



BUSI 2401 B&C: Introduction to Data Analytics

FALL 2026

Instructor	Ryan Nazari
Email Address	ryannazari@cunet.carleton.ca
Class Times	BUSI2401B Friday 8:35-11:25 BUSI2401C Thursday 11:35-14:25
Modality	In person
Zoom Office Hours	Friday 2:00pm – 4:00pm
TA	TBA

Pre-Requisites & Preclusions:

Prerequisites: BUSI 1401

Course Description/Instructor's Statement

Carleton Calendar Description (Find at <https://calendar.carleton.ca/undergrad/courses/BUSI/>)
This course prepares students to gather, manipulate, and clean data from a variety of sources within a programming environment. Students will be introduced to visual data exploration and the deployment of data-driven visual storytelling. Topics include: APIs, Data Science Programming, SQL, Relational/NoSQL databases, data visualization.

Course Learning Objectives:

1. Understand the different types of analytics and how they are applied to inform & solve complex business problems
2. Understand and implement the fundamentals of functional programming using a current programming language & environment
3. Manipulate & clean different types of data within a programming environment
4. Perform preliminary data analysis within a programming environment
5. Understand and apply the fundamentals of visual data discovery, including selecting appropriate chart types and representations and identifying trends and distributions.
6. Understand and apply the fundamentals of visual data deployment, including using pre-attentive attributes, designing and implementing dashboards, and effectively applying storytelling principles.

Required/Optional Materials & Prices

Technologies:

- Windows or Mac laptop (for in-class exercises)
- Python (included with Anaconda)
- Spyder Python IDE (included with Anaconda)
- Jupyter (Lab) Notebook (included with Anaconda)
- Tableau Desktop

I would recommend installing Anaconda on your machine. It is available here: <https://www.anaconda.com/>. If you can't, for whatever reason, Spyder and Jupyter are

available through VDI. You do not need to use VDI if you can install the above-mentioned software on your device. If you can't, for whatever reason, Spyder and Jupyter are available through VDI. Tableau also must be installed on your own machine <https://www.tableau.com/>. It is not available through VDI.

Readings:

Primary Reference | 0\$ Free Online

Runestone Academy

[Downey, A., Elkner, J., Severance, C. and B. Ericson et al. \(2021\). Python for Everybody – Interactive Edition.](#)

Secondary References | 0\$ Free Online

Runestone Academy

[Miller, B., Boggs, J., and J.L. Pearce \(2021\). How to Think like a Data Scientist. Second Edition.](#)

Other | 0\$ Free Online

- Wickham, H. . (2014). Tidy Data. *Journal of Statistical Software*, 59(10), 1–23.
- Ranjan, J. & C. Foropon (2021). Big Data Analytics in Building the Competitive Intelligence of Organizations. *International Journal of Information Management*. 56,
- Raghupathi, W., Raghupathi, V. (2021). Contemporary Business Analytics: An Overview. *Data*, 6(86).

Students are not required to purchase textbooks or other learning materials for this course.

Grading Scheme

In Class Exercises (10 ICEs)	20%
A1 (Python)	10%
A2 (Pandas)	15%
A3 (Visualization) – Group Assignment	10%
Midterm	20%
Final Exam	25%
TOTAL	100%

Important Dates to Note

Assignment 1	DUE By 11:59 PM the day before your scheduled class in Week 6
Midterm	Outside of Regular Class Time - TBA
Assignment 2	By 11:59 PM the day before your scheduled class in Week 10
Assignment 3	By 11:59 PM the day before your scheduled presentation class week 12
Final Exam	TBA

University Academic Calendar: <https://calendar.carleton.ca/academicyear/>

Policies & Accommodations

<https://students.carleton.ca/course-outline/>

<https://carleton.ca/pmc/current-students/academic-accommodations/>



Stay updated with important notifications and announcements from Carleton University, by downloading the Carleton University App!



Midterm and Final Exam:

E-proctoring service will be used for both midterm and final exams. The minimum computing requirements for e-proctoring service are as follows:

- Hardware: Laptop
- OS: Windows 10, Mac OS 10.14, Linux Ubuntu 18.04
- Internet Browser: Google Chrome, Mozilla Firefox, Apple Safari, or Microsoft Edge

Note: Chromebooks, tablets (Android, iOS, Windows), and smartphones are not supported by CoMaS at this time. You must complete your exams using Windows-based or MacOS computers.

Midterm

The midterm is two hours long and is scheduled by examination services outside of regular class time. It is mandatory for students to write the exam at the scheduled time unless a medical reason or extenuating circumstances (such as a death in the family, etc.) occur. Both aforementioned scenarios require documentation. In these scenarios, a deferred midterm must be written to pass the course. Deferred exams are written on **Mondays at 7:15 a.m.** If Monday is a statutory holiday, the deferred exam will be held on **Tuesday at 7:15 a.m.**

Final Exam

Scheduled during the University's regular final examination period. It is two hours long and is comprehensive, but more weight is given to the second half of the course.

Late Assignments:

Late submission will be penalized 20% of the deliverable grade per day (e.g., an assignment graded 8 marks will be penalized 1.6 marks per day) in cases without medical certificates. No late deliverables will be accepted 5 days after the stated deadline. Missing deliverables will receive a mark of 0 [zero], and there is no make-up assignment. Extensions may be granted in the case of exceptional circumstances such as verifiable illness and emergencies. You must discuss these circumstances with your instructor at least 24 hours (two days) before the assignment due date.

Please note that discussing the situation is not the same as merely informing your instructor.

Note: Please keep an electronic copy of every exercise and assignment you submit.

Deferred Examinations/Assignments:

If you wish to defer a **Formal Final Exam**, you – the student – must reach out to the registrar's office with the proper documentation prior to the deadline (please refer to <https://carleton.ca/registrar/deferral/> for dates). Once the request has been put through, your instructor will be notified for their approval. Your final exam will be formally scheduled. If you miss the deadline for applying for a deferral, please reach out to your instructor personally to discuss.

In the event that you are unable to write a midterm due to extenuating circumstances (such as a death in the family, illness, etc.), you must provide appropriate supporting documentation to your professor. Upon review, a deferred test may be offered. Please note that students who do not provide valid documentation or fail to offer a reasonable explanation for missing the midterm will receive a grade of 0% for that test.

Preparation and Participation:

The course is technically intensive and requires students to engage in an immersive, hands-on experience throughout the semester. While theoretical content is limited, students are expected

to complete the assigned readings before each class to build a solid understanding of the technical materials. This preparation is essential for meaningful participation and overall success in the course.

Use of Generative Artificial Intelligence:

This is a human-centered course. In this course, evaluation focuses on what you can do *without* AI assistance. While you are welcome to use AI tools to explore ideas, study, or clarify concepts, all submitted work must represent your independent thinking and original effort. Use AI for learning, not for producing graded submissions. Your understanding and reasoning—not AI output—will form the basis of assessment. Using AI for graded submissions constitutes an academic integrity violation.

Course Schedule:

Week		Topic / In class work & assignments	Readings
1	10 Sep	Course Administration / Introduction / Software Overview	
2	17	Python I: functions / input / print / ICE I	Chpt. 1; Chpt. 2; Chpt 5.1-5.3; 5.6-5.11
3	24	Python II: conditionals & looping / ICE II	Chpt. 4, 6
4	1 OCT	Python III: lists, tuples & dictionaries / ICE III	
5	8	Python IV: files, error handling / ICE IV	
		ASSIGNMENT #1 - DUE By 11:59 PM the day before your scheduled class in Week 6	
6	15	Pandas I: Introduction to Jupyter, Pandas and DataFrames/ Manipulating DataFrames / ICE V	<i>How to Think Like a Data Scientist</i> , Pandas' book, section5
7	22	Pandas II: Collecting Data from different sources / ICE VI	Pandas' book, section6
October 26-30		Fall break, no classes.	
8	5 NOV	PANDAS III: Pandas: Relational Database / SQL / ICE VII	
		MIDTERM EXAMINATION (outside of class time, TBD)	
9	12	PANDAS IV: Cleaning Data / ICE VIII	
		ASSIGNMENT #2 - DUE By 11:59 PM the day before your scheduled class in Week 10	
10	19	Visualization I / ICE IX	
11	26	Visualization II / ICE X	
12	3 Dec	Assignment #3 Presentations - DUE By 11:59 PM the day before your scheduled presentation class	

Contribution to Learning Goals of the Program ([BCom](#), [BIB](#)):

Program Learning Goal	Competencies Not Covered	Competencies Introduced (only)	Competencies Taught But Not Assessed	Competencies Taught and Assessed
BC1 Knowledge <i>Graduates will be skilled in applying</i>		✓		
<i>foundational business knowledge to appropriate business contexts.</i>				
BC2 Collaboration <i>Graduates will be collaborative and effective contributors in team environments that respect the experience, expertise and interest of all members.</i>	✓			
BC3 Critical Thinking <i>Graduates will be discerning critical thinkers, able to discuss different viewpoints, challenge biases and assumptions, and draw conclusions based on analysis and evaluation.</i>		✓		
BC4 Communication <i>Graduates will be effective and persuasive in their communications.</i>			✓	
B15 Global Awareness (BIB ONLY) <i>Graduates will be globally-minded.</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).

Required calculator in BUSI course 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 in the school for several reasons. They provide you with opportunities to develop and enhance interpersonal, communication, leadership, followership, 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 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

Carleton is committed to providing academic accessibility for all individuals. You may need special arrangements to meet your academic obligations during the term. The accommodation request processes, including information about the *Academic Consideration Policy for Students*



in Medical and Other Extenuating Circumstances, are outlined on the Academic Accommodations website (students.carleton.ca/course-outline).

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/wpcontent/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/wpcontent/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/wpcontent/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/newstudents-2/>