



INFO 3400: Complex Data Analytics	
<p><u>Term and Credits:</u> Winter 2024 4 Credits 3400-1 CRN 2279 3400-2 CRN 2159</p>	<p><u>Location:</u> Section 1: M/W 12:00-1:50 DCB 130 Section 2: M/W 2:00-3:50 DCB 130</p> <p>You will be required to review some material outside of class which will be delivered through Canvas. Make sure you have a good internet connection during class for access to Canvas. Also make sure your Canvas notifications are set appropriately.</p>
<p><u>Instructor:</u> Name: Kellie Keeling Department: Business Information & Analytics Office Hours DCB 590/Zoom: T/Th 3:30- 4:30p https://udenver.zoom.us/my/kkeeling</p> <p>Make an appointment: https://bit.ly/KeelingBooking</p>	<p><u>Communication Conduct:</u></p> <p>Feel free to refer to me as Dr. Keeling, Professor, or Kellie as you feel comfortable.</p> <p>Email is usually the best way to contact me. If I haven't responded in 36 hours, feel free to resend your message.</p> <p>I will send class level communications via Canvas announcements. I will typically initiate communication with individual students directly through your DU email or through Canvas email.</p> <p>Email: kkeeling@du.edu Office Phone: 303-871-2296 (forwards to my cell)</p>

COURSE DESCRIPTION:

This course explores the concepts of the considerations and management of big data projects. It also explores technical aspects of performing text analytics, natural language processing, social network analysis, and social media analytics. We will focus on social data for many of the examples and explore how disparate data sources can be combined to provide insight for business decisions.

PREREQUISITES/CO-REQUISITES:

Prerequisites: INFO 3200

LEARNING OUTCOMES: At the end of the course students will be able to:

- Identify and list terminology and considerations of market/business drivers, suitability of projects, governance, big data tools and High- Performance appliances, and integration and implementation.
- Perform text analysis such as keyword extraction, sentiment analysis, and topic modeling on textual data.
- Perform network analysis on appropriate data.
- Recognize when social media can support a business decision and implement these analyses using appropriate tools.
- Recognize when combining disparate data sources can benefit a business decision and know what tools can help with this analysis and have a rudimentary understanding of implementing this analysis yourself.

COURSE FORMAT:

Below is a general outline of what to expect in each class for the course. Please follow the following instructions so that we can effectively work together.

Before class:

- Read/View the assigned reading/video materials (posted on Canvas) before each session.

During class:

- Participate in discussions and in-class quizzes if I provide them.
- Complete the in-class case problems, which are usually due by end of the class, unless announced otherwise.

Assignments and projects:

- All assignments are administered and submitted online via Canvas.

REQUIRED MATERIALS:

Software:

- Alteryx (will use first)
- Microsoft Excel (Preferred current Office365 version)
- NodeXL (will begin to use second half of quarter)
- Tutorials and Installation Instructions for software packages will be posted on Canvas

Books: None Required

Course Resources: All course materials (including the text materials, classroom data sets, project assignments and data sets, and software) will be available through Canvas. Students are expected to have the lesson's material accessible at the start of each lesson. **It is advised to download these into a folder so that you can save your class work for future reference.**

POLICIES AND RESOURCES:

Class Policies. (How to be successful in this course)

Classroom Attendance: Please plan to join us in person in for class unless you have an excused absence (illness, travel for work/class) or class is moved online (Zoom). There can be unannounced, graded activities in class, or material that is not included in the lecture slides. I will plan to record the class on Zoom if you miss for an excused absence, but this will not be a 100% replacement for attendance.

Getting Help: If you are having difficulty with the course material, please contact me at your earliest convenience – particularly if you feel you are getting behind - That's OK! It happens! Don't delay because you feel embarrassed. I get behind and overwhelmed myself! My calendar is tied to my [Bookings appointment page](#) (<https://bit.ly/KeelingBooking>) and I have availability on most Saturday mornings and Sunday afternoons. If you are having an emergency situation, please let me know so we can plan accordingly. If you contact me with questions, I plan to respond within 36 hours.

Kurzweil 3000: <https://otl.du.edu/knowledgebase/introduction-to-kurzweil-3000/> Note if you would like to have software "read" the posted web materials or PDFs to you, you have access as a student to Kurzweil 3000.

Individual Work: For individual work, you may discuss homework so long as **each person is using their own technology to solve problems and turning in their individual work. Looking over someone's shoulder or watching as they do work, no matter how much you feel like you are participating, is not working together.** Turning in individual work done by someone else is academic dishonesty and can result in penalties ranging from **zero** points on the assignment to an "F" in the class and dismissal from the class.



Cheating is treated seriously in this class.

- If you are found cheating on a test or project you will fail the class and be referred to the student conduct office. Homework is great for learning in groups, but it is cheating to have one person do the work and hand the answers around. Below are some more specific guides. If you are not sure, please ask.
- What is OK/Not OK?
 - Working together on homework is encouraged.
 - One person doing the work and passing it around is cheating.
 - Working in parallel on projects is great, but each student should be turning in their own work from their own data/spreadsheet. Helping each other understand what is going on is great. One person doing and someone else taking credit, not so much.
 - If you are copying and pasting from work that was not done by you, you are cheating.
 - If someone is telling you what to type and click on, but you are not understanding it yourself, you are cheating.
 - Major assignments will be checked by a cheating detection software.

Syllabus Policy: This syllabus is subject to change based on the needs of the class, and at the discretion of the instructor.

Late Work: Everything should be turned in by the indicated due dates and times on Canvas. But if it is due by 11:59pm, I won't count it late as long as it is in by 8a the following morning. You might want to start early just in case you have a computer failure. Late work will be accepted with a penalty of 12 percentage points a day (.5% per hour) for in class case problems, homework, and project phase I. The Final Part of the Project (Phase II) must be presented on time.

It is your responsibility to make sure that you properly submit the correct file(s). If you have a legitimate personal emergency (e.g., health problem) that may impair your ability to submit a deliverable on time, you must take the initiative to contact the instructor before the due date/time (or as soon after your emergency as possible) to communicate the situation. Make-up exams will not be given. However, if a student has a planned absence, he or she may take the exam earlier with the permission of the instructor.

GRADING & COURSE REQUIREMENTS:

A: 93-100%; A-: 90-92.9%; B+: 87-89.9%, B: 83-86.9%; B-: 80-82.9%; etc.

Student performance will be evaluated and calculated on the items below:

Activity	Percentage
Mid-Term Exam	15%
Final Exam	25%
Course Project Phase I	5%
Course Project Phase II	20%
Peer Project Feedback	5%
Homework (3 graded)	15%
In Class Case Problems Group Work	15%
Total	100%

Exams: If you are going to need to reschedule an exam for a legitimate conflict, you must receive permission from me BEFORE the exam to reschedule. Otherwise, you will receive a zero on the exam. Detailed instructions for the exams will be posted in advance on Canvas. **No make-up exams will be given.**

Homework: There will be homework/online quizzes to be completed throughout the quarter. These review materials from the lecture and prepare you for doing the project.

Course project: Groups can be of size 2 or 3 students in the same section. Detailed instructions will be posted on Canvas.

In-class case problem activities and presentations: During class, individual or mini-group discussions/presentations will be completed and occasional group summaries/presentations to help supplement our course material will be assigned.

Submission:

- Unless otherwise specified, deliver your results to the course website during class (only).
- Only the authors shall receive credit for each in-class exercise.
- Prominently (at the top) of the delivered document, place the names of authors.
- Do not include the name of anyone who is absent or did not contribute. Doing so will result in zero credit for all 'authors'.

Arbitration

There will be a one-week arbitration period after graded activities are returned. Within that one-week period, you are encouraged to discuss any assumptions and/or misinterpretations that you made on the activity that may have influenced your grade.

Educational Assessment

The Daniels College of Business may use assessment tools in this course and other courses for evaluation. Educational Assessment is defined as the systematic collection, interpretation, and use of information about student characteristics, educational environments, learning outcomes and client satisfaction to improve program effectiveness, student performance and professional success.

UNIVERSITY EXPECTATIONS, POLICIES, AND RESOURCES:

Students with Disabilities. A student who qualifies for academic accommodations because of a disability must submit a Faculty Letter to the instructor from the DU Disability Services Program (DSP) in a timely manner, so that the needs of the student can be addressed. Accommodations will not be provided retroactively, e.g., following an exam or after the due date of a project. DSP determines eligibility for accommodations based on documented disabilities. DSP is located in Driscoll Center South, Garden Level, Suite 22 (303-871-3241).

Inclusive Learning Environments.

- In this class, we will work together to develop a learning community that is inclusive and respectful. Our diversity may be reflected by differences in race, culture, age, religion, sexual orientation, socioeconomic background, and myriad other social identities and life experiences.
- The goal of inclusiveness, in a diverse community, encourages and appreciates expressions of different ideas, opinions, and beliefs, so that conversations and interactions that could potentially be divisive turn instead into opportunities for intellectual and personal enrichment.
- A dedication to inclusiveness requires respecting what others say, their right to say it, and the thoughtful consideration of others' communication.
- Both speaking up and listening are valuable tools for furthering thoughtful, enlightening dialogue. Respecting one another's individual differences is critical in transforming a collection of diverse individuals into an inclusive, collaborative and excellent learning community.
- Our core commitment shapes our core expectation for behavior inside and outside of the classroom. Office of Diversity, Equity, and Inclusion website (<https://www.du.edu/diversity-inclusion/index.html>).

University Expectations. Please review the University Expectations on the Daniels College of Business syllabus webpage (<http://daniels.du.edu/university-expectations/>)

- University of Denver Honor Code
- Policy Concerning Official Communication
- Students with Disabilities
- Policy Concerning Religious Accommodations
- Policy Concerning Emergency Procedures
- Policy Concerning Conflicts of Interest, Including Gifts from Students

Tentative Schedule:

	DATES	TOPICS	DUE
Week 1	01/08 01/10	Introduction to Class and Text Analytics Linguistic Analytics	Intro Quiz/Student Intros Homework 1
Week 2	01/15 01/17	No Class - MLK Day Introduction to Alteryx	Install Alteryx
Week 3	01/22 01/24	Text Preprocessing (Word Frequency, Part-of-Speech Tagging) 1: Topic Modeling	
Week 4	01/29 01/31	2: Topic Modeling 1: Sentiment Analysis	Homework 2
Week 5	02/05 02/07	2: Sentiment Analysis Text Classification	
Week 6	02/12 02/14	Use Text to Predict 1: Social Network Analysis Introduction	
Week 7	02/19 02/21	Mid Term Exam No Class	Project Phase I
Week 8	02/26 02/28	2: Social Network Analysis Introduction 1: SNA (Measurement and Viz)	Homework 3
Week 9	03/04 03/06	2: SNA (Measurement and Viz) 1: SNA (Cluster and Social Media: Twitter)	Homework 4
Week 10	03/11 03/13	2: SNA (Cluster and Social Media: Twitter) Social Media: Facebook/Project Day	Course Project Phase II
Week 11	03/18 03/20	Present Projects Final Exam	Take Home Exam