THE UNIVERSITY OF HONG KONG
HKU BUSINESS SCHOOL

MSBA7001 Business Intelligence and Analytics
Subclasses ABCD, 2024-25, Module 1

General Information

Instructor:	Dr. DING Chao (丁超)
Email address:	chao.ding@hku.hk
Office location:	KK807
Consultation times:	by appointment
Teaching Assistant:	TBA
Pre-requisites:	Topics covered in the boot camp.
Course Website:	Moodle

Course Description

Online transactions, mobile applications, Internet of things (IoT) devices, and social media generate massive amounts of data that is crucial for business operations and strategy. Accordingly, businesses increasingly need to know how to capture and analyze such data to gain managerial and strategic insights that will improve their competitive position. This course is fundamentally about where various sources of data come from; how to pull it and transform it; how to analyze it through basic data mining, data visualization, and basic analytics techniques; ethical issues of data scraping and data mining; and how to gain original insights from such analyses. Hands-on technical skill development will strongly focus on using Python programming for data scrapping, data mining, and data analytics. Students will also learn the basics of data visualization and reporting. This course will set the foundation for other courses in which the student will be expected to find, clean, and use original data, and where more advanced forms of analytics will be introduced.

Course Objectives

1. Become proficient in the basics of programming and associated algorithms and libraries for data manipulation, data mining, data munging, data scraping, and business analytics.
2. Learn the basics of data visualization and reporting.
3. Develop skill set of solving different kinds of unexpected data mining and data analytics problems.

Textbooks

1. Charles R. Severance. *Python for Everybody: Exploring Data in Python 3*
   Free access: https://www.py4e.com/book
2. Wes McKinney. *Python for Data Analysis: Data Wrangling with pandas, NumPy & Jupyter*
   Free access: https://wesmckinney.com/book/

Programme Learning Outcomes (PLO)		
PLO1: Acquisition and internalization of knowledge of the programme discipline PLO2: Application and integration of knowledge PLO3: Inculcating professionalism and leadership PLO4: Developing global outlook PLO5: Mastering communication skills		
Course Learning Outcomes (CLO)		**Aligned PLOs**
CLO1	Students will become fully proficient in Python programming for data analysis and analytics, including a conceptual and operational understanding of object oriented programming.	1
CLO2	Students will be exposed to and used to many of the advanced Python libraries for data analytics and manipulation, and will learn how to build their own libraries without aid.	1
CLO3	Students will have hands-on skills with data visualization and reporting.	1 & 2
CLO4	Students will learn where to find original data on the Web and how to access it through APIs and to scrape it through Python. They will likewise learn ethical issues involved in data scraping and data mining.	1 & 3
CLO5	Students will learn how to transform, clean up, and conduct data-munging for a wide variety of messy real-world data using Pandas, so that it can be analyzed via advanced analytics in Python.	1 & 2
CLO6	Students will be encouraged to solve unexpected analytics problems in a creative yet logically disciplined manner using Python and data science skills, and to communicate their ideas with their classmates and instructor.	2, 3 & 5
CLO7	Students will demonstrate professionalism and originality in finding an interesting real-world problem of global importance (e.g., healthcare, security, business, social media) that they attempt to solve with original analytics methods that they apply through a full application of Python and other tools.	2, 3, 4 & 5

Course Teaching and Learning Activities (T&L)	Expected contact hours	Study load (% of study)
T&L1. Interactive lectures and discussions	25	29%
T&L2. In-class exercises	5	6%
T&L3. Assignments	15	18%
T&L4. Course readings	25	29%
T&L5. Self-study and self-training	15	18%
Total	85	100%

Assessments	Brief Description	Weights	Aligned CLOs
A1. Assignments	Multiple take-home assignments.	70%	1 to 7
A2. Final exam	One computer-based final examination.	30%	1 & 6
	Total	100%	

Course Grade	Grade Descriptors
A+, A, A-	The student is able to apply all the methods learned in the course to new, unexpected situations, independently and in a novel manner that goes beyond expectations of a good student. Student has achieved an impressive mastery of course content.
B+, B, B-	The student is able to apply the methods learned in the course, but only under partial guidance. Student has achieved a basic mastery of course content, and thus meets expectations.
C+, C, C-	The student understands conceptually most of the methods learned, but cannot apply them all, even under guidance. Performance is that of an average student and content knowledge is that of a novice, which is below expectations.
D+, D	The student has shown some effort but has a highly limited understanding of course content. Performance and content knowledge are poor and not to the level expected for a future data analytics professional.
F	The student has shown little effort or understanding toward course content. Performance and content knowledge are completely unacceptable.

Course Policies

1. Final exam is not to be missed unless under exceptional circumstances.
2. Strictly observe program policies regarding class attendance and participation.
3. Plagiarism and copying of copyright materials are serious offences and may lead to disciplinary actions. For details concerning plagiarism, please refer to: http://www.hku.hk/plagiarism/page2s.htm
4. Late penalty of assignments: 30% deduction for any late submission within 24 hours, 60% deduction for one day overdue, and no grades for any submission after 48 hours.

Means/Processes for Student Feedback on Course

x conducting mid-module survey

x online participation in SETL around the end of the module

Tentative course schedule		
Session	**Topics**	**Readings**
1	Course Overview Managing Data I	Severance – Ch. 11
2	Managing Data II	McKinney – Ch. 4, 5, 6, 7, 9
3	Managing Data III	McKinney – Ch. 4, 5, 6, 7, 9
4	Web Scraping I	Severance – Ch. 12
5	Web Scraping I	Severance – Ch. 12
6	Web Scraping II	Severance – Ch. 13
7	Web Scraping III	
8	Data Visualization I	
9	Data Visualization II	
10	Data Visualization III The Finale	McKinney – Ch. 8
Final Exam	Time: 19:00 – 21:00, Oct. 10 (Thursday) Venues: LT104, ABC, EFG, H, A205-1&2	