



PBHL 508 – HEALTH CARE DATA ANALYTICS (3 credits)

Course Syllabus

Fall Quarter 2016

Mondays, 8:00 – 10:50 am @ Nesbitt 340

Instructor

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Office Hours:

- By appointment on Fridays (8:45-11:45 am) - make appointments on-line: <https://gpkanter.youcanbook.me>
 - To expedite scheduling, please do not e-mail with appointment requests.
 - If you can't be on campus during office hours, you may schedule a telephone appointment during these office hour times. Just indicate that it is a telephone appointment and the best number to reach you.
 - Note that appointment scheduling closes 24 hours before scheduled office hours (i.e. Thursday 8:45 am).
- After class on Mondays (11-11:30 am) - no appointment necessary

1. Course Description

PBHL 508 (Health Care Data Analytics) is an introduction to health care data analytics concepts and methods for students who have had little previous data analytics coursework or experience. Topics to be covered in this course include: the creation of datasets, the structure of datasets, an introduction to public health and healthcare datasets, methods for descriptive analytics, and an introduction to methods for predictive analytics. Students will gain skills in data manipulation for program evaluation and analysis. Most assignments will involve statistical programming and students are expected to have some facility with working with SAS, R, Stata, or SPSS.

2. Course Purpose

This course is an elective designed to provide policy-oriented public health students with skills in and experience with data manipulation and analysis.

3. Course Learning Objectives and Core Competencies

3.1. Course Learning Objectives

- Describe conceptual and practical issues related to the collection, sharing, and structuring of healthcare data
- Interpret basic statistics and quantitative evidence typically presented in public health policy and research settings
- Find, download/extract, and prepare a variety of health and healthcare datasets for statistical analysis
- Conduct exploratory and descriptive data analyses on a variety of data variable types from a broad range of health and healthcare datasets
- Estimate and interpret basic linear regression models
- Estimate and interpret basic statistical models with binary dependent variables (linear probability and logistic models)
- Apply critical thinking and technical skills to the use of data to inform business and policy decisions

3.2. Core Competencies

- Describe how the public health information infrastructure is used to collect, process, maintain, and disseminate data.
- Use information technology to access, evaluate, and interpret public health data.
- Use informatics methods and resources as strategic tools to promote public health.

4. Textbooks and Software

4.1. Required textbook

Ott, R Lyman, and Michael T Longnecker. *An Introduction to Statistical Methods & Data Analysis*, 7th Edition. Cengage. ISBN 978-1305269477.

There will be additional readings that will be made available on-line through Blackboard.

4.2. Required software

4.2.1. Excel (part of Microsoft Office)

4.2.2. Stata, available through Dornsife's Virtual Desktop system, will be used in class examples, and a working knowledge of Stata is required. For problem sets and projects, you may choose a statistical software package with which you are most familiar but you will be responsible for your own statistical programming support (e.g. debugging). Popular software choices are SAS, Stata, and R. Regardless of software choice, you will be asked to submit your code with each assignment.

5. Evaluation

The course grade will be based on 6 homework assignments, a final mini-project paper, a final mini-project oral presentation, a discussant presentation, and lab/in-class assignments.

Homework Assignments	60% (10% each)
Mini-Project Paper	18%
Mini-Project Presentation	7%
Discussant Presentation	5%
Lab/In-Class Assignments	10%

5.1. Homework Assignments

There will be 7 homework assignments, 6 of which will count towards the course grade (assignment with lowest grade dropped). The assignments are intended to provide students with the opportunity to practice analyzing and interpreting healthcare data. You should submit both your answers to the problem sets and the program/code used to generate the answers (you do not need to submit the log file); screen shots of interactive sessions are not an appropriate substitute for code. Late assignments will be accepted with 10% deducted from the value of the assignment each day (i.e. 24-hour period) the homework is turned in late. Students may consult with each other on the homework but each student must write up (and code up) his or her own assignment.

5.2. Mini-Project

A mini-project will be assigned in Week 8. Each student will be assigned a research or policy problem to analyze using the data analytic techniques covered in class.

5.2.1. Mini-Project Paper

Students are expected to prepare a written report (8-10 single-spaced pages, excluding tables, figures, references, and appendices) of their mini-project analysis; this report should be uploaded to Blackboard by 11:59 pm on November 21, 2016. Late reports will be accepted and graded, but penalties will be levied for lateness. Penalties for late reports are as follows: (a) within 24 hours: 25% penalty; (b) more than 24 hours late but less than 48 hours late: 50% penalty; (c) more than 48 hours late: no points.

5.2.2. Mini-Project Presentation

Students are expected to give oral presentations (10 minutes) of their analysis. The last class session (Monday, November 28, 2016) is reserved for oral presentations. Students should upload their presentation slides by 5 pm Sunday, November 27.

5.3. Discussant Presentation

Students are expected to give oral presentations (5 minutes) discussing and critiquing another mini-project analysis and results. Discussant presentations will follow oral presentations of each mini-project. Students should upload their discussant slides by 5 pm Sunday, November 27.

5.4. Lab/In-Class Assignments

On occasion, you will be asked to participate in lab and class exercises or complete surveys. A small number of points will be given for participation in these activities.

5.5. Submission of Homework and Other Class Assignments

Because of the re-grade appeals process, all homework and miscellaneous class assignments must be typed or written in ink, and submitted as paper documents (in hard copy); a 25% penalty will be levied in the first instance that an assignment includes sections that are not typed or written in ink, and zero credit for an assignment will be given for any subsequent instance. No soft copies (sent by email or uploaded to Blackboard) of homework will be accepted.

5.6. Grading Scale

A+	98-100
A	94-97
A-	90-93
B+	88-89

B	84-87
B-	80-83
C+	78-79
C	74-77
C-	70-73

5.7. Blind Grading

Every effort will be made to grade homework blind, i.e. the instructor will not know the identity of the student submitting the work when the homework is being graded. For this reason, please include, with your assignments, a cover sheet or header with the assignment title and *only* your ID number (no names). Please use the following format for your ID number: xxx-xx-xxx.

5.8. Makeup

Makeup work and presentations for this class are highly unusual and granted only under extenuating circumstances with extensive documentation (e.g. hospital discharge notice, obituary notice). In any case, you must notify the instructor within 24 hours of a missed assignment.

5.9. Re-grades

Although care is taken in grading, mistakes in grading assignments and exams can on rare occasions occur. If you feel an error was made in grading, please do the following:

- (1) Make a photocopy of your graded assignment, as re-grades will only be examined at the end of the quarter, after the final exam, and you may need the graded assignment to study.
- (2) If you believe an error was made in grading, submit a written explanation of why you believe an error was made--i.e. why your original answer was the correct answer compared to the solution or reference document--and submit a hard copy of your explanation and the graded assignment. These documents should be submitted (in-person or in mailbox) by 5 pm the day *before* the in-class Final Exam, Part A.
- (3) A request for a re-grade can unfortunately result in a lower score based on your explanation or justification.

All appeals for re-grades must go through this formal process. No informal (i.e. in-person) appeals will be accepted.

6. Class Policies and Expectations of Student Conduct

6.1. Class Attendance

Attendance will not be taken. Nevertheless, it is strongly recommended that you attend class and be well-prepared to engage in class discussions and activities because attendance in class will be crucial in preparing you for the assignments and projects. In addition, there may be in-class activities and assignments that count towards your course grade. If you have to miss class for any reason, you are responsible for reviewing the material covered and for turning assignments in when they are due. If what you need is not available on Blackboard, please request materials and information from a fellow student.

6.2. E-mail Guidelines

- Please e-mail me about any typos or errors you see on slides, homework assignments, and solutions, and any clarifications you need for assignments.

- Clarifying questions related to assignments should be sent by (12 noon) the Friday before the assignment is due or by (12 noon) the day before the presentation is scheduled.
- You *do not* need to e-mail me on issues related to class attendance (e.g. if you are not able to attend) or to confirm appointment scheduling.
- If you have substantive questions about or difficulty with specific topics, these are better addressed in-person (after class or during office hours) rather than e-mail.
- Try not to be offended if you do not receive a response; this is because of the volume of e-mails rather than intended neglect (please remind me of your question in class).

6.3. Holidays

Please inform the instructor at the beginning of the quarter of any anticipated (oral presentation) absences because of religious holidays, and we will negotiate reasonable accommodations for those absences.

6.4. Civility in Discourse and Courtesy Towards Fellow Classmates

Please respect each person and his/her ideas and questions. Please turn off all cell phones and do not listen to music, play games, web-surf, or read outside materials during class.

6.5. Academic Conduct

Students are expected to know, understand, and abide by the academic integrity policy as specified in the Code of Conduct in the Drexel University Official Student Handbook, pp. 110-113: http://www.drexel.edu/studentaffairs/community_standards/studentHandbook/

Unless otherwise instructed, all of your work in this course should represent your own completely independent work. Any student found to have committed acts of misconduct (including but not limited to cheating, plagiarism, misconduct of research, breach of confidentiality, or illegal or unlawful acts) will be subject to the sanctions and procedures outlined in the Code of Conduct.

6.6. Drexel E-mail

Announcements and other course information will be sent to students via Blackboard to your Drexel e-mail account, so please be sure to check that account regularly.

6.7. Syllabus Changes

Course content and policies described in the syllabus are subject to change, and written notice and dates for when these changes will be put into effect will be provided prior to any change.

7. Drexel Academic Policies

Technology Policy

It is up to the discretion of the instructor to decide the use of technology in the classroom. This is related to the use of hand held devices, laptops and cell phones. The policy will be communicated to the students by the instructor.

Drexel University Policy on Plagiarism

http://www.drexel.edu/provost/policies/academic_dishonesty.asp#plagiarism

Plagiarism is the inclusion of someone else's words, ideas, or data as one's own work. When a student submits work for credit that includes the words, ideas, or data of others, the source of that information must be acknowledged through complete, accurate, and specific references,

and, if verbatim statements are included, through quotation marks as well. By placing his/her name on work submitted for credit, the student certifies the originality of all work not otherwise identified by appropriate acknowledgments. Plagiarism covers unpublished as well as published sources. Examples of plagiarism include, but are not limited to:

- Quoting another person's actual words, complete sentences or paragraphs, or an entire piece of written work without acknowledgment of the source
- Using another person's ideas, opinions, or theory, even if it is completely paraphrased in one's own words without acknowledgment of the source
- Borrowing facts, statistics, or other illustrative materials that are not clearly common knowledge without acknowledgment of the source
- Copying another student's essay test answers
- Copying, or allowing another student to copy, a computer file that contains another student's assignment, and submitting it, in part or in its entirety, as one's own
- Working together on an assignment, sharing the computer files and programs involved, and then submitting individual copies of the assignment as one's own individual work
- Students are urged to consult with individual faculty members, academic departments, or recognized handbooks in their field if in doubt regarding issues of plagiarism.

Drexel University Policy on Cheating

http://www.drexel.edu/provost/policies/academic_dishonesty.asp#cheating

http://drexel.edu/studentlife/community_standards/overview/

Cheating is an act or an attempted act of deception by which a student seeks to misrepresent that he or she has mastered information on an academic exercise that he/she has not mastered.

Examples include, but are not limited to:

- Copying from another student's test paper
- Allowing another student to copy from a test paper
- Unauthorized use of course textbook or other materials, such as a notebook to complete a test or other assignment from the faculty member
- Collaborating on a test, quiz, or other project with any other person(s) without authorization
- Using or processing specifically prepared materials during a test such as notes, formula lists, notes written on the students clothing, etc. that are not authorized
- Taking a test for someone else or permitting someone else to take a test for you

Disability Statement

Students with disabilities requesting accommodations and services with the Office of Student Conduct and Community Standards need to present a current accommodation verification letter (AVL) before accommodations can be made. AVL's are issued by the Office of Disability Resources (ODR). For additional information, contact ODR at www.drexel.edu/odr, 3201 Arch St., Street, Suite 210, Philadelphia, PA 19104, 215.895.1401 (V), or 215.895.2299 (TTY).

<http://drexel.edu/oed/disabilityResources/overview/>

Course Change Policy

It is the discretion of the faculty member to change aspects of the course during the term. It is the responsibility of the faculty member to articulate how, and when these changes will occur and be communicated to the students.

Course Add/Drop Policy

<http://drexel.edu/provost/policies/course-add-drop/>

Additional Questions on Drexel Academic Policies

If you have additional questions or need further clarification, please refer to the Academic Policies from the Office of the Provost:

<http://www.drexel.edu/provost/policies/grades.asp>