

Fall 2019 / T & R 1:00pm - 2:15pm / Lindley Hall 035

Political Science Y300: Political Networks

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Office: Woodburn 403
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course description

Politics is defined by group actions to realize common goals. Entities that employ group action for political purposes include (but are not limited to) political parties, social movements, labor unions, business consortia, nation-states, international organizations, and militaries. Political outcomes depend upon the collective action of these groups, and their interactions with other groups. As such, political outcomes arise from interdependent processes which are, in turn, conditioned by the relations among (and between) political actors.

Network science is the study of complex, interdependent relations in the social and biological worlds. As such, it offers an opportunity to examine political processes in new ways by focusing not only on political actors as discrete units but also on the relations between them. These relations, taken together, form a common network structure: the network of international trade, the network of international military alliances, the network of legislative cosponsorship, the network of rebellion and civil conflict, etc.

This course will introduce tools from network science to a range of political processes across the traditional empirical subfields of Political Science: American politics, comparative politics, and international relations.

No previous background in any of these areas is required for the course. While network science can be complicated at times, we will build an intellectual apparatus in small doses over the course of the semester. By the end of it students will understand why networks matter across many domains in Political Science, as well as have the tools to engage in network analysis.

requirements

Students are expected to attend all lectures and “lab” sessions having read the assigned material in advance. This class requires approximately 50-75 pages of reading per week, and it is essential that you keep up. I will not take attendance but may periodically quiz the class on material from the day’s readings. Quiz grades will be combined with the exam grades for that section of the course. There will be two examinations that will draw from the readings, lecture materials, and labs. As of now these will primarily be multiple choice but there may be an additional essay component. This may change as the course progresses.

Additionally, there will be weekly lab projects that ask you to apply information from that week’s readings, lectures, and labs. These will involve working in the statistical software R to examine different kinds of networks. Each student’s lowest lab score will be dropped. These labs will be available on the course website, and are designed to reward students who engage the material diligently and also to help you study for the exams. I have no problem with group work on the labs, but if work is done in groups then every member of the group must a) submit their own output; b) make it clear who they worked with on the assignment (i.e. list the names of the students you collaborated with).

Lastly, there will be group presentations of original research related to Political Networks. This will involve collecting your own data and presenting a unique analysis of it, written in a “policy report” and also presented via slideshow. Everyone will be assigned to a group, and groups will “peer-review” each others’ work. This analysis should be designed to answer a question of substantive interest to Political Science. More information about this project will be forthcoming.

The overall course grade breaks down as follows:

- Midterm Exam: 25%.

- Final Exam: 25%.
- Lab Assignments 25%.
- Research Presentations and Peer Review: 25%.

In my experience, students who attend class, do the readings, and come to office hours when they are confused do well in my classes. Students who do not do these things often suffer.

grading policy

Per University policy, I will not accept late papers or give make-up examinations except in the case of a documented medical emergency. Grade appeals must be made in writing, with an explanation of why additional points are deserved, no sooner than one week after a graded assignment is returned – to allow for appropriate reflection – and no later than two weeks after a graded assignment is returned.

academic misconduct

“The *Indiana University Code of Student Rights, Responsibilities, and Conduct* defines academic misconduct [as]:

any activity that tends to undermine the academic integrity of the institution . . . Academic misconduct may involve human, hard-copy, or electronic resources . . . Academic misconduct includes, but is not limited to . . . cheating, fabrication, plagiarism, interference, violation of course rules, and facilitating academic misconduct. (II. G.1-6).”

More here:

<http://studentcode.iu.edu/responsibilities/academic-misconduct.html>.

Please note that if you are unsure whether some conduct is a violation of the Code, it is fine to ask. There is no penalty involved with seeking a clarification on policies, or advice on how to stay within them, and I am happy to help. The goal of these policies is to help you, not hurt you. That said, I take violation of these rules very seriously and will take appropriate action if I find that you are not living up to them.

disability

If any student will require assistance or academic accommodations for a disability, please contact me after class, during my office hours, or by individual appointment. You must have established your eligibility for disability support services through the Office of Disability Services for Students in Wells Library W302, 812-855-7578.

student privacy

It is expected that the privacy of the class will be respected. Personal information disclosed in course should not be repeated or discussed outside of the course, especially with students not enrolled in the course.

technology policy

The use of laptops and tablets is permitted for class-related activities (i.e. note-taking, lab sessions) only. The use of cellphones is not permitted at all. Note: it's pretty obvious (to me) when you are text messaging, instant messaging, or otherwise using technology for purposes unrelated to the course. This is disrupting to your classmates, and to me. I reserve the right to deduct points from your final grade if I observe you failing to observe by these rules.

However, it will be very helpful for our lab sessions if you can follow along as we work through code and concepts. This is not an official course policy, but it will be useful for you. This will be easiest to do on a laptop, but a tablet or internet machine is better than nothing. If this is impossible for you please talk to me about it so that we can find an appropriate solution.

extra help

Do not hesitate to come to my office during office hours or by appointment to discuss course materials, examination results, research projects, or any aspect of the course. You also may want to consider the tutoring services offered by Indiana University, in particular the reading and writing tutoring (which is free). Information is available at:

<https://ud.indiana.edu/resources-opportunities/tutoring.html>.

readings and schedule

There is one required book:

Albert-László Barabási. *Network Science*. Cambridge University Press, Cambridge, UK, 2016.

Note that a version of this is available for free online at: <http://networksciencebook.com/>. You can also purchase the print version from Cambridge University Press if you want additional material, but the readings and assignments will come from the online version.

All other readings will be provided on the course's Canvas website in the 'Files' tab.

All students must also be able to access the statistical software R. It can be downloaded for free here: <https://cran.r-project.org/>.

In general, *Tuesdays* will be conceptual lectures and discussion, while *Thursdays* will be hands-on "lab" sessions that explore ways to use network analysis.

i: introduction to the course (aug. 27)

No readings.

ii: no class - conference travel (aug. 29)

Please watch the documentary *Connected* on YouTube: <https://youtu.be/2rzxAyY7D7k>.

iii: introduction to political networks (sept. 3)

Barabasi chs.: 1 & 2. *NOTE: Don't worry about the math; skip if it you want to. Focus on the definitions. Also, Chapter 0, the Personal Introduction, is not required but is worth a quick read if you have time.*

iv: lab 1 – introduction to r (sept. 5)

Reading TK.

v: random networks (sept. 10)

Barabasi, chs. 3.

vi: lab 2 – basics of network analysis in r (sept. 12)

Reading TK.

vii: scale-free networks (sept. 17)

Barabasi, ch. 4.

viii: lab 3 – graphing of networks (sept. 19)

Reading TK.

ix: the barabasi-albert model (sept. 24)

Barabasi, ch. 5

x: lab 4 – centrality measures in networks (sept. 26)

Reading TK.

xi: node attributes and network evolution (oct. 1)

Barabasi, ch. 6

xii: lab 5 – degree distributions and network dynamics
(oct. 3)

Reading TK.

xiii: assortative mixing and homophily (oct. 8)

Barabasi, ch. 7

xiv: lab 6 – finding degree correlations (oct. 10)

Reading TK.

One-page project proposal due (more info to come).

xv: exam review and project discussions (oct. 15)

No readings.

xvi: exam one (oct. 17)

No readings.

xvii: communities in networks (oct. 22)

Barabasi, ch. 9.

xviii: lab 7 – community detection (oct. 24)

Reading TK.

xix: network robustness and contagion (oct. 29)

Barabasi, chs. 8 & 10.

xx: lab 8 – robustness, fragility, and contagion (oct. 31)

Readings TK.

xxi: inferential models, i (nov. 5)

Reading TK.

xxii: lab 9 – basics of ergm (nov. 7)

Reading TK.

xxiii: inferential models, ii (nov. 12)

Reading TK.

xxiv: lab 10 – intermediate ergm (nov. 14)

Reading TK.

xxv: inferential models, iii (nov. 19)

Reading TK.

xxvi: lab 11 – more on ergm (nov. 21)

Reading TK.

xxvii: (nov. 26)

No Class - Thanksgiving Break.

xxviii: (nov. 28)

No Class - Thanksgiving Break.

xxix: no class - conference travel (dec. 3)

This is a research day for working on your projects and presentations.

xxx: no class - conference travel (dec. 5)

This is a research day for working on your projects and presentations.

xxxi: presentation set 1 (dec. 10)

Research papers due.

No readings.

xxxii: presentation set 2 (dec. 12)

No readings.

xxxiii: fin. (dec. 19)

Research debrief documents and peer reviews due.

Final Exam - 5:00 - 7:00pm.