

COURSE INFORMATION

| | | | |
|-------------------|--|-----------------|--|
| Course title: | Fundamentals of Analytics & Technology | | |
| Course code: | BA 515 | Credits: | 1.5 |
| Session and term: | 2024S1 | Class location: | HA 132 |
| Section(s): | 300 | Class times: | Saturdays 8:30am-4:00pm June 8, July 6 & 20 |
| Course duration: | June 8 – August 11, 2024 | Pre-requisites: | n/a |
| Division: | AIS (Information Systems) | Co-requisites: | n/a |

INSTRUCTOR INFORMATION

| | | | |
|-------------|--|------------------|----------------|
| Instructor: | Mi Zhou, Ph.D. | | |
| Phone: | 604.827.0918 | Office location: | HA 374 |
| Email: | mi.zhou@sauder.ubc.ca | Office hours: | by appointment |

Teaching assistants: Xiaoke Zhang (xiaoke.zhang@sauder.ubc.ca), Seldon He (hschieh@student.ubc.ca)
Office hours: See Canvas for time and Zoom link
Contact: [Piazza](#) discussion board

COURSE DESCRIPTION

BA 515 is an introduction to business analytics and technology. There are two goals. First, we introduce the fundamental concepts of analytics and technology platforms (e.g., big data, mobile, cloud, AI, machine learning) and their implications to business and society. Second, we provide hands-on coding experiences to acquaint students with Python and its rich ecosystem for AI and data analytics.

COURSE FORMAT

Class time will be used for a combination of lectures, live programming, and discussions. Lectures and discussions will assume that students having read the materials before class.



LEARNING OBJECTIVES

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

1. Explain the concepts of data analytics and the implications to business
2. Explain the technology platforms and their implications to business
3. Have coding literacy with hands-on experiences on Python programming
4. Have data and AI literacy with basic data visualization and business analytics in Python

SUSTAINABLE DEVELOPMENT GOALS (SDGS)

At UBC Sauder, we are committed to responsible business practices that can have transformative impacts on society. One of the ways we are reinforcing our commitment to responsible business is by showcasing relevant content in our courses via the lens of the [United Nations Sustainable Development Goals](#). In this course, we will touch on topics that relate to the following goals:

| Sustainable Development Goal | Description of how and when the goal is covered in the course. |
|---|--|
| <p>Goal 9: Industry, Innovation and Infrastructure</p>  | <p>Throughout the course, students will learn how to conduct various data analytics tasks, which are essential in enabling innovation and improving technology infrastructure. In the final group project, students will use the data analytics tools they learned in the course to conduct various industry analyses.</p> |
| <p>Goal 10: Reduce Inequality</p>  | <p>This course covers topics on AI, machine learning, and generative AI, including their advantages as well as potential biases. We will discuss possible strategies to mitigate such AI biases so that AI does not amplify inequality and hopefully reduce it.</p> |

LEARNING MATERIALS

1. Technology requirements: Laptop with Python 3 environment (e.g., [Anaconda](#), [UBC Jupyter](#))
2. [Canvas](#): course management, announcement, slides, code, assignments, grade posting
3. [DataCamp](#): online learning and assignments (**free access** will be provided by instructor)
4. [Piazza](#): online discussion forum (Let's not use email for Q&A)

ASSESSMENTS

Summary

| <u>Component</u> | <u>Weight</u> |
|---------------------|--------------------|
| DataCamp assignment | 15% |
| Book review | 25% |
| Group project | 25% |
| Final exam | 25% |
| Class participation | <u>10%</u> |
| Total | <u>100%</u> |

Details of Assessments

DataCamp Assignment (15%)

Learning programming requires a lot of hands-on practices. To provide a rich practice environment, you will be provided a free, unlimited access to [DataCamp](#) for 6 months. You will be assigned one DataCamp course as an assignment. Please see Canvas for the details.

Book Review (25%)

Among the [recommended list](#), you will select a book, read it, and write a book review. The following questions can be the guideline of your book review: Why did you select this book? Write a brief summary of the book. What did you learn from the book? Did you get a new idea from this? More detailed rubric will be given in Canvas.

Group Project (25%)

There will be one group project on social media analysis. Details, including submission guidelines, will be posted on Canvas. The class will be divided into groups of three or four. You are free to choose your own group. We may use iPeer to conduct peer-reviews, which results can be used to give differential marks for individuals. Please consult with the instructor team on any group related issues.

Exam (25%)

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. For some questions, students are expected to write codes based on the specifications.

Class Participation (10%)

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, (3) sharing your 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. Instructor team does not accept course-related questions via emails, so please post your questions on Piazza. If you have any problems or feedback for the developers, email team@piazza.com.

Find our class page at: <https://piazza.com/ubc.ca/summer2024/ba515/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](#). 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

1. 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.

2. 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.
3. I expect you to keep professionalism and respect when communicating with your instructor, TA, and peers. Especially, I expect the same level of respect when you interact with the TA.

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.

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

Devices such as laptops, tablets, and cell phones are not permitted to be used in class unless directed by the instructor for in-class activities. Students who do not follow the School's policy in this regard may be required to leave the room for the remainder of the class, so that they do not distract others. Research shows that students' use of laptops in class has negative implications for the learning environment, including reducing their own grades and the grades of those sitting around them.

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 Indigeneity (including identification as First Nation, Métis, or Inuit), 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. 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.

Use of Artificial Intelligence

Generative AI Permitted Where Specified With Attribution

For this course, students may use generative artificial intelligence (AI), including ChatGPT, for specific assessments or coursework, where it is expressly specified by the instructor. In these cases of permitted use, students must disclose any use of AI-generated material as per the assessment guidelines. At a minimum, this will include proper attribution, including in-text citations, quotations and references.

Citation of Generative AI

Style guides have been updated to include citation of generative artificial intelligence (AI), including the [APA Style Guide](#). Your in-text citation and bibliographic citation of AI should follow the APA Style Guide.

To confirm, in addition to following the APA style guide for in-text and bibliographic citation, please include:

- If you quote, paraphrase or use the full output that was generated by AI (for an example, see [here](#)):
 - o Any prompt(s) used to generate content
 - o As an appendix, the original output (e.g., in the form of a full transcript or chat log) of the AI
- If you use but do not quote or paraphrase the AI (for an example, see [here](#)):
 - o A general statement in the text as to how you used the AI

As an appendix, the original output (e.g., in the form of a full transcript or chat log) of the AI

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.

ACKNOWLEDGEMENT

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

COURSE SCHEDULE

(Subject to change with consultation)

| Class | Module | Time | Topic | Assessments due |
|------------------------------|-------------|---------------------------------|---|--------------------------------------|
| Saturday June 8, 2024 | | 8:30-9:00 | Orientation | |
| | 1 | 9:00-10:30 | [Lecture] Course introduction | Reading list: link |
| | 2 | 10:30-12:00 | [Hands-on] Hello Python | |
| | | 12:00-13:00 | Lunch break | |
| | 3 | 13:00-14:30 | [Lecture] Business Analytics | Reading list: link |
| | 4 | 14:30-16:00 | [Hands-on] Data visualization | |
| Saturday July 6, 2024 | | | | Assignment (due June 30 at 11:59pm) |
| | 5 | 8:30-10:00 | [Lecture] Algorithms & Platforms | Reading list: link |
| | 6 | 10:00-11:00 | [Hands-on] string, list | |
| | | 11:00-12:00 | [Hands-on] logic, if condition | |
| | | 12:00-13:00 | Lunch break | |
| | 7 | 13:00-14:00 | [Hands-on] for loop | Group Project open |
| | 14:00-15:00 | [Hands-on] Pandas Data Analysis | | |
| | 8 | 15:00-16:00 | [Lecture] AI in Business and Society | Reading list: link |
| Saturday July 20, 2024 | | | | Book review (due July 19 at 11:59pm) |
| | 9 | 8:30-10:00 | [Lecture] Generative AI: Applications and Biases | Reading list: link |
| | 10 | 10:00-11:00 | [Industry Panel Discussion] Dialogue with guest speakers from diverse backgrounds and perspectives on analytics and technology. | |
| | | 11:00-12:00 | | |
| | | 12:00-13:00 | Lunch break | |
| | 11 | 13:00-14:30 | [Hands-on] Project workshop | |
| | 12 | 14:30-16:00 | Final Review | |
| TBD | | | Exam | Group Project (due Aug 9 at 11:59pm) |