

### COURSE INFORMATION

Course title:	Business Analytics Programming		
Course code:	BAIT 508	Credits:	1.5
Session, term, period:	Class of 2022, Period 1	Class location:	HA 337
Section(s):	BA1	Class times:	M/W 2-4pm (make-up: Sep 10)
Course duration:	Sep 07 – Oct 09, 2021	Pre-requisites:	n/a
Division:	AIS (Information Systems)	Co-requisites:	n/a
Program:	MBAN		

### INSTRUCTOR INFORMATION

Instructor:	Gene Moo Lee, Ph.D.		
Phone:	604-827-4459	Office location:	See Canvas for Zoom link
Email:	<a href="mailto:gene.lee@sauder.ubc.ca">gene.lee@sauder.ubc.ca</a>	Office hours:	See Canvas for time

Teaching assistants: Myunghwan Lee, Xiaoke Zhang  
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### COURSE DESCRIPTION

BAIT 508 is an introduction to programming with an emphasis on the concepts and techniques most relevant to business analytics, particularly the analysis of large unstructured datasets. The unstructured nature of data makes it particularly challenging for companies to systematically collect, cleanse, manage, and analyze the data. The aim of this course is to acquaint students with Python programming language and its rich ecosystem for data processing, data visualization, and text analytics.

### COURSE FORMAT

We will use Zoom to have our classes during the scheduled class times. Class time will be used for a combination of recorded/live lectures, live programming, group/class discussions, and guest lectures. Attendance is expected to accomplish the learning objectives below. Lectures and discussions will assume that students having pre-read the corresponding materials as listed in the course schedule.

### LEARNING OBJECTIVES

By the end of this course, students will be able to:

1. Have working knowledge on Python data structures and program execution controls
2. Programmatically access data from flat files and APIs
3. Have working knowledge on basic data visualization and text analytics in Python
4. Describe concepts on data science management

### LEARNING MATERIALS

1. Slides and codes: [Dropbox link for slides, codes, and data](#)
2. Technology requirements: Laptop with Python 3 environment (e.g., [Anaconda](#), UBC Jupyter)
3. [Canvas](#): course management, announcement, assignments, grade posting
4. [DataCamp](#): online learning and assignments (**free access** will be provided by instructor)
5. [Piazza](#): online discussion forum (Let's not use email for Q&A)
6. Recommended books (but not required): [Introduction to Computing using Python](#), [Python for Data Analysis](#), [Data Science from Scratch](#)

## ASSESSMENTS

### Summary

<u>Component</u>	<u>Weight</u>
Programming Assignments	30%
DataCamp Assignments	15%
Exam	40%
Class Participation	15%
Total	<u>100%</u>

### Details of Assessments

#### Programming Assignments (30% = 15% x 2 assignments)

You will be given 2 sets of Python programming assignments, which should be conducted individually. All the works should be submitted electronically via UBC Canvas (not email attachment) by the due date and time specified in Canvas. Late submission will receive a score of zero (no exceptions). I take code plagiarism issues very seriously. Please refer to the details in the Academic Integrity section below.

#### DataCamp Assignments (15% = 5% x 3 assignments)

Learning programming requires a lot of hands-on practices. To provide a rich practice environment, the course will use [DataCamp](#), which is an online learning platform for data science. You will be assigned 3 DataCamp courses as assignments: (i) [Introduction to Python for Data Science](#), (ii) [Intermediate Python for Data Science](#), and (iii) [Data Science for Business](#).

#### Exam (40%)

There will be a final exam at the end of the course. You are responsible for everything that is covered in the classroom, including additional materials discussed in class. The exam will consist of multiple-choice questions and programming questions. Students are expected to write codes based on the specifications. The exams will be in open book and notes.

#### Class Participation (15%)

We all bring experience and knowledge into the classroom, and all class participants should share this and benefit by it. Effective class participation includes: (1) solving programming questions during the lecture, (2) asking significant questions about concepts, (3) sharing your experience or point of view with the class, and (4) building on points raised by others. The participation can be either in lecture or in Piazza (the online Q&A platform the class will use). Note that office hour visits are not counted as course participation. Piazza allows students to post questions (publicly, anonymously, and privately) and to answer questions from the peers. Providing thorough and clear answers and ideas on the Piazza discussion board will be considered when calculating your participation grade. We will consider both quantity and quality of the class participation. Rather than emailing questions to the instructor team, I encourage you to post your questions on Piazza. If you have any problems or feedback for the developers, email [team@piazza.com](mailto:team@piazza.com).

Find our class page at: <https://piazza.com/ubc.ca/winterterm12021/bait508ba12021w1/home>

## COURSE-SPECIFIC POLICIES AND RESOURCES

### *Missed or late assignments, and regrading of assessments*

Late submissions will not be accepted and will receive a grade of zero.

### *Academic Concessions*

If extenuating circumstances arise, please contact the RHL Graduate School program office as early as reasonably possible, and submit an [Academic Concession Request & Declaration Form](#) <https://webforms.sauder.ubc.ca/academic-concession-rhlee>. If an academic concession is granted during the course, the student will be provided options by RHL, or by the instructor in consultation with RHL, per [UBC's policy on Academic Concession](#).

### *Communication and feedbacks*

- For course related communication, please use Piazza (no emails!). For general questions that apply to the whole class, you can use create a public Piazza post publicly or anonymously (in this case other students do not know your identity). For private questions that only apply to yourself, you can create a private post in Piazza, which only instructors can see.
- TA and instructor will try the best to respond to your questions within one business day. Please note that business day does not include weekends and holidays.

### *Code Plagiarism*

Code plagiarism falls under the UBC policy for [Academic Misconduct](#). Students must correctly cite any code that has been authored by someone else or by the student themselves for other assignments.

Cases of "reuse" may include, but are not limited to:

- the reproduction (copying and pasting) of code with none or minimal reformatting (e.g., changing the name of the variables)
- the translation of an algorithm or a script from a language to another
- the generation of code by automatic code-generations software

An "adequate acknowledgement" requires a detailed identification of the (parts of the) code reused and a full citation of the original source code that has been reused.

Students are responsible for ensuring that any work submitted does not constitute plagiarism. Students who are in any doubt as to what constitutes plagiarism should consult their instructor before handing in any assignments.

## POLICIES APPLICABLE TO COURSES IN THE ROBERT H. LEE GRADUATE SCHOOL

### *Attendance*

Excepting extenuating circumstances, students are expected to attend 100% of their scheduled class hours. Absent students limit their own academic potential, and that of their classmates, and cause unnecessary disruption to the learning environment. Students missing more than 20% of the total scheduled class hours for a course (including classes held during the add/drop period) without having received an academic concession will be withdrawn from that course. Withdrawals, depending on timing, could result in a "W" or an "F" standing on the transcript.

### *COVID-19 Policies for Attendance & Academic Concessions:*

If a student feels unwell, they should stay home and send a courtesy email to each impacted instructor and cc their program manager. The student should also submit an [Academic Concession Request & Declaration Form](#).

If a student suspects possible Covid-19 infection, they should use the BC Ministry of Health's [self-assessment tool](#), to help determine whether further assessment or testing for COVID-19 is recommended.

If a student is required to self-isolate (e.g., while waiting for test results), they should follow the steps above (stay home, email instructor(s) and program manager, submit an [Academic Concession Request & Declaration Form](#), and follow BC Health Guidance.

Students who are required to quarantine, should get in touch with their Program Manager to discuss the possibility of academic concessions for each impacted course. The Program Manager will work closely with your instructors to explore options for you to make up the missed learning.

### *COVID-19 Safety in the Classroom:*

**Masks:** Masks are **required** for all indoor classes, as per the BC Public Health Officer orders. For our in-person meetings in this class, it is important that all of us feel as comfortable as possible engaging in class activities while sharing an indoor space. For the purposes of this order, the term "masks" refers to medical and non-medical masks that cover our noses and mouths. Masks are a primary tool to make it harder for Covid-19 to find a new host. You will need to wear a medical or non-medical mask for the duration of our class meetings, for your own protection, and the safety and comfort of everyone else in the class. You may be asked to remove your mask briefly for an ID check for an exam, but otherwise, your mask should cover your nose and mouth. Please do not eat in class. If you need to drink water/coffee/tea/etc, please keep your mask on between sips. Students who need special accommodation are asked to discuss this with the program office.

**Seating in class:** To reduce the risk of Covid transmission, please sit in a consistent area of the classroom each day. This will minimize your contacts and will still allow for the pedagogical methods planned for this class to help your learning.

Visit the following website for the most recent updates regarding Covid-19 protocol on campus: <https://students.ubc.ca/campus-life/returning-to-campus>

### *Punctuality*

Students are expected to arrive for classes and activities on time and fully prepared to engage. Late arrivals may be refused entry at the discretion of the instructor or activity lead. Students arriving later than halfway through a scheduled class will be treated as absent for that class.

### *Electronic Devices*

This is a programming course, and I encourage students to use their laptops or tablets to follow the course. However, please limit the usage to the course related activities. Cellphones are not permitted.

During lectures, students are not permitted to use any electronic devices other than the primary one used for attending the online lecture (e.g. laptop or desktop). Only Zoom should be open during the online lecture unless an instructor advises the use of another program/website for an in-class activity. Feedback from students indicates that personal devices are the number one distraction from effective learning and participation in the online learning environment.

### *Citation Style*

Please use the American Psychological Association (APA) reference style to cite your sources.

Details of the above policies and other RHL Policies are available at:

<http://www.calendar.ubc.ca/vancouver/index.cfm?tree=12,199,506,1625>

### UNIVERSITY POLICIES AND RESOURCES

UBC provides resources to support student learning and to maintain healthy lifestyles but recognizes that sometimes crises arise and so there are additional resources to access including those for survivors of sexual violence. UBC values respect for the person and ideas of all members of the academic community. Harassment and discrimination are not tolerated nor is suppression of academic freedom. UBC provides appropriate accommodation for students with disabilities and for religious observances. UBC values academic honesty and students are expected to acknowledge the ideas generated by others and to uphold the highest academic standards in all of their actions. Details of the policies and how to access support are available on the UBC Senate website at <https://senate.ubc.ca/policies-resources-support-student-success>.

### *Respect for Equity, Diversity, and Inclusion*

The UBC Sauder School of Business strives to promote an intellectual community that is enhanced by diversity along various dimensions including status as a First Nation, Metis, Inuit, or Indigenous person, race, ethnicity, gender identity, sexual orientation, religion, political beliefs, social class, and/or disability. It is critical that students from diverse backgrounds and perspectives be valued in and well-served by their courses. Furthermore, the diversity that students bring to the classroom should be viewed as a resource, benefit, and source of strength for your learning experience. It is expected that all students and members of our community conduct themselves with empathy and respect for others.

### *Academic Integrity*

The academic enterprise is founded on honesty, civility, and integrity. As members of this enterprise, all students are expected to know, understand, and follow the codes of conduct regarding academic integrity. At the most basic level, this means submitting only original work done by you and acknowledging all sources of information or ideas and attributing them to others as required. This also means you should not cheat, copy, or mislead others about what is your work.

Specifically, this course has programming assignments. In the world of Internet, it can be tempting to copy and paste the codes. But I take code plagiarism issues very seriously. Copying code or data (either fully or partially) is considered as academic dishonesty. If you use open source codes in the assignments, you should put an appropriate reference to it (e.g., URL) and respect the appropriate software license (e.g., GLP, MIT, Apache, etc.). If you are not sure about the boundary, please contact the instructor.

Violations of academic integrity (i.e., misconduct) lead to the breakdown of the academic enterprise, and therefore serious consequences arise and harsh sanctions are imposed. For example, incidences of plagiarism or cheating may result in a mark of zero on the assignment or exam and more serious consequences may apply if the matter is referred to the President's Advisory Committee on Student Discipline. Careful records are kept in order to monitor and prevent recurrences.

*Academic Freedom and Students Studying from Outside Canada*

During this pandemic, the shift to online learning has greatly altered teaching and studying at UBC, including changes to health and safety considerations. Keep in mind that some UBC courses might cover topics that are censored or considered illegal by non-Canadian governments. This may include, but is not limited to, human rights, representative government, defamation, obscenity, gender or sexuality, and historical or current geopolitical controversies. If you are a student living abroad, you will be subject to the laws of your local jurisdiction, and your local authorities might limit your access to course material or take punitive action against you. UBC is strongly committed to academic freedom, but has no control over foreign authorities (please visit <http://www.calendar.ubc.ca/vancouver/index.cfm?tree=3,33,86,0> for an articulation of the values of the University conveyed in the Senate Statement on Academic Freedom). Thus, we recognize that students will have legitimate reason to exercise caution in studying certain subjects. If you have concerns regarding your personal situation, consider postponing taking a course with manifest risks, until you are back on campus or reach out to your academic advisor to find substitute courses. For further information and support, please visit: <http://academic.ubc.ca/support-resources/freedom-expression>

**COPYRIGHT**

All materials of this course (course handouts, lecture slides, assessments, course readings, etc.) are the intellectual property of the instructor or licensed to be used in this course by the copyright owner. Redistribution of these materials by any means without permission of the copyright holder(s) constitutes a breach of copyright and may lead to academic discipline and could be subject to legal action. Any lecture recordings are for the sole use of the instructor and students enrolled in the class. In no case may the lecture recording or part of the recording be used by students for any other purpose, either personal or commercial. Further, audio or video recording of classes are not permitted without the prior consent of the instructor. Students may not share class Zoom links or invite others who are not registered to view sessions.

**ACKNOWLEDGEMENT**

UBC's Point Grey Campus is located on the traditional, ancestral, and unceded territory of the xwməθkwəyəm (Musqueam) people, who for millennia have passed on their culture, history, and traditions from one generation to the next on this site.

### ONLINE TEACHING TOOL & REQUIREMENTS

This course might be taught using Zoom for synchronous classes and office hours.

For this course, you might be required to use a Zoom account during synchronous classes and office hours. If you do not have a Zoom account, you can create one here: <https://zoom.us/signup>. Note: creating a Zoom account requires that you provide a first name, last name, and email address to Zoom. For privacy purposes, you may consent to using your existing email address and your real name. Alternatively, if you prefer, you may sign up using an alternative email address and an anonymized name that does not identify you (i.e. Jane Doe, [jane.doe@email.com](mailto:jane.doe@email.com)). If you have trouble creating an account, or accessing a Zoom session, please contact [CLCHelp@sauder.ubc.ca](mailto:CLCHelp@sauder.ubc.ca). You will be required to provide the email address associated with your Zoom account in a Canvas quiz for identification purposes.

To help replicate the classroom experience, make sessions more dynamic and hold each person accountable, both students and instructors are required to have their cameras on during Zoom sessions. Students who require an accommodation with regard to the “camera on” requirement must contact their instructors in advance of the first class to discuss options. As professional graduate students, students are expected to conduct themselves professionally by joining sessions on time, muting mics when not speaking, refraining from using any other technology when in-session, attending in business casual dress (at a minimum), and participating from a quiet environment. Content from synchronous sessions will be selectively recorded per instructor discretion and made available to students on Canvas for a maximum duration of the course length. This is done to allow students the opportunity to return to lecture content to solidify learnings.

**COURSE SCHEDULE**

(Subject to change with class consultation)

Class	Date	Topic	Readings or Activities	Assessments Due*
0 (opening week)	08/31 (Tue)	Hello Python Lists	Slides and codes in Dropbox	
1	09/08 (Wed)	Course introduction Functions, methods, packages		DA#1, #2, #3 open
2	09/10 (Fri)	Numpy arrays Data Visualization with Matplotlib		
3	09/13 (Mon)	Dictionaries, Pandas dataframes Logic, control flow, filtering		<b>DA#1 due 09/12</b>
4	09/15 (Wed)	For/While Loops User-defined functions		
5	09/20 (Mon)	Loop patterns, more control flows Mid-review & exercises		<b>DA#2 due 09/19</b>
6	09/22 (Wed)	Pandas foundations (Guest Lecture) Exploratory data analysis		PA#1 open 09/22
7	09/27 (Mon)	Import data from flat files Import data from web and API		<b>DA#3 due 09/21</b>
8	09/29 (Wed)	Word cloud, sentiment analysis TF-IDF, named entity recognition		PA#2 open 09/29
9	10/04 (Mon)	Data science concepts (Data collection, analysis, prediction)		<b>PA#1 due 10/03</b>
10	10/06 (Wed)	Final Review		
Final Exam	TBD (10/11-10/15)	Online Final Exam (Multiple choices, programming)		<b>PA#2 due 10/10</b>

\* DA: DataCamp Assignment, PA: Programming Assignment