POS7745-20Fall 0001

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POS 7745: Advanced Quantitative Methods in Political Research

Fall 2020

School of Politics, Security and International Affairs, College of Science

Credit hours: 3

Instructor Information

- Instructor: Dr. Jacopo A. Baggio
- Office Location: HPH 302 (ask the front desk)
- Phone: 407 823 5990
- Digital Contact: Webcourses@UCF messaging
- **Office Hours - Mostly Online:** Wednesday 1pm to 3pm (noon), Thursday 11 am to 1pm (noon), other times available upon appointment
- **Office Location:** HPH 302 (Howard Phillips Hall), UCF Main Campus - or Research 1, Room 342 (easier for physical distancing)
- **All course-related issues have to be sent through Webcourses@UCF (Canvas); any questions not related to the course can be sent to my email address. All communication will be answered in 24 hr (except during holidays). Communication initiated Friday after 5pm may not receive a reply until Monday.**
- **Email:**jacopo.baggio@ucf.edu(only for urgent communication NOT related to the course. All course related communication needs to happen via Canvas).

SYLLABUS DISCLAIMER:

This syllabus is NOT a contract. All parts of this syllabus can be amended by the instructor given students' educational needs and assessment. Any change to the syllabus will be announced via canvas.

Course Information

- Term: Fall 2020
- Course Number & Section: POS 7745
- Course Name: Advanced Quantitative Methods in Political Research
- Credit Hours: 3
- Class Meeting Days: Thursday
- Class Meeting Time: 2pm - 4.50pm
- Class Location: HPH Room 310
- Course Modality: P (face to face instruction)

Enrollment Requirements

Course Prerequisites (if applicable): Passing the pre-selection exam given to enrolled graduate students in the security studies program.

COVID - 19 Related Policies

To protect members of our community, everyone is required to wear a facial covering inside all common spaces including classrooms (https://policies.ucf.edu/documents/PolicyEmergencyCOVIDReturnPolicy.pdf). Students who choose not to wear facial coverings will be asked to leave the classroom by the instructor. If they refuse to leave the classroom or put on a facial covering, they may be considered disruptive (please see the Golden Rule for student behavior expectations). Faculty have the right to cancel class if the safety and well-being of class members are in jeopardy. Students will be responsible for the material that would have been covered in class as provided by the instructor.

Depending on the course of the pandemic during the semester, the university may make changes to the way classes are offered. If that happens, please look for announcements or messages in Webcourses@UCF or Knights email about changes specific to this course.

COVID-19 and Illness Notification – Students who believe they may have a COVID-19 diagnosis should contact UCF Student Health Services (407-823-2509) so proper contact tracing procedures can take place.

Students should not come to campus if they are ill, are experiencing any symptoms of COVID-19, have tested positive for COVID, or if anyone living in their residence has tested positive or is sick with COVID-19 symptoms. CDC guidance for COVID-19 symptoms is located here: (https://www.cdc.gov/coronavirus/2019-ncov/symptoms-testing/symptoms.html)

Students should contact their instructor(s) as soon as possible if they miss class for any illness reason to discuss reasonable adjustments that might need to be made. When possible, students should contact their instructor(s) before missing class.

In Case of Faculty Illness – If the instructor falls ill during the semester, there may be changes to this course, including having a backup instructor take over the course. Please look for announcements or mail in Webcourses@UCF or Knights email for any alterations to this course.

Course Accessibility and Disability COVID-19 Supplemental Statement – Accommodations may need to be added or adjusted should this course shift from an on-campus to a remote format. Students with disabilities should speak with their instructor and should contact sas@ucf.edu to discuss specific accommodations for this or other courses.

Course Description

This course is designed to introduce students to advanced topics in the use of statistical methods as well as other methods and tools used to analyze issues in political science research. More specifically, in this course students will learn how to use appropriate statistical software (STATA) in order to perform quantitative data analysis (linear and logistic regression, time-series data analysis, panel data analysis). The course will also introduce students to other potentially useful software to perform data analysis and they will be introduced to methods beyond statistical analysis that are used in political science research such as content analysis, qualitative comparative analysis, agent based modelling and networks.

By the end of the course students will be familiar with the tools used in current quantitative research in political science and know how to use statistical software to apply this methodology to the analysis of political phenomena.

Course Materials and Resources

Required Materials/Resources

- Gujarati, Damodar N. 2009. *Basic Econometrics.* 5th Edition. McGraw Hill.
- STATA 15 software
- Additional readings will be required and students will need to search and download the relevant literature (see schedule for weekly required readings)

Optional Materials/Resources

Books

- Hamilton, Lawrence C. 2013. *Statistics with STATA: Version 12.* 8th Edition. Brooks/Cole Cengage Learning.
- Kennedy, Peter. 2008.*A Guide to Econometrics.* 6th Edition. Wiley-Blackwell.
- Gill, Jeff. 2006. *Essential Mathematics for Political and Social Research.* Cambridge University Press.
- Fox, John. 1991. *Regression Diagnostics. An Introduction.* Sage Publications Inc.

DataBases

- A collection of databases, at the country level, from 1946 to today (note that not all countries/years are available for all variables): Goteborg Quality of Governance Institute: https://qog.pol.gu.se/data
- Library Website: http://guides.ucf.edu/SecurityStudies, 'Databases' tab
- ICPSR Inter-University Consortium for Political and Social Research. Find & Analyze Data. http://www.icpsr.umich.edu/icpsrweb/ICPSR/
- Stockholm International Peace Research Institute (sipri). http://www.sipri.org/Databases.
- Correlates of War. Available Datasets. http://www.correlatesofwar.org/
- Paul Hensel's International Relations Data Site. Paul R. Hensel. University of North Texas. http://www.paulhensel.org/data.html
- Council of European Social Science Data Archive. Accessing Data. http://www.cessda.org
- Comparative Study of Electoral Systems. Other Comparative Projects. http://www.cses.org/about.htm

STATA Resources

- Free video tutorials on STATA are available here: https://www.stata.com/links/video-tutorials/
- Annotated output and examples of data analysis in STATA: https://stats.idre.ucla.edu/stata/

Student Learning Outcomes

In this course, our main goal are

1) To understand how to conduct and implement your own research and choosing the appropriate analysis technique based on your general problem statement (research question) as well as data availability/needs.

2) Implement the correct analysis using appropriate software (STATA)

3) Present your findings both orally (through presentation) and written (through writing a research report).

Course Activities

Discussion Assessment: Discussion (15 points)

During the course you will be required to discuss the weekly topic (i.e. analysis method). Discussion takes the following form:

- Two students will discuss a topic (analysis method) assigned,
- One student will be responsible for taking notes of the presentation and discussion and submit the notes of the discussion on Webcourses@UCF

Discussions should:

Critically assess the topic assigned. You can use a power point or not. You are encouraged to search for critiques/validation of the topic assigned (i.e. when to do hypothesis testing, when not, what are the limitations? what are the strengths of the specific analysis method?

If you have doubts or do not know how to proceed you can organize a meeting with me and I will provide guidelines for critiquing the paper assigned.

Technical Assessment: take-home assignments (25 points)

Each week all students will be expected to complete the assignments given. Assignments vary. For example, take-home assignments will generally relate to analyzing data in STATA. The analysis will reflect the weekly topic.

Final Project

Project Presentation (10 points) – open to faculty and other students.

- The project presentations can be done individually or in groups. Presentation cannot be longer than 15 minutes (and they will be timed, going over time will result in a penalization in points).
- If in groups, all the names of all the group members have to be reported by each individual.
- Each individual will have to present part of the project to receive a grade.
- If an individual part of a group does not actually present, s/he will receive 0 points for this assignment.
- A group can be of no more than 4

Final Project Paper (30 points)

The final project is due the lastweek of class

- The final project can be discussed with me at any time during the course. If you have your own topic, we will work on that, if not, you can choose any topic covered during the course or you will be assigned one.
- The final project has to showcase your technical skills. It has to involve an in-depth analysis of a topic of your choice centered upon a specific analysis method that you have learned during the semester.
- The final project is an individual project.

- Your final project mustconsist of a thoughtful analysis on a topic of your choice:
  - You can choose to analyze and critique an existing paper that uses statistics or other type of analysis and replicate/criticize their results
  - You can choose to analyze your own preferred dataset
- The final research project paper should contain a brief literature review on the topic you are working on, description of the analysis and why you are using specific network metrics), results, limitations, discussion and conclusion.
- You need to cite at least 10 peer review articles that deal with the topic of your choice.
- APA style is required as well as proper citation.

The essay must be at least 2000 words, not to exceed 3500 words.

Assignment breakdown for final grade

Continuous Learning	Discussion	15 points
	Take-Home Assignments	25 points
Final Evaluation	Project Presentation	10 points
	Final Project Paper	30 points
Exam	Statistic Exam	10
	Final Exam	10

Activity Submissions

Assignments will be submitted via Webcourses@UCF.

Make-up Exams and Assignments

Per university policy, you are allowed to submit make-up work (or an equivalent, alternate assignment) for authorized university-sponsored activities, religious observances, or legal obligations (such as jury duty). If this participation conflicts with your course assignments, I will offer a reasonable opportunity for you to complete missed assignments and/or exams. The make-up assignment and grading scale will be equivalent to the missed assignment and its grading scale. In the case of an authorized university activity, it is your responsibility to show me a signed copy of the Program Verification Form for which you will be absent, prior to the class in which the absence occurs. In any of these cases, please contact me ahead of time to notify me of upcoming needs.

Grading

Letter Grade	Points
A	93-100
A-	88-92
B	80-88
C	70-79
D	60-69
F	59 or below

Consult the latest Undergraduate or Graduate catalog for regulations and procedures regarding grading such as Incomplete grades, grade changes, and grade forgiveness.

Course Schedule

Week	Topic	Readings	Assignments and Due Dates
Week 1 Aug 27	• Introduction • Review of Elements of Research Design	• Henrickson, L., & McKelvey, B. (2002). Foundations of "new" social science: Institutional legitimacy from philosophy, complexity science, postmodernism, and agent-based modeling. PNAS, 99(Suppl 3), 7288-7295. • Lakatos, I. (1974). Falsification and the methodology of scientific research programmes. In I. Lakatos & A. Musgrave (Eds.), Criticism and the growth of knowledge (pp. 91-198). Cambridge, UK: Cambridge University Press.	
Week 2 Sept 3	• An overview of different methods and suggestions on how to choose the appropriate ones.	• Lecture will be based on Baggio J.A., Baggio R., Modelling and Simulations in Tourism and Hospitality: Chapter 1,2 and Chapter 4	
Week 3 Sept 10	• Review of the Linear Model • and more on research design	• Biddle, Stephen and Stephen Long. 2004. "Democracy and Military Effectiveness: A Deeper Look." The Journal of Conflict Resolution 48 (4):525-546. • Gujarati, chapters 1-3	• Discussing Research Design and the linear model (5 points) • Discussion will be held in class
Week 4 Sept 17	• Guest Lecture on Content Analysis (By Prof. Peter Jaques)	• Grimmer, J., & Stewart, B. M. (2013). Text as data: The promise and pitfalls of automatic content analysis methods for political texts. *Political analysis, 21*(3), 267-297. • Laver, M., & Garry, J. (2000). Estimating policy positions from political texts. *American Journal of Political Science*, 619-634.	
Week 5 Sept 24	• Qualitative Comparative Anlaysis	• Ragin, C.C. 2006. Set relations in social research: Evaluating their consistency and coverage. Political Analysis 14(3), 291-310. • Baggio, J. A., Barnett, A. J., Perez-Ibara, I., Brady, U., Ratajczyk, E., Rollins, N., ... & Anderies, J. M. (2016). Explaining success and failure in the commons: the configural nature of Ostrom's institutional design principles. *International Journal of the Commons, 10*(2), 417-439. (QCA application and introduction of reliability metrics - read the supplementary material as well!)	• Discussing QCA and Content Analysis (5 points) • Discussion will be held in class
Week 6 Oct 1	• Uncertainty, • Inference, • and Hypothesis Testing	• Gujarati, chapters 5 • Gary King and Eleanor Neff Powell. 2008. "How Not to Lie Without Statistics. http://gking.harvard.edu/files/abs/nolie-abs.shtml • Smaldino PE, McElreath R. 2016 The natural selection of bad science. Royal Society Open Science 3:160384	• Take home assignment 1 (5 points) • Due Oct 10th **Before class** • Discussing Hypothesis testing (5 points) • Discussion will be held in class
Week 7 Oct 8	• Multivariate Regression	• Gujarati, chapter 7 & 8 • Christopher H. Achen. 1977. "Measuring Representation: Perils of the Correlation Coefficient." *American Journal of Political Science* 21: 805-815.	• Take home assignment 2 (5 points) • Due Oct 17 **Before class** • Discussing Multivariate Regression (5 points) • Discussion will be held in class
Week 8 Oct 15	• Dummy Variables and • Multiplicative Interaction Terms • And Qualitative response models	• Gujarati, chapter 9 • Gujarati, chapter 15 • Robert J. Friedrich. 1982. In Defense of Multiplicative Terms in Multiple Regression Equations. *American Journal of Political Science.* 26(4): 797-833 • Timothy Hellwig and David Samuels. 2007. Voting in Open Economies: The Electoral Consequences of Globalization. *Comparative Political Studies.* 40(3): 283-306. • Brambor et al. 2005. "Understanding Interaction Models: Improving Empirical Analyses." *Political Analysis* 13: 1-20.	• Take home assignment 3 (5 points) • Due Oct 24 **Before class**
Week 9 Oct 22	• Multicollinearity, heteroskedasticity and autocorrelation, • Model specification and general diagnostic	• Gujarati, chapters 10, 11, 12 & 13 • Chatterjee, Sangit and Frederick Wiseman. 1983. "Use of Regression Diagnostics in Political Science Research." *American Journal of Political Science* 27: 601-613.	• Take home assignment 4 (5 points) • Due Oct 31 **Before class** • Discussing Regression Diagnostic (5 points) • Discussion will be held in class
Week 10 Oct 29	• Time Series Analysis and Longitudinal models	• Gujarati, chapter 26 and 21	• Take home assignment 5 (5 points) • Due **Nov 14 Before class**
Week 11 Nov 5	**Exam Week (no meeting in person, exam will be on Canvas)**		
Week 12 Nov 12	• Networks	• Borgatti S., Mehra, A., Brass, D.J., Labianca, G. (2009). Network Analysis in the Social Sciences, Science 323, 892-895. • Watts, D. J. (2004). The "New" Science of Networks. Annual Review of Sociology, 30, 243-270. • Lubell, M., Scholz, J., Berardo, R., & Robins, G. (2012). Testing policy theory with statistical models of networks. Policy Studies Journal, 40(3), 351-374. • Berardo, R., & Scholz, J. T. (2010). Self-organizing policy networks: risk, partner selection, and cooperation in estuaries. American Journal of Political Science, 54(3), 632-649. • Porter, M.A. et al. 2007. Community Structure in the United States House of Representatives. Physica A. 386(1): 414-438. • Cranmer, S. J., Desmarais, B. A., Kirkland J.H., (2012). Toward a Network Theory of Alliance Formation. International Interactions 38:295-324.	• Discussing Networks (5 points) • Discussion will be held in class
Week 13 Oct 19	• Agent Based Models	• Smaldino (2016). All models are stupid, We need more of them. Computational Models in Social Psychology, edited by R. R. Vallacher, A. Nowak, & S. J. Read. Forthcoming in 2016 from Psychology Press. • Baggio, J.A. (2017). Complex Adaptive Systems, Simulations and Agent-Based Modelling. In R. Baggio & J. Klobas (Eds.), Quantitative research methods in tourism: a handbook, 2nd Edition (pp. 363-396). Bristol: Channelview • Abdollahian, M., Yang, Z., Coan, T., & Yesilada, B. (2013). Human development dynamics: an agent based simulation of macro social systems and individual heterogeneous evolutionary games. Systems Modeling, 1(1), 1–14.	• Discussing Agent Based Modeling (5 points) - • Discussion will be held in class
Nov 28	• Thanksgiving	No Class	
Week 15 Dec 3	• CLASS PRESENTATIONS		
Week 16	**Research project due and Final Exam (Dec. 10th 1.30pm 3.50pm)**		

University Services and Resources

Academic Services and Resources

A list of available academic support and learning services is available at UCF Student Services. Click on "Academic Support and Learning Services" on the right-hand side to filter.

Non-Academic Services and Resources

A list of non-academic support and services is also available at UCF Student Services. Click on "Support" on the right-hand side to filter.

If you are a UCF Online student, please consult the UCF Online Student Guidelines for more information about your access to non-academic services.

Policy Statements

Academic Integrity

Students should familiarize themselves with UCF's Rules of Conduct. According to Section 1, "Academic Misconduct," students are prohibited from engaging in:

- *Unauthorized assistance:* Using or attempting to use unauthorized materials, information or study aids in any academic exercise unless specifically authorized by the instructor of record. The unauthorized possession of examination or course-related material also constitutes cheating.
- *Communication to another through written, visual, electronic, or oral means:* The presentation of material which has not been studied or learned, but rather was obtained through someone else's efforts and used as part of an examination, course assignment, or project.
- *Commercial Use of Academic Material:* Selling of course material to another person, student, and/or uploading course material to a third-party vendor without authorization or without the express written permission of the university and the instructor. Course materials include but are not limited to class notes, Instructor's PowerPoints, course syllabi, tests, quizzes, labs, instruction sheets, homework, study guides, handouts, etc.
- *Falsifying or misrepresenting* the student's own academic work.
- *Plagiarism:* Using or appropriating another's work without any indication of the source, thereby attempting to convey the impression that such work is the student's own.
- *Multiple Submissions:* Submitting the same academic work for credit more than once without the express written permission of the instructor.
- *Helping another violate* academic standards.

For more information about Academic Integrity, students may consult The Center for Academic Integrity.

For more information about plagiarism and misuse of sources, see "Defining and Avoiding Plagiarism: The WPA Statement on Best Practices".

Responses to Academic Dishonesty, Plagiarism, or Cheating

Students should also familiarize themselves with the procedures for academic misconduct in UCF's student handbook, The Golden Rule. UCF faculty members have a responsibility for students' education and the value of a UCF degree, and so seek to prevent unethical behavior and when necessary respond to academic misconduct. Penalties can include a failing grade in an assignment or in the course, suspension or expulsion from the university, and/or a "Z Designation" on a student's official transcript indicating academic dishonesty, where the final grade for this course will be preceded by the letter Z. For more information about the Z Designation, see http://goldenrule.sdes.ucf.edu/zgrade.

Course Accessibility Statement

The University of Central Florida is committed to providing access and inclusion for all persons with disabilities. Students with disabilities who need disability-related access in this course should contact the professor as soon as possible. Students should also connect with Student Accessibility Services (Ferrell Commons 185, sas@ucf.edu, phone (407) 823-2371). Through Student Accessibility Services, a Course Accessibility Letter may be created and sent to professors, which informs faculty of potential access and accommodations that might be reasonable.Determining reasonable access and accommodations requires consideration of the course design, course learning objectives and the individual academic and course barriers experienced by the student.

Campus Safety Statement

Emergencies on campus are rare, but if one should arise in our class, everyone needs to work together. Students should be aware of the surroundings and familiar with some basic safety and security concepts.

- In case of an emergency, dial 911 for assistance.
- Every UCF classroom contains an emergency procedure guide posted on a wall near the door. Please make a note of the guide's physical location and consider reviewing the online version at http://emergency.ucf.edu/emergency_guide.html.
- Students should know the evacuation routes from each of their classrooms and have a plan for finding safety in case of an emergency.
- If there is a medical emergency during class, we may need to access a first aid kit or AED (Automated External Defibrillator). To learn where those items are located in this building, see http://www.ehs.ucf.edu/workplacesafety.html (click on link from menu on left).
- To stay informed about emergency situations, sign up to receive UCF text alerts by going to my.ucf.edu and logging in. Click on "Student Self Service" located on the left side of the screen in the tool bar, scroll down to the blue "Personal Information" heading on your Student Center screen, click on "UCF Alert," fill out the information, including your e-mail address, cell phone number, and cell phone provider, click "Apply" to save the changes, and then click "OK."
- Students with special needs related to emergency situations should speak with their instructors outside of class.
- To learn about how to manage an active-shooter situation on campus or elsewhere, consider viewing this video. You CAN Survive an Active Shooter

Deployed Active Duty Military Students

If you are a deployed active duty military student and feel that you may need a special accommodation due to that unique status, please contact your instructor to discuss your circumstances.

Copyright

This course may contain copyright protected materials such as audio or video clips, images, text materials, etc. These items are being used with regard to the Fair Use doctrine in order to enhance the learning environment. Please do not copy, duplicate, download or distribute these items. The use of these materials is strictly reserved for this online classroom environment and your use only. All copyright materials are credited to the copyright holder.

Third-Party Software and FERPA

During this course you might have the opportunity to use public online services and/or software applications sometimes called third-party software such as a blog or wiki. While some of these could be required assignments, you need not make any personally identifying information on a public site. Do not post or provide any private information about yourself or your classmates. Where appropriate you may use a pseudonym or nickname. Some written assignments posted publicly may require personal reflection/comments, but the assignments will not require you to disclose any personally identity-sensitive information. If you have any concerns about this, please contact your instructor.

Third-Party Accessibility and Privacy Statements

If you are using a third-party tool, link to the tool's accessibility and privacy statement here. Most tools will includes these statements on their home pages.

Course Summary:

Date	Details	
Thu Sep 10, 2020	Discussing research design and the linear model	due by 11:59pm
Thu Sep 24, 2020	Discussing Content Analysis and QCA	due by 11:59pm
Thu Oct 1, 2020	Discussing Inference, hypothesis testing and uncertainty	due by 11:59pm
Thu Oct 8, 2020	Take Home Assignment 1	due by 1:30pm
	Discussing Multivariate Regression Models	due by 11:59pm
Thu Oct 15, 2020	Take Home Assignment 2	due by 1:30pm
	Discussing Regression Diagnostic	due by 11:59pm
Thu Oct 22, 2020	Take Home Assignment 3	due by 1:30pm
Thu Oct 29, 2020	Take Home Assignment 4	due by 1:30pm
Thu Nov 5, 2020	Mid-Term Exam	due by 5pm
Thu Nov 12, 2020	Take Home Assignment 5	due by 1:30pm
	Discussing Networks	due by 11:59pm
Thu Nov 19, 2020	Discussing Agent Based Modeling	due by 11:59pm
Thu Dec 3, 2020	Presentation	due by 11:59pm
Mon Dec 7, 2020	Final Project	due by 11:59pm
Tue Dec 8, 2020	Final Exam	due by 3:50pm

Course Status
Unpublish Published
Import Existing Content
Import from Commons
Choose Home Page
View Course Stream
Course Setup Checklist
New Announcement
Student View
New Analytics
View Course Notifications

August 2020

26	27	28	29	30	31	1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31	1	2	3	4	5

Course assignments are not weighted.