

University of Massachusetts at Boston, College of Management

MSIS 415 Advanced Coding for Analytics

Instructor: Guotian Kan E-Mail: Guotian.Kan001@umb.edu

Schedule: **Thursday, 5:30 – 8:15 pm**

Location: **McCormack M01-0410**

Office Hours: TBA via Zoom – See Canvas Update for schedule and zoom link

I Course Materials

Recommended textbooks (NONE required):

1. M. Urban and J. Murach. [*Murach's Python Programming*](#), 2nd ed. Mike Murach & Associates. 2021. (ISBN: 978-1-943872-74-9)
2. S. McCoy. [*Murach's Python for Data Analysis*](#), Mike Murach & Associates. 2021. (ISBN: 978-1-943872-76-3)
3. W. McKinney. [*Python for Data Analysis: Data Wrangling with Pandas, NumPy, and IPython*](#), 3rd Edition. O'Reilly Media. 2022. (ISBN: 9781098104030)

II Course Description

Coding has become one of the most important skills for jobseekers, not only for technical positions in IT companies but also for business disciplines: An increasing number of businesses are seeing values in data and seeking talents for data analytics. This course aims to address both skills by focusing on data processing and analysis programmatically – how to write codes to implement data pre-processing, machine learning models, predictive analysis, and visualization etc. Useful packages (e.g., NumPy and Pandas in Python) that are closely related to analytics will be introduced to equip students with necessary toolkits for analyzing data. The course is designed to familiarize students with coding for the purpose of data analytics.

The semester will conclude with a final project that allows the students to demonstrate their understanding of the course.

III Competency Goals

This course focuses on fulfilling the competency goals of *Demonstrate proficiency in analytical tools and techniques used to support business decision-making* and *Apply appropriate analytical methods to develop solutions to business problem*, *Develop a critical understanding of the technical foundation of information systems to support day-to-day business operation*, and *Apply critical thinking and analytical competence to complex business problems* for undergraduate business programs.

IV Course Format

The pedagogical strategy for the course this semester is to combine self-learning, instructor-led discussions, self-practices, paired work, assignments, and group project. Students will be in the center of the learning! *You are encouraged to skim reading assignments, try the sample codes, start (and even finish) the assignment **before** the class meetings.*

If you have a laptop computer, you are strongly encouraged to bring it with you to class so that you may try the sample codes as we move along throughout the class discussions.

V Course Website

We will make **EXTREMELY extensive** use of CANVAS dedicated to this course, which is hosted on <https://umb.umassonline.net>

From there you will have access to this syllabus, assignments, e-mailing the professor, links to companion websites, connecting with your teammates and other students, etc. You can also check your grades there.

This course website is **the most** important channel through which we communicate with each other. It is imperative that you get access to it and familiarize yourself with it as soon as possible.

Please note that you are expected to submit all your assignments through the course website.

VI Evaluation

There will be quizzes, assignments, and group projects. The weighting of these for determining the final grade will be as follows:

Evaluation Items	Individual/Group	Weight
Assignments	Individual	60%
Class Attendance / Participation	Individual	10%
Group Project Stage 1	Group	10%
(Final) Group Project Stage 2	Group	20%
Total		100%

Your final letter grades will be adjusted to reflect both your own performance and your position in the class. Please note that there will be no “incomplete” given out.

All submissions in this course must be made electronically through the course website. *Students should be aware that, at the discretion of the instructor, submissions may be submitted to plagiarism detection software programs for the purpose of detecting possible plagiarism.*

Lecture Video Recording: You may have access to lecture videos recorded through the classcapture system. Note that this is a courtesy, *not* a promise. Neither the quality nor the availability of such video is guaranteed.

Class Meeting Preparation: Each week, you will have access to video presentation, slides, and sample codes prior to class meeting. You are expected to go over all the materials, especially if you are not familiar with the content that is to be discussed, *before* the class meeting, as we will not cover the details of the materials as in typical classes.

Assignments: All assignments are **individual** work. Discussion and collaboration are encouraged. Copying and cheating will be punished. Examples of collaborations include discussing work on assignments, helping explain concepts and ideas, coding collectively, and checking answers.

Please see VI for more information. To submit your assignment, please upload your submission through the course website.

Due to the flipped format of this class, ***you are encouraged to start your assignment before the class.*** The deadline for assignments after class meetings for this class may be tighter than usual.

Please pay particular attention to the deadlines (which you can find through the course website).

Late submission within 24 hours after the deadline will be accepted with 50% penalty.

Submission will be cut off 24 hours past the deadline. **Submissions will NOT be accepted, nor be graded, after the cut-offs.** The only exceptions are for medical or family emergencies. In those cases, please contact me as soon as possible, preferably *before* the deadline. Excuses such as "my computer crashed last night," or "I lost my Internet connection right before I submit my work" won't be accepted. So, plan your time to work on the assignments accordingly.

Group Project: Details will be provided in separate handouts.

Grading and returning your assignments and quizzes: We will try our best to finish grading your assignments within one week after they are collected. In the rare cases of delays, they will be announced on course website. You can check the grades and/or comments through the course website.

If you believe there is a mistake in your grading, feel free to ask for a double-check.

However, you can only do so within 7 calendar days since your exam/assignment is returned to you, and you have to appear in my office in person (or show your face in Zoom) to do so.

Class attendance: ***Attendance to the class meeting is required*** and will be taken in every class.

The University expects students to attend all regularly schedule class meetings because attendance and participation in classes are fundamental parts of the learning process and key factors in academic success. We require attendance at the scheduled time also to maximize the chance that you will and can meet your teammates to discuss your group projects.

Absences for any reasons should be discussed with the instructor as soon as possible, preferably in advance. Certain absences, such as those due to medical issues, may be excused provided appropriate notice and documentation are provided. For details, see:

<https://www.umb.edu/registrar/policies/attendance>

Online participation: *You are expected to participate in the online discussions through the course website and contribute to both your own and your classmates' learning.* Online participation will be graded based on the quantity, quality, and consistency of your postings.

Extra credits: There will be no opportunity for extra credits.

Incomplete grade: There will be **NO** INC assigned for this class.

VI Administrative Notes

1. **Students with Disabilities:** UMass Boston is committed to creating learning environments that are inclusive and accessible. If you have a personal circumstance that will impact your learning and performance in this class, please let me know as soon as possible, so we can discuss the best ways to meet your needs and the requirements of the course. If you have a documented disability, or would like guidance about navigating support services, contact the Ross Center for Disability Services by email (ross.center@umb.edu), phone (617-287-7430), or in person (Campus Center, UL Room 211). To receive accommodations, students must be registered with the Ross Center and must request accommodations each semester that they are in attendance at UMass Boston. For more information visit: www.rosscenter.umb.edu. Please note that the Ross Center will provide a letter for your instructor with information about your accommodation only and not about your specific disability.
2. **Academic Support:** Information about tutoring and other services available to students can be found at <http://www.academicssupport.umb.edu/>.
3. **Academic Integrity and Student Code of Conduct:** Education at UMass Boston is sustained by academic integrity. Academic integrity requires that all members of the campus community are honest, trustworthy, responsible, respectful, and fair in academic work at the university. As part of being educated here, students learn, exercise, increase, and uphold academic integrity. Academic integrity is essential within all classrooms, in the many spaces where academic work is carried out by all members of the UMass Boston community, and in our local and global communities where the value of this education fulfills its role as a public good. Students are expected to adhere to the Student Code of Conduct, including policies about academic integrity, delineated in the University of Massachusetts Boston Graduate Studies Bulletin, Undergraduate Catalog, and relevant program student handbook(s), linked at www.umb.edu/academics/academic_integrity.
4. **Plagiarism is bad.** Know that plagiarism in MSIS615 includes copying someone else's codes and claiming them as your own, submitting codes from other sources that you don't truly understand, or collaborating excessively with another person or persons but claiming the work as solely your own. If you are unclear about what constitutes plagiarism, please see me for an explanation. Plagiarism on any assignment will, at minimum, result in an "F" for the assignment and will be reported to the University. *I reserve the right to pursue further disciplinary action if appropriate.* I strongly recommend you maintain a record of the preparation of their assignments (e.g., intermediary versions of your codes).
All assignments are designed to reinforce your learning from this class. They can be solved with materials discussed in class. You are encouraged to explore what's not covered in this class but **discouraged to use them for your assignments**. Should you decide to use any materials not discussed in class for your assignments, you must indicate references to the

source of the materials (e.g., the webpage that informs your coding) using comments in your codes. *We may deduct points for unnecessary use of beyond-the-class materials for assignments.*

Similarly, the group project is also designed to both reinforce your learning and to train your ability in using Python to solve real-world problems. You can use beyond-the-class materials for your group project based on what you have learned from this class. Again, you must indicate references to the source of the materials (e.g., the webpage that informs your coding). See the Group Project Instruction for more information on this.

5. **Health, Wellbeing, and Success:** UMass Boston is a vibrant, multi-cultural, and inclusive institution committed to ensuring that all members of our diverse campus community are able to thrive and succeed. The university provides a wide variety of resources to support students' overall success. As we continue to deal with the evolving impacts of the COVID-19 pandemic, these resources are more important than ever.
 - Are you in emotional distress? Call 617.287.5690 to speak with a licensed clinician 24/7 who can offer support, crisis recommendations, and assistance with finding resources.
 - Have a campus question or issue? Use Here4U in the UMass Boston app or via www.umb.edu/here4U.
 - Want advice in navigating a university or life situation? Contact the Dean of Students Office at www.umb.edu/deanofstudents.
 - Want to connect with housing and food insecurity support, student life groups and events, or recreation activities? Visit www.umb.edu/life.
 - Want to access resources specifically for immigrant-origin, DACA, TPS, and undocumented students? Visit www.umb.edu/immigrant.
 - Looking for additional identity-based community support? Find more resources at www.umb.edu/identity-support
 - Want to make the most of your academic experience? Visit www.umb.edu/academics/vpass/academic_support.
 - Unable to attend class on a specific date or participate in an exam or class requirement due to a religious observance? Fill out the excused absence form (requires 2-weeks' notice) to request religious accommodation at www.umb.edu/religiousabsence.

VII Detailed Schedule

The schedule is tentative in nature. It will depend on the actual progress of the class. Please check the course website frequently for updates and note the exact due dates for assignments and project milestones.