PAD/PADX 5351: Applied Statistics for Public Administration

Spring 2019 Course Syllabus
University of Texas at El Paso
Master of Public Administration Program

Time: W 17:00 - 20:00 (USASMA)

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Course Description

PAD/PADX 5351 is a course that focuses on how to conduct theoretically and methodologically sound quantitative research for students in public administration. Quantitative analysis is the main component of the course. Students will learn how to conduct statistical analyses by hand and with the statistical software, R. Basic hypothesis testing, sampling, and univariate/bivariate analysis are some of the statistical topics covered in this course. Regression analysis is also a focus of the course as it is the main statistical method in academic and applied studies to examine the effects of independent variables on dependent variables. Ultimately, PAD 5351 is a tools course that gives students access to concepts important for analysis in the government and nonprofit workplaces.

This statistics course is in an 8-week Hybrid format. It is a fast-paced and rigorous course with each week building off the previous week. We will cover 14 weeks of material in 8 weeks. The reading load is minimal, but you will need to continually practice by reading, coming to class, potentially re-reading the material, and working on the homework problems throughout the week. Most of class time will be spent going over statistical methods - their logic, when to use particular tests, and how to conduct them by hand. The Hybrid portion of the course will involve you learning how to use the statistical software R. With limited access to computers, Internet, and software at USASMA, the software component of the course will predominantly be the Hybrid portion of the course. I received a grant from UTEP Information Technology (IT) to incorporate software in the classroom for this semester, and I will be developing video tutorials on how to use the R software for the Hybrid portion. These tutorials will walk you through the software and how to conduct statistical tests.

Learning Objectives

By the end of this course, students will be able to:
-Understand and conduct statistical analyses by hand and by using R.
-Use the appropriate statistical means to test hypotheses.
-Present research findings in written form.

NASPAA Learning Objectives

PAD/PADX 5351 addresses the following NASPAA core competencies:
-To analyze, synthesize, think critically, solve problems, and make decisions.
         -Through the analysis of data.
         -Through developing and testing hypotheses of empirically-based research questions.
-To participate in and contribute to the public policy process.

-By offering policy solutions and recommendations to common public problems through data analysis and interpretation.

-To articulate and apply a public service perspective.

-By ethically analyzing and reporting statistical findings.

Required Texts

Meier, Kenneth J., Jeffrey L. Brudney, and John Bohte. 2015. *Applied Statistics for Public and Nonprofit Administration.* 9th ed. Cengage Learning.

All readings, exams, and assignments will be based upon the indicated edition of this text. There is no guarantee that older or newer editions will contain the same information. Please buy/rent the 9th edition. There are errors in older editions, and the page numbers and problem numbers do not match among different editions.

Software

A number of statistical software programs exist to run basic statistical analyses with various pros/cons. Excel is often used for data entry and readily available in public organizations, but it is difficult to conduct statistical analyses with Excel. SPSS is by far the most user-friendly software available, but it is very expensive and it is not widely used in public organizations due to the cost. Similar issues regarding difficulty of use or high cost prevent widespread adoption of other software (SAS, STATA, MatLab). We will be using R in this course. It is a powerful statistical software and becoming more widely used throughout both academia and industry, because it is FREE. You can easily download it to your computer. However, R is a code-based software, and very difficult to learn. Luckily, a professor at McMaster University recently developed a package to enable a drop-down version of R (in the same manner as SPSS) so that it is quite user-friendly.

Course Requirements

1. Homework (240 pts.): The course is low on the amount of reading and heavy on in-class and out-of-class practicing of concepts. Therefore, homework assignments will be due often throughout the semester. Each homework assignment will be worth 40 points. There are a total of 6 assignments. You may work with others when doing the homework to help you learn. However, you must complete and turn in your own homework and not directly copy from others.

2. Methods Critique (100 pts.): I will give you a paper or a written selection that uses statistics we have covered in class towards the end of the semester. In a 3-5 double-spaced page (not including graphs, figures, and references) essay, you should critique the research design and statistics used. You should find "holes" in the author's argument and methods. You should offer potential solutions and implement them with the dataset used by the author, explaining why your method of analysis is "better" and more statistically-sound.

Grade Components

Homework (6 @ 40 pts.)	240
Methods Critique	100
Total	340

Grading Scale

- A = 90% - 100% (306 - 340)
- B = 80% - 89.99% (272 - 305)
- C = 70% - 79.99% (238 - 271)
- D = 60% - 69.99% (204- 237)
- F = <60%   (<204)

Course Expectations & Policies

Courtesy

Comments and language in class should be professional and courteous. Cell phones are annoying and distracting. Please put them away or have them on vibrate for emergencies. Please arrive on time and refrain from leaving class early. These actions are distracting to the instructor and students. Part of being in an MPA program is learning professional skills for the workplace.

Assignment Submissions

Homework assignments are a major component of your final grade. Please use the following guidelines when submitting homework:

1. Homework assignments are not required to be typed. However, you must write legibly. If I cannot read your handwriting, answers will be graded based upon what I can decipher.

2. **All assignments and other course materials must be turned in to me in hard-copy form (preferred) or through Blackboard.**

If you are ill or cannot make the class on the date an assignment is due, you must make arrangements with a classmate to have the hard-copy delivered to me or through Blackboard. I make no guarantees that assignments submitted to my office mailbox or assignments slid under my door are actually delivered to me. It is your responsibility to ensure that I receive your materials.

3. Assignments are due at the beginning of the class (5:00 PM). Assignments not turned in at this time will be considered late and late penalties as described below will be applied.

4. Some problems on the homework assignments will be computer-based. I will explain in the directions when you should use R.

5. For homework problems involving R, you will need to include the R output when you turn it in. You must include these components to receive full credit on your homework.

6. Please bring 2 copies of your homework to class. One copy will be turned in. The other copy will be for you to make notes, since I will go over homework problems at the beginning of class.

Late Work Policy & Make-Up Assignments

Since you have ample notice of the due dates of the assignments, and their requirements, no extensions will be given for assignments, unless there is approved medical, legal (jury duty), or university documentation. Materials turned in after the indicated due date and time will automatically receive a 10% deduction. Late work will receive an additional 15% deduction for each additional 24 hours that pass in which the assignment is not turned in. I make no guarantees that late work submitted to my office mailbox or assignments slid under my door are actually delivered to me. It is your responsibility to ensure that I receive your materials.

Documented medical emergencies and the death of an immediate family member are the only acceptable reasons, beyond those recognized by the university or USASMA or jury duty, for missing an assignment's due date. Should you experience one of these unfortunate events, please

plan on providing appropriate documentation.

Extra Credit
No extra credit will be offered in this course.

Incompletes
Incompletes will only be given in the most extreme and extenuating circumstances.

Student Privacy
Per regulations outlined in the Family Educational Rights and Privacy Act (FERPA), I will not discuss your grades, class performance, or any issues dealing with your personal circumstances as they relate to this course with another party that cannot legally access your your collegiate records or legally obtain such information. I will not field phone calls from your parents concerning your performance or circumstances related to this course. Your performance may be discussed with other members of the faculty as it pertains to your progress in the program, consideration for awards/funding, and as it is relevant to other university and department-related considerations.

Student Disability Services
The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please contact the university regarding services for students with disabilities.

Academic Misconduct
Any student found guilty of academic misconduct shall be subject to disciplinary action. Academic misconduct includes, but is not limited to, the following actions:

1. Cheating or knowingly assisting another student in committing an act of cheating or other forms of academic dishonesty.

2. Plagiarism is using another person's work without acknowledgment, making it appear to be one's own. Any ideas, words, pictures, or other source must be acknowledged in a citation that gives credit to the source. This is true no matter where the material comes from, including the internet, other student's work, unpublished materials, or oral sources. Intentional and unintentional instances of plagiarism are considered instances of academic misconduct. It is the responsibility of the student submitting the work in question to know, understand, and comply with this policy. If no citation is given, then borrowing any of the following would be an example of plagiarism: a) An idea or opinion, even when put into one's own words (paraphrase); b) A few well-said words, if these are a unique insight; c) Many words, even if one changes most of them; d) Materials assembled by others, for instance quotes or a bibliography; e) An argument; f) A pattern of idea; g) Graphs, pictures, or other illustrations; h) Facts; i) All or part of an existing paper or other resource.

3. Unauthorized possession of examinations, reserve library materials, laboratory materials, or other course-related materials.

4. Unauthorized changing of grades on an examination, in an instructor's grade book, or on a grade report; or unauthorized access to academic computer records.

5. Nondisclosure or misrepresentation in filling out applications or other University records in, or for, academic departments or colleges.

The current Student Code of Conduct definition of plagiarism can be found at:
https://www.utep.edu/student-affairs/osccr/student-conduct/academic-integrity.html

Syllabus Change Policy

The contents of this course syllabus are subject to change in the event of extenuating circumstances.

Course Schedule

Week 1 - Jan. 23: Online: Introduction, Review of Measurement, Central Tendency
    Read:
    -MBB. Ch. 2, pp. 23-29.
    -MBB. Ch. 5, pp. 91-103

    Watch:
    -Panopto Video on Syllabus.
    -Panopto Video on Measurement.
    -Panopto Video on Central Tendency.
    -Panopto Video on Downloading R.

    Do:
    -Homework 1 - Due on Jan. 30.

Week 2 - Jan. 30: Standard Deviation & Z-Scores
    -Homework 1 Due.

    Read Before Class:
    -MBB. Ch. 6, pp. 109-118.
    -MBB. Ch. 7, pp. 125-137.

    Watch After Class:
    -Panopto Video on Uploading Data in R.
    -Panopto Video on Descriptive Statistics in R.

    Do After Class:
    -Homework 2 - Due Feb. 6.

Week 3 - Feb. 6: Inference, Hypothesis Testing, & One-Sample T-Test
    -Homework 2 Due.

    Read Before Class:
    -MBB. Ch. 10. pp. 167-176.
    -MBB. Ch. 11, pp. 183-192.

    Do After Class:
    -Homework 3 - Due Feb. 13.

Week 4 - Feb. 13: Two Sample T-Test and Chi-Square

-Homework 3 Due.

Read Before Class:
-MBB. Ch. 13, pp. 213-220.
-MBB. Ch. 14, pp. 243-250.
-MBB. Ch. 15, pp. 258-264.

Watch After Class:
-Panopto Video on One-Sample T-Test in R.
-Panopto Video on Graphing Data in R.
-Panopto Video on Two-Sample T-Test in R.
-Panopto Video on Chi-Square in R.

Do After Class:
-Homework 4 - Due Feb. 20.

Week 5 - Feb. 20: Bivariate Regression
      Homework 4 Due.

Read Before Class:
-MBB. Ch. 17, pp. 319-334; 337-342.

Watch After Class:
-Panopto Video on Bivariate Regression in R.

Do After Class:
-Homework 5 - Due Feb. 27.

Week 6 - Feb. 27: Regression Assumptions & Multivariate Regression
      -Homework 5 Due.

Read Before Class:
-MBB. Ch. 18, pp. 350-362.
-MBB. Ch. 20, pp. 390-411.

Watch After Class:
-Panopto Video on Multivariate Regression in R.

Do After Class:
-Homework 6 - Due Mar. 6.

Week 7 - Mar. 6: Dummy Variable Regression
Homework 6 Due.

    Read Before Class:
    -MBB. Ch. 21, pp. 421-437

    Watch After Class:
    -Panopto Video on Dummy Variable Regression in R.

    Do After Class:
    -Work on Methods Critique - Due Mar. 16 by 11:59 PM.

Week 8 - Mar. 13: Catch-Up and Review

Mar. 16: Methods Critique Due by 11:59 PM