



HPM 470

Statistical Methods for Health Policy and Management

(No. Credit Hours: 3)

Department of Health Policy and Management

Gillings School of Global Public Health

Syllabus Fall 2016

Class Location: McGavran-Greenberg 2308 (sec 001, residential)
<https://uncsph.adobeconnect.com/hpm470/> (sec 967, executive)

Meeting Times: Tuesdays/Thursdays 11:00a-12:15p (sec 001, residential)
Tuesdays 7:30p-9:15p (sec 967, executive)

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Office hours:	By appointment	Office Hours:	MW 1:15-2:45p (McG 1106G, sec 001) Sun 7-8:30p ET (online, sec 967)

Course Overview

The Gillings School of Global Public Health requires Master's students across the School to demonstrate quantitative skills that will allow them to understand, analyze, and disseminate health-related data. HPM 470 is a critical course for Master's students in HPM and aims to meet this requirement. As most HPM Master's graduates will hold non-research positions in healthcare organizations, they require a practical introduction to statistics and quantitative methods versus more theoretical statistical training. The goal of HPM 470 is to provide students an applied statistical skill set based in an Excel framework given the majority will use Excel in their daily roles (vs. a statistical programming package). Specifically, students successfully completing the course should be able to use Microsoft Excel to appropriately analyze health care data, and effectively communicate results to stakeholders.

Statistics requires problem-solving to truly grasp concepts and successfully apply them outside of the classroom. Lecturing is not an efficient way to teach the material or assess student comprehension. As a result, traditional lectures will be infrequent. Instead, the majority of class time will be spent discussing the fundamentals, teaching skills in Excel, and solving statistical problems as a class or in small groups. To facilitate this, it is essential to come to class prepared, having completed any pre-class readings and assignments, and with an understanding of key concepts. We will build on that basic knowledge during class, solving problems to fill in gaps and increase understanding of how best to apply statistical tools. Students should review problems prior to class and come ready to work through them with classmates and the instructor in the relevant session.

Learning Objectives and HPM Competencies

	<i>Course Learning Objective</i>	<i>HPM Competencies</i>
1.	Identify, explain, and employ statistical and analytic techniques relating to healthcare.	Analytical thinking Information seeking
2.	Demonstrate ability to use Microsoft Excel in calculating and interpreting key statistical measures.	Analytical thinking Information seeking
3.	Evaluate the merit of scientific problems, data, and claims encountered in health-related publications by applying and assessing statistical principles.	Analytical thinking Information seeking Systems thinking
4.	Solve problems critically by drawing on a variety of areas of knowledge, analyzing data, and interpreting findings.	Analytical thinking Communication skills Systems thinking
5.	Effectively work with a team to apply statistical methods, and present information to peers.	Communication skills Team dynamics

The UNC Department of Health Policy and Management aims to create health care *leaders*, not just graduate students with a particular set of skills. To that end, this course relies heavily upon individual and group participation and engagement, holds students responsible for their individual learning and achievement, and builds these elements into assessment. As such, the HPM competencies of **accountability**, **interpersonal awareness**, and **professionalism** are integrated throughout the course.

Resources

Required Texts (both use Excel 2013)

1. *Statistics for Health Care Management and Administration: Working with Excel (3rd Edition)*, by John F. Kros & David A. Rosenthal, 2016, Jossey-Bass (Wiley). ISBN: 9781118712658. Available from Amazon at the link below, and other sources.

https://www.amazon.com/Statistics-Health-Care-Management-Administration/dp/111871265X/ref=sr_1_1?s=books&ie=UTF8&qid=1466536917&sr=1-1&keywords=Kros+Rosenthal

2. *Statistics in Plain English (4th Edition)*, by Timothy C. Urdan, 2016, Routledge. ISBN: 9781138838345. The text is available from Amazon at the link below, and other sources.

https://www.amazon.com/Statistics-Plain-English-Fourth-Timothy/dp/1138838349/ref=tmm_pap_swatch_0?_encoding=UTF8&qid=&sr=

NOTE: Additional materials will be assigned for specific topics and available on Sakai.

Recommended/Optional Texts (None)

Requirements and Expectations

Computer and Software Requirements

Students will require a computer (not iPad or other tablet) for in-class activities and to complete homework activities, quizzes, and exams. As this is an Excel-based course, access to Microsoft Excel software is required either through a personal copy, or through UNC's Virtual Lab (<http://help.unc.edu/help/what-is-virtual-lab/>). We will be working through problems in a Windows environment which may vary compared to Excel for Mac. If using a Mac and having trouble, one can either run Excel through a virtual machine program running Windows (e.g., Bootcamp, Parallels, VMWare Fusion, etc.), or using UNC's Virtual Lab.

Excel Refresher: This class assumes little Excel background, but moves quickly. If you are fairly new to Excel—or find the need to refresh your skills—there are excellent reference books and online resources (see *Helpful Links*). We will also post helpful Excel links to Sakai throughout the semester to coincide with particular topics and skills.

Course Communication using Piazza

All course communication will take place using *Piazza* (integrated with Sakai). *Piazza* is a free, interactive site where students, TAs, and instructors can connect, ask and answer questions, and share ideas. When students email the instructor or TA with individual questions, your teaching staff may find themselves answering the same questions over and over. When a question is posted on *Piazza*, it only needs to be answered once, and answers are community-edited in Wiki style. When students post on *Piazza*, everyone benefits. Students like knowing that others have the same question, and when it's answered on *Piazza*, it's answered for everybody. I have also enabled the ability to post questions anonymously to other students (you will always be identifiable to the TAs and instructor) if you do not want to be identified. Because both the residential and executive sections will be working through the same material during the same week, the *Piazza* site is integrated. The instructional staff have the ability to limit postings to one section as needed.

Please post questions to *Piazza* instead of emailing the instructor or TA directly. **Students who email questions directly to the instructional staff will be redirected to Piazza.** If you need to email a sensitive question (individual grade-related), or a question you believe may be restricted (exam-related questions during exam time), *Piazza* gives you the option to make your question private for the instructor & TAs only. The instructional staff will do their best to respond within 24 hours (weekdays) and within 48 hours (weekends and holiday breaks) to questions requiring our attention. You may get an answer from another student in the interim, and we can endorse responses once we view them to let you know a thread is on track.

Class Structure and Engagement

This class employs an active learning model, and is built upon an equal partnership between the instructional staff and students. The instructional staff is responsible for delivering the course material in a consistent and engaging manner that challenges students while allowing for different backgrounds and learning styles. Students are responsible for, and participate fully, in their own learning. Rather than passively absorbing information, students take an active role in class: discussing concepts, questioning how and why things are done a certain way, working problems, and putting lessons into a larger context. Students are expected to come to class prepared for that day's material, ready to engage with the instructional staff, their groups, and the larger class,

and may be actively brought into the class discussion at any time. While attendance is not mandatory or taken formally, regular attendance is strongly recommended. The extent to which one fully prepares for and actively engages in class is likely to have a significant impact on the *Team and Professional Evaluation* grade component (see Evaluation Methods).

A note about class distractions: Things like electronics, email, and social media have become a necessary part of life for many people (including this class), yet they can detract from the learning environment and signal disengagement to the instructor and other students when used inappropriately during class. **Please refrain from non-class-related activity during class time.** Urgent situations arise; if you need to tend to something that cannot wait until class has ended, please remove yourself from class (let your group know if needed) and return when you are finished to be respectful to your fellow classmates and the instructional staff.

Evaluation Methods

Individual vs. Collaborative Assessment

We all have different strengths and limitations. Some students are stronger quantitatively and technologically, while others will struggle more with the concepts and skills taught in this course. In the "real world", we often work with colleagues among whom strengths are balanced and the group is stronger as a result, yet we are ultimately responsible for our own work and are assessed based on our individual contributions and performance. This course provides for team-based learning, but assesses students at the individual level only. Specifically, students will be placed into collaborative learning groups who will work together in various ways throughout the semester. The goal is for students to build individual skills and knowledge by working in a supportive and collaborative environment. To facilitate this, students are assessed on their individual level of understanding before and after a module is taught via online assessments. During each module, students have the opportunity to learn from each other by working through in-class and homework activities in their collaborative learning group. Students who are weaker in statistics and/or Excel can benefit from having problems clarified by group members who better understand the material being covered, while those for whom the material comes easily can confirm their understanding by explaining it to others.

Grade Components

Component	% of Grade
Readiness Quizzes (lowest 2 dropped)	20
Homework Activities (lowest 1 dropped)	20
Module Review Tests (MRTs; 3 equally weighted)	20
Group and Professional Evaluation	20
Final Exam (cumulative through Final)	20

Evaluation Criteria

Readiness quizzes (RQs) assess general knowledge and understanding of the upcoming class material. Quizzes are open-book/open-note, timed, brief (typically 10 questions), in various formats (e.g., multiple choice, matching, short answer, etc.), accessed via Sakai, and available for several

days before class. Unless otherwise noted in Sakai, RQs are due by 11:59pm ET the Monday of the week material is covered and cannot be made up for any reason—missed quizzes will receive a grade of 0. Students are responsible for ensuring a reliable internet connection and allowing enough time to complete each quiz in the allotted timeframe. The lowest 2 quiz scores will be dropped in calculating the final grade. *Readiness quizzes are individual work and the UNC Honor Code is in effect.*

Homework Activities (HWs) provide an opportunity to apply and discuss material covered through the pre-class preparation and class sessions, seek out clarification on any sticking points, and self-evaluate knowledge and understanding. They are designed to be completed shortly after the relevant class session, and are evaluated on timeliness and completion only. Students are both allowed and encouraged to work through activities within their collaborative learning groups to facilitate learning, but are responsible for knowing the material individually for exams. Whenever possible, a small portion of class time will be granted to work on homework activities within groups. HWs are due on Sakai by 11:59pm ET the Monday after being assigned and cannot be made up for any reason. HWs will only be accepted on Sakai (not via email). Students are responsible for ensuring a reliable internet connection and allowing enough time to complete and submit each homework activity. The lowest grade will be dropped in calculating the final grade. **Although students are encouraged to work in their groups, activities are graded at the individual level and each student is required to submit an individual assignment to receive credit.**

Grading scale for Activities

Criteria	Score
<ul style="list-style-type: none"> ▪ Assignment is complete (<u>all</u> questions attempted and all work shown) 	5
<ul style="list-style-type: none"> ▪ Assignment is incomplete (<u>any</u> problem or section omitted, or any portion of work not shown) 	3
<ul style="list-style-type: none"> ▪ Assignment was not submitted, or submitted after the due date 	0

Grading of activities will employ a 0-5 scale (above) based on successful completion and submission by the posted due date. Learning from mistakes best occurs when a student is able to not only view the correct answer, but see how it was achieved and how deviations from the correct response may have occurred. For this reason, students should review their individual homework activities when the solution is available to identify opportunities for improving problem solving and understanding. We will post an annotated key and/or brief video for each homework activity on Sakai to clarify and explain problem set-up, analysis, and interpretation (where applicable). Students should compare their assignments to the key and bring additional questions to the attention of the TA and/or instructor via Piazza or office hours.

Late Activity Policy

Homework activities received after the due date will not be graded and the student will not receive credit. Note that assignments are an opportunity to practice the material without being graded on correctness. For this reason, it is always in the student's best interest to attempt all problems and submit the activity by the due date. Students in need of extensions due to a true emergency should contact the instructor as soon as possible, ideally before the due date.

Module Review Tests (MRTs) assess individual mastery of module concepts and skills covered through the pre-class material, class sessions, and activities. MRTs will be timed, available on Sakai shortly after a given module has concluded, and will contain questions in various formats (e.g., multiple choice, short answer, problem solving). As with RQs, ensuring a reliable internet connection and adequate time to complete the MRT is the student's responsibility. You may use class materials during the MRT, but may not discuss the questions with others. *MRTs are individual work and the UNC Honor Code is in effect.*

Towards the end of the course, students will complete a confidential evaluation of their own and their team members' performance and engagement during the semester. These evaluations, along with observations and evaluations of student engagement by the instructor and TAs, will form the **Group and Professional Evaluation**. The expectation is that students will come to class prepared, participate fully in class as individuals and in their groups, and foster an environment of respect, collegiality, and learning (see *Class Structure and Engagement*).

The **Final Exam** will be available in Sakai and is cumulative, i.e., based on all material completed up to the session before the final. Exam questions will include multiple formats (e.g., multiple choice, matching, short answer, problem solving), be open-book/open-note, and will ask students to demonstrate that they can apply knowledge and skills learned in the course to new healthcare issues and problems similar to those discussed in class. *The final exam is individual work and the UNC Honor Code is in effect.*

Using Sakai to Stay on Track

The weekly plan for the semester, including reading assignments, homework activities, and assessments, is included in the Course Schedule. A more detailed plan for each week will be available on Sakai under a given module the week prior to beginning a given topic. Students should use the Course Schedule as a general guide, but review the specific topic on Sakai to ensure they complete all required components on time, and have access to supplemental materials if needed. Please note that the submission time for all assessments and activities is determined by Sakai's internal clock rather than the clock on the student's computer or any other source. For this reason, it is highly recommended that students submit all materials early in order to avoid missing the cutoff.

Grading Scale

Students earn their final course grades based on the following grading scale (please see <http://handbook.unc.edu/grading.html> for information about UNC Graduate School grading):

92 or above	H	(High Pass – Clear Excellence)
75 to 91.9	P	(Pass – Entirely Satisfactory Graduate Work)
60 to 74.9	L	(Low Pass – Inadequate Graduate Work)
Below 60	F	(Fail)

Final grades earned by students are not rounded up (e.g., a 91.9 is a P). Students who do not submit at least 50% of the course deliverables will earn a grade of F unless they withdraw from the course before the withdrawal period ends. Please read your program policies regarding grading and withdrawal, or speak to your program registrar and be aware of the withdrawal periods.

Guidelines on Use of Laptops and Other Electronics in Classroom

As mentioned above (see *Computer and Software Requirements*), a computer is required, and will be used in class sessions to work through problems. For this reason, students should have a computer available for all sessions (configured for UNC network access when used on campus). Guidelines for setting up wireless access can be found through the UNC IT web site (<http://help.unc.edu/help/connecting-to-the-unc-network-getting-started/>). Students should refrain from using any other electronics during class (see *Class Structure and Engagement*).

Recognizing, Valuing, and Encouraging Diversity

The importance of diversity is recognized in the mission statement of HPM. In the classroom, diversity *strengthens* the products, *enriches* the learning, and *broadens* the perspectives of all in the class. Diversity requires an atmosphere of inclusion and tolerance, which oftentimes challenges our own closely-held ideas, as well as our personal comfort zones. The results, however, create a sense of community and promote excellence in the learning environment. ***This class will follow principles of inclusion, respect, tolerance, and acceptance that support the values of diversity.***

Diversity includes consideration of: (1) life experiences, including type, variety, uniqueness, duration, personal values, political viewpoints, and intensity; and (2) factors related to "diversity of presence," including, among others, age, economic circumstances, ethnic identification, family educational attainment, disability, gender, geographic origin, maturity, race, religion, sexual orientation, social position, and veteran status.

Disability Accommodation

UNC-CH supports all reasonable accommodations, including resources and services, for students with disabilities, chronic medical conditions, a temporary disability, or a pregnancy complication resulting in difficulties with accessing learning opportunities.

All accommodations are coordinated through the UNC Office of Accessibility Resources & Services (ARS), <http://accessibility.unc.edu>, phone 919-962-8300, or email accessibility@unc.edu. Students must document/register their need for accommodations with ARS before any accommodations can be implemented.

UNC Honor Code

The principles of academic honesty, integrity, and responsible citizenship govern the performance of all academic work and student conduct at the University as they have during the long life of this institution. Your acceptance of enrollment in the University presupposes a commitment to the principles embodied in the Code of Student Conduct and a respect for this most significant Carolina tradition. Your reward is in the practice of these principles.

Your participation in this course comes with the expectation that your work will be completed in full observance of the Honor Code. Academic dishonesty in any form is unacceptable, because any breach in academic integrity, however small, strikes destructively at the University's life and work.

For in-class problems, activities, and in studying for exams, you are encouraged to get help from your group, Piazza, or the TA or instructor as needed. However, on individual quizzes and exams, you are not to receive help from other members of the class or others not taking this course. For all work in this course, using or consulting work of prior students is prohibited and will be considered a violation of the Honor Code. If you need help, work with the teaching assistant or the instructor.

If you have any questions about your responsibility or the responsibility of faculty members under the Honor Code, please consult with someone in either the Office of the Student Attorney General (966-4084) or the Office of the Dean of Students (966-4042). Read "The Instrument of Student Judicial Governance" (<http://instrument.unc.edu>).

Course Evaluation

HPM participates in the UNC-CH's online course evaluation system, enabled at the end of the semester. Your responses will be anonymous, with feedback provided in the aggregate. Open-ended comments will be shared with instructors, but not identified with individual students. Your participation in course evaluation is an expectation, since providing constructive feedback is a professional obligation. Feedback is critical, moreover, to improving the quality of our courses, as well as for instructor assessment. Students are notified when the evaluation is available online, towards the end of each semester.

Helpful Links

Many video links will be posted to Sakai throughout the semester to facilitate and supplement learning for both Excel, and statistical concepts and skills. The following resources may also be of use during the semester:

Excel Resources and Refreshers

<http://www.amazon.com/Excel-2013-Bible-John-Walkenbach/dp/1118490363> (Excel Bible)

<http://www.dummies.com/store/product/Excel-2013-For-Dummies.productCd-1118510127.html>
(Excel for Dummies)

<http://software.sites.unc.edu/lynda/> (e-Learning through Lynda.com)

<http://software.sites.unc.edu/it-academy/> (e-Learning through Microsoft Academy—see *Academic Office 2013 Library*)

<https://www.youtube.com/> (a plethora of videos on Excel tools and tips)

UNC Virtual Lab

<http://help.unc.edu/help/what-is-virtual-lab/> UNC Virtual Lab—Overview & links to instructions for use