Living in a Connected World
The Power, Beauty, Science, and Mathematics of Networks
Syllabus
HON120, Fall 2015

Stuart R. Borrett

Course Description and Goals

We are linked through a myriad of networks. Google lets us search the World Wide Web of information, Facebook helps us stay in touch with friends, and LinkedIn promises to help us find jobs. We use transportation networks to move ourselves and goods, power grids to distribute our power, and even our language can be bound into web like word clouds. Darwin recognized the tangled webs of life that are central to evolution by natural selection. In this interdisciplinary honors course, students will discover the emerging area of network science. Students will explore the diversity of networks in our social, technological, and natural world, and learn about tools to model and analyze them.

Upon completion, successful students will be able to:

- identify networks and common network effects;

- explain when a network model may be useful;

- describe network patterns common in complex systems;

- apply selected network mathematics to calculate network statistics and characterize selected patterns; and

- explain the power, opportunities, and costs of networks in different contexts.

Course Time and Location

This class is scheduled to meet from *2:00 pm–2:50 pm* on *Mondays* in Randal Library 2007.

Contact Information

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⋆ I will respond to email as soon as possible, but please allow 24 hours for a response. If you require a faster response you may call my office phone. Also, please include *hon120* and an informative subject title in the subject line of the email. Failure to do so may result in substantially longer response times.

Materials and Readings

Website

Readings and assignments for the course will be made available electronically through the course website at http://people.uncw.edu/borretts/teaching.html. You will need to choose the *Network Science* tab. Most PDFs will be password protected; the password is HON120.

About the Course

In class meetings there will be lectures, readings, story-telling, student presentations, discussions, problem–solving, and more. I expect you to work cooperatively in our meetings as well as study together outside of class. I will strive to make the class as active and cooperative as possible. Through this process, we will uncover much about Network Science.

I expected you to read assignments *ahead* of the class meeting scheduled to address the topic. In class, we will often discuss only parts of a chapter or advanced topics that build upon the reading. Thus, we may not review all of the reading in class, but you remain responsible for this material for quizzes and exams. If you don't read prior to class and laboratory you should not be surprised if you become lost during the discussions and activities. This is your course and I expect you to accept responsibility for your own learning.

Electronic Devices: Tools or Distractions.   There are many possible electronic distractions inside our lecture hall including phones and the internet. There is an on-going debate in higher education as to whether phones, tablets, and computers should be banned from the classroom. While these can be useful learning tools, they can also be distractions from learning. For this course, I ask that you silence your phones and put them away. You are welcome to use laptops or tablets, but please deffer from using these devices for anything other than class activities (e.g., taking notes). Those exhibiting disrespectful behavior and not following these guidelines will be asked to leave.

Schedule and Assignments

The course schedule and exam dates are posted on the class website.

Evaluation

Course evaluation is built around six core course elements. These elements are weighted as shown in Table 1.

Intention Essay

The intention essay is due at the beginning of the class (C#2). In this short essay (1 page), please consider your motivations for enrolling in this HON120 course and discuss what you hope to get out of the course. Also, please consider what you bring to the course in terms of experience with networks and your disciplinary perspective. What will you contribute to the discussion?

Participation

The second element is class participation. As this will be a highly active class, participation is a significant part of your evaluation. Participation starts with coming to class on time and prepared for the day's activities. As much of the class will build on in-class discussions of readings and activities, there is no way to make-up missed classes. If you are sick or need to miss class for any reason, please notify the instructor before the class meeting. Participation also includes participating in class discussions of the assigned readings or other electronic readings, and may include helping to lead discussions. Students are expected to participate by both contributing to the discussion and active listening to each other.

I strongly support the Seahawk Respect Compact (http://uncw.edu/diversity/src.html). The ideas in the Compact are foundational to enabling powerful learning discussions. Students violating the Respect Compact will not earn full credit for participation.

Homework

There will be a number of short homework problem sets or activities during the semester. These are designed to ensure you understand the core concepts and techniques as well as to get you engaging in selected networks. Please see the class website for assignment details.

NetPhoto Project

Networks are all around us – we just need to learn to see them. This assignment is designed to get you looking for the networks and network effects. The core of the assignment will be to post 4 photographs or short videos to a class Flickr group https://www.flickr.com/groups/uncw_networks_f15/ and identify the network or network phenomenon observed in the photo description. A full description of the assignment directions and requirements are posted on the class website.

Reading Proposal

In the last section of class we will read and discuss Network Science articles from the literature. The intent is for us to discuss parts of the science of most interest to the class. Thus, for this assignment you are responsible for identifying one article from the literature published in the last seven years that you would like us to discuss. You need to write a persuasive essay of no more than one page that explains why we should read the selected paper and how it will contribute to our understanding of "Living in a Networked World". The essay must include a full reference for the article, and a hyperlink if possible. Please email a PDF copy of your essay to Dr. Borrett by the due date, and name your file "LastName_ReadingProposal.pdf". Dr. Borrett will compile the essays and distribute them to the class. The class will then vote for articles they would like to read. The top rated articles will then fill the reading-discussion slots for the class.

We will discuss how to find and select better articles in class, but feel free to ask Dr. Borrett if you have any questions about this activity.

Reflection Essay

The final assignment is to write a reflection essay. In this short essay (1-3 pages), you should reflect upon what you see as the most important or impactful ideas were that you encountered in the

Table 1: HON 120 Evaluation

Course Component	Percent Contribution
Intention Essay	5%
Participation	40%
Homework	20%
NetPhoto Project	15%
Reading Proposal	15%
Reflection Essay	5%
Total	100%

course. Also, consider how what you have learned in this course will impact your future behavior – in your networks and as you continue your studies at UNCW and beyond.

Your final course grade will be determined following the scheme in Table 2.

Table 2: Course Grading Scheme

% of Course Points	Grade
> 93	A
90–93	A-
88–89	B+
83–87	B
80–82	B-
78–79	C+
73–77	C
70–72	C-
68–69	D+
63–67	D
60–62	D-
< 60	F

University Policies of Concern

Disabilities

If you are a person with a disability and anticipate needing accommodations of any type for this course, you must first notify Disability Services (DePaolo Hall, http://uncw.edu/disability/about/index.html), provide the necessary documentation of the disability, and arrange for the appropriate authorized accommodations. Once these accommodations are approved, please identify yourself to me in order that we can implement these accommodations.

Violence and Harassment

UNCW practices a zero-tolerance policy for violence and harassment of any kind. For emergencies, contact UNCW CARE at 910.962.2273, Campus Police at 910.962.3184, or the Wilmington Police at 911.

Academic Honor Code

The Honors College and I strongly support the Academic Honor Code as stated in the "Student Handbook and Code of Student Life," and we will not tolerate academic dishonesty of any type.