TUFTS UNIVERSITY   **EC117**   **Professor Yannis M. Ioannides**

Department of Economics   Spring Term 2020 <small>20 Spring EC 117 syl Jan 20 2020.tex</small>

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Office hours: Mondays, 1:30m – 2:30 pm. Wednesdays: 5:00 – 6:15 pm.

SOCIAL INTERACTIONS AND SOCIAL NETWORKS * # &

Call No: 22084 Time Block E+: MW 10:30–11:45 am.   Braker 226

Syllabus

* This course includes a Research Paper. **#** This course satisfies the quantitative elective requirement for Quantitative Economics majors. **&** This is a seminar course.

   This is an upper level elective seminar course and a "soft" non-hardwired prerequisite is EC 15 or equivalent, EC 107, or EC 201. EC 16 also would be fantastic. But, I am happy to consent to other ways of satisfying the prerequisites. Essentially, I want non-aversion to at least, but ideally some familiarity with quantitative tools of, the stats and metrics type. So, please do not be deterred and talk to me about it. But, I will provide supplementary material as we move forward.

1   Course Description

This course, in a fast developing but very new area of economics, is offered for the second time. Social networks pervade our social and economic lives. They are important when we look for jobs and while, well, networking! They are important in determining how diseases spread, which products we buy, which languages we speak, how we vote, whether we engage in illegal activities, how much education we obtain, and our prospects in professional success. They can also help explain international relations! Social networks have structure, and some network structures are more likely to emerge in a society, others in planned systems settings, and are related to social organization in the broad sense.

   Social interactions are influences among economic agents that do not necessarily go through the market. They express the social elements in personal decisions and market outcomes. They, too, also pervade our lives. This course provides an overview and synthesis of our understanding of social interactions and social networks. There is a lot of recent research on these topics that is important for many economic phenomena. This research is drawing from studies by sociologists, economists, computer scientists, physicists, and mathematicians.

   The course will aim at synthesizing it at the level of an undergraduate economics class. We will read sections of popular and not just economics books, like Schelling's *Micromotives and*

Macrobehavior, Gladwell's *The Tipping Point*, Barabasi's *Linked*, Christakis and Fowler's *Connected*, Shiller's *Narrative Economics*, and others. These books will be on reserve, and one suggestion that we will discuss in the first day of class is how to organize reading them and discussing them in class. I am open to consider suggestions by the class.

We will also study some math of social networks (and in the process we will also see how search engines like Google works!), and examine how statistical and econometric analysis can help us understand such phenomena better.

The range of applications is very broad, ranging from real estate to human development to public health. We will work on series of analytical tools that will tie together all these applications.

1.1   Requirements

Exams. The course grade will be based on performance in two exams (please see schedule below), a research paper and a class presentation of a topic of your choice (see below), and of your own research paper. The course satisfies the Quantitative elective requirement for Quant Economics majors. The time schedule of the exams and their contribution towards the course grade are as follows together with notable dates.

- Monday, January 20: University Holiday.

- Wednesday, January 29: assignment no. 1 due. [2%]

- Wednesday, February 12, assignment no. 2 due. [3%]
  Narrative description of research paper ideas.

- Monday, February 17: University Holiday.
  Make up, Thursday, February 20.

- Monday, February 24, paper proposal due. [5%]

- Monday, March 9: *Exam no. 1* [30%]

- Spring break, March 14–22.

- Monday, April 6, at the latest: draft of the research paper due.

- Monday, April 20: Patriot's Day, University holiday.

- Wednesday, April 22: Exam no. 2 to count for 30% of the grade.

- Monday, April 27: last class.

- Thursday, May 7: 3:30–5:30 pm. Final day for paper presentations. **Research paper due!** [25%]

- This is a seminar class and students are expected to participate by presenting and engaging in group discussions. I will designate a number of accessible articles and reading on key questions, spread throughout the term, which will be assigned to students (by mutual agreement) for presentation. Your participation in those discussions will contribute 10% to the course grade.

Although the final version of the paper will be due on May 7th, by 3:00pm, several stages are planned to help you spread the work over the term as you get deeper into a subject. First, you will put together a proposal for the paper, due by February 24, to be followed by a draft, which will be due on April. This plan will also allow you to be ready for class presentations at the end of the term. The grade for the paper will be made up of 5% from the proposal, 5% from the draft and the remainder from the final version. This scale puts a lot of emphasis on the quality of the research effort that you make early on in the term. To encourage participation and learning from one another, I will assign each draft to another student as a reviewer.

You may be allowed to *combine* the paper requirement for *this* course with that of *another* course, *provided* that this is made *explicit* ahead of time and *both the other instructor and I* are aware of your plans and *all three of us have agreed* to an appropriate amount of work. Violations of these conditions will be an academic integrity matter.

Class presentations are an excellent exercise. They also provide valuable case studies and help students learn from each others' research. Normally, students feel very eager about presenting the work in class, and their presentations enrich the class experience. We will discuss in class ideas on how to make best use of class presentations. We will dedicate at least the last session of the class, April 27, and in addition the time of the final exam, as scheduled by the Registrar, to class presentations.

The economics department hires Stata consultants. Details are under Resources on `Canvas` and will be posted here:

> `https://ase.tufts.edu/economics/resources/tutoringHelp.htm`

1.2 Sample paper topics

I will provide on Canvas a list of sample paper topics from previous years.

1.3 Electronic Resources and Data Sets

I strongly recommend that you substantiate your work with data and urge use of statistical and econometric techniques. Because of some turnover at Tisch, it is not clear at the moment what sort of services regarding software and data we may rely on. However, this will be clarified shortly. I personally have a fair amount of experience with electronic resources and am anxious to help you. I will provide a document with suggestions about economics-related resources on the web and the library.

Academic Integrity

Last but not least, I urge all of you to become acquainted with the academic integrity policies at Tufts University. I take academic integrity very seriously. Plagiarism occurs when a writer deliberately uses someone else's language, ideas, or other original (not common-knowledge) material without acknowledging its source. You risk being accused of plagiarism if you do not refer properly to your sources.

Tufts holds its students strictly accountable for adherence to academic integrity. The consequences for violations can be severe. It is critical that you understand the requirements of ethical behavior and academic work as described in Tufts Academic Integrity handbook. If you ever have a question about the expectations concerning a particular assignment or project in this course, be sure to ask me for clarification. The Faculty of the School of Arts and Sciences and the School of Engineering are required to report suspected cases of academic integrity violations to the Dean of Student Affairs Office. If I suspect that you have cheated or plagiarized in this class, I must report the situation to the dean.

If you are not sure what plagiarism is you can go to:

`https://students.tufts.edu/student-affairs/student-life-policies/academic-integrity-`

Also do check out the Academic Resources Center:

`http://students.tufts.edu/academic-advice-and-support/academic-resource-center`

Tufts subscribes to a program called *Turnitin* which evaluates the content of written work for originality. I may use it to check your submissions; you can also use it to check your own work before you submit your assignments (many faculty use it to check their own research for accidental plagiarism).

Regarding in-class exams, here are some important issues. Do NOT bring unauthorized materials, information, or any electronic equipment with you to a room in which an exam is being administered. Do NOT engage in behavior that gives the appearance of cheating, such as passing a note to a friend, whispering to another student while the exam is in progress, or looking in the direction of another students work. Do NOT bring your cell phone, tablet, music device, programmable calculator or any other electronic device to an exam room. If an exam proctor sees you handling an electronic device even to silence a phone if it rings or vibrates in the middle of the exam, the Judicial Affairs Administrator will treat it as an academic integrity violation. DO turn off your cell phone and put it out of reach, out of sight, or as instructed before the exam begins.

Students with Disabilities

Tufts University values the diversity of our students, staff, and faculty, recognizing the important contribution each student makes to our unique community. Tufts is committed to providing equal access and support to all qualified students through the provision of reasonable accommodations so that each student may fully participate in the Tufts experience. If you have a disability that requires reasonable accommodations, please contact the Student Accessibility Services office at Accessibility@tufts.edu or 617-627-4539 to make an appointment with an SAS representative to determine appropriate accommodations. Please

be aware that accommodations cannot be enacted retroactively, making timeliness a critical aspect for their provision.

1.4   Books

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This class is a quantitative economics elective, and as a result by design is pitched at an appropriate level. All books and other materials for the course will become available on reserve at Tisch, as hard copies, or on `Canvas`, and occasionally just `online.`

1. We will read almost all of

    Matthew O. Jackson. 2019. *The Human Network.* Pantheon.

    as motivation for most of the material in the class. It is totally non-technical, highly intuitive, truly fascinating, and deep, and based on a vast literature from several disciplines.

2. We will read some chapters from

    Easley, David, and Jon Kleinberg. 2010. *Networks, Crowds and Markets.* Cambridge. [**EK**]

    This book is a notch too demanding and not fully relevant for this class, but the parts that we will use are fully appropriate and quite accessible to you. The book was developed for a class at Cornell and is `online` in its entirety:

    `http://www.cs.cornell.edu/home/kleinber/networks-book/networks-book.pdf`

    http://proquest.safaribooksonline.com.ezproxy.library.tufts.edu /9780511771576?uicode=tufts

    Pdf is available on `Canvas`. Entire book accessible as an ebook via Tisch.

3. We will a few sections (but i have not yet decided which ones) of

    Nicholas A. Christakis. 2019. *Blueprint: The Evolutionary Origins of a Good Society.* Hachette.

4. A number of other books have been placed on reserve at Tisch. Some are technical, and will be used only in an auxiliary fashion. Some are "chatty" pop science works, and we will use them for the purpose of student class presentations that will provide important background for the class. Not every student in the class will have to read these books in their entirety; subsets of the class will and present to the rest of us. I like this way of generating class conversations and has worked well in the past.

    (a) Barabasi, Albert-Laszlo. 2002. *Linked: The New Science of Networks.* Perseus (non-technical).

(b) Christakis, Nicholas A., and James H. Fowler. 2009. *Connected: The Surprising Power of Our Social Networks and How They Shape Our Lives – How Your Friends' Friends' Friends Affect Everything You Feel, Think, and Do.* Little, Brown and Company (non-technical).

(c) Gladwell, Malcolm. *The Tipping Point: How Little Things Can Make a Big Difference.* Little, Brown and Company (non-technical).

(d) Schelling, Thomas C.. 1978. *Micromotives and Macrobehavior.* W. W. Norton (non-technical).

(e) Kirman, Alan. 2011. *Complex Economics.* Routledge (mostly technical)

(f) Jackson, Matthew O. 2008. *Social and Economic Networks.* Princeton (mostly technical)

  ebook: https://www-jstor-org.ezproxy.library.tufts.edu/stable/j.ctvcm4gh1

(g) Shiller, Robert. 2019. *Narrative Economics.* Princeton.

5. Another resource is an electronic journal, ECONOMICS OF NETWORKS eJOURNAL, Sponsored by Networks, Electronic Commerce and Telecommunications ("NET") Institute and distributed by ERN/SSRN. Tufts subscribes to this organization and you should be able to get access to it. Let me know if you cannot, and I will investigate accordingly. It distributes abstracts and links to the papers, and some of them are quite appropriate for the class and have a broader scope than simply economics.

I will introduce statistical and econometric tools that are needed for the class. They are limited to linear regression models and some of their properties. I will place online a concise source for whatever tools we shall need.

Items marked by asterisk (*) denote very technical material which is typically optional. Its intuitive content, often included in the introduction, will be presented in simple terms on class. Required readings will be available on reserve. `URL` is provided, when appropriate, for material on the web.

Do not be deterred by the complexity of some items on the list of readings. The class will be defined entirely by the lectures.

I will lecture by writing on my laptop, it will be projected on the screen, and saved as a pdf and uploaded to Canvas. See this:

`http://well.blogs.nytimes.com/2016/06/20/`

`why-handwriting-is-still-essential-in-the-keyboard-age/`

Finally, we will have a couple of outside speakers, specialists on some of the topics of the course. I am in the process of scheduling the presentations and will announce them promptly.

READING LIST

2 Motivation: Some Provocative Thoughts

Berners-Lee, Timothy. 2019. "I Invented the World Wide Web. Here's How We Can Fix It." New York Times, Nov. 24. https://nyti.ms/2s9qBSV

Jackson, Matthew O. 2018. "The Role of Theory in an Age of Design and Big Data."

Bergemann, Dirk, and Alessandro Bonatti. 2019. "The Economics of Social Data: An Introduction."

Bilton, John. 2012. "Facebook Users Ask, Wheres Our Cut?'" (Prophetic) Interview with Yannis Ioannides

   https://bits.blogs.nytimes.com/2012/02/05/disruptions-facebook-users-ask-wheres-our-cut/

Stephens, Bret. 2017. "How Plato Foresaw Facebook's Folly." *The New York Times*, Nov 16. https://nyti.ms/2DrlFfV

3 Social interactions: basics

Ioannides, Yannis M. 2013. *From Neighborhoods to Nations: The Economics of Social Interactions*. Princeton University Press. "Introduction. " Chapter 1. On `Canvas` and on reserve. Available as ebook via Tisch: https://www-jstor-org.ezproxy.library.tufts.edu/stable/j.cttq95gx

Manski, Charles F. 2000. "Economic Analysis of Social Interactions." *J. Econ. Perspectives*. 14(3): 115–136.

Goyal, Sanjeev. 2010. The many and the few." *RSA Journal*. 156:38–41.

Nyborg, Karine. 2016. "Social norms as solutions." *Science*. 7 OCTOBER 2016 VOL 354 ISSUE 6308.

4 Social networks: basics

Bailey, Michael, Rachel Cao, Theresa Kuchler, Johannes Stroebel, and Arlene Wong. 2018. " Social Connectedness: Measurement, Determinants, and Effects." *Journal of Economic Perspectives*. 32(3):259-280.

Jackson, Matthew O. 2014. "Networks in the Understanding of Economic Behaviors." *J. Econ. Perspectives*. 28(4): 3–22. Online.

Allcott, Hunt, Luca Braghieri, Sarah Eichmeyer, and Matthew Gentzkow. "The Welfare Effects of Social Media." 2019. April 1.

Visualizing historical networks

```
http://www.pfeffer.at/data/visposter/poster-paths-2m.pdf
http://www.pfeffer.at/data/visposter/poster-paths-1m.pdf
```

5 Identification issues: basics

Ioannides, Yannis M., 2008. "Social Interactions (Empirics)". *The Palgrave Dictionary of Economics online.* On `Canvas.`

Ioannides. 2013. "Social Interactions: Theory and Empirics." Chapter 2. On `Canvas` and on reserve at Tisch.

Durlauf, Steven N., and Yannis M. Ioannides. 2010. "Social Interactions." *Annual Review of Economics.* 2:451–478. On `Canvas.`

6 Social network modeling

Jackson, Matthew O. 2008. *Social and Economic Networks.* "Introduction." `Canvas.`

Jackson, Matthew O. 2010. "An Overview of Social Networks and Economic Applications." Ch. 12. In: Benhabib, Jess, Alberto Bisin, and Matthew O. Jackson, eds. *Handbook of Social Economics*, Volume 1A. On `Canvas.` Also full text available electronically via Tisch here:

http://www.sciencedirect.com.ezproxy.library.tufts.edu/science/handbooks/15706435/1

Easley and Kleinberg. 1–58, 77–102. Page references are to the pdf online at `Canvas.`

Jackson (2019), 1–43.

* Jackson, Matthew O. 2018. "A Typology of Social Capital and Associated Network Structures." *Social Choice and Welfare*, forthcoming. https://arxiv.org/pdf/1711.09504.pdf

* Jackson, Matthew O., Brian Rogers, and Yves Zenou. 2017. "The Economic Consequences of Social Network Structure." *Journal of Economic Literature.* 55(1):49-95.

6.0.1 Economies with network effects

Easley and Kleinberg. 449–469.

Diffusion and contagion

Jackson (2019), 44-67.

7 Applications

7.1 Examples: Peer effects in medical schools and among roommates at Dartmouth

Sacerdote, Bruce. 2001. "Peer Effects With Random Assignment: Results for Dartmouth Roommates." *Quarterly J. Econ.* 116:681–704.

Arcidiacono, Peter, and Sean Nicholson. 2005. "peer Effects in Medical School." *J. Public Econ.* 89:327–350.

For technical issues of estimation, see Aghion and Howitt. 2001. Appendix, "Basic elements of Econometrics." 443–456.

7.2 Overview and methodological issues

Topa, Giorgio, and Yves Zenou. "Neighborhood and Network Effects." In Duranton, Gilles, J. Vernon Henderson and William Strange, Eds. *Handbook of Regional and Urban Economics.* Volume 5. On `Canvas`.

* Blume, Laurence E., William A. Brock, Steven N. Durlauf, and Yannis M. Ioannides. 2011. "Identification of Social Interactions." Ch. 18. 854–964. In Jess Benhabib et al. Eds. *Handbook of Social Interactions.* Elsevier. On`Canvas` and online.

* Graham, Bryan S. 2018. Identifying and Estimating Neighborhood Effects." *Journal of Economic Literature.* 56(2):450-500.

7.3 Decisions of Individuals

Sacerdote, Bruce. 2001. "Peer Effects With Random Assignment: Results for Dartmouth Roommates." *Quarterly J. Econ.* 116:681–704.

*Nakajima, Kentaro et al. 2019. "Impact of workplace communication networks on productivity: A new approach using wearable sensors." Hitotsubashi University working paper.

* Mas, Alexandre, and Enrico Moretti. 2009. "Peers at work." *American Economic Review.* 99(1): 112–145. on`Canvas`.

* Sudipta Sarangi, Sudipta, and Emre Unluz. "Key Players and Key Groups in Teams." Working paper. On Canvas.

7.4 Housing Decisions and Neighborhoods

Ioannides, Yannis M. 2002. "Residential Neighborhood Effects," *Regional Science and Urban Economics,* 32(2):145–165. On`Canvas`.

Rossi-Hansberg Esteban, Sarte P., and Owens R. 2010. "Housing Externalities." *Journal of Political Economy.* 118(3):829858.

Rossi-Hansberg Esteban, Sarte P. 2012. "Economics of Housing Externalities." *International Encyclopedia of Housing and Home.* 2:47–50.

Ioannides, Yannis M., and Giulio Zanella. 2008. "Searching for the Best Neighborhood: Mobility and Social Interactions." Tufts University and University of Siena working paper. April. Online at http://www.tufts.edu/˜ yioannid/IoannidesZanellaMobility08.pdf. On`Canvas`.

* Bailey, Michael, Ruiqing Cao, Theresa Kuchler, and Johannes Stroebel. 2018. "The Economic Effects of Social Networks: Evidence from the Housing Market." *Journal of Political Economy,* 2018, 126(6):2224-2276.

Autor, David H., Christopher J. Palmer, and Parag A. Pathak. 2014. "Housing Market Spillovers: Evidence from the End of Rent Control in Cambridge, Massachusetts." *Journal of Political Economy.* 122(3):661-717.

Jackson (2019), 103–106.

7.5   Neighborhoods, Networks, and Human Development

Jackson (2019), 117–159.

Datcher, Linda. 1982. "Effects of Community and Family Background on Achievement." *The Review of Economics and Statistics.* 64(1):32–41.

Patacchini, Eleonora, and Yves Zenou. 2011. "Neighborhood Effects and Parental Involvement in the Intergenerational Transmission of Education." *J. Regional Sci.* 51(5):987–1013. On`Canvas` and online.

Sacerdote, Bruce. 2011. "Nature and Nurture Effects On Childrens Outcomes: What Have We Learned From Studies of Twins And Adoptees?" Ch. 1, 1–28. In Jess Benhabib *et al.* Eds. *Handbook of Social Interactions.* Elsevier. `On Canvas` and online.

Ioannides, Yannis M. 2003. "Empirical Nonlinearities and Neighborhood Effects in the Intergenerational Transmission of Human Capital," *Applied Economics Letters.* 10, 535–539, 2003.

Ioannides, Yannis M. 2013. "Estimation of Human Capital Accumulation with Nonlinear Interactions Structures." pp. 275–284. In: *From Neighborhoods to Nations: The Economics of Social Interactions.* Section on`Canvas`. Book on reserve and online via Jstor.

Fryer, Roland G., Jr., and Laurence F. Katz. 2013. "Achieving Escape Velocity: Neighborhood and School Interventions to Reduce Persistent Inequality." *American Economic Review.* 103:232-237.

*Lund, Terese J., and Eric Dearing. 2012. "Is Growing Up Affluent Risky for Adolescents or Is the Problem Growing Up in an Affluent Neighborhood?" *J. Research on Adolescence.* 23(2):274-282.

*Luthar, Suniya *et al.* 2013. " 'I can, therefore I must': Fragility in the Upper-middle Classes." *Development and Psychopathology.* 25:1529-1549.

7.6   Labor markets

Jackson (2019), 160–197. 198–223.

Gee, Laura, Jason Jones, and Moira Burke. 2017. "Social Networks and Labor Markets: How Strong Ties Relate to Job Transmission On Facebook's Social Network." *Journal of Labor Economics.* 35(2):485–518.

http://www.journals.uchicago.edu/doi/pdfplus/10.1086/686225

Calvo-Armengol, Antoni, and Yannis M. Ioannides. 2008. "Social Networks in Labor Markets." *The New Palgrave Dictionary of Economics Online.*

Topa, Giorgio. 2011. "Labor Markets and Referrals." Ch. 22. In: Benhabib, Jess, Alberto Bisin, and Matthew O. Jackson, eds. *Handbook of Social Economics*, Volume 1A. 1193–1221. On Canvas.

Ioannides, Yannis M., and Linda D. Loury. 2004."Job Information Networks, Neighborhood Effects, and Inequality," *Journal of Economic Literature.* XLII, December:1056–1093. Online and on Canvas.

Brown, Meta, Elizabeth Setren, and Giorgio Topa. 2016. "Do informal referrals lead to better matches? Evidence from a firms employee referral system. *Journal of Labor Economics* 34(1):161-209.

Faberman, R. Jason , and Marianna Kudlyak. 2016. "What does online job search tell us about the labor market?" *Economic Perspectives.* Chicago Fed.

Pelizzari, Michele. 2010. "Do Friends and Relatives Really Help You in Getting You a Job?" *Industrial and Labor Relations Review.* 63(3): 494–510.

* Galeotti, Andrea, and Luca Paolo Merlino. 2014. "Endogenous Job Contact Networks." *International Economic Review.* 55(4):1201–1226. Section on empirical UK patterns: 1212–1219.

* Mayer, Adalbert, and Steven L. Puller. 2008. The Old Boy (and Girl) Network: Social Network Formation on University Campuses. *J. Public Econ.* 92:329–347.

7.7   Summing up issues in the empirics of social interactions

The following paper summarizes nicely, using applied microeconometrics language most of the issues tackled by the social interactions literature.

Moffitt, Robert A. 2001. "Policy Interventions, Low Level Equilibria, and Social Interactions." 45–82. In Durlauf, Steven N., and H. Peyton Young, eds. *Social Dynamics.* Princeton, NJ: Princeton University Press.

Graham, Bryan. 2018. "Identifying and Estimating Neighborhood Effects." *Journal of*

Economic Literature. 56(2):450-500.

The following paper addresses some serious pitfalls associated with research on social interactions and peer effects.

* Angrist, Joshua D.. 2014. "The Perils of Peer Effects." *Labour Economics.* 30:98–108.

7.8 Broader Aspects of Social Media: Politics, (Mis)Information and Elections

Guest Lecturer: Professor Takis Metaxas, Wellesley College. "Online Manipulation of the US Elections: The First Dozen Years".

Date:????

Sources:

Jackson (2019), 179–197.

Jackson, Sara. 2020. "Twitter Made us Better." *New York Times*, Jan 1, 2020.

Alcott, Hunt, and Matthew Gentzkow. 2017. "Social Media and Fake News in the 2016 Election." *Journal of Economic Perspectives.* 31(2):211-236.

*Boxell L, Matthew Gentzkow, Jess M. Shapiro. 2018. "A note on internet use and the 2016 U.S. presidential election outcome. *PLoS ONE* 13(7): e0199571. https://doi.org/10.1371/journal. pone.0199571

*Barrera, Oscar, Sergei Guriev, Emeric Henry, and Ekaterina Zhuravskaya. 2017. "Facts, Alternative Facts, and Fact Checking in Times of Post-Truth Politics." PSE working paper.

https://www.parisschoolofeconomics.eu/docs/barrera-rodriguez-oscar-david/ssrn-id3004631.pdf

"Web Spam, Social Propaganda and the Evolution of Search Engine Rankings."

http://cs.wellesley.edu/~pmetaxas/Metaxas-EvolutionSEs-LNBIP10.pdf

* Howard, Philip N., Bharath Ganesh, Dimitra Liotsiou, John Kelly and Camille Francois, The IRA, Social Media and Political Polarization in the United States, 2012-2018. Working Paper 2018.2. Oxford, UK: Project on Computational Propaganda.

https://comprop.oii.ox.ac.uk/wp-content/uploads/sites/93/2018/12/IRA-Report-2018.pdf

"Private Mossad for Hire." New Yorker. February 18, 25, 2019.

7.9 Production Systems

Carvalho, Vasco. 2014. "From Micro to Macro via Production Networks." *J. Econ. Perspectives.* 28(4):23–48.

7.10 Social Networks: Applications

The "Pop-Science" view. Presentations by students.

Christakis, Nicholas A., and James H. Fowler. 2009. *Connected: The Surprising Power of Our Social Networks and How They Shape Our Lives – How Your Friends' Friends' Friends Affect Everything You Feel, Think, and Do.* Little, Brown and Company.

Ch. 1. In the Thick of It. Pages 3–32. Ch. 2. When You Smile, the World Smiles with You. Pages 33–60. Ch. 3. Love the One Youre With. Pages 61–94. Ch. 4. This Hurts Me As Much As It Hurts You. Pages 95–134. Ch. 5. The Buck Starts Here. Pages 135–170. Ch. 6. Politically Connected. Pages 172–210. Ch. 7. Its in Our Nature. Pages 210–252. Ch. 8. Hyperconnected. Pages 253–286. Ch. 9. The Whole Is Great. 287–306.

April 8.

Bailey, Mike, Rachel Cao, Theresa Kuchler, Johannes Stroebel, and Arlene Wong. 2017. "Measuring Social Connectedness." *Journal of Economic Perspectives.* 2018.

Miranda, Pedro Jeferson, Murila Silva Batista, Sandro Ely de Souza Pinto. 2018. "The Odyssey's Mythological Network." *PLOS One.*

Goyal, Sanjeev, MarcoJ.van der Leij, and JoséLuisMoraga-Gonzlez. "Economics: An Emerging Small World." *Journal of Political Economy.* 114(2): 403–412.

Contrast with political science:

https://alexandreafonso.me/2019/02/11/academic-hierarchies-in-us-political-science/

Fourcade, Marion, Etienne Ollion, and Yann Algan. 2014. "The Superiority of Economists." *J. Econ. Perspectives.* 29(1): 89-114.

http://www.bloombergview.com/articles/2014-12-02/why-economists-are-paid-so-much

Bertsimas et al. 2016. "Network Science and Policing." Ch. 16, *The Analytics Edge.* Dynamic Ideas. Belmont, MA. 275–292.

Sylvia A. Morellia, Desmond C. Ong, Rucha Makatia, Matthew O. Jackson, and Jamil Zaki. 2017. "Empathy and well-being correlate with centrality in different social networks." *Proceedings of the National Academy of Sciences.* www.pnas.org/cgi/doi/10.1073/pnas.1702155114.

* Echenique, Federico, and Roland G. Fryer Jr. 2007. "A Measure of Segregation Based on Social Interactions." *Quarterly J. Econ.* 122(2):441–485.

7.11 Economic development

Banerjee, Abhijit, Arun Chandrasekhar, Esther Duflo, and Matthew Jackson. 2013. "Diffusion of Microfinance." *Science.* 341, DOI: 10.1126/science.1236498, July 26.

Feigenberg, Benjamin, Erica Field, and Rohini Pande. 2013. "The Economic Returns to Social Interaction: Experimental Evidence from Microfinance." *Review of Economic Studies.* 80:1459–1483.

7.12   The Schelling Model

Jackson (2019), 106–110.

Schelling, Thomas C. 1978. *Micromotives and Macrobehavior.* W. W. Norton.

Presentations by students. Ch. 1, 9–45. Ch. 4, Sorting and Mixing: Race and Sex. Pages 137–166.

See Ioannides (2013), Ch. 3, 115–123. Schelling's Location Model. Schelling's Model of Neighborhood Tipping.

*Card, David, Alexandre Mas, and Jessie Rothstein. 2008. "Tipping and the Dynamics of Segregation." Quarterly Journal of Economics. Section pp. 177-184.

*Zhang, Junfu. 2004. "Residential Segregation in an All-integrationist World. *Journal of Economic Behavior and Organization.* 54:533-550.

*Kirman, Alan. 2011. *Complex Economics.* Routledge. Pages 186–191. *Pages 191–213.

7.13   Communities

Communities. Christakis. *Blueprint.*

The Society within Us. Ch.1. 1–18.

*Unintentional Communities. Ch. 2, 19–58.

Intentional Communities. Ch. 3. 59–99.

7.14   Culture and Language

Student presentations based on:

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8 The World Wide Web

8.1 How Google works: analytics and business aspects

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10   Student Class Presentations

A detailed schedule of presentations will be handed out once students have decided on the final drafts of their papers.

11   Epilogue: Some Big Questions about Social Interactions, Social Networks and Data

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