



Course Approval Form

For approval of new courses and deletions or modifications to an existing course.

registrar.gmu.edu/facultystaff/curriculum

Action Requested:

Create new course Delete existing course

Modify existing course (check all that apply)

Title Credits Repeat Status Grade Type

Prereq/coreq Schedule Type Restrictions

Other: _____

Course Level:

Undergraduate

Graduate

College/School: Department:

Submitted by: Ext: Email:

Subject Code: Number: Effective Term: Fall Spring Summer

(Do not list multiple codes or numbers. Each course proposal must have a separate form.)

Year

Title: Current Banner (30 characters max including spaces) New

Credits: (check one) Fixed Variable or Repeat Status: (check one) Not Repeatable (NR) Repeatable within degree (RD) Repeatable within term (RT) Maximum credits allowed:

Grade Mode: (check one) Regular (A, B, C, etc.) Satisfactory/No Credit Special (A, B, C, etc. +IP) Schedule Type Code(s): (check all that apply) Lecture (LEC) Lab (LAB) Recitation (RCT) Internship (INT) Independent Study (IND) Seminar (SEM) Studio (STU)

Prerequisite(s): Corequisite(s): Instructional Mode: 100% face-to-face Hybrid: ≤ 50% electronically delivered 100% electronically delivered

Special Instructions: (list restrictions for major, college, or degree; hard-coding; etc.) Are there equivalent course(s)? Yes No If yes, please list _____

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

Description (No more than 60 words, use verb phrases and present tense)	Notes (List additional information for the course)
The course covers theory, principles, and analytical techniques in geospatial analysis of social media, including data collection, location-based and cyber-space social network analysis, content analysis, and geovisualization of such data. Examples of applications in various domains are used to demonstrate and explore the use of social media analysis.	
Indicate number of contact hours: _____	Hours of Lecture or Seminar per week: _____
When Offered: (check all that apply) <input type="checkbox"/> Fall <input type="checkbox"/> Summer <input type="checkbox"/> Spring	Hours of Lab or Studio: _____

Approval Signatures

College/School Approval _____ Date _____

With approval by any other units, the originating department must circulate this proposal for review by the Registrar's Office. Failure to do so will delay action on this proposal.

Name	Unit Approver's Signature	Date

For Graduate Courses Only

Graduate Council Member _____ Provost Office _____ Graduate Council Approval Date _____

Course Proposal Submitted to the Curriculum Committee of the College of Science

1. COURSE NUMBER AND TITLE:

GGS 681 – Social Media Analysis

Course Prerequisites: GGS 550 – Geospatial Science Fundamentals; or GGS 553 – Geographic Information Systems; or permission of the instructor

Catalog Description: The course covers theory, principles, and analytical techniques in geospatial analysis of social media, including data collection, location-based and cyber-space social network analysis, content analysis, and geovisualization of such data. Examples of applications in various domains are used to demonstrate and explore the use of social media analysis.

2. COURSE JUSTIFICATION:

Course Objectives: This course aims to achieve the following 4 key objectives:

- a) Provide an understanding of the fundamentals and theory upon which social media analysis builds.
- b) Introduce key analytical techniques and tools that are used in social media analysis.
- c) Explore how social media analysis is applied in various scenarios and real-world applications.
- d) Identify and explore some of the emerging trends in social media analysis.

Course Necessity: Social media has emerged in recent years as a prominent research and applications area. Currently there is no course that provides a systematic coverage of social media analysis. The proposed course will enable us to offer such a course. The course has been previously offered twice through an omnibus number (GGS 590) and we want to make the course a permanent part of the curriculum.

Course Relationship to Existing Programs: Will participate as a requirement in one branch of the CERG GEOINT through an accompanying modification. Able to be used as an elective in the MS GECA, MS ESS, and ESGS PhD.

Course Relationship to Existing Courses: the proposed course builds on materials covered in Geospatial Science Fundamentals (GGS-550) or GGS-533. It augments several elective courses in our Department, including GGS-692 (Web GIS), GGS-787 (Scientific Data Mining for Geoinformatics), and GGS-671 (Algorithms and Modeling in GIS), and GGS-791 (Advanced Spatial Statistics).

3. APPROVALS:

GGS Curriculum Committee – Nov 20, 2015

GGS Departmental Vote – Nov 23, 2015

4. TENTATIVE SYLLABUS: Attached

GGG 681

Social Media Analysis

1. General Information

Instructor: Dr. Arie Croitoru

Where: Exploratory Hall 2103

When: TBD

Course website: Blackboard

Credits: 3.0

Instructor's Office Hours: TBD.

Preferred contact method: email to acroitor@gmu.edu. I will respond Monday to Friday during regular office hours.

2. Course Objectives

Over the last few years, social media (e.g. Twitter, Flickr, YouTube, etc.) have become an integral part of the modern information and communication landscape. Through social media, individuals, groups, organizations, and even states can now acquire, probe, and deliver information, as well as shape and reshape public opinion. At the same time, social media content is increasingly related to physical geographical locations. Fueled by advances in of Web 2.0, mobile computing, and spatially-aware technologies (i.e. GPS enabled smartphones), social media can provide a unique opportunity to observe and study the flow of information in both cyber and physical spaces. Employing a geographically driven analysis approach enables not only to track how information flows, but also to derive information about real-world events and processes. We call this geospatially-driven approach Social media analysis (GMA). In view of these developments and opportunities this course has the following objectives:

- A. Provide an understanding of the fundamentals and theory upon which Social media analysis builds.
- B. Introduce key analytical techniques and tools that are used in Social media analysis.
- C. Explore how Social media analysis is applied in various scenarios and real-world applications (e.g., emergency response, political movements, etc.).
- D. Identify and explore some of the emerging trends in Social media analysis.

3. Learning Outcomes

By the end of the course each student will be able to:

- A. Have an understanding of the fundamentals, theory and techniques of Social media analysis.
- B. Have the ability to appropriately apply the tools, algorithms and concepts covered in the course for various hypothetical and real-world data processing tasks.
- C. Given a problem or task, be able to effectively analyze it, identify key elements and potential difficulties, and define a strategy for successfully addressing it.
- D. Articulate and effectively communicate concepts and ideas related to Social media analysis through written reports and visualization products, and oral presentations.

4. Delivery Method

The course will be taught as a combination of lectures, topic/problem oriented discussion, and tutorials based on assigned reading and class discussion.

5. Textbook

As this is a new emerging topic, there is no single textbook or resource that will cover all the course materials (or even a substantial part of it). Accordingly, the course reading materials will include a selected collection of academic papers, reports and white papers, book chapters, and other online resources. All materials will be made available on the course website

6. Course outline (tentative)

In this course we will cover the following topics (please note that the topics and their order are subjected to change at the discretion of the instructor, any changes will be announced in class):

Date	Topic	Exam	Assignment	
			Release	Due
1/20	Introduction and overview			
1/27	Traditional Sensing methods			
2/3	The evolution of the GeoWeb and Social Media			
2/10	Harvesting social media		Lab 1	
2/17	Analyzing geo-social networks (1)			
2/24	Analyzing geo-social networks (2)		Lab 2	Lab 1
3/3	Analyzing geo-social networks (3)			
3/10	*** Spring Break ***			
3/17	Community detection		Lab 3	Lab 2
3/24	Spatial and spatiotemporal clustering			
3/31	Visualizing Geosocial Media		Lab 4	Lab 3
4/7	Content analysis			
4/14	Biases and Data quality			Lab 4
4/21	Project presentations (1)			
4/28	Project presentations (2)			

Please note that the dates of the topics are tentative. Any schedule changes will be announced in class.

7. Course Expectations

- This is a graduate course that involves some use of mathematical and statistical concepts.
- The course involves the use of computer algorithms. During the course, you will be required to develop and demonstrate your understanding of these concepts, and implement algorithms in a computer environment (e.g. writing computer scripts and programs).
- Your work should show attention to detail, with the expectation that the experience provide the basis for potential employers to consider your skills.
- I expect preparation and participation at every class. Attendance is critical (attendance may be verified during class) - you are expected to be at all classes and to make productive use of class time. Your active participation in the class is essential to the success of this course.

8. Grades

At the end of the term all the marks will be totaled as a weighted average according to the following weights:

Lab assignments	25%
Paper reviews (2)	25%
Course Project	50%
Total:	100%

Please note that, in general, assignments, paper reviews, course project and class participation will not have the same weight. The weight of each individual assignment etc. will be indicated on the assignment form. Final grades at the end of the course will be assigned using a **combination of absolute achievements and relative standing in the class.**

Incomplete grades policy: following the university policies, an "Incomplete" grade (IN) may be assigned to a student who is passing a course but who may be unable to complete scheduled course work due to a

cause beyond reasonable control. Any requests for an incomplete grade must be submitted **in writing** during the last week of classes, and should indicate the reason for the request. If an IN grade is granted, it is your responsibility to contact the instructor at the end of the semester to make proper arrangements for completing any missing work. For further details on the IN grade please visit: <http://registrar.gmu.edu/records/incomplete.html>

9. Exams

There are no written exams in the course.

10. Assignments and presentations:

The course will include several mandatory lab assignments on selected topics from the material covered in class and in the assigned reading. Assignments may include tasks such as algorithm development and implementation, analysis of data processing results, and discussion/analysis of theoretical concepts and test cases. All assignments are mandatory. Typically, two weeks will be allocated for every assignment (please see Section 11 for details on late submission policies). Submission of assignments should be done only **through the Blackboard course website**.

In addition to lab assignments, each student will be required to prepare an in-depth review of two peer-reviewed article will be given. The review will consist of two elements – a written summary and a class presentation.

Please note: Unless noted otherwise, we will grade only Assignments that are submitted through the "Assignments" section of the Blackboard system. Please **DO NOT** email assignments directly to the instructor's Mason email (@gmu.edu) or through their Blackboard email.

11. Late lab submission:

Labs submitted between 1 to 3 calendar days past the due date would result in a late penalty of **5 points per day**. As a general rule, labs submitted after **more than 3 days will not be accepted** and incomplete lab work may not be completed after the due date. Rare exceptions to this policy may be made on a case-by-case basis at the discretion of the Instructor.

Please note: Deferral of course work is a privilege and not a right; there is no guarantee that a deferral will be granted. Please make sure you notify the instructor or the teaching assistant in writing as soon as you know a deferral is required.

12. Research project

The research project is a major component in the course. Students are expected to work on the project in groups of two, and a single grade will be given per group. Generally, the project is expected to focus on either the use of geosocial analysis for deriving knowledge from social media, or on the development of an analysis method/algorithm to address a specific challenge in geosocial analysis. The project includes the following components:

- a) Project proposal to be approved by the instructor (to be delivered by **February 10, 2015**)
- b) Final project presentation (to be delivered during the last two weeks of the semester, as assigned by the instructor).
- c) Project paper (to be delivered no later than **May 8, 2015**). Late submission of the final project paper will **not be accepted**.

Detailed instructions and grading rubrics regarding each step will be provided during the course.

13. Academic integrity:

George Mason University is committed to the **highest standards** of academic integrity and honesty. Students are expected to be familiar with these standards regarding academic honesty and to uphold the policies of the University in this respect. Students are particularly urged to familiarize themselves with the provisions of the GMU honor code (online at academicintegrity.gmu.edu).

14. Course website:

The course has a Blackboard website. This website will provide you a single portal through which you may obtain lecture notes, retrieve assignment data and, review links to additional materials, and receive special announcements. You are required to visit the course website regularly. Please contact ITU to resolve any issues accessing this website.

15. **Use of MasonLive/Email (GMU Email):** Students are responsible for the content of university communications sent to their George Mason University email account and are required to activate their account and check it regularly. All communication from the university, college, school, and program will be sent to students solely through their Mason email account. [See <https://thanatos.gmu.edu/masonlive/login>].
16. **Responsible Use of Computing:** Students must follow the university policy for Responsible Use of Computing. [See <http://universitypolicy.gmu.edu/1301gen.html>].
17. **Other Student Resources:**
 - **University Libraries:** University Libraries provides resources for distance students. [See <http://library.gmu.edu/distance>].
 - **Writing Center:** The George Mason University Writing Center staff provides a variety of resources and services (e.g., tutoring, workshops, writing guides, handbooks) intended to support students as they work to construct and share knowledge through writing. [See <http://writingcenter.gmu.edu>]. You can now sign up for an Online Writing Lab (OWL) session just like you sign up for a face-to-face session in the Writing Center, which means YOU set the date and time of the appointment! Learn more about the [Online Writing Lab \(OWL\)](#) (found under Online Tutoring).
 - **Students with special needs:** If you are a student with a disability and you need academic accommodations, please see me and contact the Office of Disability Services (ODS) at 993-2474. All academic accommodations must be arranged through the ODS - <http://ods.gmu.edu>. Please do not hesitate to contact the course team regarding your special needs if you encounter any issues or have any concerns.
 - **Counseling and Psychological Services:** The George Mason University Counseling and Psychological Services (CAPS) staff consists of professional counseling and clinical psychologists, social workers, and counselors who offer a wide range of services (e.g., individual and group counseling, workshops and outreach programs) to enhance students' personal experience and academic performance [See <http://caps.gmu.edu>].
 - **Family Educational Rights and Privacy Act (FERPA):** The Family Educational Rights and Privacy Act of 1974 (FERPA), also known as the "Buckley Amendment," is a federal law that gives protection to student educational records and provides students with certain rights. [See <http://registrar.gmu.edu/privacy>].

Disclaimer: Any typographical errors in this Course Outline are subject to change and will be announced in class. The date of the final examination is set by the Registrar and takes precedence over the final examination date reported by the instructor.

Note: Recording of any kind (audio, video), reuse of course materials, and further dissemination of the course content is not permitted unless prior written consent of the professor and George Mason University has been given or if recording is part of an approved accommodation plan.