THE GRADUATE INSTITUTE GENEVA

INSTITUT DE HAUTES ÉTUDES INTERNATIONALES ET DU DÉVELOPPEMENT

GRADUATE INSTITUTE OF INTERNATIONAL AND DEVELOPMENT STUDIES

International Relations/Political Sciences
Academic year 2020–2021

Statistics for International Relations Research II
RISP062 – Spring – 6 ECTS

Course Description
This course provides students with a solid understanding of the linear model as well as several non-linear regression-based methods widely used in political science. We will be covering basic assumptions, methods for transforming data, estimation and interpretation, and diagnostics of results and/or potential fixes for violations of assumptions. Further, we will discuss models for which the traditional assumptions of OLS regression are violated, such as in cross-sectional and limited dependent variable analyses. Introductions to some advanced analytic approaches concludes the seminar.

PROFESSOR

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ASSISTANT

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Syllabus

Course Aims

The primary goals of this course are to enable students to:

- understand the types of questions that can be asked/answered by various statistical methods
- identify, explain, and evaluate model choices
- generate, interpret, and communicate statistical findings verbally and in writing
- grow more comfortable with statistical terms, concepts, and programming
- recognise key assumptions for statistical methods and what to do if they are not met
- think critically about contemporary issues in (statistical) methodology

Course Structure

Due to the coronavirus pandemic, this course (classes and labs) will be taught online. Lab sessions are provisionally scheduled for Wednesday afternoons at 16.15. This will be confirmed during the first session.

Course Materials

There is no single textbook for this course, but there are a number of excellent supporting books, some chapters of which we will use throughout this course. All additional required and recommended readings are provided in electronic format on Moodle or will be available on reserve in the library.

Agresti, Alan. 2018. *Statistical Methods for the Social Sciences*. 5 ed. Essex: Pearson.

Ward, Michael D, and John S Ahlquist. 2018. *Maximum Likelihood for Social Science*. Cambridge: Cambridge University Press.

Imai, Kosuke. 2017. *Quantitative Social Science*. Princeton: Princeton University Press.

Monogan, James E, III. 2015. *Political Analysis Using R*. Cham: Springer.

The software used in the class is $\mathcal{R}$. It is free. There are many highly recommended resources for learning $\mathcal{R}$ that I will share with you. In the meantime, please download and install the most recent versions of both R (the statistical software) and RStudio (a front-end which makes using R much easier).

Course Evaluation

30% Exercises: Students are expected to complete 6/8 weekly exercises. Exercises will be distributed as questions in an RMarkdown notebook. Please relabel the document "E1_Surname.Rmd" and return the notebook to use with your code and interpretation/discussion below each question. You do not need to include the data, but notebooks that do not run will incur a penalty. Students may work in groups, however the final product must be submitted individually (i.e. your own interpretation of results).

15% Reviews: Students are also expected to prepare one short publication review from week 5 onwards. You can identify the piece that you want to review yourself, and I would encourage you to pick something from your field of interest that you build upon for your project (below), but it must employ one of the methods covered in the course. Please check the pieces you propose to review by March 16th. Guidelines for how to write such a review and the grading rubric will be shared at the start of the semester. Your review will be due one week after the session that treats the method used in the paper.

15% Participation Students often ask questions and offer answers to each other regarding conceptual confusions and coding challenges in $\mathcal{R}$. To motivate and reward those who engage most, a grade for participation on the Moodle forum is scaled to whomever submits most questions/answers, and a nonlinear return on Qs/As to encourage participation among those who are least confident. This grading scheme will be explained in the first session.

40% Project Report: Students demonstrate their ability to collect and analyze data, and interpret the results by presenting (first) analyses using one of the methods covered in class. I strongly encourage you to take this opportunity to engage (variables of interest to) the theories/hypotheses/empirical interests you have. We will collect proposals after the Easter break (no grade), and provide online consultancy sessions to support your projects prior to submission. The final product will be an RMarkdown report and data set that should replicate correctly when run on our systems, and will then be uploaded to be shared with the rest of the class for comments.

Course Policies

Unfortunately *auditing* is not possible this year.

Grading is according to a 20 point scale. Though there is not a strict equivalence to the Swiss grading system, as a general guide a 10 is roughly a passing grade (4.00).

Plagiarism means presenting another's thoughts, ideas, or expressions as one's own, and is a breach of academic integrity that is not tolerated at the Graduate Institute. Students who present others' work as their own may receive a 0. Please cite appropriately and contact the TA if you have any doubts.

Course Schedule

Week 1 (23 Feb): Refresher

- Agresti, chapter 11
- King, Gary, Tomz, Michael, & Wittenberg, J. (2000). "Making the most of statistical analyses: Improving interpretation and presentation". *American Journal of Political Science*, 44(2), 347–361.
- Fearon, James D., & Laitin, David D. (2003). "Ethnicity, Insurgency, and Civil War". *American Political Science Review*, 97(1), 75–90.
- Lab Session
- Exercise 1 due noon following week

Week 2 (2 Mar): Modelling

- Agresti, chapter 14
- Achen, Christopher H. (2005). "Let's Put Garbage-Can Regressions and Garbage-Can Probits Where They Belong". *Conflict Management and Peace Science*, 22(4), 327–339.
- Oneal, John, & Russett, Bruce M. (2005). "Rule of Three, Let It Be? When More Really Is Better". *Conflict Management and Peace Science*, 22(4), 293–310.
- Lab Session
- Exercise 2 due noon following week

Week 3 (9 Mar): – no class –

Please inform the TA this week which article you choose to review from week 6 onwards.

Week 4 (16 Mar): Assumptions

- King, Gary (1986). "How not to lie with statistics: Avoiding common mistakes in quantitative political science". *American Journal of Political Science*, 30(3), 666.
- Poe, Steven C., Carey, Sabine C., & Vazquez, Tanya C. (2001). "How are these pictures different? A quantitative comparison of the US State Department and Amnesty International human rights reports, 1976-1995". *Human Rights Quarterly*, 23(3), 650–677.
- Lab Session
- Exercise 3 due noon following week

Week 5 (23 Mar): Maximum-Likelihood Estimation

- Ward and Ahlquist, chapter 1–2 (chapter 4 more advanced)

Week 6 (30 Mar): Models for Binary Outcomes

- Ward and Ahlquist, chapter 3
- Kelley, Judith (2007). *Who Keeps International Commitments and Why? The International Criminal Court and Bilateral Nonsurrender Agreements*. 101(03), 573–518.
- Rooduijn, Matthijs, & Burgoon, Brian (2018). "The Paradox of Well-being: Do Unfavorable Socioeconomic and Sociocultural Contexts Deepen or Dampen Radical Left and Right Voting Among the Less Well-Off?". *Comparative Political Studies*, 51(13), 1720–1753.
- Exercise 4 due noon following week

Week 7 (6 Apr): Models for Multinomial Outcomes

- Ward and Ahlquist, chapter 9
- Horowitz, Michael, McDermott, Rose, & Stam, Allan C. (2016). "Leader Age, Regime Type, and Violent International Relations". *Journal of Conflict Resolution*, 49(5), 661–685.
- Burden, Barry C., Canon, David T., Mayer, Kenneth R., & Moynihan, Donald P. (2013). "Election Laws, Mobilization, and Turnout: The Unanticipated Consequences of Election Reform". *American Journal of Political Science*, 58(1), 95–109.
- Exercise 5 due noon following week

Week 8 (13 Apr): – Easter, no class –

Week 9 (20 Apr): Models for Panel Outcomes

- Easterly, William (2003). "Can Foreign Aid Buy Growth?". *Journal of Economic Perspectives*, 17(3), 23–48.
- Wawro, Gregory (2002). "Estimating Dynamic Panel Data Models in Political Science". *Political Analysis*, 10(1), 25–48.
- Clark, Tom S., & Linzer, Drew A. (2015). "Should I Use Fixed or Random Effects?". *Political Science Research and Methods*, 3(2), 399–408.
- Exercise 6 due noon following week

Week 10 (27 Apr): Models for Text Outcomes (tbc)

- Merz, Nicolas, Regel, Sven, & Lewandowski, Jirka. (2016). "The Manifesto corpus: a new resource for research on political parties and quantitative text analysis". *Research and Politics*, 3(2), 1–8.
- Wilkerson, John, & Casas, Andreu. (2017). "Large-scale computerized text analysis in political science: opportunities and challenges". *Annual Review of Political Science*, 20, 529–44.
- Spirling, Arthur. (2012). "U.S. treaty making with American Indians: institutional change and relative power, 1784-1911". *American Journal of Political Science*, 56(1), 84–97.
- Exercise 7 due noon following week

Week 11 (4 May): Models for Network Outcomes

- Lazer, David (2011). "Networks in Political Science: Back to the Future". *PS: Political Science and Politics*, 44(01), 61–68.
- Snijders, Tom A. B., Van de Bunt, Gerhard G., & Steglich, Christian E. G. (2010). "Introduction to stochastic actor-based models for network dynamics". *Social Networks*, 32(1), 44–60.
- Milewicz, Karolina, Hollway, James, Peacock, Claire, & Snidal, Duncan (2018). "Beyond trade: The expanding scope of the non-trade agenda in trade Agreements". *Journal of Conflict Resolution*, 62(4), 743–773.
- Exercise 8 due noon following week

Week 12 (11 May): Advanced Analysis

- Agresti, chapter 16
- Imai, chapter 5

Week 13 (18 May): Consultations

Week 14 (25 May): Consultations

Week 15 (1 Jun): Project report due

– This syllabus is subject to change –