

Society in Silico

Time: 2a: MW 9:50-11:00, F 9:40-10:40 (except week 1)

Location: Willis Hall 203

Instructor: Greg Marfleet, Willis 406, 222-4116

Office Hours: Tu 12:00-3:00, F 12:00-3:00

Description:

Can models help us understand the social world? Vexing issues like segregation, economic inequality, corruption market failure, resource over-exploitation, genocide, insurgency and terrorism have inspired scholars to ask if computational models of social systems can shed light on the hard-to-observe micro processes underlying macro problems.

In this course we will explore the conceptual and empirical foundations of modeling especially in complex systems. We will read about, then experiment with, existing models while students learn to program their own using open-source software.

Texts: None, this is an article-based course. See below for readings each week

Assignments:

Model Experiment Papers (x2) 15 pts each -- 30

Model Modification and Analysis Paper (including rewrite) -- 30

Group Coding Project and Presentation -- 25

Participation, Quizzes, Code Sharing and Attendance -- 15

9 September - 15 September

- Monday

Introductions, Course Outline and plan

Considering the Liberal Arts

Readings:

Cronon, W., 1998. " Only Connect..." The Goals of a Liberal Education. *The American Scholar*, 67(4), pp.73-80.

Nussbaum, M.C., 1998. *Cultivating humanity*. Harvard University Press. Excerpted in Liberal Education Spring 1998

Wednesday

How Models, Theory and Observation Intersect:

Readings:

Epstein, J.M., 2008. Why model?. *Journal of Artificial Societies and Social Simulation*, 11(4), p.12.

Axelrod, R., 1997. Advancing the art of simulation in the social sciences. In *Simulating social phenomena* (pp. 21-40). Springer Berlin Heidelberg.

Friday

Introduction to Netlogo and Code Assignment

- **16 September - 22 September**

- Monday

Social Segregation

Reading:

Katie Nodjimbadem smithsonian.com 2017 The Racial Segregation of American Cities Was Anything But Accidental

Hannah-Jones, N., 2016. Choosing a school for my daughter in a segregated city. *The New York Times Magazine*, 9.

Wednesday

Segregation Model Reading:

Schelling, T.C., 2006. *Micromotives and macrobehavior*. WW Norton & Company. Chapter 2

Explore "Segregation" in the Netlogo Model in Library

Friday

NetLogo Coding Activity

Modeling a Standing Ovation

- Common A&I convocation lecture by Prof. Fred Hagstrom on September 21st. All A&I students MUST attend this convo.

- **23 September - 29 September**

- Monday

Income Inequality

Readings:

Henderson 2018 Income Inequality Isn't the Problem. Hoover Institute.

John Cassi 2014 The New Yorker Forces of Divergence

Krugman Paul 1992 (reprinted 2014) The Rich, the Right and the Facts. American Prospect (web article)

Wednesday

Inequality Model Reading:

Epstein, J.M. and Axtell, R., 1996. *Growing artificial societies: social science from the bottom up*. Chapter 2. Brookings Institution Press.

Explore Sugarscape "Wealth Distribution" in the Models Library

Friday

NetLogo Coding Activity

- Hill Climbing Code Activity
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- **30 September - 6 October**

- Monday

Globalization

Readings:

Arnett, J.J., 2002. The psychology of globalization. *American psychologist*, 57(10), pp.774-783.

John Micklethwait, and Adrian Wooldridge 2009 foreignpolicy.com-Think Again The Globalization Backlash

Wednesday

Globalization Model Reading:

Axelrod, Robert. 1997. *The complexity of cooperation: Agent-based models of competition and collaboration*. Princeton University Press. Chapter 7 Disseminating Culture.

Explore Dissemination of Culture Model

Friday

NetLogo Coding Activity

- Go Fish Lists Tutorial
-  Axelrod Culture Model 6.0 File Uploaded 4/10/17, 09:36

Hidden from students

- **7 October - 13 October**

- Monday

Social Unrest and Rebellion

Readings

RG Suny. 2009. The Empire Falls: The Revolutions of 1989. The Nation

Kate Phillips. 2014. Springtime in Tienanmen Square. The Atlantic

Kelly McEvers 2012 The Crackdown. Washington Monthly

Wednesday

Rebellion Model Reading:

Note: this reading (despite its brevity, introduced two models. We'll look at the Rebellion model first, then explore the inter-ethnic violence model next week.

Epstein, J.M., 2002. Modeling civil violence: An agent-based computational approach. Proceedings of the National Academy of Sciences, 99(suppl 3), pp.7243-7250.

The Rebellion Model is available in the NetLogo Model's library

Friday

Netlogo Coding Activity

- **14 October - 20 October**

- Monday

No Class- Mid Term Break

Wednesday

Group Project Meetings

Friday

Group Project Code Workshop

- **21 October - 27 October**

- Monday

Inter-ethnic violence, civil war and genocide

Readings:

James Verini. 2014. How the World's Youngest Nation Descended into Bloody Civil War. NatGeo.

Max Fisher. 2016. Syria's Paradox. New York Times.

Phillip Gourevitch. 1995. After the Genocide. New Yorker.

Wednesday



Ethnic Conflict and Genocide Model Reading:

We'll look at the inter-ethnic violence model from the Epstein reading.

Epstein, J.M., 2002. Modeling civil violence: An agent-based computational approach. Proceedings of the National Academy of Sciences, 99(suppl 3), pp.7243-7250.

Friday

Netlogo Coding

-  Genocide Model File Uploaded 9/09/18, 13:38
-  basic Zombie model File Uploaded 27/10/17, 09:29

Hidden from students

- **28 October - 3 November**

- Monday

Commons Dilemmas and Resource Exploitation

Readings:

Garret Hardin The Tragedy of the Commons, Science, 13 December 1968, vol. 162, pp. 1243-48. reprinted in the Social Contract 2001

Meaghan Beatley & Sam Edwards. Overfished. gpinvestigation.

Wednesday

Commons Model Reading

Axelrod, R., 1986. An evolutionary approach to norms. *American political science review*, 80(4), pp.1095-1111.

Axelrod Metanorms Model

Friday

NetLogo Coding Activity

-  Basic Parking Model File Uploaded 2/11/17, 19:43
- **4 November - 10 November**
 - Monday

Economic Bubbles and Crashes

Krugman, P., 2009. How did economists get it so wrong?. *New York Times*, 2(9), p.2009.

Blodget, H., 2008. Why Wall Street always blows it. *The Atlantic Quarterly*, 302(5), pp.50-60.

Wednesday

Arthur, W.B., 1994. Inductive reasoning and bounded rationality. *The American economic review*, 84(2), pp.406-411.

Explore the "El Farol" model in the Model library

Friday

Netlogo Coding Workshop

- **11 November - 17 November**
 - Monday

Group Presentations I

Wednesday

Group Presentations II