

# PSCI/SOCI 5322: Advanced Quantitative Methods

Section 260: W 7:30–10:00 p.m., Pellegrino 114 (subject to change)

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Office: 313 Lamar Bruni Vergara Science Center (LBVSC)

Hours: MWF 11:30–12:50 p.m.; Tu 1:00–3:00 p.m.; or by appointment.

This course is an advanced course in the practical application of quantitative research methods in social scientific research. Topics include data management using computer software; bivariate and multivariate statistics, including chi-square, correlation, ordinary-least-squares regression, and limited dependent variable models (logit/probit), with an emphasis on computer applications; and presentation of results from quantitative research.

**Student Learning Objectives:** Ideally, at the conclusion of this course, you will have a greater understanding of

- ▷ how to translate social scientific theories into hypotheses which can be empirically tested.
- ▷ the appropriate statistical techniques to use when testing hypotheses.
- ▷ the theoretical basis of important statistical techniques, such as ordinary least squares regression and maximum-likelihood estimation.
- ▷ how to use computer software to estimate statistical models commonly used in the social sciences.
- ▷ how to write a complete *research paper* based on quantitative analysis of primary or secondary data.

**Required Materials:** There are two books required for this course:

- ▷ Berman, Evan M. 2007. *Essential Statistics for Public Managers and Policy Analysis*, 2nd ed. Washington: CQ Press. ISBN 978-0-87289-301-6.
- ▷ Berman, Evan M. 2007. *Exercising Essential Statistics*, 2nd ed. Washington: CQ Press. ISBN 978-0-87289-332-0.

These books are also available bundled together as ISBN 978-0-87289-439-6. They should be available, new and used, at the TAMIU Bookstore in the University Success Center; you may also be able to order them on-line at a discount.

Additional readings may be assigned at the discretion of the professor and will be provided for you at the library reserve desk, on the course Angel site, or as handouts in class.

**Grading:** Your final grade in this course will be based on the following elements, weighted as specified below:

Research Paper	30%	Research Presentation	5%
Final Exam	35%	Homework and Labs	10%
Participation	10%	Data Analysis Exercise	10%

The following letter grades can be earned in this course:

Weighted Average	≥ 90.0	≥ 80.0	≥ 70.0	< 70.0
Grade	A	B	C	F

I will not assign a grade of “D” in this course; students scoring below the minimum threshold for a “C” will receive an “F.”

**Exam:** The exam will be an in-class examination, consisting of short-answer and essay questions, as well as problems in statistical interpretation and analysis. Per college policy, the final exam is *comprehensive*.

**Research Paper:** The research paper is approximately 16–20 pages in length, and should report on an empirical, quantitative research project that you conduct in political science, public administration/policy, or sociology, broadly defined. The project can encompass either applied research (such as program evaluation or needs assessment) or basic research in the social sciences. You may build on the research design paper you wrote for PSCI/SOCI 5321 in the fall, or you may propose an alternative topic.

You will turn in the paper topic on the date indicated on the syllabus. After selecting an appropriate topic, in your paper you must:

1. explain the relevance of the topic;
2. conduct a literature review critiquing *at least ten* items of previous literature on (or directly related to) the topic, the majority of which must have appeared in academic journals or scholarly books;
3. propose a hypothesis (or hypotheses) and explain how this hypothesis (or these hypotheses) will be tested;
4. collect or obtain the needed data to test your hypothesis/hypotheses;
5. conduct appropriate statistical test(s) to evaluate the likelihood your hypothesis/hypotheses are true;

6. present the results of the test(s) in a clear and concise format; and
7. arrive at conclusions regarding your overall theory/theories or applied research question(s).

Your paper must be an individual effort; you may consult with me, the TAMIU Writing Center, other faculty members, or other students, but the writing and research must be substantially your own work.

The body of your paper should be double-spaced and written using a proportional typeface (either 11 point or 12 point), with one-inch margins and including page numbers.<sup>1</sup> You should include a title page with the date, title, and appropriate identifying information.

The paper must consistently utilize the citation style of the [American Political Science Association](#) or [American Sociological Association](#), include a full *bibliography* listing the works cited in your paper, and be written in standard English using coherent prose and acceptable grammar. Please refer to *The Style Manual for Political Science* published by the APSA for a complete guide to the proper use of APSA style; similarly, the ASA has published the *ASA Style Guide*.

The research design paper will be due on **Wednesday, April 27th** at the beginning of class. You will also give a brief presentation (no more than 10–12 minutes) of your research in class, concentrating on your findings, on a date to be assigned.

**Data Analysis Exercise:** This exercise will include the analysis of some existing data in SPSS, along with writing a relatively brief (4–6 page) report on the results. It is intended to give you some practice for the data analysis portion of your research paper. This assignment will be due on **Wednesday, March 30th** at the beginning of the class; additional details will be provided early in the semester.

**Homework and Lab Assignments:** The class will include regularly-scheduled homework assignments, designed to improve your understanding of the material presented in the lecture. The assignments will generally be due at the beginning of the following class period. Any variations in this schedule will be announced when the assignment is given.

Homework assignments, unlike the exams, will primarily be graded on the basis of whether or not a reasonable effort was made to correctly answer the problems (correctness is a secondary consideration). It is in your best interest—both in terms of your grade on the homework, and your performance on the exams—to complete these assignments to the best of your ability.

**Attendance and Participation:** As graduate students, you are expected to regularly attend class and arrive promptly. Students who are absent without an excuse consistent with the university's student absence policy more than **once** during the semester may not be eligible to earn an "A" in this course.

**Class Policies:** As this course is a *seminar*, it is your responsibility to have completed the readings prior to class and to be ready to discuss them with your fellow students. I realize that many of you have daytime employment and/or other obligations, but that does not relieve you of the responsibility to devote out-of-class time to this course. While I, as the professor, will often lecture, lead the discussion, or elaborate on particular readings and themes, you are expected to contribute to the success of the class as well.

As graduate students, you are solely responsible for your performance in the course and attendance. I am always happy to meet with students to discuss their concerns about the course, but I will not necessarily assume that you are in difficulty simply because you perform poorly on an assignment or disappear from class for a few days.

Please provide a respectful learning environment for your fellow students. Repeated tardiness, cell phone disruptions, reading materials unrelated to the course (such as the student newspaper), and abuse of communication technologies (e.g., web browsing/IMing/texting during class) during class will adversely affect your participation grade; per university policy, repeated disruptive behavior may result in your involuntary withdrawal from the course.

Please arrive at class *on time* and mute (or switch off) all pagers, cell phones, and alarms during class.

Make-up examinations must be scheduled two weeks in advance in the case of an **unavoidable** planned or reasonably-foreseeable absence; otherwise, make-ups will be given only in the case of an illness or emergency that is properly **documented**. Please refer to the [student absence policy](#) posted on the TAMIU website for examples of absences that will ordinarily be excused by the professor and specific documentation that is acceptable; examples of acceptable documentation may include a doctor's note, accident report (from a federal, state, or local law enforcement agency), notification of travel dates from an athletics coach, or summons from a court. Students who miss an appointment for a make-up examination should not expect another make-up opportunity. In general, you are expected to attend every class meeting unless there is an overwhelmingly compelling reason for your absence.

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<sup>1</sup>Proportional typefaces include Times New Roman, Arial, Calibri, Garamond, etc. "Typewriter-style" (constant-width) typefaces such as Courier New are not acceptable.

I do not provide lecture notes for students under any circumstances. You will have to rely on the generosity of a classmate or make use of any materials provided on the textbook website or the textbook's study guide (if applicable). Students with disabilities who require notes or other learning environment accommodations should consult with the Student Disability Services office for assistance.

Copies of all out-of-class papers must be submitted **both** in paper (hard copy) format to the professor and in the appropriate TurnItIn.com "drop box" on the TAMIU Angel E-Learning website. In the event that the timeliness of an assignment is in question, the time submitted to Angel will be used as the definitive record of when the assignment was received (provided the hard copy is substantially identical). The professor reserves the right to assign a grade of zero (0) for any assignment not received in a timely fashion in *both* formats.

I generally do not provide extra-credit opportunities for graduate students. However, any extra-credit opportunities offered by the professor will be offered to **all** students on an equal basis. Please do not ask the professor for individualized extra credit opportunities.

This syllabus is subject to revision by the professor.

**Late Work:** A late penalty of up to **5 percentage points per day** will apply to work turned in after the deadline for the assignment to be completed. Depending on the specific circumstances, an excused absence may reduce or eliminate the late penalty.

Notwithstanding this policy, any work received more than 48 hours after the scheduled final examination may not be graded, resulting in a zero (0) on any assignments outstanding at that point in the term. Please refer to the college policy on incomplete grades, discussed below, for exceptions.

**Grade Appeals:** If you wish to dispute a grade on a particular assignment for any reason other than an obvious arithmetic error on my part, you will need to type a one-page explanation of your position and turn it in, along with the original graded assignment, *at least one week after* the assignment is returned to you. I will then consider your appeal and make a determination. Appeals must be submitted in hard copy format; no appeals submitted via email will be considered.

For appeals regarding your final grade in the course, please consult the Student Handbook and Catalog for procedures.

**University and College Policies:** The following policies of the TAMIU College of Arts and Sciences and Texas A&M International University are reproduced here for your information; you may already be familiar with them from other courses, but please review them.

**Classroom Behavior** The College of Arts and Sciences encourages classroom discussion and academic debate as an essential intellectual activity. It is essential that students learn to express and defend their beliefs, but it is also essential that they learn to listen and respond respectfully to others whose beliefs they may not share. The College will always tolerate diverse, unorthodox, and unpopular points of view, but it will not tolerate condescending or insulting remarks. When students verbally abuse or ridicule and intimidate others whose views they do not agree with, they subvert the free exchange of ideas that should characterize a university classroom. If their actions are deemed by the professor to be disruptive, they will be subject to appropriate disciplinary action, which may include being involuntarily withdrawn from the class.

**Plagiarism and Cheating** Plagiarism is the presentation of someone else's work as your own. 1) When you borrow someone else's facts, ideas, or opinions and put them entirely in your own words, you must acknowledge that these thoughts are not your own by immediately citing the source in your paper. Failure to do this is plagiarism. 2) When you also borrow someone else's words (short phrases, clauses, or sentences), you must enclose the copied words in quotation marks as well as citing the source. Failure to do this is plagiarism. 3) When you present someone else's paper or exam (stolen, borrowed, or bought) as your own, you have committed a clearly intentional form of intellectual theft and have put your academic future in jeopardy. This is the worst form of plagiarism.

Here is another explanation from the 2010, sixth edition of the Manual of The American Psychological Association (APA):

Plagiarism: Researchers do not claim the words and ideas of another as their own; they give credit where credit is due. Quotations marks should be used to indicate the exact words of another. Each time you paraphrase another author (i.e., summarize a passage or rearrange the order of a sentence and change some of the words), you need to credit the source in the text.

The key element of this principle is that authors do not present the work of another as if it were their own words. This can extend to ideas as well as written words. If authors model a study after one done by someone else, the originating author should be given credit. If the rationale for a study was suggested in the Discussion section of someone else's article, the person should be given credit. Given the free exchange of ideas, which is very important for the health of intellectual discourse, authors may not know where an idea for a study originated. If authors do know, however, they should acknowledge the source; this includes personal communications. (pp. 15-16)

Consult the Writing Center or a recommended guide to documentation and research such as the Manual of the APA or the MLA Handbook for Writers of Research Papers for guidance on proper documentation. If you still have doubts concerning proper documentation, seek advice from your instructor prior to submitting a final draft.

**Penalties for Plagiarism** Should a faculty member discover that a student has committed plagiarism, the student will receive a grade of “F” in that course and the matter will be referred to the Honor Council for possible disciplinary action.

**Penalties for Cheating** Should a faculty member discover a student cheating on an exam or quiz or other class project, the student will receive a “zero” for the assignment and not be allowed to make the assignment up. The incident must be reported to the chair of the department and to the Honor Council. If the cheating is extensive, however, or if the assignment constitutes a major grade for the course (e.g., a final exam), or if the student has cheated in the past, the student should receive an “F” in the course, and the matter should be referred to the Honor Council. Under no circumstances should a student who deserves an “F” in the course be allowed to withdraw from the course with a “W.”

**Student Right of Appeal** Faculty will notify students immediately via the student’s TAMIU e-mail account that they have submitted plagiarized work. Students have the right to appeal a faculty member’s charge of academic dishonesty by notifying the TAMIU Honor Council of their intent to appeal as long as the notification of appeal comes within 3 business days of the faculty member’s e-mail message to the student. The Student Handbook provides details.

**UConnect, TAMIU E-Mail, and Dusty Alert** Personal Announcements sent to students through TAMIU’s UConnect Portal and TAMIU E-mail are the official means of communicating course and university business with students and faculty—not the U.S. Mail and not other e-mail addresses. Students and faculty must check UConnect and their TAMIU e-mail accounts regularly, if not daily. Not having seen an important TAMIU e-mail or UConnect message from a faculty member, chair, or dean is not accepted as an excuse for failure to take important action. Students, faculty, and staff are encouraged to sign-up for Dusty Alert (see [www.tamiu.edu](http://www.tamiu.edu)). Dusty Alert is an instant cell phone text-messaging system allowing the university to communicate immediately with you if there is an on-campus emergency, something of immediate danger to you, or a campus closing.

**Copyright Restrictions** The Copyright Act of 1976 grants to copyright owners the exclusive right to reproduce their works and distribute copies of their work. Works that receive copyright protection include published works such as a textbook. Copying a textbook without permission from the owner of the copyright may constitute copyright infringement. Civil and criminal penalties may be assessed for copyright infringement. Civil penalties include damages up to \$100,000; criminal penalties include a fine up to \$250,000 and imprisonment.

**Students with Disabilities** Texas A&M International University seeks to provide reasonable accommodations for all qualified persons with disabilities. This University will adhere to all applicable federal, state, and local laws, regulations and guidelines with respect to providing reasonable accommodations as required to afford equal education opportunity. It is the student’s responsibility to register with the Director of Student Counseling and to contact the faculty member in a timely fashion to arrange for suitable accommodations.

**Incompletes** Students who are unable to complete a course should withdraw from the course before the final date for withdrawal and receive a “W.” To qualify for an “incomplete” and thus have the opportunity to complete the course at a later date, a student must meet the following criteria:

1. The student must have completed 90% of the course work assigned before the final date for withdrawing from a course with a “W”, and the student must be passing the course;
2. The student cannot complete the course because an accident, an illness, or a traumatic personal or family event occurred after the final date for withdrawal from a course;
3. The student must sign an “Incomplete Grade Contract” and secure signatures of approval from the professor and the college dean.
4. The student must agree to complete the missing course work before the end of the next long semester; failure to meet this deadline will cause the “I” to automatically be converted to a “F”; extensions to this deadline may be granted by the dean of the college.

**Student Responsibility for Dropping a Course** It is the responsibility of the **student** to drop the course before the final date for withdrawal from a course. Faculty members, in fact, may not drop a student from a course.

**Independent Study Course** Independent Study (IS) courses are offered only under exceptional circumstances. Required courses intended to build academic skills may not be taken as IS (e.g., clinical supervision and internships). No student will take more than one IS course per semester. Moreover, IS courses are limited to seniors and graduate students. Summer IS courses must continue through both summer sessions.

**Final Examination** The final examination must be comprehensive and must contain a written component. The written component should comprise 20% of the final exam grade. Exceptions to this policy must receive the approval of the department chair and the dean at the beginning of the semester.

**Grade Changes & Appeals** Faculty are authorized to change final grades only when they have committed a computational error, and they must receive the approval of their department chairs and the dean to change the grade. As part of that approval, they must attach a detailed explanation of the reason for the mistake. Only in rare cases would another reason be entertained as legitimate for a grade change. A student who is unhappy with his or her grade on an assignment must discuss the situation with the faculty member teaching the course. If students

believe that they have been graded unfairly, they have the right to appeal the grade using a grade appeal process in the Student Handbook and the Faculty Handbook.

**Withdrawal Deadlines:** The last day to drop the course without it appearing on your transcript is Wednesday, February 2. The withdrawal deadline (last day for a “W”) is Friday, April 15.

**Course Outline:** Any changes to this schedule will be announced in class and will be posted to the course calendar and in Angel. We will not necessarily read books in the order they appear on the syllabus; please be sure you read the correct chapters *in advance of* the designated class dates.

While the professor may periodically remind students of upcoming scheduled events, it is **your responsibility** to be familiar with this schedule and any changes to it.

**Jan 19** Introductions; review of research design and measurement.

Reading: *Essential Statistics*, ch. 1–3.

**Jan 26** Performance measurement; review of data collection.

Reading: *Essential Statistics*, ch. 4–5.

**Feb 2** Measures of central tendency (mean, median, and mode) and dispersion (standard deviation and variance).

Reading: *Essential Statistics*, ch. 6–7.

**Feb 9** Cross-tabs (contingency tables) and pivot tables.

Reading: *Essential Statistics*, ch. 8.

**Feb 16** Hypothesis testing, and the chi-square test in two-way tables.

Reading: *Essential Statistics*, ch. 9.

**Feb 23** Association measures for two-way tables.

Reading: *Essential Statistics*, ch. 10.

**Mar 2** Tests for continuous outcome variables (the *t* tests and non-parametric alternatives).

Reading: *Essential Statistics*, ch. 11.

**Mar 9** Correlation and simple regression.

Reading: *Essential Statistics*, ch. 12.

**Mar 16 No Class: Spring Break.**

**Mar 23** Multiple regression: the basics.

Reading: *Essential Statistics*, ch. 13, pp. 211–20.

**Mar 30** Multiple regression: dummy variables and interactions.

Reading: *Essential Statistics*, ch. 13, pp. 220–22; handout on interactions.

**Apr 6** Multiple regression: the Gauss-Markov assumptions.

Reading: *Essential Statistics*, ch. 13, pp. 222–34.

**Apr 13** Logistic regression.

Reading: *Essential Statistics*, ch. 14.

**Apr 20** Autocorrelation and time series.

Reading: *Essential Statistics*, ch. 15.

**Apr 27** Research presentations.

**May 4** Research presentations; review for final exam.

**May 11, 8:00 p.m. Final Exam.**