Florida State University
College of Criminology and Criminal Justice

CCJ 5706 Applied Statistics in Criminology I

Credit Hours: 3
Meeting Time: Mondays, 11:00am-1:30pm
Meeting Location: CRM 0214

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Office hours: Mondays & Wednesdays 9:00am-10am (and by appointment)

What you Will Learn

The purpose of this course is to introduce students to the fundamental statistical concepts, theories, techniques, and computations commonly used in behavioral science research. Topics include descriptive and univariate statistics, probability theory, as well as univariate and bivariate hypothesis tests. As this course is a foundational statistical course, a significant amount of time will be devoted to discussing the theory and concepts that underlie more advanced statistical procedures. With this in mind, many computations and analyses will be performed by hand (with a calculator). The primary purpose of this format is to better acquaint students with the underlying procedures that are typically automated by software when analyzing larger datasets or performing more complex analyses.

Course Objectives

The main objectives of this course are:
1. To be able to understand the importance of data and statistics
2. To be able to compare different types of data
3. To be able to summarize key theories underlying statistical analysis
4. To be able to choose appropriate analyses given different types of data
5. To be able to determine which visualization techniques are best aligned with different types of data
6. To be able to explain the concept of statistical significance
7. To be able to calculate statistics common in the behavioral sciences
8. To be able to interpret statistics common in the behavioral sciences
9. To be able to create appropriate research hypotheses
10. To be able to develop a plan of analysis

Required Course Materials

1. Agresti, A., Franklin, C., Klingenberg, B. (2021). *Statistics: The Art and Science of Learning from Data* (5th Edition). Pearson: Boston, MA. ISBN: 9780136468769.
    a) You are NOT required to buy a book that comes with an online access code, but the materials included may be useful.
    b) If the book is too expensive, you can probably get away with the 4th Edition:
        Agresti, A., & Franklin, C. (2017). *Statistics: The Art and Science of Learning from Data* (4th Edition). Pearson: Boston, MA. (Hardcover ISBN: 978-0321997838; Paperback ISBN: 978-1292164779).

2. Articles and other materials that will be made available in the course library on Canvas (reading list provided at the end of the syllabus).

Evaluation and Grading

Course grades will be based on the following:

Quizzes:	600 points (60%)
Problem Sets:	400 points (40%)
Total points possible:	**1000 points**

Grading Scale

A	94-100		C	74-76
A-	90-93		C-	70-73
B+	87-89		D+	67-69
B	84-86		D	64-66
B-	80-83		D-	60-63
C+	77-79		F	Below 60

Course Structure and Format

This is a traditional, in-person course with topics organized around the weeks of the semester. Your overall grade in the class will be based on your performance on two separate components:

1. *Quizzes*: (60% of your overall grade and 600 out of 1000 course points). Two quizzes, worth 300 course points each, will be administered throughout the semester (see course schedule for dates). Quizzes will consist of approximately 5 short answer/essay questions and mathematical computations (appropriate formulae will be provided when necessary). Quizzes will be timed (75 minutes) and completed on Canvas. The quiz will be made available after class the week they are assigned and students will have until the next class meeting (one week) to complete the quiz. All answers will be typed directly into Canvas. For questions that require computation, students can record their final answers in the space provided in Canvas and provide all computations in a separate Word

document or on a piece of notebook or graph paper (by hand) and then upload a scan or picture to Canvas. ***If you decide to complete your computations by hand, it is your responsibility to ensure that all of your work is legible before submitting***. Regardless of the format you choose, students are required to show all work for computation questions and failing to do so, regardless of the final answer provided, will result in a loss of points for that question. ***The accompanying document with all computations will be submitted via a Canvas assignment and must be submitted within 30 minutes after completing the quiz.***

2. ***Problem Sets***: (40% of your overall grade and 400 out of 1000 course points). Two problem sets, worth 200 points each, will be completed throughout the semester (see course schedule for dates). Problem sets will be made available after class on the week they are due and must be submitted before the next class meeting. Problem sets will include questions related to and involving statistical analyses, computations, interpretation of results, and/or the dissemination of findings. Problem set questions serve as practice questions for the quizzes. For questions requiring computations, students are required to document all steps of their work. All answers involving computations must be typed or legibly hand written on notebook or graph paper. ***All short answer questions and any other questions requiring a written component must be typed. Handwritten responses will not be accepted, and students will receive zero points the corresponding question in such instances.*** Only computations can be hand written and in such instances ***it is the student's responsibility to ensure all work is legible before submitting***. Additional information, including specific requirements and directions, for each assignment will be provided in class and will be available for download on Canvas. All assignments should be submitted via Canvas ***before the beginning of class***. No late assignments, or assignments submitted via email, will be accepted.

Policies and Requirements

For the vast majority of us, statistics are difficult. No way around it. This doesn't mean that we can't think statistically, it just means that it typically doesn't come naturally, and we have to work a little harder to accomplish this feat. With that said, if you want to be successful in this course (and with quantitative analysis more broadly), you will have to put in the necessary work. This would include, at an absolute minimum, that all students: (1) attend every class meeting; (2) have completed the assigned readings BEFORE coming to class; (3) work through the textbook examples and practice questions; and (4) actively participate in class activities and discussions. While this is not a precise recipe for success, students who follow these broad guidelines are far more likely to succeed in the course.

Similarly, there are strategies that almost always result in increased difficulty and limited success. These include: 1) skipping class; 2) relying on YouTube videos or Internet tutorials (other than those specifically suggested by the professor of the course); 3) not asking questions or for help if you need it; 4) waiting for the last minute to complete a problem set or quiz; 5)

failing to prepare and study for the quizzes and attempting to rely on notes and other course materials in real time.

Thinking statistically can be quite challenging and, at times, extremely frustrating. But, the best way to learn some of the concepts and skills we will be covering in class will be to trudge on and be persistent. Most of the time, your first attempt will fail miserably. Learning how to recognize your (and others') mistakes is one of the primary skills I hope you learn in this course and there is no substitute for hands-on experience in this regard. As Jedi Master Yoda noted in *The Last Jedi*, "The greatest teacher, failure is." With this in mind, I encourage you to be persistent when you hit a wall—don't give up. Sometimes it helps to take a break and work on something else for a while and then come back to the problem with a fresh set of eyes. Based on the importance of this set of skills—and I'm going to be firm on this—I am happy to help you with course content only AFTER you have tried to resolve any issues on your own AT LEAST THREE TIMES. If and when you reach that point, feel free to come to me with your questions.

Course Expectations
You are highly encouraged to attend each and every class. Information will be covered in class that is not available elsewhere. If you miss a class I highly recommend that you borrow notes from one of your fellow classmates and talk to me about any additional clarification you may need.

I post my PowerPoint slides on Canvas, but these slides alone will not provide you with sufficient information to grasp the key concepts covered in the course. During class, we will cover additional examples, dive deeper into key concepts, and engage in a more detailed discussion surrounding difficult topics. Stated as plainly as possible, there is a direct, positive, and strong correlation between class attendance and overall success in this class. Students who consistently attend class fare significantly better than those who do not.

In addition, the following expectations will be enforced:

1. All readings are expected to be completed by the assigned date.
2. You are expected to complete all assignments on time.
3. Plagiarism and cheating will not be tolerated. Note the Academic Honor Policy below.
4. Extend courtesy and respect to your fellow classmates at all times. Disrespect or hateful speech of any kind directed toward other students, myself, or anyone else will not be tolerated.
5. If you have any problem or experience any unforeseen circumstances, do not hesitate to contact me. The sooner you inform me of an issue, the more options we have to get it resolved.
6. Except for changes that substantially affect implementation of the evaluation (grading) statement, this syllabus is a guide for the course and is subject to change with advance notice.
7. All work must be original and created for this semester's course.
8. All work presented in problem sets and quizzes should be original and you ***should NOT copy and paste, or provide highly similar, language directly from the PowerPoint slides***

in such instances. If this happens, a hefty penalty—via a point deduction—will be imposed.

Requesting Points, Re-Grading Assignments, Extra Credit, Late/Make Up Work and Rounding
I know it is tempting to **request more points** or a change to your grade as we move through the semester. Besides, "it never hurts to ask," right? I've deliberately designed this course to provide you with as many opportunities as possible to achieve the grade you have in mind. There are many, many opportunities for points outside of exams, which gives you far more control over your final grade in the class. With that in mind, I cannot accommodate grade change requests, appeals for more points, or any similar requests. For these reasons, any requests will be ignored, and I will not respond to emails making these requests.

Assignments will be graded as quickly as possible once turned in. It is possible that I made a mistake when grading your assignment and I want to ensure that any mistakes are corrected in due course. However, instances of **re-grading** assignments should be reserved for rare situations in which a mistake was made during the grading process. With this in mind, re-grading requests must be made within ***5 days of the grades being posted to Canvas***. In addition, for any re-grading request, I will grade your assignment as if it were a fresh submission, meaning ***you are just as likely to lose points as you are to gain them***.

In regard to **extra credit**, I will not provide extra credit to individual students. Any extra credit opportunities will be made available to the entire class, at my discretion, and will be announced via Canvas in full detail. Please do not ask for extra credit. If an extra credit opportunity becomes available, I will announce it to the entire class.

Late work will only be considered or accepted in exceptional circumstances. Specifically, students must 1) notify me within 24 hours of missing the assignment, AND 2) provide me with a university approved excuse for missing the assignment (see the "University Attendance Policy" below for what constitutes a university approved excuse). I may request written documentation for the excuse if necessary. If this procedure is not followed, you will receive a score of zero for the assignment.

Grades are **rounded** to the nearest whole number when calculating your final grade. For example, an 89.5 (or greater) will round to a 90, but an 89.4 will round to an 89. This is the only rounding that will take place for this course. I do not round quiz or problem set grades. Any requests for additional rounding or another form of rounding will not receive a response.

University Attendance Policy
Excused absences include documented illness, deaths in the family and other documented crises, call to active military duty or jury duty, religious holy days, and official University activities. These absences will be accommodated in a way that does not arbitrarily penalize students who have a valid excuse. Consideration will also be given to students whose dependent children experience serious illness.

Academic Honor Policy

The Florida State University Academic Honor Policy outlines the University's expectations for the integrity of students' academic work, the procedures for resolving alleged violations of those expectations, and the rights and responsibilities of students and faculty members throughout the process. Students are responsible for reading the Academic Honor Policy and for living up to their pledge to "...be honest and truthful and...[to] strive for personal and institutional integrity at Florida State University." (Florida State University Academic Honor Policy, found at http://fda.fsu.edu/Academics/Academic-Honor-Policy).

While you are encouraged to support one another and work collaboratively when appropriate, plagiarism or other academic dishonesty of any kind will not be tolerated in this class. Incidents of cheating or plagiarism of any type will be rigorously pursued. Any form of academic dishonesty will result in a grade of "zero" for that particular assignment. I reserve the right to screen for plagiarism, including electronic citation checkers (e.g., SafeAssign). For this course, you may be required to submit assignments to SafeAssign. All written materials will become source documents in the SafeAssign database and will be used solely for the purpose of detecting plagiarism.

Academic Success
Your academic success is a top priority for Florida State University. University resources to help you succeed include tutoring centers, computer labs, counseling and health services, and services for designated groups, such as veterans and students with disabilities. The following information is not exhaustive, so please check with your advisor or the Dean of Students office to learn more.

Americans with Disabilities Act
Florida State University (FSU) values diversity and inclusion; we are committed to a climate of mutual respect and full participation. Our goal is to create learning environments that are usable, equitable, inclusive, and welcoming. FSU is committed to providing reasonable accommodations for all persons with disabilities in a manner that is consistent with academic standards of the course while empowering the student to meet integral requirements of the course.

To receive academic accommodations, a student:
1. Must register with and provide documentation to the Office of Accessibility Services (OAS)
2. Must provide a letter from OAS to the instructor indicating the need for accommodation and what type
3. Should communicate with the instructor, as needed, to discuss recommended accommodations. A request for a meeting may be initiated by the student or the instructor.

Please note that instructors are not allowed to provide classroom accommodations to a student until appropriate verification from the Office of Accessibility Services has been provided.
This syllabus and other class materials are available in alternative format upon request.
For more information about services available to FSU students with disabilities, contact the

Office of Accessibility Services
874 Traditions Way

108 Student Services Building
Florida State University
Tallahassee, FL 32306-4167
(850) 644-9566 (voice)
(850) 644-8504 (TDD)
oas@fsu.edu
https://dsst.fsu.edu/oas

Confidential Campus Resources
Various centers and programs are available to assist students with navigating stressors that might impact academic success. These include the following:

Victim Advocate Program
University Center A, Rm. 4100
(850) 644-7161
Available 24/7/365
Office Hours: M-F 8-5
https://dsst.fsu.edu/vap

Counseling and Psychological Services
Askew Student Life Center, 2nd floor
942 Learning Way
(850) 644-8255
https://counseling.fsu.edu/

University Health Services
Health and Wellness Center
(850) 644-6230
https://uhs.fsu.edu/

TENTATIVE SCHEDULE AND ASSIGNED READINGS

Week	Date	Topic
1	1/8	Course Introduction
2	1/15	***No Class—MLK Day***
3	1/22	Part I: Why data and statistics are important
4	1/29	Part II: Univariate Statistics
5	2/5	Part II: Univariate Statistics
6	2/12	Part III: Probability Theory
7	2/19	Part III: Probability Theory ***Problem Set #1 Assigned***
8	2/26	Part III: Probability Theory ***Quiz 1 Assigned***
9	3/4	Part IV: Statistical Inference
10	3/11	***No Class—Spring Break***
11	3/18	Part IV: Statistical Inference
12	3/25	Part IV: Statistical Inference
13	4/1	Part IV: Statistical Inference
14	4/8	Part V: Bivariate Statistics
15	4/15	Part V: Bivariate Statistics ***Problem Set #2 Assigned***
16	4/22	Part V: Bivariate Statistics ***Quiz #2 Assigned***
Finals	4/29	***Quiz #2 due before 11:00am EST on Monday, 4/29***

This syllabus is only tentative and highly subject to change. I reserve the right to modify this syllabus at any time throughout the semester and it is your responsibility to stay up-to-date on any changes that are made.

Part I: Why data and statistics are important (1/22)

Agresti et al., 2021, Chapter 1

For next time: Make sure to work through some of the problems provided throughout the assigned chapter. I know that for many of you it has been quite a while since you've taken a math or statistics class so this is a good opportunity to reacquaint yourself and start thinking more statistically.

Coming up: **Class is cancelled on 1/16 in observation of MLK Day**

Part II: Univariate Statistics (1/29-2/5)

Agresti et al., 2021, Chapter 2

Blalock, H. M. (1979). *Social Statistics* (2nd Ed.). McGraw-Hill. Chapter 2 (available on Canvas).

Part III: Probability Theory (2/12-2/26)

Agresti et al., 2021, Chapters 5, 6, and 7

Important Dates
- Problem Set #1 will be available on 2/19 (due before the start of class on 2/26)
- Quiz #1 will be available on 2/26 (due before the start of class on 3/4)

Coming up: **Spring break (wooooo!) starts on 3/11**

Part IV: Statistical Inference (10/22-11/28)

Agresti et al., 2021, Chapters 8 and 9

Part V: Bivariate Statistics (4/8-4/22)

Agresti et al., 2021, Chapters 3, 10, and 11

Important Dates
- Problem Set #2 will be available on 4/15 (due before the start of class on 4/22)
- Quiz #2 will be available on 4/22 (due by 11am on Monday, 4/29)