



# Introduction to Network Science

## CSE 5245

**Credit Hours:**

3.00

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**Course Levels:**

Undergraduate (1000-5000 level)

Graduate (5000-8000 level)

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**Course Components:**

Lecture

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**Course Description:**

Introduction to Network Science; Global and Local Network Measures; PageRank; Community Discovery Algorithms; Network Models; Understanding the role of network analysis in Web and Social network applications.

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**Prerequisites and Co-requisites:**

Prereq: 2331.

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**Course Goals / Objectives:**

- Familiarity with network science as a discipline
  - Mastery over major macro- and micro- metrics used to describe various networks
  - Mastery over key community discovery algorithms
  - Familiarity with generative models for networks and various network analysis tools
  - Mastery of the role of network science in WWW and social network applications
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**Course Topics:**

- Motivation and Introduction to Basic Concepts
  - Fundamentals of Network Theory: Representation, Measures and Metrics
  - Graph Algorithms, Page Rank and Community Discovery
  - Network Models
  - The Web and Social Network Analysis: Putting It All Together
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**Designation:**

Elective