors into teams for the purposes of assignments and presentations. Students will work in these teams for the remainder of the course. Some in-class time will be available for group work (when the course instructors will often be available for consultation), but some of the work will need to be done by out-of-class meetings of your group, and/or using Zoom or whatever means your team prefers in order to work together to get the projects done.

Attendance at all sessions is mandatory, aside from illness. Most sessions will include lectures given by the course instructors and guest speakers, and student presentations.

Your clinical schedule should not impede you from participating fully in each class. If you have clinical responsibilities, please make arrangements so that you will be able to fulfil the course requirements.

Missing classes because you are on call or post-call is not allowed; if you think this will be a problem, please discuss with the instructors before registering. If you have a very special reason (such as attending a scientific meeting at which you are presenting) to miss a session, please advise the course instructors ideally before you register for the class. Absence due to illnesses is understandable but please inform the instructors by email.

Students who do not attend the synchronous sessions must submit the completed worksheet to their instructors to obtain marks for class participation.
Recording of Zoom Sessions

All fixed sessions will be recorded. A recording will be available after the session on myCourses for those not in attendance.

Students will be notified through a ‘pop-up’ box in Zoom if a session is being recorded. By remaining in sessions that are recorded, students agree to the recording, and understand that their image, voice, and name may be disclosed to classmates. Students also understand that recordings will be made available in myCourses to all students registered in the course.

Expectations for Student Participation

Corresponding to each lecture is an assignment that addresses key points of that day’s lecture. After each lecture, one student team (with all members participating) will give an oral presentation outlining their answers to the assignment for that day’s lecture. Final answers will be discussed in class. All students should have read the assignment and materials in advance and be prepared to discuss the paper.

EACH TEAM must then submit their final answers to that assignment (1 assignment per team) by the beginning of the next lecture. Answers must be emailed to the teaching assistant prior to the start of that lecture. On the email subject line, indicate your team number and the name of the assignment (e.g. Group 1, Assignment: case-control study). On the document that you attach, indicate the group number, name of the assignment, and ALL NAMES OF YOUR TEAM members.

For the final protocol assignment, each team will hand in one summary (maximum 3 pages double-spaced, Times New Roman 12) of an original proposed research protocol that addresses a clinical research question which team members consider relevant. This can be based on an idea one of you has already had for a project. Further details on content and format will be provided in class.

Presentation of the final protocol will be given by the teams in class on June 23rd. Students should aim for a 10-minute power-point presentation. Informal feedback will be provided but is not marked.

Evaluation

The course is graded as Pass/Fail based on weighting of the following activities:

<table>
<thead>
<tr>
<th>Role</th>
<th>% total grade</th>
</tr>
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<tbody>
<tr>
<td>Attendance and participation in class discussions</td>
<td>10%</td>
</tr>
<tr>
<td>Team power point presentation of homework assignment</td>
<td>15%</td>
</tr>
<tr>
<td>Written 3-page protocol</td>
<td>35%</td>
</tr>
<tr>
<td>Written homework assignments</td>
<td>40%</td>
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</tbody>
</table>

It is understood that assignments submitted by groups of students will include contributions of all group members; for such assignments, one single copy submitted with all group members’ names is sufficient. However, we expect that each group will submit its own assignment, written separately from those of other groups. The same holds true for the protocol summaries. Where assignments cite published research by others, appropriate references must be provided. Direct quotes from other writers should be indicated by quotation marks.
**Students who do not attend the fixed sessions:** Completed homework assignments must be submitted on myCourses or by email to your instructors according to the Assignment Due dates in Table 1 of this document. Completed homework assignments will be graded.

**End-of-course evaluations** are one of the ways that McGill works towards maintaining and improving the quality of courses and the student’s learning experience. You will be notified by e-mail when the evaluations are available. Please note that a minimum number of responses must be received for results to be available to students.

As the instructor of this course I endeavor to provide an inclusive learning environment. However, if you experience barriers to learning in this course, do not hesitate to discuss them with me and the Office for Students with Disabilities, 514-398-6009.

**Extraordinary circumstances.** In the event of extraordinary circumstances beyond the University’s control, the content and/or evaluation scheme in this course is subject to change.

**ACADEMIC INTEGRITY**
McGill University values academic integrity. Therefore, all students must understand the meaning and consequences of cheating, plagiarism and other academic offences under the Code of Student Conduct and Disciplinary Procedures (see www.mcgill.ca/students/srr/honest/ for more information). (approved by Senate on 29 January 2003).

**Right to submit in English or French written work that is to be graded:** In accord with McGill University’s Charter of Students’ Rights, students in this course have the right to submit in English or in French any written work that is to be graded. (approved by Senate on 21 January 2009 - see also the section in this document on Assignments and evaluation).

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McGill University is on land which has long served as a site of meeting and exchange amongst Indigenous peoples, including the Haudenosaunee and Anishinabeg nations. We acknowledge and thank the diverse Indigenous people whose footsteps have marked this territory on which peoples of the world now gather.
<table>
<thead>
<tr>
<th>Class</th>
<th>Topics</th>
<th>Speakers</th>
<th>Student presentations</th>
<th>Assignments Due 9 am (All)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>May 31 M</td>
<td>Course overview /research ethics workshop Measurement; Measures of disease occurrence/association</td>
<td>M. Sewitch N. Dayan</td>
<td>NA</td>
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<tr>
<td>2</td>
<td>June 2 W</td>
<td>Cohort studies Questionnaire development</td>
<td>I. Fortier N. Dayan</td>
<td>Group 1: Cohort studies</td>
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<tr>
<td>3</td>
<td>June 4 F</td>
<td>Case-control studies p-values, p for trend</td>
<td>S. Bernatsky M. Sewitch</td>
<td>Group 2: Case-control studies</td>
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<tr>
<td>4</td>
<td>June 7 M</td>
<td>Cross-sectional studies and Ecologic studies</td>
<td>M. Sewitch</td>
<td>Group 3: Cross-sectional and Ecologic studies</td>
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<tr>
<td>5</td>
<td>June 9 W</td>
<td>Classical clinical trial designs Sample size calculation</td>
<td>N. Dayan</td>
<td>Group 4: Clinical trials</td>
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<tr>
<td>6</td>
<td>June 11 F</td>
<td>Confounding and Effect modification Confounding by indication</td>
<td>M. Sewitch</td>
<td>Group 5: Confounding and Effect modification</td>
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<tr>
<td>7</td>
<td>June 14 M</td>
<td>Health Technology Assessment (10 am) Example of HTA (9-10 am)</td>
<td>N. Almeida F. Forero TA</td>
<td>Group 6: Health Technology Assessment</td>
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<tr>
<td>8</td>
<td>June 16 W</td>
<td>Systematic review and Meta-analyses</td>
<td>K. Filion N. Dayan</td>
<td>Group 7: Systematic review &amp; Meta-analyses</td>
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<tr>
<td>9</td>
<td>June 18 F</td>
<td>Diagnostic tests and Screening (9 am) Planning/designing a study (10 am)</td>
<td>M. Sewitch C. Greenaway</td>
<td>Group 8: Diagnostic tests and Screening</td>
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<tr>
<td>10</td>
<td>June 21 M</td>
<td>Novel trial designs in the covid era</td>
<td>E. McDonald N. Dayan</td>
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<tr>
<td>11</td>
<td>June 23 W</td>
<td>Project presentations</td>
<td>M. Sewitch N. Dayan</td>
<td>All groups present their 2-3 page research protocols</td>
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<tr>
<td>12</td>
<td>June 25 F</td>
<td>Literature review session Room opens at 9, class begins at 9:30</td>
<td>Andrea Quaiattini TA</td>
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