Bard College Berlin
A LIBERAL ARTS UNIVERSITY

SO324 Quantitative Methods in Social Sciences

Seminar Leader: **Dr. Nassim Abi Ghanem**
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Office Hours: **Wed 12-1 and 3-4pm or by appointment https://calendly.com/nabighanem**

Course Description

Why do people vote the way they do? Why does violence erupt in some states while in other state it does not? Can development aid improve democratization and development? One way of answering these questions is through effective analysis of quantitative data. This course focuses on different strategies of quantitative statistical analysis. We explore how to read, understand, and critically assess quantitative research. Students will engage in quantitative research design, testing hypothesis, unpacking causal mechanisms, and applying probability and regression analysis tools. Finally, students will learn how to present the interpreted data logically and systematically in research output. In this course, students will also learn the basics of R/Python software for conducting statistical analysis. Towards the end of the course, we will also briefly explore Social Network Analysis (SNA) and Qualitative Comparative Analysis (QCA) as further quantitative social science methods.

Learning outcomes

The course has one major goal: To enhance students' 'passive' literacy of quantitative research methods. In this respect students will learn how to evaluate the adequacy of a given research method for a given research question. They will learn how to judge the quality of reports and academic studies on basis of typical flaws different research techniques may have. A second, minor goal is to give students some active skills and to show them how to apply techniques to original policy studies of their own. For this we will hold some lab sessions introducing students to software programs such.

Requirements

The required readings consist of textbook chapters made available on Google Classroom. In some cases, you are required to read parts of a scholarly article as case studies or example of quantitative applications. The focus is on the topics, some readings may have too detailed quantitative aspects that are not necessary to be understood in detail.

1) Homework assignments (25%): This will consist of small homework assignments scheduled in together when we meet in the first sessions. These series of homework build up for your final assignment.
2) Midterm (25%): The midterm will consist of an in-class exam for 1hr15min with some basic questions on the material. The exam will have a theoretical part and a quantitative problem solving part.
3) Final Assignment (35%): The final assignment is an accumulation of the homework assignments whereby you will end up having a quantitative research work in progress for a specific research question, data set and hypothesis. This is meant to demonstrate how we can design quantitative research in politics.

4) Attendance and participation (15%)
5) *Flexibility to add bonus grades: This course will accommodate all backgrounds and levels of students in quantitative analysis, as such, there is flexibility to add assignments for bonus grades that we will discuss in class and upon the need.*

Some advice: Your success in this course will depend to a large extent on your keeping up with the material as it is presented. I strongly urge you not to fall behind because the material in the course is intensely cumulative. You will also benefit much more from the lectures if you read the assigned material before the class sessions.

General observations: Please do not be late to class, make sure you are on time and respectful of your colleague's time. If your ore than five minutes late to class, you will be counted as absent for the day (check attendance policy below). It is expected that you read all the required readings before the class. You may be randomly asked to provide a synopsis of the reading at the beginning of the session.

The due papers need to be of your own work, and researched material should be properly cited. Plagiarism will not be tolerated and will result in automatic failing grade on the assignment (see Academic Integrity section below).

Attendance

Attendance at all classes is a crucial part of the education offered by Bard College Berlin. To account for minor circumstances, two absences from twice-per-week courses or the equivalent (e.g. one absence from a once-per-week course) should not affect the participation grade or require documentation.

Kindly make sure you are on time and respectful of your colleague's time. If your ore than five minutes late to class, you will be counted as absent for the day

Bard College Berlin does not offer credit for any course in which a student has missed more than 30% of classes, regardless of the reasons for the absences. The full Bard College Berlin attendance policy can be found in the Student Handbook, Section 2.8.

SPECIAL CONSIDERATIONS FOR SPRING 2024: Please notify the University administration and myself if you are unable to start the semester due to travel restrictions caused by the on-going pandemic. In the event that the class goes into quarantine, all sessions will migrate to Zoom. Details will be provided in such a case.

Please refrain from in-person attendance if you feel you are ill.

Academic Integrity

Bard College Berlin maintains the highest standards of academic integrity and expects students to adhere to these standards at all times. Instances in which students fail to meet the expected standards of academic integrity will be dealt with under the Code of Student Conduct, Section 14.3 (Academic Misconduct) in the Student Handbook.

Assessment Deadlines

Due Dates:

1) Midterm Exam: March 14 at 11:59pm to be uploaded on course website.
2) Final Paper/Proposal: May 9 at 11:59pm to be uploaded on course website for **Graduating students**. May 20th at 11:159pm to be uploaded on course website for non-graduating students.
3) Homework Assignments **(To Be Discussed):** This is divided into parts and builds up to your final paper, HWI (March XX at 11:59pm), HWII (April XX at 11:59).

Policy on Late Submission of Papers

Assignments that are up to 24 hours late can be downgraded up to one full grade (from B+ to C+, for example). Instructors are not obliged to accept essays that are more than 24 hours late. Where an instructor agrees to accept a late essay, it must be submitted within four weeks of the deadline. Thereafter, the student will receive a failing grade for the assignment. Grades and comments will be returned to students in a timely fashion. Students are also entitled to make an appointment to discuss essay assignments and feedback during instructors' office hours.

Students receive mid- and end-of-semester grades for their seminar work. Students are entitled to make an appointment with an instructor to discuss seminar participation, or may be asked to meet with the instructor at any stage in the semester regarding class progress.

Grade Breakdown

Rubrics for the assignments will be provided with detailed requirements sheet uploaded on the course website before the paper is due. There you will be able to also see how the grades will be allocated and against what criteria you will be assessed.

Schedule

Week 1. Research Design
Jan 30: Introduction to the course: Course aims, expectations and class survey.

Feb 1: Basic concepts and theories.
Readings:

- Case on Corruption in Sumo Wrestling (Duggan and Levitt, 2002) [Try to understand as much as you can].
- Chapter 1 and 3 in Applied Statistics for Public and Nonprofit Administrations.

Week 2. Research Design
Feb 6: Continue core research design components
Readings:

- Chapter 4 and 5 in Applied statistics for Public and Nonprofit.
- Try to solve exercises on pages 92 and 93 in Statistical Techniques in Business and Economics with Global Data Sets.

Feb 8: Describing Data: Displaying and Exploring Data
Readings:

- Chapter 6 in Applied Statistics for Public and Nonprofit Admin.
- Chapter 8 in Statistical Techniques in Business and Economics with Global Data Sets.

Week 3. Central Limit Theorem
Feb 13:

- Readings: Chapter 7 in Applied Statistics for Public and Nonprofit Admin.

Feb 15: Introduction to R

- Readings: Uploaded Material

Week 4. Estimations and Confidence Intervals
Feb 20:

- Readings: Chapter 9 in Statistical Techniques in Business and Economics with Global Data Sets.

Feb 22: Software session.

Week 5. Hypothesis Testing
Feb 27:

- Readings: TBA

Feb 29: Null-hypothesis, Logic of testing, simple tests.

- Readings: MBB 11-12 (introduction to inference, hypothesis testing.

Week 6.
Mar 5: Case study for analysis: Case on Ethics Conflicts: The origins of civil wars (Fearon and Laitin 2003).

Mar 7: Developing Hypothesis – Lab Session.

What is the Research Question? What are the hypotheses? Are these good or bad hypothesis? How do they test them?

Homework I: Designing a RQ and hypotheses.

Week 7.
Mar.12: Simple Tests and comparisons/ Hypothesis Testing
Readings:

- Buttolph Johnson and Joslyn 1995.

Mar 14: Midterm

Week 8. Analysis of Variance --- Two-sample Hypothesis testing
Mar. 19: The F Distribution
Readings:

- Chapter 12 in Statistical Techniques in Business and Economics with Global Data Sets.

Mar 21: Continue Two-Sample testing.

Week 9.
April. 2: Introduction to Regression and Correlation
Readings:

- Case: What does plow use tell us about fertility rates? (Alesina, Guiliano et al, 2011).

April 4. 30: Continue Regression.
Readings:

- Chapter 13 in Statistical Techniques in Business and Economics with Global Data Sets.

Homework II (in agreement whether before the Spring break or after).

Week 10.
April 9: Multiple Regression

April 11: Software session/Homework review

Week 11. **Qualitative Comparative Analysis**
April 16: Introduction to QCA

April 18: Continue QCA

Week 12. **Networks and Complex Systems**
April 23: Introduction to Network Science

April 25: Introduction to Social Network Analysis (SNA)

Week 13.
April 30: Centralities in SNA

May 2: Centralities in SNA continued

Week 14
May 7: Putting it all together

May 9: Wrap-up and discussing final paper/project proposal.

Week 15.
May 16-May 20th: **Completion Days, No Class**

Course Readings

Textbooks:

- Applied Statistics for Public and Nonprofit Administration
- Statistical Techniques in Business and Economics with Global Data Sets 13th ed. Lind, D., Marchal W. and Wathen, S, McGraw-Hill Irwin.
- Quantitative Social Science Data with R

Papers:

- Duggan, M.G and Levitt, S.D. (2002). Winning Isn't Everything: Corruption in Sumo Wrestling. The American Economic Review, 92 (5): pp.1594-1605.

- Fearon, J.D. and Laitin, D.D. (2003). Ethnicity, Insurgency and Civil War. American Political Science Review, 97 (1), pp.75-90.

- Alesina, Guiliano et al, 2011.