

**ITIS 5434**  
**Data Visualization for Business Analytics**  
**Winter 2023**

**Instructor:** Mike Hine, Ph.D.  
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**Office:**  
**Office Hours:** by appointment

**Class Meeting:** Face to face: Saturday March 18<sup>th</sup> and March 25<sup>th</sup> 9AM-1PM.  
Asynchronous online: Pre-work assigned approximately 3 weeks before face to face.

**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 Tableau
- 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 pre-attentive 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:**

ITIS 5431 or permission of school

**Required Materials:**

Tableau Desktop

**Recommended Books:**

Nussbaumer Knaflic, C. (2015). Storytelling with Data, Wiley  
<https://www.wiley.com/enus/Storytelling+with+Data:+A+Data+Visualization+Guide+for+Business+Profession>

als-p-9781119002253

Wexler, Shaffer and Cotgreave (2017). The Big Book Dashboards: Visualizing Your Data Using RealWorld Business Scenarios. Wiley.

<https://www.wiley.com/enca/The+Big+Book+of+Dashboards%3A+Visualizing+Your+Data+Using+Real+World+Business+Scenarios-p-9781119282730>

Loth, A., Vogel, N. and S. Sparkes. Visual Analytics with Tableau. 2019.

<https://www.wiley.com/en-ca/Visual+Analytics+with+Tableau-p-9781119560227#content-section>

**Drop Course Policy:** The deadline for academic withdrawal is the last day of classes (each term).

**Grading Scheme:** Subject to change at instructor's discretion

*Pre-Class Work*

Complete Tableau Tutorial 5%

Initial Data Viz 5%

*In Class* 5%

*Case*

Build Dashboard 10%

Tell Story (group) 15%

*Take Home Tableau Exercises* 20%

*Final Project (group)* 40%

**Total** 100%

All work is individual unless otherwise indicated. Each component of your grade will be assigned a percentage score. Your final course grade will be a weighted average of each of these components.

**Late Assignments:**

Late work will be penalized 10% a day.

**Preparation and Participation:**

Attendance for BOTH face to face sessions is mandatory to achieve a passing grade in this class.

**Contribution to Program Learning Goals ([MBA](#)):**

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

### Recommended Calculator for Examinations:

If you are purchasing a calculator, we recommend any one of the following options: Texas Instruments BA II Plus (including Pro Model), Hewlett Packard HP 12C (including Platinum model), Staples Financial Calculator, Sharp EL-738C & Hewlett Packard HP 10bII

### Group Work:

The Sprott School of Business encourages group assignments. They provide you with opportunities to develop and enhance interpersonal, communication, leadership, followership and other group skills. Group assignments are also an effective way to learn integrative skills for putting together a complex task. Your professor may assign one or more group tasks, assignments, or 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.

*(If peer evaluation will be used as an input when assigning grades to group work, specify the procedure. An example appears below.)*

#### Peer Evaluation for Group Work

To deter social loafing and ensure fairness in grading, you will be asked to assess the contribution of your fellow group members. This information will be used when assigning the grade for the final project. The procedure is as follows: Each student should take 100 points and allocate those points to the various members of the group (including him/her/themselves) to reflect the contributions made by each member. For instance, if there are four members in a group and everyone contributed equally, each individual would receive 25 points. Conversely, if an individual contributed relatively little, the remaining group members might allocate few points to that member. To ensure that these peer evaluation scores are reasonable and free from personal bias, you will be asked to provide a detailed written explanation for your point allocation.

### Letter Grades:

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	F = Below 50
A = 85-89	B = 73-76	C = 63-66	D = 53-56	
A - = 80-84	B - = 70-72	C - = 60-62	D - = 50-52	

Grades entered by Registrar:

WDN = Withdrawn from the 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**

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: <https://carleton.ca/equity/wp-content/uploads/Student-Guide-to-Academic-Accommodation.pdf>

- **Religious Obligations**

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: <https://carleton.ca/equity/wp-content/uploads/Student-Guide-to-Academic-Accommodation.pdf>

- **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](mailto: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. <https://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: <https://carleton.ca/sexual-violence-support/>

- **Student Activities**

Carleton University recognizes the substantial benefits, to both the individual student and the university, that result from participating in activities beyond the classroom experience. Reasonable accommodation will 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: <https://students.carleton.ca/course-outline/>

**Academic Integrity:**

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 co-operation or collaboration or completing work for another student—are a serious

academic offence, weaken the quality of the degree, and will not be tolerated. 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. 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/>

**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: <https://carleton.ca/csas/>

**Other Important Information:**

- Students must always retain a hard 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 email account. If you do not have or have yet to activate this account, you can do so by visiting <https://carleton.ca/its/get-started/new-students-2/>

**Covid-19 Information:**

It is important to remember that COVID is still present in Ottawa. The situation can change at any time and the risks of new variants and outbreaks are very real. There are [a number of actions you can take](#) to lower your risk and the risk you pose to those around you including being vaccinated, wearing a mask, staying home when you're sick, washing your hands and maintaining proper respiratory and cough etiquette.

**Feeling sick?** Remaining vigilant and not attending work or school when sick or with symptoms is critically important. If you feel ill or exhibit COVID-19 symptoms do not come to class or campus. If you feel ill or exhibit symptoms while on campus or in class, please leave campus immediately. In all situations, you must follow Carleton's [symptom reporting protocols](#).

**Masks:** Carleton has paused the [COVID-19 Mask Policy](#), but continues to strongly recommend masking when indoors, particularly if physical distancing cannot be maintained. It may become necessary to quickly reinstate the mask requirement if pandemic circumstances were to change.

**Vaccines:** Further, while proof of vaccination is no longer required as of May 1 to attend campus or in-person activity, it may become necessary for the University to bring back proof of vaccination requirements on short notice if the situation and public health advice changes. Students are strongly encouraged to get a full course of vaccination, including booster doses as soon as they are eligible, and submit their booster dose information in [cuScreen](#) as soon as possible. Please note that Carleton cannot guarantee that it will be able to offer virtual or hybrid learning options for those who are unable to attend the campus.

All members of the Carleton community are required to follow requirements and guidelines regarding health and safety which may change from time to time. For the most recent information about Carleton's COVID-19 response and health and safety requirements please see

the [University's COVID-19 website](#) and review the [Frequently Asked Questions \(FAQs\)](#). Should you have additional questions after reviewing, please contact [covidinfo@carleton.ca](mailto:covidinfo@carleton.ca).

**COURSE SCHEDULE**

Day	Topic/Agenda	Pre-class Prep

*(Please also include due dates of mid-terms, assignments, and other deliverables.)*

