GILLINGS SCHOOL OF GLOBAL PUBLIC HEALTH

Syllabus
SPHG 711: Data Analysis for Public Health
2 Credits | Online

Course Description:
This introductory course is part of the MPH core curriculum and focuses on the biostatistics and analysis methods commonly found in public health. Students will learn to produce, interpret, and use straight-forward data analyses.

Prerequisites:
- No previous coursework in probability/statistics/ biostatistics is required.
- No software experience is required; however, students who have experience with statistical software may need less outside computing resources.
- Students are expected to be knowledgeable about basic computer functions (saving files, finding files, using path names, using drop-down menus, etc.).

Basic understanding of algebra and arithmetic (at the level of college algebra) is required. This is evaluated in the COMPASS quantitative module. Students who struggle with this module in COMPASS may need to remediate with the recommended resources in COMPASS and/or take advantages of other resources such as the Academic Enrichment Program described elsewhere.

Lead Faculty:
Name: Jane Monaco, DrPH
Title: Clinical Associate Professor
Department: Biostatistics

Section Instructor:
Your section instructor will provide an introduction, contact information and preferred method of contact in 2CH on the course wall.

Office Hours:
Each section instructor will hold office hours each week. The day and time will be posted on the course wall no later than Week 1. Students can attend Office Hours by logging into the live classroom.

Course Website:
https://2ch.onlinemph.unc.edu. Use your MPH@UNC login.

Textbook:
Required textbook: Gerstman, *Basic Biostatistics: Statistics for Public Health Practice,* 2nd edition
Much of the homework comes from this book.
Many of the datasets are provided in Excel files associated with the textbook and available online.

Supplementary textbook (not required but sometimes helpful): Diez, Barr, & Cetinkaya-Rundel, OpenIntro Statistics. (FREE download! And also available very inexpensively on Amazon.com, if you like it bound.)

Course Overview:

This course is part of the new 12-credit, 2-semester integrated core public health training program completed by all MPH and terminal MSPH students in the Gillings School of Global Public Health. More information about the new MPH core be found here.

Public health practitioners work to improve population-wide health outcomes and reduce health disparities. To succeed at this, they must be able understand how to produce, use, and interpret data analyses. Public health professionals use data to understand how different factors (predictors) may be associated with health outcomes of interest. Data analyses are also used to determine the extent to which different interventions may be effective. Thus, students must be able to use data to make convincing arguments for which factors are important determinants in a public health outcome and to understand public health issues.

This course is an introductory course focusing on the biostatistics and data science commonly used in public health and medical research applications. Topics include

- Descriptive statistics, data tables, and graphs
- Elementary probability theory, probability distributions, and diagnostic tests and their properties
- Hypothesis testing and confidence intervals—calculating, constructing, and interpreting
- Understanding limitations and best practices for using *p*-values and confidence intervals
- Selecting and evaluating methods of analysis that are appropriate for answering research questions for a given study design
- Evaluation of straightforward biostatistical usage in public health, with an emphasis on understanding research and scholarly publications
- Evaluation of the assumptions for statistical tests
- Common distributions and why they are important
- Analysis of different types of data such as categorical outcome, continuous outcome, and binary outcome

The students will use software to conduct straightforward analyses and to understand and make inferences from data. The focus will be on using data to understand associations and inform decisions, understanding commonly used methods from the public health literature, and interpreting results in language accessible to other public health professionals.

Course Format/Sessions:

This course is a fully online course that is completed asynchronously and with live sessions through MPH@UNC. The course will run for 13 weeks straight, with one live online session per week. Each week there are readings, assignments, and asynchronous content, which is expected to be completed before the live online session. You are expected to attend all live sessions and to log into the course at least 4 times a week to participate in discussions and complete tasks and assignments for that week. Live session dates and times for your section are available in 2CH and displayed in your ConnectCarolina enrollments.

Academic Enrichment Program (Tutoring)

The SPH Academic Enrichment Program is available to provide supplementary tutoring—particularly in the quantitative disciplines.
More information here: http://sph.unc.edu/students/student-resources/
Click on Academic Enrichment Program for the tutors' schedules and contact information.

Course Schedule:

The instructor reserves the right to make changes to the syllabus, including topics, readings, assignments, and due dates. Any changes will be announced as early as possible. Videos, attempting hw, and doing readings should be completed BEFORE the live session each week. A separate assignment sheet (with readings and HW problems) is provided within the course site.

Week	Title	Learning Objectives	**Assignment:** HW is Due 3 days (72 hours) after sync session
1	Getting Started: Big Picture, Summary Statistics, and Graphs	• Define and identify census and sample. • Define and identify statistics/statistics and parameters/populations. • Define SRS, and contrast with other ways of data collection. • Identify variable types. • Describe distributions with respect to symmetry, skewness, and shape. • Calculate measure of center and spread: mean, median, standard deviation variance, IQR. • Produce histograms/box plots/data table/bar charts. *(Graphing is covered in Week 1 lectures – however graphing problems in hw are postponed until the Week 2 HW)*	Homework 1
2	Probability: Basic, Conditional, Special Cases	• Define and assess probability characteristics such as independent and disjoint. • Calculate probabilities using basic probabilities for “and” and “or.” • Calculate probabilities using Venn diagrams. • Calculate probabilities using conditional probability rule. • Use Bayes’ rule. • Use tree diagrams. • Use probability to inform decisions. • Calculate and use sensitivity, specificity, PPV, and NPV.	Homework 2
3	Important Distributions: Binomial and Normal	• Identify binomial distribution (count data). • Calculate binomial probabilities using software. • Use normal approximation to the binomial. • Calculate and interpret the mean and variance for the binomial distribution. • Identify properties of standard normal, or any normal distribution. • Use 68/95/99.7 rule. • Calculate and interpret z scores, normal probabilities, and backward normal probabilities.	Homework 3
4	Distribution of the Mean and Hypothesis Testing	• Identify the difference between the distribution of the x and xbar. • Paraphrase the central limit theorem (assumptions and conclusion). • Calculate probabilities involving the distribution of the sample mean (xbar). • Demonstrate the steps of a hypothesis test. • Interpret a *p* value correctly • Identify many of the common misinterpretations of *p* values. • Explain the relationship between type I, type II error, power.	Homework 4
5	Confidence Intervals, Error Types, More Inference	• Calculate and interpret a z confidence interval. • Explain and use the relationship between a CI and *p* value.	Homework 5

6	t-Test: One Sample and Matched	• Compare a z distribution and t distribution and corresponding test. • Conduct a one-sample t-test.* • Conduct a matched-pairs t-test.* • Compute power and sample size, and explain relationships.	Homework 6
		MIDTERM EXAM: Will cover material from Weeks 1 -6. **PART 1— Short Format TIMED** **PART 2—Long Format UNTIMED**	
7	t-Test: Two Sample Test	• Conduct a two-sample t-test.*	Homework 7
8	Proportions, Risk Difference, Risk Ratio	• Conduct a one-sample test for a single proportion.* • Conduct a test of RD including a CI.* • Conduct a Fisher's Exact test • Conduct a test for RR including a CI.* • Compute power and sample size for two groups/ proportion scenario.	Homework 8
9	Categorical Data, Odd Ratios, Chi-Square	• Conduct a chi-square test for categorical data.* • Identify marginal, conditional, and joint distribution values. • Conduct a test for the odd ratio.*	Homework 9
10	Analysis of Variance	• Discuss issues with multiple comparisons in ANOVA and in general. • Conduct an ANOVA test.* • Perform a step-down test using a Bonferroni correction.	Homework 10
11	Nonparametric: Wilcoxon Rank-Sum Test	• Describe situations when nonparametric tests may be needed. • Conduct a Wilcoxon rank-sum test.*	Homework 11
12	Correlation and Simple Linear Regression	• Produce a scatterplot. • Conduct a test of the (Pearson) correlation.* • Conduct a simple linear regression analysis.*	Homework 12
13	Big Picture and Wrap-Up	• Review of important topics. • Ethics. • Methods not covered in the course.	[No HW collected]
		FINAL EXAM **PART 1— Short Format TIMED** **PART 2—Long Format UNTIMED**	

*Includes checking assumptions, producing a test statistic and *p* value (as appropriate), reporting degrees of freedom (as appropriate), **interpreting results clearly for a nonstatistician(!),** comparing to other methods, and producing a CI (as appropriate). Includes understanding implications for small sample size or not meeting assumptions. Includes being able to perform calculation by hand and *by software*, as appropriate. Includes being able to use both *summary* data or *observation-level* data (as appropriate).

Course Assignments and Assessments

This course will include the following graded assignments that contribute to your final grade in the course. For assignment descriptions and assignment grading rubrics, see Appendix A.

Assignments	Points/Percentages
COMPASS Quantitative Methods (completion)	2
Participation	8
Homework	20
Midterm Exam	
Part 1: Short Format, Timed	15
Part 2: Long Format, Not Timed	20
Final	
Part 1: Short Format, Timed	15
Part 2: Long Format, Not Timed	20
TOTAL	**100**

Grading Scale

Final course grades will be determined using the following UNC Graduate School grading scale.

H	Greater than or equal to 93	High Pass: Clear excellence
P	Greater than or equal to 80	Pass: Entirely satisfactory graduate work
L	Greater than or equal to 70	Low Pass: Inadequate graduate work
F	Less than 70	Fail

- Course final averages are not rounded up. For example, final course average of 92.98 can be assigned a P.
- The instructor reserves the right to curve grades using more generous cutpoints depending on the overall difficulty of the assessments.
- While the 'cut-off' points may appear somewhat high, because the assessments are straightforward and open book, most students perform very well.

Incomplete Grade

To be eligible for an Incomplete grade, a student needs to have completed 60% or more of the course and be *passing* the course (with a P or better) at the time the Incomplete is assigned. An Incomplete will be given only if the student is unable to complete the work due to a documented, qualifying event (severe illness, death of close family member, etc.). Before the grade of IN will be assigned, the student and the instructor must develop a plan/time line for the successful completion of the required work. Students have a maximum of one year to complete the course after receiving an IN grade. It is the student's responsibility to contact the instructor to make up the work.

This policy is to protect the student from *unreasonable expectations* of bringing up a failing a grade after a break from the course. The material is cumulative, so poor performance in the initial material impacts later material.

If a student misses the drop deadline and has not successfully completed at least 60% of the course, the student will not be eligible for an Incomplete and will receive an F for the course.

Map of Competencies to Learning Objectives and Assessment Assignments

Below you will see the competency you will develop in this course, the learning objectives that comprise the competency, and the assignment in which you will practice demonstrating this competency.

Map of Graduate-level Foundational Learning Objectives

Graduate-level Public Health Foundational Learning Objectives mapped to course sessions.

Foundational Learning Objective	Class Session
FLO03. Explain the role of quantitative ~~(and qualitative)~~ methods and sciences in describing and assessing a population's health.	Week 1 Descriptive Statistics Week 13 Big Picture and Wrap up

Map of MPH Foundational Competencies, Learning Objectives, and Assessments.

MPH Foundational Competencies developed in this course, learning objectives mapped to these competencies, and assignments that assess your attainment of these competencies.

MPH Foundational Competencies	Learning Objectives	Assessment Assignments with brief descriptions
MPH03. Analyze quantitative ~~and qualitative data~~ using biostatistics, informatics, computer-based programming and software, as appropriate.	At the conclusion of this course, students will be able to: L1. Select statistical methods that are appropriate for different studies/different questions L2. Conduct data analyses through software and other methods L3. Interpret the results of their own analyses and those they encounter in the literature L4. Explain why common misinterpretations are not correct	Part 1 Timed Final Exam: Will contain questions addressing selecting data analysis methods and common misinterpretations Part 2 Untimed Final Exam: Will include data analysis of observation level using software and interpreting those analyses

Appendix A: Assignment Descriptions, Rubrics, Honor Code Expectations

Assignment Descriptions

Homework
12 homework assignments will be collected, with the lowest two will be dropped.
Homework is due 72 hours after the synchronous session.
Any assignments turned in late will be given a score of 0 and no feedback will be given. The reason for this strict policy is to ensure that students remain on track and do not fall behind. Previous data suggests that leniency in postponing assignments often results in lower grades, reduced understanding and sometimes failure of the course.

Students are *encouraged* to discuss homework problem strategies with classmates, the Academic Enrichment Tutors, or others, but the homework submitted should be completed by each student individually. Copying answers, without independent verification, will be considered a violation of the UNC honor code.

There will be no possibility of making up missed graded homework assignments, even if the student has a good reason. However, the lowest homework scores (for 2 homeworks) will be dropped before semester grades are calculated. Thus two excused homeworks assignments are automatically granted.

Consider handwriting notes and many problems. Drawing (pencil and paper) is enormously helpful in understanding statistics and data analysis problems! Also, educational research shows benefits from handwriting notes (rather than typing). Some homework also will lend itself to handwriting rather than typing. Alternatively some homework will need to be typed such as when computer output is requested. Just because you are submitting your final homework answers in a typed document does not mean that you should not work many problems by hand. In other words, your homework and notes may be some combination of handwriting, typing, and computer output.

Most students submit their homework as a MSWord .docx file which includes typed answers, Stata output, and perhaps picture of any portion the requires handwriting. Many more details about homework expectations are provided in the *HW Assignment Sheet.*
If the submitted homework is too hard to follow or too messy, the instructor may choose not to grade the assignment after one warning.

Midterm and Final Exams
The midterm and final exams should be completed *completely independently*, with no help from classmates or anyone other than the enrolled student. The final exam will be cumulative, but it will be more heavily weighted to the material after the midterm.

Part 1: Short Format, Timed Portions

The Part I short-answer test will not require the use of statistical software. (Students may use a handheld calculator.) The focus of the Part 1 tests will be on interpretation and demonstrating understanding of the concepts. The questions may be multiple-choice/short-answer/fill-in-the-blank. Students may have notes open and books available. Because the test is timed, students should not rely heavily on these materials.

Part 2: Long Format, Untimed Portions

The Part 2 long-format, untimed portions will focus on concepts that such as computing or writing that cannot be captured in the short-answer test. For at least some questions, students will be given a dataset and asked to analyze the data using software. This portion will be graded by hand.

1. Midterm and Final Exams (70%)

Part 1 Short-Format Portions (Midterm and Final): Point values will be assigned to each question. Each question will be graded based on whether the question is answered correctly.

Part 2 Long –Format Portions (Midterm and Final): Point values will be assigned to each problem. Each problem will be graded based on the accuracy, quality, and completeness of the student's response. Quality is determined, in part, by showing required work, checking appropriate assumptions, interpreting results carefully and precisely, and making results clear to the reader.

2. Homework (20%)

Each Homework assignment may be graded either with point values assigned to each PROBLEM (Section Instructor's Decision) – or with the following rubric.

Rubric. 100 Points Each Assignment

	Fully Met	Partially Met	Not Met
Amount 25 points	25 points Completed 100% of the problems assigned	20 points Completed approximately 80-99% of the problems assigned	0-15 points Completed <80% of problems assigned
Accuracy** 50 points	50 points Almost all problems appeared to be correctly worked AND All problems showed the interim steps showing how the student got the answer AND As appropriate, hypothesis testing problems showed null and alternative, , test statistic, pvalue, CI, degrees of freedom, beautiful interpretations and checked assumptions	45 points At least 90% of problems appear to be correct (problems that are missing are assumed to be incorrect) OR Some problems showed only the answer without interim steps showing how the student got the answer OR Hypothesis testing problems were missing some steps with some garbled interpretations	0-40 points 90% or less of the problems have correct answers OR Many problems showed just an answer with no steps. OR hypothesis testing problems were missing many steps or had common incorrect interpretations
Neatness and Directions 25 points	25 points The problems are ordered correctly The problems are easy to follow	20 points Problems are somewhat difficult to follow and out of order	0-15 points Problems are very difficult to follow HW is messy Grading is difficult Unhappy reader ☹

	Handwriting (if applicable) is neat Student followed the directions to include all the needed steps [arrange the pages make things easy for the reader, to sign the honor code, the computer code is attached as an appendix, to label graphs, to include unit, to make a happy reader…..]	Handwriting (if applicable) is hard to read Student followed most of the steps for the homework Honor Code statement is missing Minimal computer code or insufficient code is provided to document work	Student missed lots of the steps Graphs are not labelled Units are missing No computer syntax is provided as needed

** **Not All HW problems will be graded for accuracy**. Instructor may pick a subset of problems to be graded carefully and to give specific feedback.

RATIONALE: Aspects such as neatness and following directions are important in communicating results to your reader (a goal for this class) and demonstrating understanding.
Most students who attempt all homework, with sufficient effort, will have high homework scores – even if their answers are not correct. Homework is intended to be a learning experience.

3. Course Participation (8%)

Rubric 8 POINTS TOTAL (At the end of semester)

	Fully Met	Partially Met	Not Met
Attendance * 6 points	6 points Missed zero or one synchronous session	3 points Missed two sync sessions	0 points Missed three or more sync sessions
Class Conduct 2 points	2 points Asked great questions. Made good points during the synchronous session. On topic. Good attitude! On time and ready to go! Willingness to help others	1 point Asked questions not pertinent to the material. Late to sync sessions more than once	0 points Poor attitude. Didn't ask any questions either in the session or outside the session but complained about not understanding the material. A clear distraction Chronically late to sync sessions

[*There is no distinction between excused and unexcused absences. All absences are absences. If you are absent, please watch the recording of the sync session.
Late arrivals to the synchronous session may be counted absent at the instructors discretion.]

4.Compass Quantitative Skills Self Test (2%)

COMPASS: Students are expected to complete the quantitative self-test in COMPASS, to identify any areas in algebra and arithmetic that would benefit from review.

- LOCATION: The self-test is located in 2U within the COMPASS course. Module "Quantitative Skills" provides an overview with the test located in the section "Quantitative Skills Self-Test."
- COMPLETION TIME: The quantitative self-test can be completed in 1-2 hours by most students.
- DUE DATE: The test is most helpful if completed before starting the course. However, students have until the beginning of Week 3 Live Session to submit evidence of completion.
- EVIDENCE OF COMPLETION: Submit a screen shot that displays the student's name and completion status. Screen shots can be uploaded to 2U in the "Assessments" tab under "Compass Completion." Credit is given for completion – not based on actual score.

Honor Code Expectations for Graded Assignments.

Exams - The midterm and final exams must be completed completely by the individual student without the assistance of any other person. Students must not consult any other person (taking this course or not taking this course, other than the instructor) about any test material. **Students must not consult tests from previous semesters**. Any suspicion of violation of the Honor Code is serious and will be taken to the UNC Honor Court.

Homework - Homework assignment strategies can be discussed among classmates, the Academic Enrichment Tutors, or others; in fact discussing homework is encouraged and many homework problems will be covered in the live session. However, the homework submitted should be completed by each student individually. Copying answers for homework, without independent verification (including copying from answer keys or any source), will be considered a violation of the UNC honor code.

If a student has any question about whether their actions could be considered a violation of the Honor Code, the student should contact the instructor before engaging in the behavior. Each graded assignment will have painfully explicit instructions about these expectations. Students will be required to sign an Honor Code statement on each graded assignment indicating that the student has neither given nor received unauthorized help.

(For more general information on the UNC Honor Code and the Honor Court see honor.unc.edu and Appendix C.)

In brief: **Don't cheat.**

Appendix B: Technical Support, Instructor Expectations, Student Expectations

Technical support

Submit assignments and quizzes well prior to the due date and time will be helpful to prevent last-minute technical issues from interfering with successful completion. Your instructor cannot resolve technical issues, but it's important to notify them if you are experiencing issues. If you have problems submitting an assignment or taking a quiz in 2CH, immediately take these steps:

1. Contact MPH@UNC's technical support via live chat, email or phone. Include the issue you encountered, the time you attempted to perform the course action, and the result of your attempt. Provide as much specific information as possible (e.g., operating system, browser, screen shot with error message), to assist the technical team with resolving the issue.
2. Send an email to your instructor with the information you provided to the technical support team and the day and time you sent the information. Ask the instructor if an alternative submission method is acceptable; do not send your assignment/assessment to the instructor unless asked to do so.

MPH@UNC provides technical support 24-hours per day, seven days per week. If you need computer help, please contact student support at 855-770-2159 or studentsupport@onlinemph.unc.edu. There is also online chat available in the bottom right corner of the 2CH learning management system.

Instructor Expectations

Email	The instructor will typically respond to email within about 36 hours if sent Monday through Friday. For emails send over the weekend, response can be expected usually on the next business day.
Feedback	"Part 2 Long-Format Untimed Portion" of the midterm and final exams will receive written feedback. Feedback is meant to be constructive and help the student continue to build upon their skills. The types of feedback you may receive are descriptive feedback, evaluative feedback, and motivational feedback. Feedback is a tool that you as a learner can use to understand the areas that you are succeeding in and what you can do to improve in other areas. Homework may receive limited receive feedback with respect to the given rubric.
Grading	Grading of assignments will be completed within two weeks of submission date, usually sooner.
Syllabus Changes	The instructor reserves to right to make changes to the syllabus. These changes will be announced as early as possible. Such changes are rare.
Telephone Messages	Instructors may have varying policies regarding telephone messages. Instructors can share this during Week 1.
Inclusive Excellence	This class will practice the Gillings School's commitment to inclusion, diversity, and equity in the following ways:

- Develop classroom participation approaches that acknowledge the diversity of ways of contributing in the classroom and foster participation and engagement of *all* students.
- Structure assessment approaches that acknowledge different methods for acquiring knowledge and demonstrating proficiency.
- Encourage and solicit feedback from students to continually improve inclusive practices.

See Additional Resources and Policies for additional information.

Student Expectations

Appropriate Use of Course Resources:

The materials used in this class, including, but not limited to, syllabus, exams, quizzes, and assignments are copyright-protected works. Any unauthorized copying of the class materials is a violation of federal law and may result in disciplinary actions being taken against the student. Additionally, the sharing of class materials without the specific, express approval of the instructor may be a violation of the University's Student Honor Code and an act of academic dishonesty, which could result in further disciplinary action. This includes, among other things, uploading class materials to websites for the purpose of sharing those materials with other current or future students

Do not share materials (such as notes, tests, and homework) with any other individuals including students who may take the course in the future. Doing so is considered an honor code violation in this course.

Assignments

Homework assignments are due 72 hours after synchronous session.

The midterm and final exam due dates are announced in advance. Midterm will be after Week 6 and the Final exam will be after Week 13.

Preparation/ Attendance/ Participation

Students are expected to have "actively watched" the lectures before attending the synchronous session. Active watching includes completing the slides (which have blanks to be filled in during the videos) and taking notes on the slides. Most students find it helpful to print the slides and fill in the slides, by hand, along with the instructor. In particular, students are encouraged to watch the lectures in a distraction-free environment and with the ability to take their own notes on the slides. Watching the videos on a phone is discouraged.

Your attendance in the synchronous session and active participation are an integral part of your learning experience in this course. Attendance will taken and count toward your participation grade.

Students should attempt the homework for that week before coming to the synchronous session. Homework is then DUE 72 hours after the synchronous session.
Students are asked, if possible, to submit questions (which may require instructor preparation) to be discussed for the live session at least 24 hours

before the synchronous session. Short questions and clarifications are welcome in the synchronous session. Long questions ("Can you go over HW #XX? Can you explain the difference between a standard error and standard deviation?") should be submitted before the synchronous session to allow the instructor to prepare and time the live session appropriately.

Communication

You are expected to follow common courtesy in all communication, including email, discussion boards, and face to face. All electronic communications sent should follow proper English grammar rules to include complete sentences. This is a professional course, and you are expected to communicate as a professional.

Discussion Board

The group discussion board (the wall) is available if you find it helpful. Peer replies should be thoughtful, reflective, and respectful while prompting further discussion using content knowledge, critical thinking skills, questioning, and relevant information of the topic.

- View the 15 Rules of Netiquette for the online discussion board at http://blogs.onlineeducation.touro.edu/15-rules-netiquette-online-discussion-boards/.

Email

All email correspondence between student/instructor and peer/peer will be conducted in a professional manner following email etiquette.

- View the following link for more information on email etiquette: http://metropolitanorganizing.com/etiquette-professional-organizing-services/essential-email-etiquette-tips/

Late Work

Homework: No late homework is accepted.

Exams: For the midterm and final exams, late submissions will receive a 10 percent reduction for every day that they are late.

Example: Suppose the test is due 8 PM, Thursday. If the test is submitted at 8:01 PM. Thursday, it will receive a 10 percent reduction. After three days, the score will be zero.

Exam date and assignment due dates will not be changed because of exams or assignments in other courses or because of conflicting vacation travel plans.

Computing Expectations

This data analysis course is not a computer programming course. The focus of the course is not on the statistical software itself. The goal is not to produce a computer programmer in a particular statistical software language.

However, students are expected to be able to analyze straightforward data examples using computer-based software as one tool. This will provide the student with insight in his/her work as a public health professional about what can be inferred from data.

If the student already knows a specific statistical software (SAS, R, SPSS,…), they can use that or any software. We will be referencing and providing resources for **Stata** software; however, any suitable software can be used for the homework and tests.

Depending on the students' background, more or less resources may be needed to acquire the needed computing skills. These resources are found under >Computing Resources. Students without Stata experience will benefit from watching the screen-capture videos (which reproduce the results from the lectures) in the >Computing Resources as well as other recommended resources in the Stata handout (which includes commonly used commands) before attempting the homework. Watching the screen-capture videos is done in "homework time" in a completely analogous way with the residential version of the course in which the computing instruction is done in outside of class time in the labs/recitations.

Note: Learning the computing software is "front-loaded." Students who are learning a new software application may need to invest *several hours in the first week of class—just on the software. After the first two weeks of class, the computing burden decreases.*

Stata was selected, in part, because the learning curve is moderate but not excessive. Although students should anticipate there *is* a learning curve to the software, it should not consume the course.

The focus of the course will be on understanding the methods of data analysis, the interpretation of the results, and using the software as a tool.

In other words, students are expected to utilize enough of the very available computing resources to be able to do the coursework.

Readings

Students should complete the readings before the synchronous session and before completing the homework.
It does not matter which is done first—readings or video lectures. Both the readings and video lectures should be done before attempting the homework.

The homework should be attempted before attending the synchronous session.

When the lectures and textbook have any discrepancies, refer to the lectures.

Homework

Homework should be attempted before the synchronous sessions. Some problems will be covered in the synchronous session.

Working the homework is where the majority of the learning happens in the course.

Time/ Attention

A two-hour graduate course is expected to require about two hours of contact time, with at least six hours of outside preparation time (or "homework time"). Although these amounts may vary from week to week and student to student, the time commitment for this, and any rigorous course, is considerable.

In particular, students are expected to commit to watching the lectures without distraction. Students are expected to commit to devoting time to completing the important homework assignments.

Understand Implications for L and F Grades/ Make Plan for Improvement

Successful completion of the course for every student is the goal!

Students are requested to contact the instructor and their academic advisor if they have concerns about their grade being in the L or F range, in order to discuss options.
One option is to make *a plan for improvement!*
Another option is to drop the course and retake the course in a semester that is more conducive to success.
It is the student's responsibility to be aware of drop deadlines.

The course material does get harder as the course progresses, so passing grades at the beginning of the semester are not a guarantee of passing the course.

Getting Started

- What should you do first? I'd watch the lectures first. (This means actively watching, including taking notes and filling in the blanks.) Then do to readings, to get a different viewpoint and reinforcement.
- The *HW Assignment Sheet* will have all the readings, HW Problems and computing info.
  Example: Textbook Required (Gerstman): Chapter 1 read, Chapter 2 skim only, Chapter 3 read, Chapter 4 read
  Textbook Recommended (Diez): Chapter 1 (skim)
- Just before attempting any homework problems that involve Stata, watch the short Stata videos which are provided in the >Computing Resources area.
- Make sure you have the *STATA Resource Handout* handy any time you are doing computing. (I suggest a hard copy)
- While the Week 1 lectures talk *descriptively* about Graphing, the logistics of DOING graphing (in Stata) is postponed until Week 2. Just to spread the computing out a bit ☺ !

Enjoy!

Inclusive Excellence

In this class, we practice the Gillings School's commitment to inclusion, diversity, and equity in the following ways. See Additional Resources and Policies for additional information.

- Treat all members of the Gillings community (students, faculty, and staff) as human persons of equal worth who deserve dignity and respect, even in moments of conflict and disagreement.
- Contribute to creating a welcoming and inclusive classroom environment, where all are able to learn and grow from one another.

- Acknowledge and respect the diversity of experiences that others bring to the classroom and the ways in which this richness enhances everyone's learning
- Strive to maintain a spirit of curiosity and generosity, particularly in the face of new and/or seemingly contradictory information and perspectives Encourage and solicit feedback from students to continually improve inclusive practices.

Appendix C: Additional Resources and Policies

Accessibility at UNC Chapel Hill

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), https://ars.unc.edu/; phone 919-962-8300; email ars@unc.edu. Students must document/register their need for accommodations with ARS before accommodations can be implemented.

Gillings School Diversity Statement

We are committed to expanding diversity and inclusiveness across the School — among faculty, staff, students, on advisory groups, and in our curricula, leadership, policies and practices. We measure diversity and inclusion not only in numbers, but also by the extent to which students, alumni, faculty, and staff members perceive the School's environment as welcoming, valuing all individuals, and supporting their development.

For more information about how we are practicing inclusive excellence at the Gillings School, visit our ***Diversity and Inclusion*** webpages:

- Diversity and Inclusion: https://sph.unc.edu/resource-pages/diversity/
- Minority Health Conference: http://minorityhealth.web.unc.edu/
- National Health Equity Research Webcast: https://sph.unc.edu/mhp/nat-health-equity-research-webcast/

Gillings School Office of Student Affairs

https://sph.unc.edu/students/osa/

Honor Code

As a student at UNC Chapel Hill, you are bound by the university's Honor Code, through which UNC maintains standards of academic excellence and community values. It is your responsibility to learn about and abide by the code. All written assignments or presentations (including team projects) should be completed in a manner that demonstrates academic integrity and excellence. Work should be completed in your own words, but your ideas should be supported with well-cited evidence and theory. If you have any questions about your rights and responsibilities, please consult the Office of Student Conduct (https://studentconduct.unc.edu/) or review the following resources:

- Honor System
  https://studentconduct.unc.edu/honor-system
- Honor system module
  https://studentconduct.unc.edu/students/honor-system-module
- UNC Library's plagiarism tutorial
  https://guides.lib.unc.edu/plagiarism
- UNC Writing Center's handout on plagiarism
  https://writingcenter.unc.edu/tips-and-tools/plagiarism/

Non-Discrimination Policies at UNC Chapel Hill

https://eoc.unc.edu/our-policies/policy-statement-on-non-discrimination/

Ombuds
https://ombuds.unc.edu/

Prohibited Discrimination, Harassment, and Related Misconduct at UNC Chapel Hill
https://deanofstudents.unc.edu/incident-reporting/prohibited-harassmentsexual-misconduct

Title IX at UNC Chapel Hill
Acts of discrimination, harassment, interpersonal (relationship) violence, sexual violence, sexual exploitation, stalking, and related retaliation are prohibited at UNC-Chapel Hill. If you have experienced these types of conduct, you are encouraged to report the incident and seek resources on campus or in the community. Please contact the Director of Title IX Compliance / Title IX Coordinator (Adrienne Allison,adrienne.allison@unc.edu), Report and Response Coordinators (Ew Quimbaya-Winship, eqw@unc.edu; Rebecca Gibson, rmgibson@unc.edu; Kathryn Winn kmwinn@unc.edu), or the Gender Violence Services Coordinators (confidential) Cassidy Johnson, cassidyjohnson@unc.edu; Holly Lovern, holly.lovern@unc.edu to discuss your specific needs. Additional resources are available at safe.unc.edu.