This course introduces how the social, technological, and natural worlds are connected, and how these relationships can be modeled as high-dimensional graphs. The use of algorithmic approach to study these large scale networks so as to shed light on their connections and intrinsic properties will be employed. Topics include: 1) how opinions, personal interests, idea, news and political movements spread via social networks; 2) how to maintain the robustness of the world wide web; 3) why we observe fragility in some of our electrical networks; 4) understand the formation process of large scale online social networks like Facebook; 5) how to perform effective product advertisement in large scale online social networks; and 6) how information or viruses can be propagated in these large scale online social networks. This course aims to provide simple but fundamental theories on how one can understand the formation and interaction on these social networks. This course is multi-disciplinary in nature, and it is suitable for engineering, science, mathematics, economics or business students.

Grade Descriptor:

A
EXCELLENT - exceptionally good performance and far exceeding expectation in all or most of the course learning outcomes; demonstration of superior understanding of the subject matter, the ability to analyze problems and apply extensive knowledge, and skillful use of concepts and materials to derive proper solutions.

B
GOOD – good performance in all course learning outcomes and exceeding expectation in some of them; demonstration of good understanding of the subject matter and the ability to use proper concepts and materials to solve most of the problems encountered.

C
FAIR – adequate performance and meeting expectation in all course learning outcomes; demonstration of adequate understanding of the subject matter and the ability to solve simple problems.
D

MARGINAL – performance barely meets the expectation in the essential course learning outcomes; demonstration of partial understanding of the subject matter and the ability to solve simple problems.

F

FAILURE – performance does not meet the expectation in the essential course learning outcomes; demonstration of serious deficiencies and the need to retake the course.

Equivalent Offering:
Units: 3 (Min) / 3 (Max) / 3 (Acad Progress)
Grading Basis: Graded
Repeat for Credit: N
Multiple Enroll: N
Course Attributes:

Topics:

COURSE OUTCOMES

Learning Outcomes:
Students will be able to
1. understand the concepts and principles of social networks;
2. understand how various factors may influence the formation of social networks;
3. apply simple algorithms to extract information from these online social networks.

Course Syllabus:
This course introduces how the social, technological, and natural worlds are connected, and how these relationships can be modeled as high
dimensional graphs. The use of algorithmic approach to study these large scale networks so as to shed light on their connections and intrinsic properties will be employed. Topics include: 1) how opinions, personal interests, idea, news and political movements spread via social networks; 2) how to maintain the robustness of the world wide web; 3) why we observe fragility in some of our electrical networks; 4) understand the formation process of large scale online social networks like Facebook; 5) how to perform effective product advertisement in large scale online social networks; and 6) how information or virus can be propagated in these large scale online social networks. This course aims to provide simple but fundamental theories on how one can understand the formation and interaction on these social networks. This course is multi-disciplinary in nature, and it is suitable for engineering, science, mathematics, economics or business students.

Assessment Type:

- Essay test or exam: 50%
- Others: 50%

Feedback for Evaluation:

1. Course evaluation
2. Qualitative feedback from students
3. Quality on students’ projects, which can be used to evaluate whether the students obtain a good understanding of the material.

Required Readings:


Recommended Readings:


OFFERINGS

1. CSCI4190  
   Acad Organization=CSD; Acad Career=UG

COMPONENTS

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<tr>
<th>Component</th>
<th>Size</th>
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<tr>
<td>TUT</td>
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ENROLMENT REQUIREMENTS

1. CSCI4190  
   Enrollment Requirement Group: Pre-requisite: CSCI2100 or 2520 or ESTR2102.

New Enrollment Requirement(s): Pre-requisite = no change
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<tr>
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