



ITIS 5434A
Data Visualization for Business Analytics

Course Outline
Winter 2025

Instructor: Jacob Smale, CPA, MAcc

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Class Time: Tuesdays 2:30 to 5:30pm

Course Weight: 0.25 credits

Modality: *Blended* (refer to “Modality” section below)

Final Project: *In-Person* (date to be confirmed)

Office Hours: By appointment as requested.

Course Calendar Description:

Principles, techniques, technology and applications of data visualization for decision making; cognition and visual perception; types of visual analysis; interactive dashboards; story telling; infographics.

Course Description:

This course provides an introduction as well as hands-on experience in data visualization. It introduces students to design principles for creating meaningful displays of quantitative and qualitative data to facilitate managerial decision-making.

Course Learning Objectives:

- Develop an understanding of the fundamentals of communication and alignment around concepts that are required for effective data presentation
- Develop an introductory level of competency on PowerBI
- Understand the fundamentals of visual data discovery including the ability to: select appropriate chart types and representation; and identify trends and distributions.
- Understand the fundamentals of visual data deployment including the ability to: select and use preattentive attributes; design and implement dashboards; and effectively apply storytelling principles
- Obtain basic knowledge needed to critique various visualizations and to identify design principles that make good visualizations effective.
- Have a basic understanding of some of the challenges present in making data understandable across a wide range of potential audiences.

Course Prerequisites:

None.

Drop Course Policy:

The last day for withdrawal with a full fee adjustment is listed on the official Carleton calendar. Withdrawals after this date will result in a permanent notation of WDN on the official transcript.

Textbook(s):

1. Storytelling with Data: A data visualization guide for business professionals, Cole Nussbaumer Knaflic, John Wiley & Sons, 2015

IMPORTANT: This textbook is available **FREE** through [Carleton’s library](#).

Alternatively, you can access the book through the following link:
[Storytelling with Data Book:](#)

- a. Log-in using your Carleton username and password
- b. Select “Read Online”

Methods of Evaluation:

Component	Weight
In-Class Quizzes	10%
Assignment 1	15%
Assignment 2	15%
Assignment 3 & Presentation	20%
Final Exam	40%
	100%

*** Refer to Brightspace page for due dates of all deliverables**

Intellectual Property:

All course materials are protected by copyright and remain the intellectual property of the Instructor. Students registered in the course may only use course materials for their own educational use. Students are not permitted to reproduce or distribute lecture notes, assignments, exam questions, or other course material publicly for commercial or non-commercial purposes without express written consent from the Instructor. Any suspected violations will be referred to the Dean. See the section titled “Academic Integrity” below.

In-Class Quizzes:

During some classes, there will be a short quiz held. The quiz may be held at the beginning, middle or end of the class. The material tested could be from the details of the case being covered in-class, the pre-class video and/or material covered during the lecture or any previous lecture/videos. If you are not able to attend class, you must email the instructor before the beginning of class and the weight of the quiz will be shifted to your Final Project.

Assignment 1 & 2:

The primary focus of these assignments will be to practice using the software/theory covered in class.

Assignment 3 & Group Presentation:

The case will be completed in groups. You will place yourself into a group. The primary focus of this case is to interpret, analyze, visualize and explain the data.

All group members are expected to contribute to the presentation equally. All members within a group will normally receive the group grade; however, your individual grade for the group case may be reduced if your group members report that you did not contribute equally towards the case submission.

Late Assignments:

No late submissions are accepted.

Final Exam:

The Final Exam/Project is comprehensive meaning it will cover material from the entire course. It will consist of a case that involves the application and integration of major concepts covered in the course to solve problems and issues presented in the case scenario.

The case may require the use of Microsoft Excel and/or Power BI and/or other software.

Modality:

Delivery of the course will be blended (synchronous and asynchronous). Some weeks you may find videos on Brightspace (asynchronous portion). These videos cover practical instructional introductions to the various tools and software used in this course. You must watch the videos before attending class. The live lectures (synchronous portion) will make up the remainder of your class time each week. The live lectures will be held in-person.

Course Schedule:

Class # / Date	Coverage
1 Sec A: Mar 4	Prior to Class: - Read the course outline During Class: - Introduction to Data Analytics & Course Outline - Data Visualizations Theory Part 1
2 Sec A: Mar 11	Prior to Class: - See Brightspace During Class: - Data Visualizations Theory Part 2
3 Sec A: Mar 18	Prior to Class: - Video: Introduction to Microsoft Excel - Read Case During Class: - Intro to Microsoft Excel - Case: Using Microsoft Excel to cleanse and visualize data
4 Sec A: Mar 25	Prior to Class: - Video: Introduction to Power BI - Read Case - <i>Optional – Video: Introduction to Power Query</i> During Class: - Case: Using Power BI to visualize and analyze data
5 Sec A: Apr 1	Prior to Class: - Video: Introduction to Infographic Software During Class: - Data Visualizations Theory Part 3
6 Sec A: Apr 8	Group Presentations

Contribution to Learning Goals of the Program (MBA):

MBA Learning Goal	Not Covered	Introduced	Taught but Not Assessed	Taught <u>and</u> Assessed
MB1 Leadership and Collaboration <i>Graduates will be equipped for leadership and collaboration.</i>				✓
MB2 Communication <i>Graduates will be effective communicators</i>				✓
MB3 Critical Thinking and Problem Solving <i>Graduates will be skilled in critical thinking and problem solving.</i>				✓
MB4 Functional Knowledge <i>Graduates will have functional knowledge of all areas of business.</i>	✓			
MB5 Global Business <i>Graduates will have an appreciation of the global environment of business.</i>	✓			
MB6 Ethical Reasoning <i>Graduates will be skilled in ethical reasoning and decision-making.</i>	✓			

ADDITIONAL INFORMATION

Course Sharing Websites

Materials created for this course (including presentations and posted notes, labs, case studies, assignments and exams) remain the intellectual property of the author(s). They are intended for personal use and may not be reproduced or redistributed without prior written consent of the author(s).

Group work

The Sprott School of Business encourages group assignments in the school for several reasons. They provide you with opportunities to develop and enhance interpersonal, communication, leadership, follower-ship and other group skills. Group assignments are also good for learning

integrative skills for putting together a complex task. Your professor may assign one or more group tasks/assignments/projects in this course. Before embarking on a specific problem as a group, it is your responsibility to ensure that the problem is meant to be a group assignment and not an individual one.

Grading

In accordance with the Carleton University Undergraduate Calendar (p 34), the letter grades assigned in this course will have the following percentage equivalents:

A+ = 90-100	B+ = 77-79	C+ = 67-69	D+ = 57-59
A = 85-89	B = 73-76	C = 63-66	D = 53-56
A - = 80-84	B - = 70-72	C - = 60-62	D - = 50-52
F = Below 50			

Grades entered by Registrar:

WDN = Withdrawn from course

DEF = Deferred

Academic Regulations

University rules regarding registration, withdrawal, appealing marks, and most anything else you might need to know can be found on the university's website, here:

<http://calendar.carleton.ca/undergrad/regulations/academicregulationsoftheuniversity/>

Requests for Academic Accommodation

You may need special arrangements to meet your academic obligations during the term. For an accommodation request, the processes are as follows:

Pregnancy Accommodation

Please contact your instructor with any requests for academic accommodation during the first two weeks of class, or as soon as possible after the need for accommodation is known to exist.

For more details, visit the Equity Services website:

carleton.ca/equity/wp-content/uploads/Student-Guide-to-Academic-Accommodation.pdf

Religious obligation

Please contact your instructor with any requests for academic accommodation during the first two weeks of class, or as soon as possible after the need for accommodation is known to exist.

For more details, visit the Equity Services website:

carleton.ca/equity/wp-content/uploads/Student-Guide-to-Academic-Accommodation.pdf

Academic Accommodations for Students with Disabilities

If you have a documented disability requiring academic accommodations in this course, please contact the Paul Menton Centre for Students with Disabilities (PMC) at 613-520-6608 or pmc@carleton.ca for a formal evaluation or contact your PMC coordinator to send your instructor your Letter of Accommodation at the beginning of the term. You must also contact the PMC no later than two weeks before the first in-class scheduled test or exam requiring accommodation (if applicable). After requesting accommodation from PMC, meet with your instructor as soon as possible to ensure accommodation arrangements are made.

carleton.ca/pmc

Survivors of Sexual Violence

As a community, Carleton University is committed to maintaining a positive learning, working and living environment where sexual violence will not be tolerated, and its survivors are supported through academic accommodations as per Carleton's Sexual Violence Policy. For more information about the services available at the university and to obtain information about sexual violence and/or support, visit: carleton.ca/sexual-violence-support

Accommodation for Student Activities

Carleton University recognizes the substantial benefits, both to the individual student and for the university, that result from a student participating in activities beyond the classroom experience. Reasonable accommodation must be provided to students who compete or perform at the national or international level. Please contact your instructor with any requests for academic accommodation during the first two weeks of class, or as soon as possible after the need for accommodation is known to exist.

<https://carleton.ca/senate/wp-content/uploads/Accommodation-for-Student-Activities-1.pdf>

For more information on academic accommodation, please contact the departmental administrator or visit: students.carleton.ca/course-outline

Academic Integrity

Violations of academic integrity are a serious academic offence. Violations of academic integrity – presenting another's ideas, arguments, words or images as your own, using unauthorized material, misrepresentation, fabricating or misrepresenting research data, unauthorized cooperation or collaboration or completing work for another student – weaken the quality of the degree and will not be tolerated.

Process: If an alleged violation occurs, all relevant documentation will be forwarded to the Dean. If the allegation proves true, the penalties may include; a grade of Failure on the

submitted work and/or course; academic probation; a refusal of permission to continue or to register in a specific degree program; suspension from full-time studies; suspension from all studies at Carleton; expulsion from Carleton, amongst others. **For a first offence, at a minimum, the penalty assigned will normally be a zero on the submitted work and at least a minimum full grade reduction of the final course grade. For a second offence, at a minimum, the penalty assigned will normally lead to a suspension from studies.**

Students are expected to familiarize themselves with and follow the Carleton University Student Academic Integrity Policy which is available, along with resources for compliance at: <https://carleton.ca/registrar/academic-integrity/>.

Sprott Student Services

The Sprott Undergraduate Student Services Office offers program advising and overall student success support. Our team is available to discuss your academic goals and your program progression plans. We can also work with you to develop strategies for success, including study skills for Business. If you experience any difficulty this term or if you would like to access support, please contact our team at bcom@sprott.carleton.ca or at bib@sprott.carleton.ca.

Centre for Student Academic Support

The Centre for Student Academic Support (CSAS) is a centralized collection of learning support services designed to help students achieve their goals and improve their learning both inside and outside the classroom. CSAS offers academic assistance with course content, academic writing and skills development. Visit CSAS on the 4th floor of MacOdrum Library or online at: carleton.ca/csas.

Important Information:

- Students must always retain a copy of all work that is submitted.
- All final grades are subject to the Dean's approval.
- For us to respond to your emails, we need to see your full name, CU ID, and the email must be written from your valid CARLETON address. Therefore, in order to respond to your inquiries, please send all email from your Carleton CMail account. If you do not have or have yet to activate this account, you may wish to do so by visiting

<https://carleton.ca/its/get-started/new-students-2/>