THE UNIVERSITY
of NORTH CAROLINA
at CHAPEL HILL

HPM 671
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 2018*

Class Location:	*Rosenau Hall 133*	*(sec 001, residential)*
	https://uncsph.adobeconnect.com/hpm671/	*(sec 967, executive)*

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

Instructor:	Alyssa Mansfield Damon, PhD, MHA, MPH	TA:	Robert Carpenter (2nd-yr MHA)
Office:	1106B McGavran-Greenberg Hall	TA:	Gina Thompson (2nd-yr MHA)
Email:	***Please contact instructor and TAs via Piazza tool on Sakai only***		
Phone:	(919) 843-4621	TA Office Hours:	Mon 2:30-3:30p (RO 116, sec 001)
Office hours:	By appointment		Thur 12:30-2p (RO 116, 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 671 is a critical course for Master's students in Health Policy and Management (HPM) and aims to meet this requirement. As most HPM Master's graduates will hold non-research positions in healthcare organizations, they require a more practical introduction to statistics and quantitative methods with less emphasis on the theoretical underpinnings. The goal of HPM 671 is to provide students an applied statistical skill set in a Microsoft Excel framework (vs. a statistical programming package) to problem-solve in their daily roles. Specifically, students successfully completing the course should be able to use 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.

Any necessary changes to the syllabus or schedule will be announced and included in a revised document posted under the Syllabus & Schedule tool on Sakai.

Learning Objectives and HPM Competencies

	Course Learning Objective	HPM Competencies	Evaluation Method*
1.	Contrast basic statistical and analytic techniques used in healthcare.	**Statistical Analysis**	▪ Readiness Quizzes ▪ Homework Activities ▪ Module Review Tests ▪ Final Exam
2.	Apply Microsoft Excel to successfully calculate and interpret key statistical measures.	**Statistical Analysis**	▪ Homework Activities ▪ Module Review Tests ▪ Final Exam
3.	Formulate and solve scientific problems presented using data likely encountered in healthcare by applying statistical principles and methods.	**Statistical Analysis**	▪ Homework Activities ▪ Module Review Tests ▪ Final Exam
4.	Determine the appropriate statistical method to apply to a novel healthcare issue by drawing on statistical and substantive knowledge.	**Statistical Analysis**	▪ Final Exam
5.	Effectively engage with a peer group to apply statistical methods, troubleshoot problems, and arrive at a solution.	**Communication skills Team dynamics**	▪ Group & Professional Evaluation

*see *Grade Components* and *Evaluation Criteria* subsections for detailed description

The programs taught in HPM have developed a set of competencies for Master's students that are addressed at multiple points throughout the individual programs, and in various courses. While the goal is for each of our students to achieve *mastery* (Level III) command of each competency, we expect each student upon graduation to have achieved *proficiency* (Level II) or higher.

Among the competencies noted above, the core competency integrated into the HPM 671 curriculum is **statistical analysis**. This competency is assessed at the individual level through a combination of Readiness Quizzes at the start of each new lesson; Module Review Tests at the end of related lessons; and a comprehensive Final Exam at the course conclusion. Each student's collective performance across these individual components of HPM 671 will be used to help determine individual competency achievement. The expectation is that upon completion of HPM 671, students will have achieved proficiency (Level II) in **statistical analysis**, defined as averaging 75% or higher across the three individual-level assessments noted above (combined).

The UNC Department of Health Policy and Management aims to create healthcare leaders, not merely 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 course assessment. As such, the HPM competencies of **accountability**, **interpersonal awareness**, and **professionalism** are integrated throughout the course and assessed in the Group & Professional Evaluation grade component.

Resources

Required Texts (both use MS Excel 2013; Excel 2013 or 2016 is required)

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: You will <u>not</u> need any special software or access codes that may accompany the above texts when purchased new. 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 (<u>not</u> 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.

<u>Excel Refresher</u>: 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 use *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 repeatedly. When a question is posted on Piazza, it only needs to be answered once, and answers are community-edited in Wiki style. Students like knowing that others have the same question, and when it's answered on Piazza, it's answered for everybody. There is an option to post questions anonymously to other students if you do not want to be identified (you will always be identifiable to the TAs and instructor). Because both the residential and executive sections

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will be working through the same material during the same week, the Sakai and Piazza sites are integrated. The instructional staff have the ability to limit postings through either site to one section as needed.

Post **all** course-related questions and comments to Piazza. **Students who email the instructional staff directly for anything related to the course will be redirected to Piazza.** If you need to email a sensitive question (e.g., grade-related), or a question you believe may be restricted (exam-related questions during exams), 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 items 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.

Once available in Sakai, access the Piazza toolbar on the left side menu and sign up for an account. **Students should use <u>only</u> their UNC email address to create an account or the account will be removed (a UNC hospital/healthcare email address is fine). Note this site <u>does not</u> use your UNC ONYEN/password combination**. Instead, when prompted to create a password, please choose a password <u>other than</u> your ONYEN password, but that you will easily remember over time

Class Structure and Engagement

This class employs an active learning model 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, evaluating 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. Attendance is not mandatory, but will be noted throughout each class and is <u>strongly recommended</u>. Excessive absences, and a pattern of late arrival/leaving early signals a lack of engagement to the instructor, TAs, and groups. As such, the extent to which one attends, fully prepares for, and actively engages in class throughout the semester will significantly impact the *Group and Professional Evaluation* grade component (see Evaluation Methods).

<u>A note about class distractions</u>: 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.

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Evaluation Methods

Individual vs. Collaborative Assessment

We all have different strengths and limitations. Some students are stronger quantitatively and technologically; others 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 individual contributions and performance. This course provides for team-based learning, but assesses students at the individual level <u>only</u>. Students will be placed into collaborative learning groups to work together 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 Final Course Grade
Readiness Quizzes (RQs; lowest 2 dropped)[1]	15
Homework Activities (HW; lowest 1 dropped)[1,2]	15
Module Review Tests (MRTs; 3 equally weighted)	35
Group and Professional Evaluation[2]	5
Final Exam (cumulative through Final)	30

1. Barring true emergencies (to which University policy applies), deviations from the posted due dates will not be granted for deliverables due to travel, illness, or other circumstances. For this reason, I <u>strongly</u> encourage students to be thoughtful about using the dropped RQs and HW Activity. If all work is complete, Sakai will automatically drop the lowest grades from these components. No other deliverables will be dropped from the final grade calculation.
2. Note that in order to receive a P or H in the course, grades on your individual work (i.e., RQs, MRTs and Final Exam) <u>must</u> average 75% or greater. In other words, your HW (as it is collaborative) and Group and Professional Evaluation grades cannot pull you up from a grade of L or F earned across those three individual grade components.

Evaluation Criteria

Readiness quizzes (RQs) assess familiarity with topics and terminology, and general understanding of the upcoming class material. Quizzes are open-book/open-note, timed, brief (typically 10 questions to be completed in 20 minutes), in various formats (e.g., multiple choice, true/false, short answer, etc.), accessed via Sakai, and available for several days before class. <u>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</u>. Students are responsible for ensuring a reliable internet connection, following Sakai best practices for online assessment (<u>http://blog.teachingandlearning.unc.edu/2012/04/12/5-things-students-need-to-know-about-online-testing-in-sakai/</u>) and allowing enough time to complete each quiz in the allotted timeframe. The lowest two quiz scores will be dropped in calculating the final grade. Note, if you miss a quiz, you will not have access to the quiz questions unless you get them through a classmate. *Readiness quizzes are <u>individual</u> work and the UNC Honor Code is in effect.*

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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 apply relevant concepts from class shortly after the relevant class session, and are evaluated on timeliness and completion only. Students are not only <u>allowed</u>, but *encouraged* to work through activities within their 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. <u>HWs are due on Sakai by 11:59pm ET the **Monday** after being assigned and cannot be made up for any reason</u>. HWs will <u>only</u> be accepted on Sakai (not via email/Piazza). 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/Rubric	Score
▪ Assignment is complete and on time (i.e., <u>all</u> questions completed and all work shown)	5
▪ Assignment is on time and incomplete (i.e., <u>all</u> questions attempted, but <u>any</u> problem/section incomplete, or <u>any</u> portion of work not shown)	3
▪ Assignment was not submitted by the due date, **or all problems are not attempted in good faith**	0

Grading of activities will employ a 0-5 scale (above) based on successful completion and submission by the posted due date. **Note, HW grades will be based on whether or not a good faith attempt was made for all problems.** 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/video <u>first</u> and bring additional questions to the attention of the TA and/or instructor via Piazza or office hours.

<u>Late Activity Policy</u>: **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 fully attempt all problems and submit the activity by the due date. Students in need of extensions due to a <u>true</u> emergency (e.g., hospitalization, death of an immediate family member) should contact the instructor and program director as soon as possible, ideally before the due date. University policies are in place to assist students and provide guidance for faculty in such circumstances.

Module Review Tests (MRTs) assess individual mastery of module concepts and skills covered through the pre-class material, class sessions, and activities. MRTs are open-book/open-note, 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. Students will have

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one week following posting of MRT grades/answers to request review of a question by the instructor via Piazza. Exams will not be reviewed after this time. Any and all current class materials may be used during the MRT, but students may not discuss the exam with others. *MRTs are individual work and the UNC Honor Code is in effect.*

Towards the end of the course, students will evaluate their own and their group members' preparation, performance and engagement throughout the semester. Students provide constructive, anonymous feedback to their group members, and confidential feedback to the instructor about their teams. These evaluations—along with observations and evaluations of student engagement, attendance and professionalism by the instructional staff—form the **Group and Professional Evaluation**. We expect that students will come to every class prepared, participate fully in class as individuals and in groups, and foster an environment of respect, collegiality, and learning (see *Class Structure and Engagement*). Students who miss more than 3 weeks of class for any reason other than true emergencies as recognized by the University will receive a grade of zero (0) for this component. **Note that in order to receive a P or H in the course, grades on your individual work (i.e., RQs, MRTs and Final Exam) must average 75% or greater. In other words, your HW (as it is collaborative) and Group and Professional Evaluation grades cannot pull you up from a grade of L or F earned across those three individual grade components**.

The **Final Exam** is completed in class and 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 ask students to demonstrate that they can apply knowledge and skills learned in the course to new healthcare issues 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 any assessments, is included in the Course Schedule. A more detailed plan for each week will be available on Sakai for a given module. 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, download and review any class activities before class begins, and have access to supplemental materials if needed. As noted in the footer of this document, any necessary changes to the schedule will be announced (via Piazza) and a revised document posted to Sakai.

Please note that the submission time for all deliverables 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 period. **Also, as noted under *Grade Components*, grades on your individual work (i.e., RQs, MRTs and Final Exam) must average 75% or greater in order to receive a P or H in the course**.

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 eduroam 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 HPM mission statement. 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.

Other Assistance and Support

Students may find themselves facing personal or mental health difficulties during the course of their studies for which they need additional and/or professional assistance. The University offers support and resources to students in such times of need. Counseling and Psychological Services (CAPS) is strongly committed to addressing the mental health needs of a diverse student body through timely access to consultation and connection to clinically appropriate services, whether for short or long-

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term needs. Go to their website: https://caps.unc.edu or visit their facilities on the third floor of the Campus Health Services building for a walk-in evaluation to learn more.

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; 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 Readiness Quizzes (RQs), Module Review Tests (MRTs), and the Final Exam, students are not to receive help from other members of the class or from any other individual. **For all work in this course to which the Honor Code pledge is required (i.e., quizzes and exams), consulting or submitting work of prior students is strictly prohibited and will be considered a violation of the Honor Code.** If you need help, work with your group or other classmates, ask questions on Piazza, or consult with the TA during office hours or the instructor outside of class. The instructional staff is also available to help students determine strategies to help them work smarter (vs. harder) in order to be successful in completing course material.

In this course, students are permitted full access to class resources from the current semester and a great deal of flexibility in completing deliverables to which the Honor Code applies (i.e., RQs and exams). Any suspected instances of Honor Code violations in this course will be addressed swiftly and in full accordance with University policies, i.e., reported immediately to the Office of Student Conduct.

In addition to the items mentioned above, sharing of any materials from this course in any non-UNC domain or on any website other than UNC password-protected sites without the expressed written consent of the instructor is strictly prohibited and will be considered an Honor Code violation.

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). You may also read "The Instrument of Student Judicial Governance" (http://instrument.unc.edu) for additional information.

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.

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Helpful Links

Video links may 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

https://www.amazon.com/Excel-2016-Bible-John-Walkenbach/dp/1119067510 (Excel Bible)
http://www.dummies.com/store/product/Excel-2016-All-in-One-For-Dummies.productCd-111907715X.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