**INSY 5380 (Section 001): Social Network Analysis**

**Summer 2017**

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**Office Hours: Wednesday/Thursday: 4:25-5:25 p.m. or** by appointment

**Section Information:** INSY 5380 / Section 001

**Time and Place of Class Meetings:** MW 5:30 – 7:50 p.m. COBA 255

**Description of Course**:

The course covers a broad range of concepts and analytical techniques used in Social Network Analysis (SNA). Networks are engendered by relationships and/or connections between actors (such as humans, hospitals, and organizations). The proliferation of social media has increased the number and variety of networks. Organizations are increasingly relying on SNA and other analytical techniques to gain insights from such networks. This course will equip students with the skills necessary to help firms in their endeavor to compete on analytics.

**LEARNING OBJECTIVES**

* Appreciate the variety of theories, concepts and techniques associated with the analysis of networks.
* Understand the challenges and opportunities that different types of networks present.
* Be able to use popular software programs/languages such as R, Python and UCINET to analyze networks.

**STUDENT LEARNING OUTCOMES**

Based on readings, class discussions, practice problems, and a class project, students will be able to:

* Appreciate concepts and characteristics associated with networks.
* Use software to analyze networks and test hypotheses.
* Understand the increasingly important role that networks play in our daily lives and the opportunities they provide for drawing insights about customers, products, dynamics of interactions, and so forth.

**COURSE MATERIALS**

Analyzing Social Networks by Stephen Borgatti, Martin Everett and Jeffrey Johnson, SAGE publication, 2013. ISBN: 9781446247419.

Software: R, Python and UCINET will be used to analyze networks.

Powerpoint: Slides and additional readings will be made available on Blackboard.

You will also be given access to two excellent online courses offered by Datacamp (www.datacamp.com).

**Pre-requisites**: Knowledge of programming.

**Grading Policy**:

|  |  |
| --- | --- |
| 20% | Assignments |
| 20% | Exam 1 |
| 25% | Exam 2 |
| 25% | Comprehensive Finals |
| 10% | Group Project |

The following rules will be used for assigning grades. **There will be no curve**. Scores will not be rounded either (i.e., 89.999999…. will be a B).

>= 90 A

>= 80 B

>= 70 C

>= 60 D

< 60 F

**Assignment**: As part of this course, you will be required to complete two assignments on Datacamp ([www.datacamp.com](http://www.datacamp.com)). Specifically, you will have to complete two parts of “Network Analysis in Python”, an excellent introduction to the analysis of networks using a module called networkx. I think you will find the courses to be very engaging and informative.

**GROUP PROJECT**

Your group, consisting of you and **two** of your classmates, will apply analytical techniques to a real-world dataset.

# Tentative Course Schedule

|  |  |  |
| --- | --- | --- |
| **Week/Starting** | **Chapter/Topic** | **Reading/Assignment/slides** |
| **1 /Jun. 5** | Introduction; Mathematical Foundations | **Chapters 1, 2** |
| **2 /Jun. 12** | Mathematical Foundations; Data Management | **Chapters 2, 5** |
| **3 /Jun. 19** | Multivariate Techniques; Exam 1 | **Exam 1 (Chapters 1, 2, 5 & lecture/assignment); Chapter 6** |
| **4 /Jun. 26** | Visualization; Testing Hypotheses | **Chapters 7, 8** |
| **5 /Jul. 3** | Characterizing Whole Networks; Centrality | **Chapters 9, 10** |
| **6 /Jul. 10** | Subgroups; Exam 2 | **Chapter 11; Exam 2 (Chapters 6, 7, 8 & lecture/assignment)** |
| **7 /Jul. 17** | Equivalence; Analyzing two-mode networks | **Chapters 12, 13** |
| **8 /Jul. 24** | Large Networks, Ego Networks | **Chapters 14, 15** |
|  | **FINALS (Comprehensive) July 31, 2017** |  |

**NOTE: Details of the quizzes/exams will be discussed in class.**

**SYLLABUS CHANGES: The instructor reserves the right to make changes to the above syllabus as necessary; students are responsible to be attentive to changes announced in class and/or posted in the class website.**

**Attendance:** At The University of Texas at Arlington, taking attendance is not required. Rather, each faculty member is free to develop his or her own methods of evaluating students’ academic performance, which includes establishing course-specific policies on attendance. As the instructor of this section,I will consider **attendance mandatory** for all lectures. If you miss a class, you are responsible for the materials covered.

**Exams**: You are responsible for everything that is covered in the classroom, including additional materials that the instructor may discuss in class. There are **no make-up exams**. Under extenuating circumstances (e.g., medical emergency, family emergency, work-related travel, etc.), the average score of other exams will replace the missed exam score. You can only use this excuse for one exam. The final exam will be comprehensive covering all the contents, whereas regular exams will cover partial contents (as described in the Course Schedule).

**Expectations for Out-of-Class Study**: Beyond the time required to attend each class meeting, students enrolled in this course should expect to spend at least an additional 9 hours per week of their own time in course-related activities, including reading required materials, completing assignments, and preparing for exams/quizzes.

**UNIVERSITY and COLLEGE POLICIES**

**Grade Grievances**: Any appeal of a grade in this course must follow the procedures and deadlines for grade-related grievances as published in the current University Catalog: [http://catalog.uta.edu/academicregulations/grades/#undergraduatetext](http://catalog.uta.edu/academicregulations/grades/%22%20%5Cl%20%22undergraduatetext)

**Drop Policy:** Students may drop or swap (adding and dropping a class concurrently) classes through self-service in MyMav from the beginning of the registration period through the late registration period. After the late registration period, students must see their academic advisor to drop a class or withdraw. Undeclared students must see an advisor in the University Advising Center. Drops can continue through a point two-thirds of the way through the term or session. It is the student's responsibility to officially withdraw if they do not plan to attend after registering. **Students will not be automatically dropped for non-attendance**. Repayment of certain types of financial aid administered through the University may be required as the result of dropping classes or withdrawing. For more information, contact the Office of Financial Aid and Scholarships (<http://wweb.uta.edu/aao/fao/>).

**Disability Accommodations:** UT Arlington is on record as being committed to both the spirit and letter of all federal equal opportunity legislation, including *The Americans with Disabilities Act (ADA), The Americans with Disabilities Amendments Act (ADAAA),* and *Section 504 of the Rehabilitation Act.* All instructors at UT Arlington are required by law to provide “reasonable accommodations” to students with disabilities, so as not to discriminate on the basis of disability. Students are responsible for providing the instructor with official notification in the form of a letter certified by the **Office for Students with Disabilities (OSD).** Students experiencing a range of conditions (Physical, Learning, Chronic Health, Mental Health, and Sensory) that may cause diminished academic performance or other barriers to learning may seek services and/or accommodations by contacting:

**The Office for Students with Disabilities, (OSD)** [www.uta.edu/disability](http://www.uta.edu/disability) or calling 817-272-3364.

**Counseling and Psychological Services, (CAPS)** [www.uta.edu/caps/](http://www.uta.edu/caps/) or calling 817-272-3671.

Only those students who have officially documented a need for an accommodation will have their request honored. Information regarding diagnostic criteria and policies for obtaining disability-based academic accommodations can be found at [www.uta.edu/disability](http://www.uta.edu/disability) or by calling the Office for Students with Disabilities at (817) 272-3364.

**Title IX Policy:** The University of Texas at Arlington (“University”) is committed to maintaining a learning and working environment that is free from discrimination based on sex in accordance with Title IX of the Higher Education Amendments of 1972 (Title IX), which prohibits discrimination on the basis of sex in educational programs or activities; Title VII of the Civil Rights Act of 1964 (Title VII), which prohibits sex discrimination in employment; and the Campus Sexual Violence Elimination Act (SaVE Act). Sexual misconduct is a form of sex discrimination and will not be tolerated.*For information regarding Title IX, visit* [www.uta.edu/titleIX](http://www.uta.edu/titleIX) or contact Ms. Jean Hood, Vice President and Title IX Coordinator at (817) 272-7091 or [jmhood@uta.edu](jmhood%40uta.edu).

**Academic Integrity:** Students enrolled all UT Arlington courses are expected to adhere to the UT Arlington Honor Code:

*I pledge, on my honor, to uphold UT Arlington’s tradition of academic integrity, a tradition that values hard work and honest effort in the pursuit of academic excellence.*

*I promise that I will submit only work that I personally create or contribute to group collaborations, and I will appropriately reference any work from other sources. I will follow the highest standards of integrity and uphold the spirit of the Honor Code.*

UT Arlington faculty members may employ the Honor Code as they see fit in their courses, including (but not limited to) having students acknowledge the honor code as part of an examination or requiring students to incorporate the honor code into any work submitted. Per UT System *Regents’ Rule* 50101, §2.2, suspected violations of university’s standards for academic integrity (including the Honor Code) will be referred to the Office of Student Conduct. Violators will be disciplined in accordance with University policy, which may result in the student’s suspension or expulsion from the University.

**Electronic Communication:** UT Arlington has adopted MavMail as its official means to communicate with students about important deadlines and events, as well as to transact university-related business regarding financial aid, tuition, grades, graduation, etc. All students are assigned a MavMail account and are responsible for checking the inbox regularly. There is no additional charge to students for using this account, which remains active even after graduation. Information about activating and using MavMail is available at <http://www.uta.edu/oit/cs/email/mavmail.php>.

**Campus Carry:** Effective August 1, 2016, the Campus Carry law (Senate Bill 11) allows those licensed individuals to carry a concealed handgun in buildings on public university campuses, except in locations the University establishes as prohibited. Under the new law, openly carrying handguns is not allowed on college campuses. For more information, visit <http://www.uta.edu/news/info/campus-carry/>

**Student Feedback Survey:** At the end of each term, students enrolled in classes categorized as “lecture,” “seminar,” or “laboratory” shall be directed to complete an online Student Feedback Survey (SFS). Instructions on how to access the SFS for this course will be sent directly to each student through MavMail approximately 10 days before the end of the term. Each student’s feedback enters the SFS database anonymously and is aggregated with that of other students enrolled in the course. UT Arlington’s effort to solicit, gather, tabulate, and publish student feedback is required by state law; students are strongly urged to participate. For more information, visit <http://www.uta.edu/sfs>.

**Final Review Week:** A period of five class days prior to the first day of final examinations in the long sessions shall be designated as Final Review Week. The purpose of this week is to allow students sufficient time to prepare for final examinations. During this week, there shall be no scheduled activities such as required field trips or performances; and no instructor shall assign any themes, research problems or exercises of similar scope that have a completion date during or following this week *unless specified in the class syllabus*. During Final Review Week, an instructor shall not give any examinations constituting 10% or more of the final grade, except makeup tests and laboratory examinations. In addition, no instructor shall give any portion of the final examination during Final Review Week. During this week, classes are held as scheduled. In addition, instructors are not required to limit content to topics that have been previously covered; they may introduce new concepts as appropriate.

**Emergency Exit Procedures:** Should we experience an emergency event that requires us to vacate the building, students should exit the room and move toward the nearest exit. When exiting the building during an emergency, one should never take an elevator but should use the stairwells. Faculty members and instructional staff will assist students in selecting the safest route for evacuation and will make arrangements to assist individuals with disabilities.

**Student Support Services**:UT Arlington provides a variety of resources and programs designed to help students develop academic skills, deal with personal situations, and better understand concepts and information related to their courses. Resources include [tutoring](http://www.uta.edu/universitycollege/current/academic-support/learning-center/tutoring/index.php), [major-based learning centers](http://www.uta.edu/universitycollege/resources/college-based-clinics-labs.php), developmental education, [advising and mentoring](http://www.uta.edu/universitycollege/resources/advising.php), personal counseling, and [federally funded programs](http://www.uta.edu/universitycollege/current/academic-support/mcnair/index.php). For individualized referrals, students may visit the reception desk at University College (Ransom Hall), call the Maverick Resource Hotline at 817-272-6107, send a message to resources@uta.edu, or view the information at <http://www.uta.edu/universitycollege/resources/index.php>.

The IDEAS Center (2nd Floor of Central Library) offers free tutoring to all students with a focus on transfer students, sophomores, veterans and others undergoing a transition to UT Arlington. To schedule an appointment with a peer tutor or mentor email IDEAS@uta.edu or call (817) 272-6593.The English Writing Center (411LIBR): The Writing Center Offers free tutoring in 20-, 40-, or 60-minute face-to-face and online sessions to all UTA students on any phase of their UTA coursework. Our hours are 9 am to 8 pm Mon.-Thurs., 9 am-3 pm Fri. and Noon-6 pm Sat. and Sun. Register and make appointments online at http://uta.mywconline.com. Classroom Visits, workshops, and specialized services for graduate students are also available. Please see [www.uta.edu/owl](http://www.uta.edu/owl) for detailed information on all our programs and services.The Library’s 2nd floor Academic Plaza offers students a central hub of support services, including IDEAS Center, University Advising Services, Transfer UTA and various college/school advising hours. Services are available during the library’s hours of operation. <http://library.uta.edu/academic-plaza>

You may also find the following information useful:

Library Home Page <http://www.uta.edu/library>

Subject Guides [http://libguides.uta.edu](http://libguides.uta.edu" \t "_blank)

Subject Librarians [http://www.uta.edu/library/help/subject-librarians.php](http://www.uta.edu/library/help/subject-librarians.php%22%20%5Ct%20%22_blank)

Course Reserves [http://pulse.uta.edu/vwebv/enterCourseReserve.do](http://pulse.uta.edu/vwebv/enterCourseReserve.do%22%20%5Ct%20%22_blank)

Library Tutorials [http://www.uta.edu/library/help/tutorials.php](http://www.uta.edu/library/help/tutorials.php%22%20%5Ct%20%22_blank)

Connecting from Off- Campus [http://libguides.uta.edu/offcampus](http://libguides.uta.edu/offcampus%22%20%5Ct%20%22_blank)

Ask A Librarian [http://ask.uta.edu](http://ask.uta.edu/%22%20%5Ct%20%22_blank)

**Emergency Phone Numbers**: In case of an on-campus emergency, call the UT Arlington Police Department at **817-272-3003** (non-campus phone), **2-3003** (campus phone). You may also dial 911. Non-emergency number 817-272-3381