

Department Name and Number _____

Recommended SCNS Course Identification

Prefix ____ Level ____ Course Number ____ Lab Code ____

Full Course Title _____

Transcript Title (please limit to 21 characters) _____

Effective Term and Year _____ Rotating Topic yes no

Amount of Credit ____ Contact Hour: Base ____ or Headcount ____ S/U Only yes no

Repeatable Credit yes no If yes, ____ total repeatable credit allowed

Variable Credit yes no If yes, ____ minimum and ____ maximum credits per semester

Course Description (50 words or less)

Prerequisites	Co-requisites
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Degree Type (mark all that apply) Baccalaureate Graduate Professional Other _____

Category of Instruction Introductory Intermediate Advanced

Rationale and place in curriculum

Department Contact	Name	Phone	Email
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College Contact	Name	Phone	Email
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Standardized Syllabus for the College of Engineering

COT XXXX Complex Networks and Applications

1. Catalog Description (3 credit hours). Introduction to various mathematical models and algorithms to analyze complex networks, studies several practical applications in social networks and biological networks
2. Pre-requisites: COP 3530 and COT 5405
3. Course Objectives

This course will focus on the computational analysis and modeling of engineering networked systems arising in social and technological context. Students will study the basic theory of complex networks and algorithms for analysis of networked systems. Various applications will be considered, especially the recent advances in online social networks computing, focusing on the theoretical foundation, mathematical aspects, and applications of social computing.

4. Contribution of course to meeting the professional component (ABET only – undergraduate courses)
5. Relationship of course to program outcomes: Skills student will develop in this course (ABET only undergraduate courses)
6. Instructor
 - a. Office location: 550 CSE
 - b. Telephone: (352)328-3000
 - c. E-mail address: mythai@cise.ufl.edu
 - d. Class Web site
 - e. Office hours: W noon – 2:00pm or by appointments
7. Teaching Assistant
 - a. Office location
 - b. Telephone
 - c. E-mail address
 - d. Office hours
8. Meeting Times
9. Class/laboratory schedule. 3 class periods consisting of 50 minutes each
10. Meeting Location
11. Material and Supply Fees. None

12. Textbooks and Software Required. N/A
Lecture notes will be provided by the instructor

13. Recommended Reading

- F. Chung and L. Lu, [Complex Graphs and Networks](#), American Mathematical Society, 2006
- T. D. Lewis, [Network Science: Theory and Applications](#), Wiley, 2009
- F. Vega-Redondo, [Complex Social Networks](#), Cambridge University Press, 2007

14. Course Outline (provide topics covered by week or by class period)

- Basic Theory in Complex Networks
- Mathematical Models for Power-Law Networks
- Complex Network Vulnerability and Robustness
- Network Structure Analysis, Community Structure Detection
- Interdependent Networks and Cascading Failures
- Social Influence Analysis
- Information Diffusion and Propagation
- Link Prediction and Analysis
- Privacy and Security in Social Networks
- Spectral Analysis of Networks (including Random Walks)

15. Attendance and Expectations.

Requirements for class attendance and make-up exams, assignments, and other work are consistent with university policies that can be found at:

<https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx>

No late submissions of homework or project proposal are allowed.

16. Grading –

- Homework Assignments:
 - 2 homework assignments, together weighs 30%
 - Due at the **beginning** of the lecture on the due date
 - **No late** assignment will be accepted
- Presentations:
 - Weighs 20%
- Final Project:
 - Weighs 50% in total
 - We will have 3 milestones for this group project. The first one is to submit the “project proposal”, weighs 5%. The second one is the midterm project

report, weighs 15%. And the last one is the final project report, weighs 30%

17. Grading Scale.

A \geq 90%, 90% > A- \geq 87%, 87% > B+ \geq 85%, 85% > B \geq 80%, 80% > B- \geq 77%, 77% > C+ \geq 75%, 75% > C \geq 70%

“Undergraduate students, in order to graduate, must have an overall GPA and an upper-division GPA of 2.0 or better (C or better). Note: a C- average is equivalent to a GPA of 1.67, and therefore, it does not satisfy this graduation requirement. Graduate students, in order to graduate, must have an overall GPA of 3.0 or better (B or better). Note: a B- average is equivalent to a GPA of 2.67, and therefore, it does not satisfy this graduation requirement. For more information on grades and grading policies, please visit: <https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx>

This statement must be included in every grade scale for 6000 level graduate syllabi:

“Graduate students need an overall GPA of 3.00 truncated and a 3.00 truncated GPA in their major (and in the minor, if a minor is declared) at graduation.” For more information on grades and grading policies, please visit:

<http://gradcatalog.ufl.edu/content.php?catoid=4&navoid=907#grades>

18. Requirements for class attendance and make-up exams, assignments, and other work are consistent with university policies that can be found at:

<https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx>

19. Honesty Policy – UF students are bound by The Honor Pledge which states, “We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honor and integrity by abiding by the Honor Code. On all work submitted for credit by students at the University of Florida, the following pledge is either required or implied: “On my honor, I have neither given nor received unauthorized aid in doing this assignment.” The Honor Code (<http://www.dso.ufl.edu/sccr/process/student-conduct-honor-code/>) specifies a number of behaviors that are in violation of this code and the possible sanctions. Furthermore, you are obligated to report any condition that facilitates academic misconduct to appropriate personnel. If you have any questions or concerns, please consult with the instructor or TAs in this class.

Note that failure to comply with this commitment will result in disciplinary action compliant with the UF Student Honor Code Procedures.

See <http://www.dso.ufl.edu/sccr/procedures/honorcode.php>

20. Accommodation for Students with Disabilities – Students Requesting classroom accommodation must first register with the Dean of Students Office. That office will

provide the student with documentation that he/she must provide to the course instructor when requesting accommodation.

21. UF Counseling Services –Resources are available on-campus for students having personal problems or lacking clear career and academic goals. The resources include:
 - UF Counseling & Wellness Center, 3190 Radio Rd, 392-1575, <http://www.counseling.ufl.edu/cwc/Default.aspx>, counseling services and mental health services.
 - Career Resource Center, Reitz Union, 392-1601, career and job search services.University Police Department 392-1111
22. Software Use – All faculty, staff and student of the University are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against University policies and rules, disciplinary action will be taken as appropriate. We, the members of the University of Florida community, pledge to uphold ourselves and our peers to the highest standards of honesty and integrity.
23. Students are expected to provide feedback on the quality of instruction in this course based on 10 criteria. These evaluations are conducted online at <https://evaluations.ufl.edu>. Evaluations are typically open during the last two or three weeks of the semester, but students will be given specific times when they are open. Summary results of these assessments are available to students at <https://evaluations.ufl.edu/results>. “

Note: Statements in items 19-23, should be included as is.