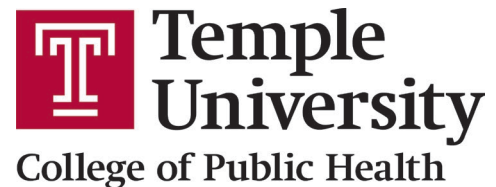


Biostatistics for Health Professions

EPBI 5001, Section 702
Fall 2023
3 Credits



Instructor Information

Instructor: Jingwei Wu, Ph.D.
E-mail: tug30693@temple.edu
Telephone: 317-679-8250
Office Location: Ritter Annex, Room 903

Course Day(s): Wednesday, Aug 30th to Dec 19th
Course Time: 5:30pm-8:00pm
Course Location: Hybrid Format

Office Hours: Tue 2:00-4:00pm (Zoom online),
Wed 3:00-4:00pm (Zoom online),
or by appointment

<https://temple.zoom.us/j/7302856030>

Synchronous (Online) Session(s) [via Zoom]:

Wednesday, August 30: 5:30-8:00 pm, EST, Zoom
Wednesday, September 6: 5:30-8:00 pm, EST, Zoom
Wednesday, September 13: 5:30-8:00 pm, EST, Zoom
Wednesday, September 20: 5:30-8:00 pm, EST, Zoom
Wednesday, September 27: 5:30-8:00 pm, EST, Zoom
Wednesday, October 4: 5:30-8:00 pm, EST, Zoom
Wednesday, October 11: 5:30-8:00 pm, EST, Zoom
Wednesday, October 18: 5:30-8:00 pm, EST, Zoom
Wednesday, October 25: 5:30-8:00 pm, EST, Zoom
Wednesday, November 1: 5:30-8:00 pm, EST, Zoom
Wednesday, November 8: 5:30-8:00 pm, EST, Zoom
Wednesday, November 15: 5:30-8:00 pm, EST, Zoom
Wednesday, November 29: 5:30-8:00 pm, EST, Zoom
Wednesday, December 6: 5:30-8:00 pm, EST, Zoom

Course Prerequisites or Co-Requisites

None. This course is for graduate students in nursing and other health-related professions, including, but not limited to, clinicians, physicians, dentists, pharmacists and basic scientists.

Course Description

This course is for graduate students in nursing and other health-related professions and is meant to teach students the common biostatistical tools used to analyze, present, and interpret health-related data. The course will cover topics including data summary and visualization, descriptive statistics, sampling and confidence intervals, hypothesis testing, diagnostic tests, and inference related to *t*-test, ANOVA, simple and multiple regression, nonparametric tests, and measurement agreements. Statistical processing through the program SPSS will be integrated into the program and used in tandem with critical principles needed for effective statistical decision making. At the conclusion of the course, students will be able to analyze real data sets and provide quantitative evidence to support scientific conclusions.

The specific topics covered are outlined in the Course Schedule on the last page of this syllabus.

Course Format/Instructional Methods

This is a hybrid class that utilizes both synchronous online zoom sessions and asynchronous course work. The rationale for the hybrid approach is that the asynchronous activities allow students more time to research additional information (using course materials and outside readings/materials) to support their class contributions, as well as spaces for individual reflection. The synchronous online zoom sessions allow the instructor and students to engage in live discussions, raising and answering questions that stem from the course materials.

We will meet online via zoom session every Wednesday, 5:30pm-8:00pm.

Course Expectations for Student Success

I am here to support your learning goals in this course, and I want to see everyone succeed. I encourage you to use all available resources, including advisors, teaching assistant, departmental graduate student tutor, the Writing Center and Library Resources to assist you with the course.

On average, over the semester, this course will require approximately 10 hours of your time per week. Please plan to spend approximately 7 hours each week reading materials, completing assignments, and watching assigned videos. **Prior to attend each week's synchronous online zoom session, you are required to read the textbook and related recording video since a lot of practical exercises will be given during the synchronous online zoom session.** Additionally, please plan to spend an additional 3 hours each week for the scheduled class meeting time. These expectations are based on the premise that 1) this course is a 3-credit course that meets for 2.5 hours each week for 16 weeks and 2) Temple's policy on credit hours states that 1 semester credit is equivalent to 1 hour (50 minutes) of faculty instruction time per week for 16 weeks (inclusive of exam week) AND a minimum of 2 hours of out-of-class student work.

Expectations for Class Conduct

The best way to maintain a safe and focused learning environment is for everyone to get vaccinated. Masks must be worn by vaccinated and unvaccinated people in all indoor or in enclosed spaces (including classrooms, the Library, the TECH Center, the Student Center, shuttles/buses, administrative spaces, common areas in residence halls, etc.). For your general health and well-being, hand washing and monitoring your health is still highly recommended.

Statement on Diversity and Inclusion Course Information

The College of Public Health supports and encourages diversity and inclusion. I am committed to the principle of universal learning which means that I will do all that I can to make our classrooms, our virtual meetings and our interactions as inclusive as possible. To support universal learning, I will promote an environment of mutual respect, civility in our interactions and the ability to listen and observe others carefully – I expect that all participants in the class will work towards the same goal.

You have the right to be addressed by your preferred name and pronouns. Sharing your preferred pronoun publicly is one way we can all honor each other's preferences. I will address you how you wish to be addressed. You have the right to full access to all course materials and you are welcome to translate the course materials (for example, you are welcome to use <https://translate.google.com/?sl=auto&tl=en&op=docs>). If you feel any form of harassment or discrimination, [please contact](#) our CPH and SW Equal Opportunity Ombudspersons.

If you need accommodations based on a documented disability, please contact Disability Resources and Services in Howard Gittis Student Center room 420, 215-204-1280 or 215-204-1786 (TTY) or drs@temple.edu. Please reach out to me as soon as possible to discuss your needs and to share any

documentation from DRS so that we can appropriately plan for success. (Accommodations are not retroactive). Please bear in mind that COVID-19 may result in a need for new or additional accommodations.

Course Technology Requirements

You need to prepare to use Canvas, Zoom, headphones and microphone to take this class. You will also need to check Canvas weekly or check email for regular announcements.

We will use SPSS to produce statistical output. **SPSS must be downloaded prior to the first day of class.** You can download SPSS via: <https://download.temple.edu/>.

You are required to comply with Temple University's Computer and Security Policy at <https://secretary.temple.edu/sites/secretary/files/policies/04.71.11.pdf>.

All CPH students are expected to adhere to the Laptop Requirement: <https://cphapps.temple.edu/wiki/it/student/laptop>.

Limited resources are available for students who do not have the technology they need for class. Students with educational technology needs, including no computer or camera or insufficient Wi-Fi access, should submit a Student Technology Assistance Application located in TUPortal and linked from the Dean of Students Support and Resources webpage. The university will endeavor to meet needs, such as with a long-term loan of a laptop or Wi-Fi device, a refurbished computer, or subsidized internet access. Internet Essentials from Comcast provides the option to purchase a computer for \$150 and high-speed Internet service for \$9.95 a month, plus tax. The Emergency Broadband Benefit (EBB) is available to purchase Xfinity, Verizon, T-Mobile, and other internet services. Qualified households can receive a temporary monthly credit of up to \$50/month toward their Internet service and leased Internet equipment until the program's funding runs out. On-campus computer labs have resumed normal operations and are available for student use.

Statement on the Use of Generative AI in this course

You are welcome/expected to use generative AI tools (e.g. ChatGPT, Dall-e, etc.) in this class as doing so aligns with the course learning goal [develop an understanding of principles and applications of scientific measurement and data summarization, appropriately apply statistical procedures to health-related data]. You are responsible for the information you submit based on an AI query (for instance, that it does not violate intellectual property laws, or contain misinformation or unethical content). Your use of AI tools must be properly documented and cited in order to stay within university policies on [academic honesty](#).

E-mail

To facilitate communication, the university requires you to have an e-mail account ending in @temple.edu (<https://secretary.temple.edu/sites/secretary/files/policies/04.74.11.pdf>). During the semester, I will try to return your e-mail within 36 hours unless I am out of the office or the university is closed. E-mails sent after noon on Fridays will generally not be returned until Monday—please plan accordingly. Please remember that e-mails regarding technological questions should be directed to Temple's Help Desk at help@temple.edu

Required Course Materials

Good news: your textbook for this class is available for free online! Temple University Library has licensed textbook (online-available through: ProQuest Ebook Central). <https://ebookcentral.proquest.com/lib/templeuniv-ebooks/detail.action?docID=6643928>

Required Textbook:

Using and Interpreting Statistics - A Practical Text for the Behavioral, Social, and Health Sciences (3rd ed.) by Eric W. Corty. 2016. New York: Worth Publishers.

SPSS software is FREE of charge for students who register for this course.

All **weekly course related slides / SPSS lab exercises and recorded teaching videos** are prepared by the instructor, so **you need to review them before and after class**.

Course Objectives and Competencies

OVERALL COURSE OBJECTIVES

- To develop an understanding of principles and applications of scientific measurement and data summarization.
- To learn how to appropriately apply statistical procedures to health-related data.
- To learn how to interpret output from statistical computing packages to draw appropriate inferences, and to report results effectively for health-related data.

The following table is intended to be a pathway to guide you through the course so that you can see the connections between the course learning objectives and how you will be assessed.

#	LEARNING OBJECTIVE	DEGREE COMPETENCIES ADDRESSED	DIRECT/INDIRECT ASSESSMENT TOOL
1.	Describe the purpose of biostatistics in health professions	Integrate discussion of techniques, reasoning, and practice using real examples to drive the exposition	Weekly homework #1, #11, Mid-term
2.	Calculate descriptive statistics for health-related data such as measuring central tendency and variability	Distinguish among the difference measurement scales and based on these distinctions recognize the implications for selection of appropriate summary methods	Weekly homework #1, #2, #3, SPSS assignment #1, #2, student project
3.	Understand the impact and process of conducting health-related research	Conduct an independent research project, which includes: data extraction, research question proposal, state hypothesis, choose appropriate statistical approach, perform corresponding analysis, draw statistical conclusion, and present scientific interpretation and implementation	Student project
4.	Interpret and present health-related data from the application use basic statistical techniques	a. Describe preferred methodological alternative to commonly used statistical methods b. Develop written and oral presentations based on statistical analyses for both	Weekly homework #1, #2, #3, #4, #5, #6, #7, #8, #9, #10, #11, SPSS assignment #1, #2, #3, #4, #5, student project, Final exam

		health professionals and education lay audiences c. Recognize concepts of different statistical probability distributions d. Apply common statistical methods for inference, including: estimation, confidence intervals, and hypothesis testing	
5.	Use appropriate software to conduct data analysis	Use SPSS to perform descriptive and inferential analysis, and make proper interpretations based on the SPSS output	SPSS assignment #1, #2, #3, #4, #5, student project

Required Course Assignments

ONLINE TAKE HOME ASSIGNMENTS

It will typically be due 1 weeks after it was assigned (due date noted on schedule). Must be submitted on time (no later than 8:00pm on due date) via Canvas for full credit. Late submissions (before noon of next day) may receive a 20% deduction grade score on the assignments (including weekly take home assignment and SPSS assignment). Any late submission after noon time of next day without prior notice and faculty approval will not be graded, and no make-up assignment is allowed. Exceptions will be made if PRIOR arrangements have been made with the instructor or under extraordinary circumstances. Answer keys for each weekly take home assignments will be posted at noon of next day. Students should expect feedback on graded assignments within 7 weekdays of the due date.

MIDTERM AND FINAL EXAMS

These are open-book, online exams. You need to complete the exam independently. Any conversions and discussions with other students during the exam are prohibited. The Final is NOT cumulative - will cover topics from only the 2nd half of the semester. The exam due dates are listed on the course schedule. Each exam has 3 hours limits. These exams focus on application of the course concepts and may require calculations and interpretation of SPSS output, but will not require you to run an analysis in SPSS during the examination. You should expect feedback on graded exams within 7 weekdays of the due date.

If you need to be absent for any reason, you must inform the instructor in advance (not afterwards); otherwise you get a zero for the exam. A make-up exam may be possible, but that will depend on verifiable reasons beyond your control for missing the exam and whether you qualify for an "Incomplete" as your course grade.

STUDENT PROJECT

You should attempt to develop a publication-worthy research project using SPSS for the statistical analysis. This will require finding a real data set (**CAN NOT be national survey dataset since it requires special survey data procedures to analyze**), which is consistent with either your personal interests or academic concentration: e.g.,

<https://archive.ics.uci.edu/ml/datasets.php?format=&task=reg&att=&area=&numAtt=&numIns=&type=&sort=nameUp&view=table;>

[http://www.stat.ufl.edu/~winner/datasets.html;](http://www.stat.ufl.edu/~winner/datasets.html)

[http://www.statsci.org/data/multiple.html;](http://www.statsci.org/data/multiple.html)

http://college.cengage.com/mathematics/brase/understandable_statistics/7e/students/datasets/mlr/frames/frame.html;
<http://guides.emich.edu/data/free-data>;
<https://www.statcrunch.com/5.0/shareddata.php?keywords=regression>

Please submit your proposal (idea, concept for the project) by email **no later than November 14th**. This has to be an independent project where you will have sole responsibility for creating a set of slides and giving an oral presentation (via audio recording from your computer). The project must use regression analysis with a continuous dependent variable and two explanatory (predictor) variables: one continuous and the other categorical. The presentation will be evaluated for background information, statement of aims and objectives (motivation for the research questions), and description of statistical methods: specification of null and alternative hypotheses, summary statistics, assumptions underlying the regression analysis, clear interpretation of the results and subsequent conclusions. A grade rubric will be provided before the project due date.

Course Grading

Online Take Home Assignment	36%
Course Project	10%
Lab Assignment	15%
Attendance	9%
Midterm Exam	15%
Final Exam	15%

Grading Scale

93-100 A	87-89 B+	77-79 C+	67-69 D+	0-59 F
90-92 A-	83-86 B	73-76 C	63-66 D	
	80-82 B-	70-72 C-	60-62 D-	

Each assignment will receive a numerical grade and be weighted in the calculation of a final numerical grade as indicated above.

- Bonus points are given in both mid-term exam and final exam
- Final numerical grade is rounded to the nearest integer
- Please do not refer to the letter grade in Canvas as the default grading scales in Canvas does not reflect the weighting factors based on the chart below.

Assignments will not be accepted after the due date. If there are conflicts or medical reasons why an assignment is submitted late, the student must raise these concerns before the assignment due date and arrangements may be made on a case-by-case basis for a late submission. All submissions after the due date without prior notice and faculty approval, unless under extenuating circumstances will be given a “0”.

Attendance Protocols and Your Health

You are expected to attend and to participate actively in at least 80% of the class sessions. For this semester, there are 14 synchronous online zoom sessions. Thus, if there are more than 3 absences for these 14 sessions, there will be a decrement in the attendance portion of the grade. Attendance will include regularly attending class, showing up promptly for class, and participating in class discussions. Each absence after missing 3 of the 14 sessions leads to a 10% (0.9 points) decrease in the proportion of attendance grade.

Arriving habitually late or leaving early during synchronous online zoom sessions may be counted as an absence. Not participating in assigned discussion threads may also be considered an absence.

You are expected to attend class, participate in group activities, quizzes, in-class discussions, online discussion boards, and complete all exams and assignments. The instructor should be notified of absences in advance (when possible) so arrangements can be made for any make-up of missed material.

You are expected to review reading materials before each lecture and be prepared for synchronous online zoom discussions.

You are expected to contact the instructor with concerns, ideas, or for clarification of class material.

If you feel unwell, you do not need to participate in synchronous online zoom session, and you will not be penalized for your absence. Instructors are required to ensure that attendance is recorded for each synchronous online zoom session. You should contact your instructor to create a plan for participation and engagement in the course as soon as you are able to do so. Faculty and students agree to act in good faith and work with mutual flexibility. The expectation is that you will be honest in representing class attendance.

Course Minimum Grade

The College of Public Health requires a minimum grade of B- in all required courses (not electives) and a 3.0 minimum GPA to graduate. For further questions, please speak with your graduate program director.

General Policies

All University (www.temple.edu/grad/policies/index.htm) and College of Public Health policies will be upheld. The Graduate Student Handbooks for the College of Public Health details College expectations: (<https://cph.temple.edu/student-handbooks>).

Temple and Covid-19

Temple University's motto is Perseverance Conquers, and we will continue to meet the changing circumstances of the COVID pandemic with flexibility and resilience.. For the most current information on Covid-related plans and policies, please refer to <https://www.temple.edu/coronavirus>.

The best way to maintain a safe learning environment is for everyone to get fully vaccinated. For your general health, hand washing and monitoring your health are still highly recommended.

Incomplete

You will be eligible for a grade of "Incomplete" only if you: 1) have completed at least 51% of the work at a passing level, 2) are unable to complete the work for a serious reason beyond his or her control, and 3) file a signed agreement with the instructor outlining the work to be completed and the timeframe in which that work will be completed. You are responsible for initiating this process and all incomplete forms must be sent to the Associate Dean for Academic Affairs prior to the start of study days in that semester. (Please refer to the following link for more details: <http://policies.temple.edu/PDF/41.pdf>).

Withdrawal from the Course

If you wish to withdraw from a course, it is your responsibility to meet the deadline for the last day to withdraw within the current semester (www.temple.edu/registrar/documents/calendars/). Please consult the University policy on withdrawals (<http://policies.temple.edu/PDF/337.pdf>).

Statement on Academic Rights & Responsibilities

Freedom to teach and freedom to learn are inseparable facets of academic freedom. Please refer to the university policy on Student and Faculty Academic Rights and Responsibilities (Policy #03.70.02), available at: <https://secretary.temple.edu/sites/secretary/files/policies/03.70.02.pdf>.

Academic Honesty

According to the University Student Code of Conduct, you must not commit, attempt to commit, aid, encourage, facilitate, or solicit the commission of academic dishonesty and impropriety including plagiarism, academic cheating, and selling lecture notes or other information provided by an instructor without the instructor's authorization. Violations may result in failing the assignment and/or failing the course, and/or other sanctions as enumerated in the University Code of Conduct, which can be accessed at <http://studentconduct.temple.edu/policies>.

Faculty in the Department of Epidemiology and Biostatistics regularly use Turnitin, software linked through Canvas that evaluates student products for plagiarism. A faculty member who suspects that a paper, major assignment, or exam (>10% of the grade) has been plagiarized or that cheating has occurred, will report the incident immediately to the Departmental Academic Honesty Committee for evaluation. The committee will notify the student in writing within 3 business days from when the offense was reported, and the student will have 3 business days to respond in writing to the offense and organize a face-to-face meeting with the committee (at least 2 members will be present) and the faculty member to decide the best course of action (a zero on the assignment/failing the course or other sanctions as outlined in the University Code of Conduct). The offense will be documented in the student's file and shared with faculty members across the department to prevent future offenses.

Avoiding Plagiarism

All students are expected to meet standards of academic honesty, which includes proper citation of sources, use of quotations when appropriate, and proper paraphrasing and putting writing into your own words when not in quotations. If you have questions on whether you have cited appropriately, please visit the writing center (<https://www.temple.edu/class/programs/writing/index.html>).

In Canvas, the 'Turnitin' score provides guidance but it does not highlight all incorrect citations. Students should strive to have a 'Turnitin' score of less than 20%. See the following websites for additional information about proper paraphrasing and citation:

<https://writing.wisc.edu/handbook/assignments/quoting/sources/>

<https://columbiacollege-ca.libguides.com/apa/paraphrase>

https://owl.purdue.edu/owl/research_and_citation/apa_style/apa_formatting_and_style_guide/in_text_citations_the_basics.html

<https://www.plagiarism.org/article/how-to-paraphrase>

See the Temple Library Resources section in the Syllabus for additional information.

Counseling & Other Support Services

As the instructor of the course, I recognize that you may experience mental health challenges at times throughout the semester. I am committed to creating an inclusive and welcoming classroom space and encourage you to access resources provided by the university or speak with me privately if you need support connecting with appropriate resources. Here are some of the campus resources to assist you: Tuttleman Counseling Services (TCS) – <http://counseling.temple.edu> (available for group and individual therapy, Resiliency Resource Center, drop-in groups, and referral services to students seeking long-term care or support outside of Pennsylvania); the Wellness Resource Center (WRC) – <http://wellness.temple.edu> (peer-led workshops, campus-wide events, and wellness consultations to

connect students to resources and the Social Service Annex <https://cph.temple.edu/departments-research/departments/social-work/social-service-annex> (quiet area to relax and decompress, peer consultations and focus groups University and community resources).

If you are experiencing food insecurity or financial struggles, Temple provides resources and support. Notably, the Temple University Cherry Pantry is in operation as well as a variety of resources from the Division of Student Affairs.

Sexual Misconduct

Temple University is committed to providing a learning and working environment that emphasizes the dignity and worth of every member of its community, free from discriminatory conduct. Sexual harassment in any form or context is contrary to this commitment and will not be tolerated. Please refer to the University policy on sexual harassment at: <http://policies.temple.edu/PDF/366.pdf>. Additional resources related to sexual harassment and ways in which to report an incident can be found at: <http://sexualmisconduct.temple.edu/>

Permission to Record

Please speak with the instructor in advance of recording a class to be respectful of classmates. Recording of lectures as a disability accommodation is permitted. You are not permitted to copy, publish, or redistribute any recordings without express permission from the instructor and any students recorded; distribution without permission may be a violation of educational privacy laws (FERPA) and copyright laws. Any recordings permitted in this class can only be used for the student's personal educational use. Instructors may record live/synchronous class sessions to share through Canvas for students unable to attend class or as a study tool. The instructor will inform the class in advance and can pause the recording, upon request, if sensitive topics are being discussed. All instructor recordings are property of Temple University.

To record any personal, faculty or group meeting, students must have consent from everyone participating in the conversation whether in-person or via zoom.

Netiquette Statement

It is important to foster a respectful and productive online learning environment. Our differences, some of which are outlined in the University's nondiscrimination statement, add richness to this learning experience. All opinions/experiences must be respected in the spirit of academic discourse. Treat your classmates and instructor with respect in all communication, class activities, and meetings; do not attack any individual. Avoid the use of profanity, sarcasm, slang, and the use of all capital letters in discussion threads, as these forms of communication, may be disruptive.

Library Resources

You may request appointments with Librarians, who can provide targeted assistance at all stages of your project, including exploring a topic, Temple's academic research tools, and identifying and citing sources. A Subject Librarian has particular skills to focus on your major or the class you are taking. Schedule appointments individually or in small groups. Easy access to program specific resources may be found in Library research guides <http://guides.temple.edu>.

Continuity of Instruction in Event of Emergency

Please register for the TUALert System (<https://safety.temple.edu/get-educated/tualerts/how-to-receive-sms-tualerts>) to be made aware of university closures due to weather or emergencies and follow all university-wide emergencies instructions. In the event of an emergency, class materials/instructions will

be provided in a web-based format via Canvas or zoom. Students registered for the class will be alerted any other modifications from the instructor via email.

Course Schedule

September. 11th **Last day to drop the course**
December. 11th **Last day to withdraw from the course**

Course schedule below may be subject to change with advanced written notification.

Date	Topics	Assignments
Week 1 (8/30)	Introduction to Statistics <ul style="list-style-type: none"> • Warm-up introduction • Course overview • The Purpose of Statistics, Experiments and Variables, Levels of Measurement, The Language of Statistics, Statistical Notation and Rounding <u>Readings:</u> <ul style="list-style-type: none"> • EWC Chapter 1: Introduction to Statistics <u>In-Session Activity:</u> <ul style="list-style-type: none"> • Explanatory and outcome variables • Levels of measurement 	Weekly Homework 1 DUE: 9/5
Week 2 (9/6)	Displaying data with numbers and graphs <ul style="list-style-type: none"> • Previous week homework review • Frequency Distributions, Discrete Numbers and Continuous Numbers, Graphing Frequency Distributions, Shapes of Frequency Distributions • Central Tendency, Variability <u>Readings:</u> <ul style="list-style-type: none"> • EWC Chapter 2: Frequency Distributions • EWC Chapter 3: Measures of Central Tendency and Variability <u>In-Session Activity:</u> <ul style="list-style-type: none"> • Discrete and continuous numbers • Real limits of numbers • Describing the shapes of distributions <u>SPSS Instructional Document:</u> <ul style="list-style-type: none"> • An Introduction to Statistics and Research Design 	Weekly Homework 2 DUE: 9/12
Week 3 (9/13)	Standard Scores, the Normal Distribution, and Probability <ul style="list-style-type: none"> • Previous week homework review • Standard Scores (z Scores), The Normal Distribution, Percentile Ranks, Probability <u>Readings:</u> <ul style="list-style-type: none"> • EWC Chapter 4: Standard Scores, the Normal Distribution, and Probability <u>In-Session Activity:</u> <ul style="list-style-type: none"> • Transform raw scores into standard scores (z scores) and vice versa • Calculating percentile rank, middle percentiles, and extreme percentiles • Normal and inverse normal calculation <u>SPSS Instructional Document:</u> <ul style="list-style-type: none"> • Frequency Distributions • Visual Displays of Data • Central Tendency and Variability 	Weekly Homework 3 DUE: 9/19
Week 4 (9/20)	Sampling and Confidence Intervals <ul style="list-style-type: none"> • Previous week homework review 	Weekly Homework 4

	<ul style="list-style-type: none"> • Sampling and Sampling Error, Sampling Distributions and the Central Limit Theorem, The 95% Confidence Interval for a Population Mean <p><u>Readings:</u></p> <ul style="list-style-type: none"> • EWC Chapter 5: Sampling and Confidence Intervals <p><u>In-Session Activity:</u></p> <ul style="list-style-type: none"> • Identifying types of samples and problems with generalizing • Practice of the central limit theorem • Computing confidence intervals <p><u>SPSS Instructional Document:</u></p> <ul style="list-style-type: none"> • The Normal Curve, Standardization, and z Scores 	<p>DUE: 9/26</p> <p>SPSS Lab 1</p> <p>DUE: 9/26</p>
Week 5 (9/27)	<p>Introduction to Hypothesis Testing</p> <ul style="list-style-type: none"> • Previous week homework review • The Logic of Hypothesis Testing, Hypothesis Testing in Action, Type I Error, Type II Error, Beta, and Power <p><u>Readings:</u></p> <ul style="list-style-type: none"> • EWC Chapter 6: Introduction to Hypothesis Testing <p><u>In-Session Activity:</u></p> <ul style="list-style-type: none"> • Identifying the null and alternative hypotheses • Hypothesis testing with z tests <p><u>SPSS Instructional Document:</u></p> <ul style="list-style-type: none"> • The Confidence Intervals for the Mean 	<p>Weekly Homework 5</p> <p>DUE: 10/3</p>
Week 6 (10/4)	<p>Special Topic I: Therapy and Diagnostic Test</p> <ul style="list-style-type: none"> • Previous week homework review • ARR, RRR, NNT, Sensitivity, Specificity, Positive Predictive Value, Negative Predictive Value, SpIN, SnOUT, Likelihood Ratio, ROC Curve <p><u>Readings:</u></p> <ul style="list-style-type: none"> • Provided by Instructor <p><u>In-Session Activity:</u></p> <ul style="list-style-type: none"> • Diagnostic tests 	<p>Weekly Homework 6</p> <p>DUE: 10/10</p>
Week 7 (10/11)	<p>REVIEW FOR MIDTERM</p> <ul style="list-style-type: none"> • Previous week homework review • Mid-term review 	<p>Midterm Exam (online)</p> <p>DUE: 10/14</p>
Week 8 (10/18)	<p>Inferences for Means I</p> <ul style="list-style-type: none"> • Mid-term exam review • Calculating the Single-Sample t Test, Interpreting the Single-Sample t Test • Types of Two-Sample t Tests, Calculating the Independent-Samples t Test, Interpreting the Independent-Samples t Test <p><u>Readings:</u></p> <ul style="list-style-type: none"> • EWC Chapter 7: The Single-Sample t Test • EWC Chapter 8: Independent-Samples t Test <p><u>In-Session Activity:</u></p> <ul style="list-style-type: none"> • Deciding when to use a t test or a z test • Looking up critical values of t in Table 3 of the appendix • A single-sample t test • Deciding when to use an independent-samples or paired-samples t test • An independent-samples t test 	<p>Weekly Homework 7</p> <p>DUE: 10/24</p> <p>SPSS Lab 2</p> <p>DUE: 10/24</p>

	<p><u>SPSS Instructional Document:</u></p> <ul style="list-style-type: none"> • The Single-Sample t Test • The Independent-Samples t Test 	
<p>Week 9 (10/25)</p>	<p>Inferences for Means II</p> <ul style="list-style-type: none"> • Previous week homework review • Paired Samples, Calculating the Paired-Samples t Test, Interpreting the Paired-Samples t Test • Introduction to Analysis of Variance, Calculating Between-Subjects, One-Way ANOVA, a Interpreting Between-Subjects, One-Way ANOVA • Student project proposal <p><u>Readings:</u></p> <ul style="list-style-type: none"> • EWC Chapter 9: The Paired-Samples t Test • EWC Chapter 10: Between-Subjects, One-Way Analysis of Variance <p><u>In-Session Activity:</u></p> <ul style="list-style-type: none"> • Identifying the type of design in a paired-samples t test • Hypothesis testing using a paired-samples t test • Identifying levels of an independent variable • One-way ANOVA testing • Effect size and post-hoc tests <p><u>SPSS Instructional Document:</u></p> <ul style="list-style-type: none"> • The Paired-samples t Test • One-Way Analysis of Variance 	<p>Weekly Homework 8</p> <p>DUE: 10/31</p>
<p>Week 10 (11/1)</p>	<p>The Pearson Correlation Coefficient</p> <ul style="list-style-type: none"> • Previous week homework review • Introduction to the Pearson Correlation Coefficient, Calculating the Pearson Correlation Coefficient, Interpreting the Pearson Correlation Coefficient, Calculating a Partial Correlation <p><u>Readings:</u></p> <ul style="list-style-type: none"> • EWC Chapter 13: The Pearson Correlation Coefficient <p><u>In-Session Activity:</u></p> <ul style="list-style-type: none"> • Interpreting scatterplots • Identifying factors that influence the correlation • Using a Table to calculate r • Effect Sizes and Confidence Intervals for r <p><u>SPSS Instructional Document:</u></p> <ul style="list-style-type: none"> • The Pearson Correlation Coefficient 	<p>Weekly Homework 9</p> <p>DUE: 11/7</p> <p>SPSS Lab 3</p> <p>DUE: 11/7</p>
<p>Week 11 (11/8)</p>	<p>Simple and Multiple Linear Regression</p> <ul style="list-style-type: none"> • Previous week homework review • Simple Linear Regression, Errors in Regression, Multiple Regression <p><u>Readings:</u></p> <ul style="list-style-type: none"> • EWC Chapter 14: Simple and Multiple Linear Regression <p><u>In-Session Activity:</u></p> <ul style="list-style-type: none"> • Components of the Simple Regression Equation • Calculating and Interpreting the Standard Error of the Estimate <p><u>SPSS Instructional Document:</u></p> <ul style="list-style-type: none"> • Simple and Multiple Linear Regression 	<p>Weekly Homework 10</p> <p>DUE: 11/14</p> <p>Final Project Proposal</p> <p>DUE: 11/14</p>

Week 12 (11/15)	Nonparametric Statistical Tests: Chi-Square <ul style="list-style-type: none"> • Previous week homework review • Introduction to Nonparametric Tests, The Chi-Square Goodness-of-Fit Test, Calculating the Chi-Square Test of Independence, Interpreting the Chi-Square Test of Independence, Other Nonparametric Tests <u>Readings:</u> <ul style="list-style-type: none"> • EWC Chapter 15: Nonparametric Statistical Tests: Chi-Square <u>In-Session Activity:</u> <ul style="list-style-type: none"> • When to use a nonparametric test • Practice calculating and interpreting the chi-square goodness-of-fit • Practice calculating and interpreting the chi-square test of independence • When to use the Spearman rank-order versus the Pearson r and when to use the Mann-Whitney U versus the independent-samples t test <u>SPSS Instructional Document:</u> <ul style="list-style-type: none"> • Nonparametric Statistical Tests 	Weekly Homework 11 DUE: 11/28 SPSS Lab 4 DUE: 11/28
Week 13 (11/22)	Fall Break, NO CLASS	
Week 14 (11/29)	Special Topic II: Measurement Agreements & Selecting the Right Statistical Tests <ul style="list-style-type: none"> • Previous week homework review • Instrument reliability: Cronbach's Alpha, Inter- and Intra- observer agreements: Kappa • Review of Statistical Tests, Descriptive Statistics, Hypothesis Tests I: Difference Tests, Hypothesis Tests II: Relationship Tests <u>Readings:</u> <ul style="list-style-type: none"> • EWC Chapter 16: Selecting the Right Statistical Test • Provided by Instructor <u>In-Session Activity:</u> <ul style="list-style-type: none"> • Kappa calculation • Determining which statistical tool to use • Determining which difference test to use • Determining which statistics to use <u>SPSS Instructional Document:</u> <ul style="list-style-type: none"> • Measurement Agreements 	Weekly Homework 12 DUE: 12/5 SPSS Lab 5 DUE: 12/5
Week 15 (12/6)	REVIEW FOR FINAL <ul style="list-style-type: none"> • Previous week homework review • Final exam review 	Final Project DUE: 12/8 Final Exam (online) DUE: 12/15

EWC: Using and Interpreting Statistics - A Practical Text for the Behavioral, Social, and Health Sciences (3rd ed.) by Eric W. Corty