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Level 4 Module; Autumn Trimester 2025 & Spring Trimester 2026

Connected_Politics (POL42570 & POL42350)

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Time: Wednesday, 14:00–15:50
Room: F301, Newman Building
Credits: 5.0 (Autumn); 10.0 (Spring)
Format: Seminars; presentations; group work

Module Coordinator: Stefan Müller, PhD
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Office: Newman Building, G312
Office hours: Thu, 11:30–12:30 (sign up here)

Introduction

Welcome to Connected_Politics! This module trains you to conduct research projects relating to computational social science in small teams under the supervision of an assigned project coordinator and the module coordinator. You will address social science research questions by applying cutting-edge methods, such as quantitative text analysis, machine learning, image recognition, and network analysis. You will learn how to collaborate on research projects with your peers, set out short-term and longer-term goals, and divide up various tasks within groups. At the end of the module, you will have gained significant experience in designing and executing a collaborative academic research project.

Learning Outcomes

1. Execute a demanding research project using methods relating to computational social science
2. Collaborate with peers and academic faculty on an academic research project
3. Evaluate and compare a variety of research methods, sources, data, and analysis
4. Critically and thoroughly examine a research question through independent, theory and data driven research
5. Effectively communicate methods and findings

Indicative Module Content

- Working on collaborative projects

- Research design(s) and the role of theory in the "digital age"
- Formulating and designing a research question
- Case-selection strategies
- Operationalisation and measurement
- Open science practices, research transparency in groups
- Replicability and reproducibility of research
- Presentation of progress

Approaches to Teaching and Learning

This project will train you how to comment critically and constructively on working papers during research seminars, and how to conduct a demanding research project using methods relating to computational social science. To reach these goals, you will attend the Connected_Politics Lab seminar series, work in groups, allocate tasks, present your progress, and write a research paper. The module centres on active and task-based learning in groups and seminar discussions. In addition, we will have check-in meetings (up to 30 minutes) after each seminar to discuss the progress and open questions.

Relevant Literature

This module does not rely on a text book or mandatory readings. The books and articles below provide useful introductions to various methodological approaches and programming languages. Most of these books and papers are freely available online or can be accessed through the UCD Library.

- **Basic Grasp of Statistics and Quantitative Methods**:
  - D. Spiegelhalter (2020). *The Art of Statistics: Learning from Data*. London/New York: Penguin Books.
  - E. Llaudet and K. Imai (2023). *Data Analysis for Social Science: A Friendly Introduction*. Princeton: Princeton University Press.
  - G. King, R. O. Keohane, and S. Verba (1994). *Designing Social Inquiry: Scientific Inference in Qualitative Research*. Princeton: Princeton University Press.
- **Research Design and Causal Inference**:
  - N. Huntington-Klein (2025). *The Effect: An Introduction to Research Design and Causality*. 2nd edition. Boca Raton: CRC Press. URL: https://theeffectbook.net.
  - S. Cunningham (2021). *Causal Inference: The Mixtape*. New Haven: Yale University Press. URL: https://mixtape.scunning.com.
- **R, Python, and Regression Analysis**:
  - A. Gelman, J. Hill, and A. Vehtari (2020). *Regression and Other Stories*. Cambridge: Cambridge University Press. URL: https://users.aalto.fi/~ave/ROS.pdf.
- **Data Visualisation**:
  - C. O. Wilke (2019). *Fundamentals of Data Visualization: A Primer On Making Informative and Compelling Figures*. Sebastopol: O'Reilly. URL: https://clauswilke.com/dataviz/.

  - K. Healy (2019). *Data Visualization: A Practical Introduction*. Princeton: Princeton University Press. URL: https://socviz.co.
  - A. Turrell (2024). *Coding for Economists*. URL: https://aeturrell.github.io/coding-for-economists.
- **APIs**: P. C. Bauer and C. Landesvatter, eds. (2024). *APIs for Social Scientists: A Collaborative Review*. URL: https://bookdown.org/paul/apis_for_social_scientists/.
- **Quantitative text analysis and machine learning**:
  - J. Grimmer and B. M. Stewart (2013). "Text as Data: The Promise and Pitfalls of Automatic Content Analysis Methods for Political Texts". *Political Analysis* 21 (3): 267–297.
  - K. Benoit (2020). "Text as Data: An Overview". *Handbook of Research Methods in Political Science and International Relations*. Ed. by L. Curini and R. Franzese. Thousand Oaks: Sage: 461–497.
  - K. L. Nielbo, F. Karsdorp, M. Wevers, A. Lassche, B. R. B., M. Kestemont, and N. Tahmasebi (2024). "Quantitative Text Analysis". *Nature Reviews Methods Primers* 2 (24).
  - D. S. Stoltz and M. A. Taylor (2024). *Mapping Texts: Computational Text Analysis for the Social Sciences*. Oxford: Oxford University Press.
  - J. Cova and L. Schmitz (2024). *A Primer for the Use of Classifier and Generative Large Language Models in Social Science Research*. OSF PrePrint. URL: https://doi.org/10.31219/osf.io/r3qng.
  - HuggingFace (2025). *Transformers: State-of-the-art Machine Learning for PyTorch, TensorFlow, and JAX*. V4.53.3. URL: https://huggingface.co/docs/transformers/.

Expectations, Assessment, and Grading

In the **Autumn Trimester (Connected_Politics 1; POL42570)**, graded pass/fail:

- **Seminar** (throughout the trimester): Attending the Connected_Politics Lab seminar in Fall Term.
- **Literature Review**: Submitting, with your project group, a literature review that will be graded pass/fail.

In the **Spring Trimester (Connected_Politics 2; POL42350)**:

- **Seminar** (throughout the trimester): Attending the Connected_Politics Lab seminar in the Spring Term. For two of the seminars, the student needs to write critical response papers; the response paper must be submitted until the Monday (20:00) after the presentation. Student can select the weeks for their response papers (more details below) [10% of final grade]
- **Presentations**: Group presentations of the research question, data, methods, initial results, and progress on the project (more details below) [20% of final grade]
- **Group Project**: A 4,000–5,000-word research paper (group work; more details below)
- **Blog Post about Group Project**: A 1,000-word blog post (group work), describing the question, methods, and findings of the research paper for a broad audience. The best blog posts will be published on the Connected_Politics Lab website.

Allocation of Groups and Projects

In the autumn term, project coordinators will present various research projects. You can indicate interest in up to three projects, and you will be allocated to one. We will try to allocate you to one of your preferred projects, but we cannot guarantee this. You will work with your group on this project throughout the autumn and spring trimesters.

Literature Review (Fall)

In the fall term, your group will submit a 5 page literature review. The review should examine prior scholarly research on your question, and be organized in terms of themes and questions, not specific papers. Each review should cover at least ten unique sources about either theory or methods related to potential paper topics for your project group. The deadline will be after Week 12 in the fall- see Brightspace for the date and time.

Response Papers (Spring)

Students attend the Connected_Politics Lab Seminar Series and write **two response papers** (around 500 words for each response paper) on the presentations by the external presenters. First, students should summarise the research project in 2–3 sentences. Afterwards, the response paper should identify either a limitation of the project or a possible extension. Note that what is proposed should be feasible. If, for example, the author's data are weak, then the student should identify better data, or at least propose a plausible way of collecting these data. If the method is inappropriate, the student should suggest a better approach. In other words, a response paper should focus on *one* concrete course of action.

Response papers must be submitted until the Monday (20:00) after the presentation.[1]

Seminars usually take place in person between 14:00 and 14:45. After each presentation, we will have an informal check-in meeting to discuss questions that came up during your group work.

Group Presentations (Spring)

Each group **presents the progress** of their research projects in Week 6 of the spring term and **presents their final product** the last week of the term in the Connected_Politics seminar.

Each presentation must not exceed 12 minutes. Make sure to practice the presentation with your group in advance. Please prepare slides (LaTeXor PowerPoint/Google Docs) and send the slides to stefan.mueller@ucd.ie no later than 10:00 on the day of your presentation. Note that we will give the same grade to all group members.

The first presentation is worth 5% of your grade and should present your progress by covering the following aspects:

1. What is your research question and why is it important?
2. What are your theoretical expectations? Which main hypothesis are you going to test in your research paper?
3. Which data are you going to use? If possible, provide descriptive statistics and a short overview (e.g. number of documents/texts/tweets; time span etc.). Describe the data in one or two graphs that effectively communicate the nature of the data source.

[1] For example, for the presentation on 11 February (Wednesday), the response paper must be submitted no later than Monday, 16 February, 20:00.

4. Which method are you going to apply to test your hypothesis?
5. Ideally, provide initial results.
6. What issues did you have encountered or what are the risks associated with the next steps (if applicable)?

The second presentation is worth 15% should showcase your research by covering the following aspects:

1. What is your research question and why is it important?
2. What are your theoretical expectations? Which main hypothesis are you test?
3. Which data did you use?
4. Which method did you apply to test your hypothesis?
5. What were the results?
6. What do you conclude about your research question?

We encourage presentations to be shared between two and three students (depending on the group size). After each presentation, we will have a Q&A which will last for around 10 minutes. You will receive questions from your peers and the project coordinators. Students who do not present are responsible for providing answers to the questions. Therefore, we strongly encourage you to divide up tasks, practice the presentation, and discuss questions that may come up.

Kieran Healy has published an excellent blog post[2] on how to give presentations and how to design slides that effectively communicate your work and results. We encourage you to follow his advice.

The grade will be based on your progress, the content and clarity of the presentation, and your ability to reply to the questions.

Research Paper (Spring)

Each group submits a **4,000–5,000-word research paper**. The research paper builds on the proposals by the project coordinators and the first presentation. Research papers must be submitted before the deadline listed on Brightspace. Each group will receive one grade (not individual grades per student) for the presentation and research paper, but you may be asked to clearly indicate who took over which parts of the project.

The research paper should contain the following sections:

- **Introduction and research question**
  - Explain the puzzle and research question
  - Highlight the relevance
  - Include the central hypothesis to be tested
- **Theory and expectations**
  - Explain the theoretical assumptions based on previous findings regarding the relationship between your dependent variable and the key independent variable
- **Methodology**

[2] https://kieranhealy.org/blog/archives/2018/03/24/making-slides/.

  - Describe your dataset, the unit of analysis, the number of observations included in the analysis, the number of missing observations (if appropriate), the measurement of key variables, and the empirical analysis

- **Results**
  - Present the results of your empirical analysis.
- **Conclusion**
  - Referring back to the introduction, what can we conclude, and what have we learned?

Blog Post (Spring)

Each group submits a **1,000 word blog post**. The blog post should describe the research paper for a broader audience, focusing on the importance and relevance, methods, and main findings. The blog post must be submitted before the deadline on Brightspace and counts towards 20% of the final grade. The blog post should describe the results in 1–2 nicely formatted graphs. The following article describes how to transform a research paper into a blog post: https://blogs.lse.ac.uk/impactofsocialsciences/2016/01/25/how-to-write-a-blogpost-from-your-journal-article/.

The Connected_Politics Lab website contains various blog posts about projects from previous years: https://www.ucd.ie/connected_politics/blog/

Group Work Guidelines

Group work is a core part of this module because it cultivates essential skills such as collaboration, problem-solving, and communication, which are vital for professional success. While group cooperation is firstly your responsibility, the policy on individual accountability within groups is designed to manage problems with uneven contributions in group assignments. Group members are required to submit documentation at the end of their group project file that clearly specifies their individual contributions. This document must transparently detail each student's roles, responsibilities, and input. While the aim is to award the same grade to all members of the group, strongly divergent contributions will result in varied grades to ensure fairness. This policy promotes equitable grading and deters disparities in the distribution of workload among team members. Students are encouraged to report any issues with group dynamics promptly to facilitate support from the course instructor.

Feedback

Feedback will be provided by your project coordinator and the module coordinator throughout the module. The module coordinator (Stefan Müller) will grade the response papers, presentations, and research papers. All assignments will be uploaded on Brightspace. The communication for this module takes place through Slack. Please make sure to check the workspace at least once a day. I also recommend downloading the Slack desktop app.[3]

Important: It is the students' responsibility to raise the alarm if collaboration in their project work is lacking. Inform the module coordinator as soon as possible. Students are also responsible for scheduling regular group meetings (one to two per week).

The presentations and research paper will be graded according to UCD's Module Grade Descriptors.[4]

[3] https://slack.com/intl/en-ie/downloads.
[4] https://bit.ly/3bLcgRp (PDF).

Student Effort Hours (*Autumn* Trimester)

Student effort type	Hours
Seminars/Presentations	10
Autonomous Student Learning	110
Total	**120**

Student Effort Hours (*Spring* Trimester)

Student effort type	Hours
Seminars/Presentations	15
Autonomous Student Learning	235
Total	**250**

Plagiarism

Although this should be obvious, plagiarism – copying someone else's text without acknowledgement or beyond 'fair use' quantities – is not allowed. We take plagiarism very seriously here in UCD. Please familiarize yourself with the definition of plagiarism on UCD's website[5] and make sure not to engage in it.

Late Submission Policy

All written work must be submitted on or before the due dates. Students/groups will lose one point of a grade for work up to 5 working days late ($B-$ becomes $C+$). Students will lose two grade points for work between 5 and 10 working days late ($B-$ becomes C). When more than two weeks are necessary, the student will need to apply for extenuating circumstances application via the SPIRe Programme Office.

Questions and Problems

In this module, we will discuss concepts, methods, and software you might not have heard of before. I am aware that parts of this module could be challenging and will assist you as best as I can. In addition to the meetings after Connected_Politics seminars, I offer weekly office hours either in in person (Room 312, Newman Building) or via Zoom. You can sign up here.

If you struggle to solve problems relating to R, Python, specific software packages or statistical concepts, please follow the steps outlined below prior to contacting your project coordinator and/or the module coordinator.

- Check the literature provided by your project coordinator and the literature suggestions on Brightspace.
- Get in touch with the other members of your group and try to solve the issue together.
- For questions about software packages: read the package documentation and/or the documentation of a function that returns the error.

[5] https://libguides.ucd.ie/academicintegrity.

- For questions about statistical concepts, consult the Glossary of Statistical Terms, Gelman, Hill, and Vehtari (2020), Wickham, Çetinkaya-Runde, and Grolemund (2023), and Healy (2019).
- Try to summarise the problem in your own words and then google this summary. If the problem relates to R, add `rstats` to your search query; for questions about Python add `python`. For example: `how to import csv file in rstats`. I am almost certain that you find a solution to most of your questions.
- If your code returns an error, google the text of the error message. For example: `Error: Can't subset columns that don't exist`.
- ChatGPT, Copilot and other AI tools are great for building and debugging code. That said, you'll need to make sure the code they give you fits and works. I encourage you to practice coding yourself, and using these tools to debug and solve new problems.

⟶ If the steps above still do not solve your problem or question, please ask your question in the `#questions` channel on Slack. We are happy to help, but keep in mind that coding and collaborative work always involves trial and error, and that 'learning by doing' is essential and an integral part of this module.

Syllabus Modification Rights

I reserve the right to reasonably alter the elements of the syllabus at any time by adjusting the reading list to keep pace with the course schedule. Moreover, I may change the content of specific sessions, depending on the participants' prior knowledge and research interests. If I make adjustments, I will send an email to all seminar participants and upload the revised syllabus to Brightspace.

Course Schedule

For seminar and workshop details and updates, please check https://www.ucd.ie/connected_politics/events/.

Besides the Connected_Politics Lab seminars, the workshops, and the group presentations, you will meet the other group members to work on the research project. It is *your* responsibility to organise group meetings, allocate tasks, and communicate with your peers. We recommend that you communicate and chat through Slack and that you have *at least one or two group meetings per week*.

In addition, you will have at least three meetings with your project coordinator, one in the fall and two in the spring. The project coordinators will provide a list of literature to get you started with your project, answer selected questions about methods or software. Yet, it is your task to get familiar with prior work, the required software packages and writing code – working with software and coding collaboratively are integral parts of the group work. The project coordinator will also meet you after your presentation to discuss strengths and weaknesses and the required actions for the research paper.

Important: it is the students' responsibility to raise alarm if collaboration in your project work is lacking. Please inform the module coordinator as soon as possible.

If anything is unclear, you can always contact the module coordinator (Stefan Müller) on Slack.

Meeting Dates, Autumn Trimester

Below are the meeting dates for the autumn trimester. We will organise a check-in session covering your projects and questions after each seminar presentation.

- 10 September: Introduction; followed by induction for Politics and Data Science students
- 17 September: Nam Pham and Daniel M. Smith (University of Pennsylvania); followed by short presentations of possible group projects
- 1 October: Eoghan Cunningham (University College Dublin)
- 22 October: Elissa Berwick (McGill University)
- 5 November: Jonathan Slapin (University of Zurich)
- 12 November: Sabrina Arias (Lehigh University)
- 26 November: Delia Zollinger (University of Zurich)

Preliminary Meeting Dates, Spring Trimester (Subject to Change)

Below are the preliminary (!) meeting dates for the autumn trimester. We will organise a check-in session covering your projects and questions after each seminar presentation.

- 21 January
- 4 February
- 18 February
- 25 February: Presentations of progress
- 4 March
- 1 April
- 15 April
- 22 April: Presentations of final product

References

Bauer, P. C. and C. Landesvatter, eds. (2024). *APIs for Social Scientists: A Collaborative Review*.

Benoit, K. (2020). "Text as Data: An Overview". *Handbook of Research Methods in Political Science and International Relations*. Ed. by L. Curini and R. Franzese. Thousand Oaks: Sage: 461–497.

Cova, J. and L. Schmitz (2024). *A Primer for the Use of Classifier and Generative Large Language Models in Social Science Research*. OSF PrePrint. URL: https://doi.org/10.31219/osf.io/r3qng.

Cunningham, S. (2021). *Causal Inference: The Mixtape*. New Haven: Yale University Press.

Gelman, A., J. Hill, and A. Vehtari (2020). *Regression and Other Stories*. Cambridge: Cambridge University Press.

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Turrell, A. (2024). *Coding for Economists*. URL: https://aeturrell.github.io/coding-for-economists.

Wickham, H., M. Çetinkaya-Runde, and G. Grolemund (2023). *R for Data Science: Import, Tidy, Transform, Visualize, and Model Data*. 2nd edition. Sebastopol: O'Reilly.

Wilke, C. O. (2019). *Fundamentals of Data Visualization: A Primer On Making Informative and Compelling Figures*. Sebastopol: O'Reilly.