EPI-815 - Cardiovascular Disease Epidemiology and Prevention
Course Outline – Spring 2018

Course Coordinator

Mathew J. Reeves BVSc (DVM), PhD, FAHA
Professor, Epidemiology
College of Human Medicine,
Tel: 884-3986
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Other Faculty/Instructors

Jim Pivarnik, PhD  Kinesiology
Jean Kerver, PhD  Nutrition

Prerequisite

EPI 810, or equivalent with approval of instructor

Intended for

Graduate students in epidemiology, nutrition, kinesiology, nursing, public health, or other health sciences, as well as physicians, and other medical professionals interested in learning the fundamentals of cardiovascular disease epidemiology, prevention and control.

Overall Course Goals

The goals of this course are to provide a firm understanding of the methodological foundations of Cardiovascular Disease Epidemiology and Prevention, including an understanding of the major risk factors, the importance of the major population-based epidemiologic and intervention studies undertaken in the area, and how the results of these are the basis for current public health policies and control measures. The course objectives include the understanding of:

- The burden of CVD (descriptive epidemiology)
- Population based measures of disease burden (Disease surveillance)
- The historical importance of studies in CVD epidemiology
- The epidemiology and control of the major CVD risk factors
- The design and findings of major CVD intervention studies
- The strategies for prevention of CVD and other chronic disease
- Public health models for prevention and control of CVD.

Each lecture will have specific learning objectives.
Course Outline
The course is based on a 17-week schedule, with a total of 13 seminar discussions and two in-class presentations. Class will meet on Wednesday from 9.10 am to 11.50am in A-131 East Fee Hall. A couple of sessions will be conducted by guest faculty.

Course Website
All materials required for the course will be available on the D2L course web site. This includes the course outline, lecture schedule, list of readings, Power Point lectures, home works, and instructions for the two in-class projects. The D2L site will be updated as the course progresses – final readings for each lecture will be confirmed at least one week before class.

Course Format and Power Point slides (i.e., “lectures”)  
The format of the course will be a lecture (usually 45-60 minutes) followed by in-class discussion centered on the assigned journal readings (usually 3 or 4 articles). Lecture slides which provide an overview of each week’s topic are also available on D2L. I update these slides sets as necessary and as time permits, but final versions may not be placed on D2L until the day of class (updated files will have _18 in their file name). Updates to the slides are usually quite minor so reading the older version (_16) will usually be sufficient. It is helpful to have read through the slides beforehand and be in a position to ask questions and to provide comments as you see fit.

Recommended Text
*Epidemiology and Prevention of Cardiovascular Diseases – A Global Challenge by Darwin Labarthe. 2nd edition. 2010. Jones and Bartlett Publishers, Sudbury, MA.* This is an excellent book that not only provides great background information on disease trends and all the major CVD risk factors but it also provides an excellent summary of how this information leads to the development and organization of public health actions to prevent and control CVD. This information is relevant to all other chronic disease conditions. Although I recommend that you buy this book a copy is available in the EPI library (please don’t remove it) and copies of the relevant chapters can be found on the D2L site (please don’t tell anyone).

*Other books worth exploring*


Assigned Required Readings and Lead Discussant
For each major topic in the Lecture folder on D2L the list of the week’s assigned readings will be found in the word file at the top of the ‘Readings’ section within D2L. All the .pdf files will be found below and the required readings will be found at the top of the list. Typically, the required readings for a given session will be finalized at least a week before the session (a final listing will have the _18 extension). All the other readings are optional and include important background reference sources (such as clinical guidelines, or scientific statements), or
historically important papers. Students are encouraged to read the ones that are of interest and/or download these files for later use.

Students are responsible for reading each of the required journal articles (typically 3) prior to class and are required to submit a Commentary on each article to the D2L dropbox before class (see instructions on Weekly Commentaries below). Beginning in week 3 (Physical Activity) one student will be assigned to be the lead discussant on each paper (3 papers per week, 3 discussants per week). You can find the updated schedule of presenters on the excel file called EPI 815 weekly assignments rotation 2018 in the general documents folder on D2L. As a presenter you will be expected to lead a 20-30 minute discussion of the particular paper following the content of the Weekly Commentaries. The document Brief outline for in-class presentation of journal article (found in the general documents folder in D2L) provides a template for making your presentation and leading the discussion. Other students will be expected to comment and contribute to the overall class discussion. Preparedness on weekly commentaries and discussions is worth 20% of total mark.

**Remember** – you will all soon enter the market place as trained epidemiologists (or health professional with epidemiological expertise) – whoever hires you is going to be paying you because of the combination of your knowledge and skills. It is only by sharing this knowledge that you will be useful to your employer. People who don’t know how to share their knowledge and skills will not be very successful. This is your opportunity to increase, refine, and share your knowledge! – make the most of it.

**Weekly Commentaries**

Beginning in week 3 (Physical Activity) each student will prepare a 3 page commentary on the 3 assigned readings. The commentaries are designed to help students think critically about the articles. Not all the answers are necessarily obvious in the articles themselves - you need to apply the knowledge you have learned to the articles. The document Detailed Template for Writing Weekly Summaries (found in the general documents folder in D2L) provides a detailed template for writing up each commentary. At the bottom of this page is a list of critical questions that help us understand the epidemiological and public health importance of the paper, as well as its validity, methodological strengths and weaknesses, and generalizability.

Commentaries should be posted to D2L Weekly Commentaries folder (or dropbox) **before 9 am on the day of class**. The word file should be saved using the following format: Week X_topic_Yoursurname. For example, Week 4_Blood Pressure_Reeves.

Note: I will lead the discussions for the 3 papers for Week 2 Surveillance, so students can get an understanding of how I would like the process to work starting the next week which this year is Physical activity (led by Dr. Jim Pivarnik).

**Evaluation – In-class participation, Assigned Readings, Home works and Projects**

1. **In-class participation**
   
   Twenty percent of the final grade will be based on course participation including attendance (5%) and your overall contributions to in-class discussion (15%).
2. Weekly Commentaries and Discussions on assigned readings

Twenty percent of the final grade will be based on the quality of the submitted weekly commentaries and the quality of the discussions you lead on your assigned papers.

3. Home works

There will be 2 home works during the course each worth 5% of the total grade.

**Homework #1 – Literature searching exercise (5%) (Week #1).**

**Homework #2 – Follow-up answers to a specific question (5%).** Between week #2 and #13 one student each week will volunteer to answer a specific question or issue that came up during the discussion of the readings the previous week (examples: What is X? (background question), What is the evidence that X is associated with Y? (epidemiology/causation question), what is the likely outcome following event Y? (prognosis question), what is the evidence that X reduces the risk of Y? (treatment related question), what is the evidence that X reduces the burden of Y? (prevention related question). A short summary (5-8 minutes) of your findings will be presented at the start of class the next week. This summary should include the abstract/front page of 2-3 relevant articles. **Please bring a few copies of these front pages to share.** Submit a hard copy of your report (up to 2 pages) to me for grading.

4. In-class presentations and papers

There are two in-class projects both involving a short presentation and paper (both of which are graded). The projects are worth 20% and 30%, respectively, of the total grade.

**Project #1. Epidemiology Study Designs**

This review is focused on the design of a major CVD epidemiologic study (e.g., Framingham, Chicago Occupational Cohorts, Harvard Alumnae Study, ARIC, Bogalusa, CHS, MESA, NOMASS, GWTG, NRMI, GRACE, Healthy eHeart). Involves the preparation of an in-class presentation and a paper (see specific documents in the Project folder on D2L for further details). Reports should be of sufficient quality that you will be happy to share them with the other students in the class (I post the final versions on D2L!).

**Project #2. Final Paper.** This can take on one of two formats:

i) You can review the findings and implications of a major CVD intervention or prevention based study either conducted at the patient-level (usually an RCT e.g., MRFIT, WHS, WHI, DASH, HDTP, LIPID, PREMIER, etc), or at the community-level (usually an RCT or quasi-randomized design e.g., Stanford 5-City, MN Heart Health, North Karelia, COMMIT, etc, etc). This will involve the preparation of an in-class
presentation and a paper (see specific documents in the Project folder on D2L for further details).

OR

ii) You can use the project as a grant writing exercise where you will develop a **statewide or regional cardiovascular health program or intervention** designed to prevent and control a risk factor or CVD more generally [again see specific documents in the Project folder on D2L for further details].

### Course Grading - Summary

1. In-class participation  
   Attendance (5%)  
   Overall participation (15%)  
   20%

2. Weekly Commentaries and Discussions  
   20%

3. Homework assignments  
   - # 1 literature search exercise (5%)  
   - #2 Answers to specific questions (5%)  
   10%

4. First report/paper (Epi Study Design Project)  
   In-class presentation (10%)  
   Final report (10%)  
   20%

5. Final report (Grant proposal: CVD Prevention Program)  
   In-class presentation (10%)  
   Final report (20%)  
   30%

**Remember** – although improving your knowledge of CVD epidemiology is the obvious goal of this course it is NOT the most important goal; the most important thing to get out of this course is to improve your critical thinking skills along with your oral and written communication skills. I will therefore read and edit your draft reports with the same critical editorial eye that I use when I act as an “anonymous” journal reviewer – in other words expect a critical, tough review! You should embrace this experience and not be offended or disheartened by it - this is your chance to grow in this area in a safe environment!

Grading of home work and project assignments will be: 70% (C = a pass), 75% (B-), 80% (B = acceptable), 85% (B+), 90% (A- = good), 95% (A = very good), and 100% (A+ = truly exceptional).

**Office Hours**
Arranged as necessary.
The Spartan Code of Honor Academic Pledge:

“As a Spartan, I will strive to uphold values of the highest ethical standard. I will practice honesty in my work, foster honesty in my peers, and take pride in knowing that honor in ownership is worth more than grades. I will carry these values beyond my time as a student at Michigan State University, continuing the endeavor to build personal integrity in all that I do.”
# EPI 815 Epidemiology of Cardiovascular Disease Spring 2018

Dr. Mathew Reeves, BVSc, PhD.  
Office 884-3986  
(reevesm@msu.edu)

Office/Classroom:  A-131 East Fee Hall  
Day/Time:  Wednesdays 9:10am – 11.50am

## At a Glance Course Summary

<table>
<thead>
<tr>
<th>Week</th>
<th>Lecture</th>
<th>Date</th>
<th>Topic</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>1/10</td>
<td>Intro &amp; Trends in CVD</td>
<td>Discuss course format and evaluations/projects</td>
</tr>
<tr>
<td>2</td>
<td>2</td>
<td>1/17</td>
<td>Surveillance and Validity Issues</td>
<td>Hand in HWK #1</td>
</tr>
<tr>
<td>3</td>
<td>3</td>
<td>1/24</td>
<td>Physical Activity (Dr. Jim Pivarnik)</td>
<td>Reeves Out (ISC). Start submitting commentaries on papers.</td>
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<tr>
<td>4</td>
<td>4</td>
<td>1/31</td>
<td>Blood Pressure</td>
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<tr>
<td>5</td>
<td>5</td>
<td>2/7</td>
<td>Blood Cholesterol</td>
<td>Discuss Project #1 assignment</td>
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<tr>
<td>6</td>
<td>6</td>
<td>2/14</td>
<td>Alcohol &amp; Smoking</td>
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<tr>
<td>7</td>
<td>7</td>
<td>2/21</td>
<td>Project #1 - Epi Study Design Presentations</td>
<td>Student Presentation I. Hand in final papers.</td>
</tr>
<tr>
<td>8</td>
<td>7</td>
<td>2/28</td>
<td>Body weight &amp; obesity</td>
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<tr>
<td>9</td>
<td>8</td>
<td>3/7</td>
<td>SPRING BREAK</td>
<td>NO CLASS</td>
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<tr>
<td>10</td>
<td>9</td>
<td>3/21</td>
<td>Race, Gender &amp; SES</td>
<td>Discuss Project #2 assignment</td>
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<tr>
<td>11</td>
<td>10</td>
<td>3/28</td>
<td>Healthy lifestyles</td>
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<td>12</td>
<td>11</td>
<td>4/4</td>
<td>Diet and CVD (Dr. Kerver)</td>
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<td>13</td>
<td>12</td>
<td>4/11</td>
<td>CVD Prevention and Control I</td>
<td></td>
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<td>14</td>
<td>13</td>
<td>4/18</td>
<td>CVD Prevention and Control II</td>
<td>Hand in draft papers</td>
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<tr>
<td>15</td>
<td>14</td>
<td>4/25</td>
<td>Project #2 - Final Project Presentations</td>
<td>Student Presentation II Hand-in Final Papers</td>
</tr>
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<td>16</td>
<td>15</td>
<td>5/3</td>
<td>Project #2 - Final Project Presentations (If needed)</td>
<td>10am- noon in A131 is the official exam time. Hand-in Final Papers</td>
</tr>
</tbody>
</table>

10am- noon in A131 is the official exam time.  
Hand-in Final Papers