VT | UNIVERSITY REGISTRAR
VIRGINIA TECH.

Coversheet - Proposal for New and Revised Courses
(Use for non-Pathways courses)

For CLE/Pathways courses, form can be found here: https://www.pathways.prov.vt.edu/proposal-forms.html

General Information		
Proposal Date: 12/4/21	*Department:*	Computer Science
Course Designator and Number (Cross-listed Course Designator and Number):	CS 5664	
Title of Course: Social Media Analytics		*Credit Hours:* 3
Course Transcript (ADP) Title (30 Characters & Spaces Maximum):	SOCIAL MEDIA ANALYTICS	
Instructor and/or Departmental Contact:	Trey Mayo – Director of Graduate Programs	
Contact Phone: X0780	*Contact E-mail:* treymayo@vt.edu	
Please refer to Office of University Registrar for guidelines and policy requirements: https://registrar.vt.edu/governance.html		

Please count this course toward the following Scorecard Metrics areas:

[ ] Study Abroad   [ ] Service Learning   [ ] Experiential   [ ] Undergraduate Research

Scorecard Metrics Definitions can be found here: https://registrar.vt.edu/faculty-toolbox/scorecard-metrics.html

Please insert an X if this course should count toward First Year Experience:

[ ] First Year Experience (FYE) *Include approval letter from FYE Director. More information can be found here: http://www.fye.vt.edu*

Select ONE of the following boxes
[ ] New Course   [X] *Revised Course   (Revision > 20% _____   Revision < 20% _X_____)

For CLE/Pathways courses, form can be found here: https://www.pathways.prov.vt.edu/proposal-forms.html

*Please include a summary of course revisions to the Justification section of proposal

A:	*Attach statement from Dean or Departmental Representative as to whether teaching this course will require or generate the need for additional departmental resources.*			
B:	*Attach appropriate letters of support (e.g., prerequisite, corequisite, or cross-list memo) from affected departments and/or colleges.*			
C:	*Effective Semester:*	Spring 2022		
D:	*Change in Title From:*			
	To:			
E:	*Change in Transcript Title (ADP) From:*		*To:*	
F:	*Change in Credit Hours From:*		*To:*	
G:	*Change in Lecture and/or Lab Hours From:*		*To:*	
H:	*Course Number(s) and Title(s) to be deleted from the Catalog with APPROVAL:*			

Approval Signatures			
Department Representative	Cliff Shaffer	*Date*	12/4/2021
College Curriculum Committee Rep	Nicole Akers — Digitally signed by Nicole Akers Date: 2021.12.06 14:15:02 -05'00'	*Date*	
College Dean or Designee	Nicole Akers — Digitally signed by Nicole Akers Date: 2021.12.06 14:15:34 -05'00'	*Date*	

Course Information

Catalog Description
Social media platforms, media feeds, and data formats; machine learning and graph theory foundations of social media analytics; Forms of social media analytics - text analytics, network analytics, and action analytics; Forecasting models and applications, including in marketing, event tracking, surveying, and A/B testing. Pre: 5644 (3H, 3C)

Learning Objectives
Having successfully completed this course, students will be able to: • Characterize and analyze social media data • Implement information extraction and sentiment analysis techniques to analyze social media text datasets • Apply network analysis tools in conjunction with machine learning toolkits to study communities and cascades in social media • Employ social media action analytics to measure social media activity and engagement • Implement social media analytic applications and evaluate their performance

Justification
Online social media have radically changed how people produce, consume, and share information. This course will introduce the students to analytical techniques, programming methodologies, and software frameworks to analyze social media data and develop applications across a broad range of domains. To enable students to become successful practitioners, the course will cover both theoretical concepts and programming methodologies necessary for handling large scale social media data. A combination of network analysis packages (such as Gephi and NetworkX), natural language processing frameworks (such as nltk) and machine learning tools (such as Weka and scikit-learn) will be used for instruction. This course is designed for students pursuing a graduate certificate or degree as part of the Master of Information Technology program. Graduate credit is required for this course. Students will apply advanced, extensive, and in-depth knowledge that builds on undergraduate learning towards the understanding of social media. Students will develop the ability to study social media datasets independently using analytic methods, and to deepen their scholarly development in empirical research into social media datasets. Changes to this course are removing the enrollment restriction of "Not for graduate credit for degrees in CSA" The removal of the Not for graduate credit for degrees in Computer Science and Applications (CSA) sentence is an administrative update and eliminates any confusion on the student's end.

Prerequisites and Corequisites

Pre: 5644 (not enforced)

Texts and Special Teaching Aids

Required Textbooks:

Russel, Matthew A. MINNING THE SOCIAL WEB: DATA MINING, FACEBOOK, TWITTER, LINKEDIN, GOOGLE+, GITHUB, AND MORE. O'Reilly, 2013, 421

Khan, Gofar F. SEVEN LAYERS OF SOCIAL MEDIA ANALYTICS: MINING BUSINESS INSIGHTS FROM SOCIAL MEDIA TEXT, ACTIONS, NETWORKS, HYPERLINKS, APPS, SEARCH ENGINE, AND LOCATION DATA. Gohar F. Khan, 2015, 189

Optional Textbook:

Easley, David and Jon Kleinberg. NETWORKS, CROWDS, AND MARKETS: REASONING ABOUT A HIGHLY CONNECTED WORLD. Cambridge University Press, 2010, 727

Topic Syllabus

Topic	Percent of Course
1. Introduction to social media sources and preliminary analysis	10
a. Types of social media data	
b. Using iPython for social media analytics	
c. Using D3.js for network visualization	
2. Analytic background	20
a. Graph theory	
b. Network analysis techniques	
c. Natural language processing	
3. Social media text analytics using iPython	15
a. Information extraction	
b. Sentiment analysis	
4. Social media network analysis using iPython	15
a. Network characterization	
b. Community detection	
c. Cascades and information diffusion	
5. Social media action analytics using iPython	15
a. Measuring user engagement	
b. Endorsement and recommendations	
6. Applications	25
a. Viral marketing	
b. Event tracking and detection	
c. Surveying opinions	
d. A/B testing	
TOTAL	100

Old (Current) Topic Syllabus	
1. Introduction to social media sources and preliminary analysis	10
a. Types of social media data	
b. Using iPython for social media analytics	
c. Using D3.js for network visualization	
2. Analytic background	20
a. Graph theory	
b. Network analysis techniques	
c. Natural language processing	
3. Social media text analytics using iPython	15
a. Information extraction	
b. Sentiment analysis	
4. Social media network analysis using iPython	15
a. Network characterization	
b. Community detection	
c. Cascades and information diffusion	
5. Social media action analytics using iPython	15
a. Measuring user engagement	
b. Endorsement and recommendations	
6. Applications	25
a. Viral marketing	
b. Event tracking and detection	
c. Surveying opinions	
d. A/B testing	
TOTAL	100

12/9/21

Removing the enrollment restriction will not generate the need for new resources.

Nicole Akers