1 Course Description

In this course, we will explore social network analysis, a set of methods and theories used in the analysis of social structure. The fundamental conceit underlying social network analysis is that social structure emerges from relationships between individuals. We will therefore concentrate in particular on the measurement of relationships, emphasizing especially practical methodology for anthropological fieldwork. This is a somewhat unusual course because of its focus on social network research coming out of anthropological and ethological traditions. While most current practitioners of social network analysis are (probably) sociologists, many of both the methodological antecedents and theoretical justifications for the field can be found in these two traditions.

There is a daunting amount of material one can potentially cover in a course on social networks and the quarter system makes the teaching of this material a bit challenging. We will thus adopt a bit of a special focus and, in keeping with the anthropological grounding of this course, we will concentrate more on a “micro-foundations” approach to social networks. In the many fine social network analysis courses out there (including at Stanford), the material is typically taught presupposing the existence of the networks. We will focus particularly on the collection of relational data. A major goal of this course is to understand how the methods and perspectives of social network analysis can be usefully incorporated into contemporary approaches to ethnography and other anthropological modes of investigation.

2 Expectations

This course uses mathematics to describe processes relevant to the study of social structure, human biology, and behavior. It is not, however, a course in mathematics. You will not be expected to complete mathematical proofs or derive complex formulae. You will be expected to
understand the social theory contained in the mathematics as described in class lectures and in
the readings.

We will use the R statistical programming environment for all analyses. You will need to
either have R installed on your personal machine or have access to a lab computer with R. If you
are using a lab machine, you will need to have the ability to install add-on packages including
(but not limited to) igraph, and the statnet family of packages (e.g., sna, ergm).

There is a substantial practical component to this course. The nature of the material means
that it is very difficult to learn without actually using the ideas. We will therefore jump into
data collection and analysis from the outset of the class. In addition to the research portfolio,
students will be expected to complete small problem sets on a weekly basis.

Class meets twice weekly. In a typical week, we will spend the first class each week discussing
readings and the topics they address while the second class of each week will be given over to
practical computer work.

3 Research Portfolio

Students will complete a research portfolio comprised of three empirical projects over the course
of the quarter.

Behavioral Observation and Sociogram Construction This project entails performing nat-
uralistic observation on a group of identifiable individuals (human or otherwise). Students
must determine a relational measure derived from direct observation and construct and
analyze a sociogram describing the social interactions. The classic affiliation behavior in
studies of nonhuman primates is grooming (Sade 1972; Sade et al. 1988). Human studies
have extended this tradition to other forms of tactile communication (Kraus et al. 2010).
The review by Faust and Skvoretz (2002) provides some examples of relations that you can
history data to graphs, an idea that was developing in a similar (though less specifically

Two-Mode Analysis We will exploit the ocean of relational data provided by the internet to
take a look at academic culture. Students will pick an academic department where the
research interests of the faculty are listed and construct a person-by-term matrix of the
research interests of this faculty. This matrix is then amenable to analysis as a two-mode
or “affiliation” graph. How are faculty in the same department connected? Are there
predictors of connectedness or lack thereof?

Egocentric Network Collection You will gather egocentric network data from a sample of
people. Data collection can be facilitated by using EgoNet, a tool for designing and
collecting egocentric network data, though this is not necessary. You must define and
deploy name-generators that allow you to elicit egocentric networks from your sample.
4 Grading

The breakdown of grading for this class will be as follows:

60% Research Portfolio. This is a very important part of the class and carry a correspondingly high weight in the overall grade.

30% Short Assignments. Students will complete brief weekly assignments that provide the practical foundations for their independent work.

10% This is a small class and students are expected to participate in constructing the intellectual environment of the class. The participation grade will also include occasional interactive in-class exercises.

5 Prerequisites

There are no specific requirements for this class, though graduate status and some familiarity with either ethnographic methods, ethological methods, or graph theory is assumed (i.e., you should know at least one of these!). You have to be willing to push your boundaries a bit. Some part of this course is almost certain to be unfamiliar to all students. This is OK – it’s actually how we learn. We will discuss mathematical ideas from graph theory and use computers to analyze and visualize relational data. You’ve gotta be cool with that.

The great majority of students who study social networks do so with little mathematical preparation. An understanding of algebra and a willingness to learn should be sufficient for students to develop an instrumental understanding of the necessary mathematics.

6 Readings

Most of the readings for this class come from the primary scientific literature and are available electronically. In addition, there is one required text for this class:

6.1 Suggested Readings

These are very useful books that are not required for the class but should probably be on everyone’s bookshelf.


7 Course Outline (Subject to Change)

Week 1 Introduction: Social Relationships of Humans and Other Animals

**Readings:** Radcliffe-Brown (1940), Hinde (1976), Nadel (1957)

**Assignment:** Behavioral Observation and Sociogram Construction

Week 2 Graphs, Dependencies, and Relations

**Readings:** Scott (2000, ch. 1-4), Evans-Pritchard (1929), Butts (2009), Barnes (1969)
**Optional Readings:** Hage (1979), Barnes and Harary (1983), Harary (1969), Wasserman and Faust (1994, chs. 3-4)

Week 3 Naturalistic Observation of Social Relations, Research Ethics

Optional Readings: Bott (1928), Wellman (1926), Martin and Bateson (2007, chs. 4-6), Cohen (1971, 1972), Chase (1982), Klovdahl (2005), Borgatti and Molina (2005), AAA Briefs on Ethical Dilemmas

Week 4 Sampling
Assignment: Two-Mode Graph

Week 5 Data Quality
Optional Readings: Killworth and Bernard (1976), Bernard and Killworth (1977), Killworth and Bernard (1979)

Week 6 Centrality, Brokerage, and Weak Ties
Readings: Scott (2000, chs. 5-6), Marsden (2002), Granovetter (1973), Burt (1992, chs. 1-2)
Optional Readings: Munson and Macri (2009), Borgatti (2005), Barocas et al. (2011), Lee (1969), Wasserman and Faust (1994, ch. 5 & 8)

Week 7 Agency, Constraint, and Emergence
Readings: Handcock and Jones (2004), Bearman et al. (2004), Adams et al. (2013),

Week 8 Diffusion
Readings: Coleman et al. (1957), Wasserman and Faust (1994, chs. 9 & 12), Friedman et al. (1997)
Optional Readings: Salathé and Jones (2010), Valente et al. (1997), Morris (1991), Klovdahl et al. (2001)

Week 9 Egocentric Networks
Readings: Matous and Ozawa (2010), Marsden (2005), Bidart and Charbonneau (2011),
Assignment: Egocentric Networks

Week 10 Social Capital
References


