# Course Approval Form

**Action Requested:** (definitions available at website above)

- [X] Create NEW  
- [ ] Inactivate  
- [ ] Modify (check all that apply below)

- [ ] Title (must be 75% similar to original)  
- [ ] Repeat Status  
- [ ] Prereq/coreq  
- [ ] Grade Mode  
- [ ] Credits  
- [ ] Schedule Type  
- [ ] Restrictions  
- [ ] Other:  

**College/School:** COS  
**Department:** Computational and Data Sciences  
**Submitted by:** Andrew Crooks  
**Ext:** 34640  
**Email:** Acrooks2@gmu.edu

**Subject Code:** CDS  
**Number:** 292  
**Effective Term:**  
- [X] Fall  
- [ ] Spring  
- [ ] Summer

**Title:** Current

- [ ] Introduction to Social Network Analysis  
- [ ] Intro to Soc Network Analysis

**Banner (30 characters max w/ spaces):**  
**New:**

**Credits:** (check one)

- [X] Fixed  
- [ ] Variable  
- [ ] Lec + Lab/Rct

**Repeat Status:** (check one)

- [X] Not Repeatable (NR)  
- [ ] Repeatable within degree (RD)  
- [ ] Repeatable within term (RT)

**Grade Mode:** (check one)

- [X] Regular (A, B, C, etc.)  
- [ ] Satisfactory/No Credit  
- [ ] Special (A, B C, etc. +IP)

**Schedule Type:** (check one)

- [X] Lecture (LEC)  
- [ ] Lab (LAB)  
- [ ] Recitation (RCT)  
- [ ] Internship (INT)

**Prerequisite(s):** (NOTE: hard-coding requires separate Prereq Checking form, see above website)

- [ ] None

**Corequisite(s):**

- [ ] None

**Restrictions Enforced by System:** Major, College, Degree, Program, etc. Include Code(s).  
**Equivalencies** (check only as applicable):

- [X] YES, course is 100% equivalent to  
- [ ] YES, course renumbered to or replaces

**Catalog Copy for NEW Courses Only** (Consult University Catalog for models)

**Description** (No more than 60 words, use verb phrases and present tense)

An introduction to methods and applications that examine social systems based on relations, structures, connectivity, location, roles, interactions, and other network properties. Example applications of Social Network Analysis covered will include politics, diseases, organizations, along with a variety of other social phenomena.

**Notes** (List additional information for the course)

Indicate number of contact hours:

- [X] Hours of Lecture or Seminar per week: 3  
- [ ] Hours of Lab or Studio: 0

**When Offered:** (check all that apply)

- [ ] Fall  
- [ ] Summer  
- [X] Spring

**Approval Signatures**

- Department Approval  
- College/School Approval  

If this course includes subject matter currently dealt with by any other units, the originating department must circulate this proposal for review by those units and obtain the necessary signatures prior to submission. Failure to do so will delay action on this proposal.

<table>
<thead>
<tr>
<th>Unit Name</th>
<th>Unit Approval Name</th>
<th>Unit Approver’s Signature</th>
<th>Date</th>
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**For Graduate Courses Only**

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<tr>
<th>Graduate Council Member</th>
<th>Provost’s Office</th>
<th>Graduate Council Approval Date</th>
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Form revised 9/14/2015
FOR ALL COURSES (required)
Course Number and Title: CDS 292: Introduction to Social Network Analysis

Date of Departmental Approval: 10th November 2015

FOR NEW COURSES (required if creating a new course)

- Reason for the New Course:
  - Social network analysis (SNA) is at the heart of big data analysis. Companies such as Facebook, Twitter along with governments all study the connections between people. The intent of this course is to provide students with theory and tools to study and analyze social networks.
  
  - Students will be required to carry out short SNA studies in this course thus turning what has been taught in the class into practice.
  
  - By the end of the course the student will not only understand the theory and concepts of SNA but be able to design and implement a simple SNA project, that starts with a research question, data collection and why specific methods are used and concludes with some data analysis.

- Relationship to Existing Programs:
  - Currently GMU does not offer undergraduate courses in SNA. Only at the graduate level

- Relationship to Existing Courses: None

- Semester of Initial Offering: Spring 2017

- Proposed Instructors: TBD

- Tentative Syllabus Below
Prerequisites: None

Credits: 3

Instructor: TBD
Office Hours: TBD

Course Description: An introduction to methods and applications that examine social systems based on relations, structures, connectivity, location, roles, interactions, and other network properties. Example applications of Social Network Analysis covered will include politics, diseases, organizations, along with a variety of other social phenomena.

Lecture Content:

1. Introduction to SNA

2. Methods
   a. Centrality
   b. Subgroups
   c. Brokers and bridges
      i. Bridges, the Strength of weak ties etc..
   d. Random Network Models
   e. Small World Network Models
   f. Process on Networks
      i. Diffusion, contagion etc…
   g. Network Hypothesis testing
   h. Network Visualization
   i. Data collection (Social media, “big data” etc.)

3. Applications
a. Politics
b. Diseases
c. Organizations
d. ……and many others as SNA is applied to a huge range of fields.

**Homework:** Students will be expected to complete bi-weekly assignments and 1 project.

**Exams:** There will be one final exam and a midterm.

**Evaluation:** Homework (40%), Project (20%), Midterm (10%), Final Exam (30%)

**Required Textbooks:** Instructor provided