

University of Florida
College of Public Health & Health Professions Syllabus
Fall 2016 PHC 6052: Introduction to Biostatistical Methods (3 credits)

Sections: 04GD, 04G3, 19DA

Delivery Format: Online Course

Course Specific Content and Assessments in E-Learning using CANVAS: <http://elearning.ufl.edu/>

Note: It is extremely important to review the home page in CANVAS each week and read all announcements carefully.

Open Access Course Materials: <http://bolt.mph.ufl.edu/>

STARTING THE COURSE: Read this syllabus. Review the E-Learning home page and weekly schedule. You must take the "Syllabus quiz" and earn a score of 100% in order to start the course. This quiz is located under Assignments. The quiz is based on information in this syllabus and may be taken as many times as needed to earn 100%. This quiz is required and will be counted as part of your quiz grade. Additional guidance for getting started is provided in the E-learning site in CANVAS.



As your instructor, my primary goal is for each of you to learn as much as possible during the semester!



INSTRUCTOR:

Dr. Amy Cantrell (<http://users.php.ufl.edu/acantrell/>)

Office:

CTRB 5213

Phone Number:

352-294-5927

Email Address:

acantrell@ufl.edu

Office Hours:

by appointment

Preferred Course Communications:

- Ask about specific quiz questions or issues of a personal nature by email through CANVAS inbox in E-Learning
- Ask more general questions (NOT personal or specific quiz questions) on the discussion board
- Comment Anonymously through [Qualtrix Survey](#) (Password: cantrell.feedback)

Note: In the E-Learning system a cut-off time of 10:00pm means that at 10:00:01pm you are late. Computers are very literal and do not recognize seconds after a given time as "on time." Please plan your work accordingly and do not wait until this cut-off time to complete your assignments in the system.

TEACHING ASSISTANT:

Rachel Zahigian

Email via E-Learning in Canvas INBOX

IMPORTANT: course materials discuss a few software packages. **In PHC 6052 you are only responsible for SAS.**

PREREQUISITES AND CO-REQUISITES: There are no specific pre-requisite courses. The following describes important pre-requisite skills and discusses the software you must obtain for this course.

Although most statistical analyses will be conducted using software in this course, **students should be comfortable working with equations and performing basic mathematical calculations including order of operations, fractions, and square roots.**

Becoming familiar with a statistical package is an important part of your statistical education.

We are using **SAS Version 9.3 (or higher)** in this course. The current version available is SAS 9.4. **See the SAS information sheet for specific instructions. SAS is ONLY available for Windows as a direct installation.**

OTHER POTENTIALLY USEFUL SOFTWARE:

- Through UF student software agreements (<https://software.ufl.edu/student-agreements/>) there are many other packages available, including Microsoft Office through the [Microsoft Student Advantage Program](#)
- Open Office (<http://www.openoffice.org/>) - free "Office" suite of programs (like Microsoft Office) which can edit Word and Excel documents and convert output to PDF files.
- CutePDF (<http://www.cutepdf.com/Products/CutePDF/writer.asp>) - is a free "printer" which converts any document you can print into a pdf file. If installed, you can choose "CutePDF" in the printer list when you print a document.
- Print Friendly (<http://www.printfriendly.com/>) - an excellent resource for printing webpages.

Course Overview: This 3-credit course is a sophisticated introduction to the concepts and methods of biostatistical data analysis. The topics include descriptive statistics, probability, standard probability distributions, sampling distributions, point and confidence interval estimation, hypothesis testing, power and sample size estimation, one and two-sample parametric and non-parametric methods for analyzing continuous or discrete data, and simple linear regression. The SAS statistical software package will be taught in this class for data management, statistical analyses and power calculations.

Course Objectives and/or Goals: Upon completion of this course, students will be able to

- CO-1: Describe the roles biostatistics serves in the discipline of public health.
- CO-2: Differentiate among different sampling methods and discuss their strengths and limitations.
- CO-3: Describe the strengths and limitations of designed experiments and observational studies.
- CO-4: Distinguish among different measurement scales, choose the appropriate descriptive and inferential statistical methods based on these distinctions, and interpret the results.
- CO-5: Determine preferred methodological alternatives to commonly used statistical methods when assumptions are not met.
- CO-6: Apply basic concepts of probability, random variation, and commonly used statistical probability distributions.
- CO-7: Use statistical software to analyze public health data.
- CO-8: Develop presentations based on statistical analyses for both public health professionals and educated lay audiences.

Relation to Program Outcomes: This three-credit course is a required concentration core course for MPH Biostatistics students and covers the following MPH Biostatistics competencies.

- Describe the role of biostatistics in public health research.
- Interpret and critique analyses found in public health studies.
- Use appropriate statistical methodology to address public health problems.
- Develop presentations based on statistical methods and analyses for both public health professionals and educated lay audiences.
- Apply software to conduct statistical analyses.

This course is a core public health course for other MPH concentrations and covers the following MPH competencies.

- Monitor health status to identify and solve community health problems. (#1)
- Diagnose and investigate health problems and health hazards in the community using an ecological framework. (#2)
- Evaluate effectiveness, accessibility, and quality of personal and population-based health services. (#8)
- Conduct research for new insights and innovative solutions to health problems. (#9)
- Communicate effectively with constituencies in oral and written forms. (#10)

DESCRIPTION OF COURSE CONTENT, COURSE MATERIALS, AND TECHNOLOGY

COMPUTING: Please review the Student Computing requirements appropriate for you found at <http://studentlife.online.mph.ufl.edu/e-learning-support/e-learning/e-learning-in-canvas-technical-requirements/>

COURSE MATERIALS: There is no textbook to purchase for this course. Course materials will be provided in the form of an “online” textbook at <http://bolt.mph.ufl.edu/>. The materials for each week will be clearly identified in the E-Learning site for the course. Students are expected to work through the material as scheduled. This page can be used to test your system: <http://bolt.mph.ufl.edu/2012/11/07/test-your-system/>.

It is very important that you work through all content contained on this site as directed and ask questions about material you do not understand. **Working through the content from start to finish is the best approach to achieve a high level of understanding and success in this course.**

WORKSHEETS: The primary difference between the online course and the campus course is an attendance and group activity requirement. The group activities are based upon worksheets which both groups of students are provided. The worksheets are always available. The solutions will be released soon after the campus course group activity is completed.

VIDEOS: Most videos presented in the course materials are stored in **YouTube**. If the text in the video is too **blurry**, try **increasing the quality** of the YouTube video using the small **gear icon** which appears at the bottom of the video when it is playing. If you want to view the video faster or slower, you can **adjust the speed** using the gear icon. Many videos have **closed captions and/or transcripts available**.

Note: Currently you will likely notice some parenthetical notes at the end of the names of YouTube videos such as “(Remove)” or “(Need to Edit)” – these notes are NOT for you – you **SHOULD WATCH** any such videos if they are assigned – these are notes left for the instructor regarding future changes to the course content which do not impact this class. My apologies in advance if these cause any confusion!

FLASH: Embedded self-assessment quizzes and other components of the course materials require Flash. Be sure to enable Flash in your browser and update if needed ([http://www.adobe.com/software/flash/about/.](http://www.adobe.com/software/flash/about/))

Recommended SAS books: The Little SAS Book: A Primer 5th ed., by Lora Delwiche and Susan Slaughter - Available online via UF, or Applied Statistics and the SAS Programming Language (2005), by Ron P. Cody and Jeffrey K. Smith. The best for you may depend on what you might be doing with SAS after our course. Many resources are available both in print and online via the UF Library. Your recommendations for others are also appreciated.

SAS Information: If you have questions about SAS ask in the “SAS Questions” discussion board. **Do not allow yourself to waste time working in the software**, if you are having issues, let us know immediately and we will help as soon as possible. Try to **make sure as much of your time as possible in the software is productive**. We offer some advice below and are happy to help you determine the best approach for you.

There are tutorials provided for all skills needed for assignments in this course. We have tried to make it as easy as possible to follow along with the tutorials. **Watching the videos at a slower speed can help. Viewing the transcripts while you watch or work in SAS may also help.** Whenever possible, many students find it helpful to **have the videos playing in one window, monitor, or other device while working in the software in another, pausing as needed to work through the process with your own data.**

There is also a document on the main SAS Resources page called **SAS Skills Document for Material Covered in PHC 6052**. This can be very useful but does contain more and possibly different code than we cover in our newer video tutorials. You can also look at the SAS code posted on the actual tutorial pages. As you become more proficient in SAS, it may be that looking at the code will be all that is necessary for you to learn new SAS skills.

Some students find SAS to be the most fun part of the course, others dislike learning the software. Regardless, the MPH program (which operates this course) requires SAS to be an integral part of our instruction. If you find SAS to be fun and easy and are willing to provide moral or tutorial support for other students, feel free to post on the discussion board or let me know!

E-LEARNING: An E-Learning site will be available for the course. **The Weekly Schedule and all course materials are available online through this site including grades, assignments, discussion boards, and other course information.** It is very important to check the home page of this site each week and review all announcements carefully. E-learning is accessible at <http://elearning.ufl.edu/> or through my.ufl.edu. You must have a valid Gatorlink ID and password. For assistance, call the UF Help Desk at 392-HELP.

NON-SAS TECHNICAL HELP: Information on many common issues can be found in the e-Learning Support pages at <http://studentlife.online.mph.ufl.edu/e-learning-support/>

For **technical support for our E-learning in CANVAS site**, activities, and assessments, please contact the Online Course Coordinator at:

Truly Hardemon, MEd
Room Number: HPNP 4173
Phone Number: 352-273-5822
Email Address: hardemont@ufl.edu
Office Hours: 8:00 am to 5:00 pm Monday - Friday

For **technical difficulties with E-learning in general** please contact the **UF Help Desk** at: Learning-support@ufl.edu (352) 392-HELP - select option 2

BROWSER RECOMMENDATIONS: <https://wiki.helpdesk.ufl.edu/FAQs/SupportedBrowsersForUFWebsites#elearning>

RESPONSE TIME: If I can, I will address your questions immediately. During the week I will do my best to address all questions completely within 24 hours. For questions asked on Friday, Saturday, or Sunday, I may not be able to respond until early the following week.

ANNOUNCEMENTS: Class Announcements will be sent via the Announcements tool in E-learning, depending on your CANVAS notification settings, you may or may not be notified through your UF email. **Be sure to read all announcements carefully. You are responsible for all information in these announcements.** As a student of the University of Florida, it is very important to check your UFL email address and course sites regularly. An easy way to access your UF email account is at <https://webmail.ufl.edu/>.

DISCUSSION BOARDS: Reviewing the discussion posts of other students and posting your own can be very helpful.

ACADEMIC REQUIREMENTS AND GRADING

Note: Although you can never be awarded negative points for an assignment, if you do not follow the directions given in this syllabus and in the actual assignment, additional points can be deducted even if the assignment is otherwise correct.

QUIZZES: There will be untimed weekly quizzes due each Wednesday by 10 PM covering the material assigned for review **the previous week** in the weekly schedule. You have the opportunity to take each quiz up to three times before the due date; your highest of these scores will be recorded. **In order to receive ANY credit for the quiz you must score 80% or higher.**

When you submit a quiz attempt, you will see your grade and will be able to review your quiz attempt. For each question, you will see whether you answered correctly or incorrectly but it will not reveal the correct answer for any you did not answer correctly. There will also be feedback for each question which will direct you to the most important content to review.

Students who do not pass the quiz with a grade of 80% or higher will be required to remediate until they earn an 80% in order to obtain a grade for the quiz. **The only score which can be earned through remediation is 80%.** Students in need of remediation will be contacted directly by the instructor with instructions.

Quizzes test basic definitions and skills and may sometimes be cumulative in that they will go back and ask earlier questions. **We highly encourage you to start your first attempt early and take your three attempts on different days with time for reviewing the course material in between.** There is feedback available in the quiz review which can help direct you to the content needed to review.

ASSIGNMENTS: Most assignments will involve data analysis in software and interpretations and/or certain questions which cannot be easily presented in the quizzes. Assignments will be due on Monday at 10 PM but **all assignments except the first and last will require extended work and should be started as early as possible, no later than the week prior to the due date,** in order to have time to address any questions or issues.

COURSE PROJECT: Each student will individually prepare a course project consisting of a guided data analysis based upon two (hopefully linearly related) quantitative variables. These variables will then be categorized in two ways (2 levels, 3+ levels). The relationship between the two variables will be investigated using different combinations of variable types. The course project will be completed in 4 STEPS during the semester.

Note: All assignments must be submitted via E-Learning by the exact due date and time

Grading

Requirement	% of final grade
Quizzes (x15 – 2.4% each)	36%
Assignments (x7 – sum of points earned ÷ total points possible)	40%
Course Project	24%

Point system used (i.e., how do final course averages translate into letter grades).

Final Average	94-100	90-93	85-89	80-84	77-79	74-76	70-73	67-69	64-66	60-63	57-59	Below 57
Letter Grade	A	A-	B+	B	B-	C+	C	C-	D+	D	D-	E

Please be aware that a C- is not an acceptable grade for graduate students. A grade of C counts toward a graduate degree only if an equal number of credits in courses numbered 5000 or higher have been earned with an A.

Letter Grade	A	A-	B+	B	B-	C+	C	C-	D+	D	D-	E	WF	I	NG	S-U
Grade Points	4.0	3.67	3.33	3.0	2.67	2.33	2.0	1.67	1.33	1.0	0.67	0.0	0.0	0.0	0.0	0.0

For greater detail on the meaning of letter grades and university policies related to them, see the Registrar’s Grade Policy regulations at: <http://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx>

GRADE RESPONSE TIMES: The time to receive your grade on assignments will vary depending on the type and length of the assignment. The instructor and TAs will always strive to return your graded work as soon as possible.

POLICY RELATED TO MAKE UP EXAMS OR OTHER WORK: Students are allowed to make up work ONLY as the result of illness or other unanticipated circumstances warranting a medical excuse and resulting in the student missing an assignment deadline, consistent with College policy. Documentation from a health care provider is required. Work missed for any other reason will receive a grade of zero. Any requests for make-ups due to technical issues MUST be accompanied by the ticket number received from e-learning support when the problem was reported to them. The ticket number will document the time and date of the problem. You MUST e-mail your instructor within 24 hours of the technical difficulty if you wish to request a make-up.

ATTENDANCE POLICY: This is an online course. “Attendance” means you are expected to go through the course materials, take notes, pay attention to and post in the discussion boards. This is to be done at your own pace, but assignments and quizzes have scheduled deadlines to keep you on track. You are welcome to get ahead if you need flexibility in future weeks.

STUDENT EXPECTATIONS, ROLES, AND OPPORTUNITIES FOR INPUT

COMMUNICATION GUIDELINES: Questions about course material should be posted on course discussion boards in E-Learning. Questions about specific quiz questions or issues of a personal nature should be sent by email through E-Learning. Please review the Netiquette Guidelines:

<http://teach.ufl.edu/wp-content/uploads/2012/08/NetiquetteGuideforOnlineCourses.pdf>.

ONLINE FACULTY COURSE EVALUATION PROCESS: Students are expected to provide feedback on the quality of instruction in this course by completing online evaluations at <https://evaluations.ufl.edu>. I value your comments and honest review of this course and consistently work to improve the course based upon the results of these evaluations and other methods of feedback. Course evaluations are also an important part of the faculty promotion process. Evaluations are typically open during the last two or three weeks of the semester, but you will be notified of specific times when the evaluations are open. Summary results of these assessments are available to students at <https://evaluations.ufl.edu/results/>

ACADEMIC INTEGRITY: Students are expected to act in accordance with the University of Florida policy on academic integrity. As a student at the University of Florida, you have committed yourself to uphold the Honor Code, which includes the following pledge:

“We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honesty and integrity.”

You are expected to exhibit behavior consistent with this commitment to the UF academic community, and on all work submitted for credit at the University of Florida, the following pledge is either required or implied:

“On my honor, I have neither given nor received unauthorized aid in doing this assignment.”

It is your individual responsibility to know and comply with all university policies and procedures regarding academic integrity and the Student Honor Code. Violations of the Honor Code at the University of Florida will not be tolerated. Violations will be reported to the Dean of Students Office for consideration of disciplinary action. For additional information regarding Academic Integrity, please see Student Conduct and Honor Code or the Graduate Student Website for additional details:

- <https://www.dso.ufl.edu/sccr/process/student-conduct-honor-code/>

Please remember cheating, lying, misrepresentation, or plagiarism in any form is unacceptable and inexcusable behavior.

ADVICE FROM DR. CANTRELL: All I can ask is that you **do the best you can with the materials that are made available to you and ask when you need more** direction or explanation.

It is expected that you will spend **approximately 10-12 hours per week on this course**. This is roughly equivalent to 3 hours of in class combined with 6-9 hours outside of class which would be expected in an equivalent on-campus class. Scheduling your time wisely and working efficiently will minimize the need for extra work in this course.

Generally I advise students to **break this time up into blocks of 1-3 hours split over as many days of the week as possible** given your schedule. Working on too much material in one sitting is more likely to cause frustration and does not allow for time for understanding to develop or for questions to be answered.

Learn to use the materials to your greatest advantage. There is a lot of content but if you understand the examples we present or if you have experience with certain topics, it may not be necessary to review all of the content we provide.

The questions presented in the **learn by doing** and **did I get this** activities as well as the **course worksheets** are indicative of **important questions and concepts** that you will need to understand and are designed to teach as well as test your understanding. We highly encourage you to go through these as they are presented in the online textbook (for the learn by doing and did I get this activities) and on the home page (for the course worksheets).

If you **go through the content as directed**, you will **learn the skills you need to succeed in the course** as well as build a foundation of statistical knowledge. **If at times you feel lost, please ask but also understand that the course is building to a complete picture**. Sometimes it is **hard to see how each topic is related until later in the semester** when we tie everything together. Often in **the learn by doing activities and worksheets we are leading you to think about things that will be important later in the course in addition to working on skills related to the current topic**.

Watch the software tutorials carefully, especially if you find the software aspect challenging and review our suggestions in the SAS information section earlier. **Do not allow yourself to waste time working in the software**, if you are having issues, let us know immediately and we will help as soon as possible. **Try to make sure as much of your time as possible in the software is productive**.

Be sure to ask when you don't understand and work hard to stay on-track with the material. Getting behind can be difficult to fix in any course. Let the instructor know as soon as possible if you feel you are falling behind.

SUPPORT SERVICES

Accommodations for Students with Disabilities: If you require classroom accommodation because of a disability, you must register with the Dean of Students Office <http://www.dso.ufl.edu> within the first week of class. The Dean of Students Office will provide documentation to you, which you then give to the instructor when requesting accommodation. The College is committed to providing reasonable accommodations to assist students in their coursework.

Counseling and Student Health: Your well-being is important to the University of Florida. **The U Matter, We Care initiative** is committed to creating a culture of care on our campus by encouraging members of our community to look out for one another and to reach out for help if a member of our community is in need.

If you or a friend is in distress, please contact umatter@ufl.edu so that the U Matter, We Care Team can reach out to the student in distress. A nighttime and weekend crisis counselor is available by phone at 352-392-1575. The U Matter, We Care Team can help connect students to the many other helping resources available including, but not limited to, Victim Advocates, Housing staff, and the Counseling and Wellness Center. Please remember that asking for help is a sign of strength. In case of emergency, call 9-1-1.

Students sometimes experience stress from academic expectations and/or personal and interpersonal issues that may interfere with their academic performance. If you find yourself facing issues that have the potential to or are already negatively affecting your coursework, you are encouraged to talk with an instructor and/or seek help through University resources available to you.

- The Counseling and Wellness Center 352-392-1575 offers a variety of support services such as psychological assessment and intervention and assistance for math and test anxiety. Visit their web site for more information: <http://www.counseling.ufl.edu>. On line and in person assistance is available.

- You Matter We Care website: <http://www.umatter.ufl.edu/>. If you are feeling overwhelmed or stressed, you can reach out for help through the You Matter We Care website, which is staffed by Dean of Students and Counseling Center personnel.
- The Student Health Care Center at Shands is a satellite clinic of the main Student Health Care Center located on Fletcher Drive on campus. Student Health at Shands offers a variety of clinical services. The clinic is located on the second floor of the Dental Tower in the Health Science Center. For more information, contact the clinic at 392-0627 or check out the web site at: <https://shcc.ufl.edu/>
- Crisis intervention is always available 24/7 from: Alachua County Crisis Center: (352) 264-6789 <http://www.alachuacounty.us/DEPTS/CSS/CRISISCENTER/Pages/CrisisCenter.aspx>

BUT – Do not wait until you reach a crisis to come in and talk with us. We have helped many students through stressful situations impacting their academic performance. You are not alone so do not be afraid to ask for assistance.

INCLUSIVE LEARNING ENVIRONMENT

Public health and health professions are based on the belief in human dignity and on respect for the individual. As we share our personal beliefs inside or outside of the classroom, it is always with the understanding that we value and respect diversity of background, experience, and opinion, where every individual feels valued. We believe in, and promote, openness and tolerance of differences in ethnicity and culture, and we respect differing personal, spiritual, religious and political values. We further believe that celebrating such diversity enriches the quality of the educational experiences we provide our students and enhances our own personal and professional relationships. We embrace The University of Florida's Non-Discrimination Policy, which reads, "The University shall actively promote equal opportunity policies and practices conforming to laws against discrimination. The University is committed to non-discrimination with respect to race, creed, color, religion, age, disability, sex, sexual orientation, gender identity and expression, marital status, national origin, political opinions or affiliations, genetic information and veteran status as protected under the Vietnam Era Veterans' Readjustment Assistance Act." If you have questions or concerns about your rights and responsibilities for inclusive learning environment, please see your instructor or refer to the Office of Multicultural & Diversity Affairs website: www.multicultural.ufl.edu

Outline of Schedule for Course Materials and Due Dates

For more details, see the weekly schedule in E-Learning

Content to Review	Major Upcoming Activities and Assignments (See E-Learning Home Page for More Details)	Monday	Wednesday
Week 1		8/22	8/24
Introduction Preliminaries	<ul style="list-style-type: none"> • Worksheet #1 – Variables • Assignment #1 Part B – Self Assessment • Syllabus Quiz • Quiz #1 		
Week 2		8/29	8/30
EDA for One Variable	<ul style="list-style-type: none"> • Assignment #1 Part B – Self Assessment • Syllabus Quiz • Quiz #1 • Quiz #2 • Assignment #2 <hr/> <p style="text-align: center;">DUE BY END OF THIS WEEK: Software Working!!! 6052 = SAS</p>	<p>DUE 10:00 PM</p> <ul style="list-style-type: none"> • Assignment #1 Part B – Self Assessment 	<p>DUE 10:00 PM</p> <ul style="list-style-type: none"> • Syllabus Quiz in Assessments • Quiz #1 – Preliminaries
Week 3		9/5	9/7
EDA for Two Variables	<ul style="list-style-type: none"> • Quiz #2 • Quiz #3 • Assignment #2 	Holiday	<p>DUE 10:00 PM</p> <ul style="list-style-type: none"> • Quiz #2 – Unit 1 (Part 1 – Through “Normal Shape”)
Week 4		9/12	9/14
Remainder of Unit 1, All of Unit 2	<ul style="list-style-type: none"> • Quiz #3 • Quiz #4 • Assignment #2 • Assignment #3 	<p>DUE 10:00 PM</p> <ul style="list-style-type: none"> • Assignment #2 Part A – EDA for One Variable (Software) 	<p>DUE 10:00 PM</p> <ul style="list-style-type: none"> • Quiz #3 – Unit 1 (Part 2 – Role-type through Linear Regression)

Week 5		9/19	9/21
Unit 3A	<ul style="list-style-type: none"> Worksheet #2 – Probability Quiz #4 Quiz #5 Assignment #2B Assignment #3, #4, or #5 	<p>DUE 10:00 PM</p> <ul style="list-style-type: none"> Assignment #2 Part B - EDA for One Variable (Written) 	<p>DUE 10:00 PM</p> <ul style="list-style-type: none"> Quiz #4 – Causation – Unit 2
Week 6		9/26	9/28
Unit 3B – Discrete RVs	<ul style="list-style-type: none"> Worksheet #3 – Discrete RVs Quiz #5 Quiz #6 Assignment #3 Assignment #4 	<p>DUE 10:00 PM</p> <ul style="list-style-type: none"> Assignment #3 Part A - Case CC and Case CQ (Software) 	<p>DUE 10:00 PM</p> <ul style="list-style-type: none"> Quiz #5 – Unit 3A – Probability
Week 7		10/3	10/5
Unit 3B – Continuous RVs	<ul style="list-style-type: none"> Worksheet #4 – Continuous RVs Quiz #6 Quiz #7 Assignment #3B Assignment #4 Assignment #5 Course Project STEP 1 	<p>DUE 10:00 PM</p> <ul style="list-style-type: none"> Assignment #3 Part B - Case CC and case CQ (Written) Assignment #4 – Independent Events 	<p>DUE 10:00 PM</p> <ul style="list-style-type: none"> Quiz #6 – Unit 3B – Discrete RVs
Week 8		10/10	10/12
Sampling Distributions	<ul style="list-style-type: none"> Quiz #7 Quiz #8 Assignment #5 Course Project STEP 1 	<p>DUE 10:00 PM</p> <ul style="list-style-type: none"> Assignment #5 Part A – EDA for Two Variables (Software) 	<p>DUE 10:00 PM</p> <ul style="list-style-type: none"> Quiz #7 – Unit 3B – Continuous RVs

Week 9		10/17	10/19
Unit 4A – Estimation	<ul style="list-style-type: none"> Worksheet #5 – Estimation Quiz #8 Quiz #9 Assignment #5B Course Project STEP 1 Course Project STEP 2 	DUE 10:00 PM <ul style="list-style-type: none"> Assignment #5 Part B – EDA for Two Variables (Written) Course Project STEP 1 	DUE 10:00 PM <ul style="list-style-type: none"> Quiz #8 – Unit 3B – Sampling Distributions
Week 10		10/24	10/26
Unit 4A – Hypothesis Testing	<ul style="list-style-type: none"> Worksheet #6 – Hypothesis Testing Quiz #9 Quiz #10 Course Project STEP 2 Assignment #6 		DUE 10:00 PM <ul style="list-style-type: none"> Quiz #9 – Unit 4A – Estimation
Week 11		10/31	11/2
Unit 4B Case CQ	<ul style="list-style-type: none"> Worksheet #7 – Case CQ Quiz #10 Course Project STEP 2 Assignment #6 	DUE 10:00 PM <ul style="list-style-type: none"> Assignment Course Project STEP 2 	
Week 12		11/7	11/9
Unit 4B Case CC and QQ	<ul style="list-style-type: none"> Worksheet #8 – Cases CC & QQ Quiz #10 Quiz #11 Course Project STEP 3 Assignment #6 		DUE 10:00 PM <ul style="list-style-type: none"> Quiz #10 – Unit 4A – Hypothesis Testing
Week 13		11/14	11/16
Review Units 1-3B	<ul style="list-style-type: none"> Quiz #11 Quiz #12 Course Project STEP 3 Assignment #6 	DUE 10:00 PM <ul style="list-style-type: none"> Assignment #6 – Examples from Literature 	

Week 14		11/21	11/23
Review Units 4A and 4B	<ul style="list-style-type: none"> • Quiz #11 • Quiz #12 • Course Project STEP 3 • Bonus: Paired T-tests in Software 	DUE 10:00 PM <ul style="list-style-type: none"> • Course Project STEP 3 	Thanksgiving Break <hr/> DUE 10:00 PM <ul style="list-style-type: none"> • Quiz #11 – Unit 4B – Case CQ • Quiz #12 – Unit 4B – Cases CC & QQ
Week 15		11/28	11/30
	<ul style="list-style-type: none"> • Quiz #13 • Quiz #14 • Course Project STEP 4 • Bonus: Paired T-tests in Software 	DUE 10:00 PM <ul style="list-style-type: none"> • Bonus: Paired T-tests in Software 	
Week 16		12/5	12/7
	<ul style="list-style-type: none"> • Quiz #13 • Quiz #14 • Course Project STEP 4 • Assignment #7 	DUE 10:00 PM <ul style="list-style-type: none"> • Course Project STEP 4 	DUE 10:00 PM <ul style="list-style-type: none"> • Quiz #13 – Review Units 1-3B • Quiz #14 – Units 4A and 4B
Week 17		12/12	12/14
(Final Exam Period)	<ul style="list-style-type: none"> • Assignment #7 	DUE 10:00 PM Assignment #7 – End of Semester Self-Assessment (opens 12/6 or by request for students who have complete all assignments)	