BDI 475

Gies College of Business

Introduction to Data Analytics Applications in Business
Syllabus Version 2022.01.14

Course Information ●

Course Number

BDI 475

Credit

3 Hours

Instructor

Park, Ye Joo

Term

Spring 2022

Class Time & Location

Tues & Thurs 12:30-1:50 PM

226 Wohlers Hall

About the Course

You will work with the fundamental tools of data analysis including the Python programming language, SQL, and Tableau. The goals of this course are to become comfortable working with data, communicate insights, and **make better business decisions**.

Course Website

https://www.bdi475.org/

Learning Objectives •

Upon completing this course, you should be able to...

Identify business problems	→
Find relevant datasets	→
Load and clean datasets	→
Transform data	→
Perform descriptive analytics	→
Present your findings	→
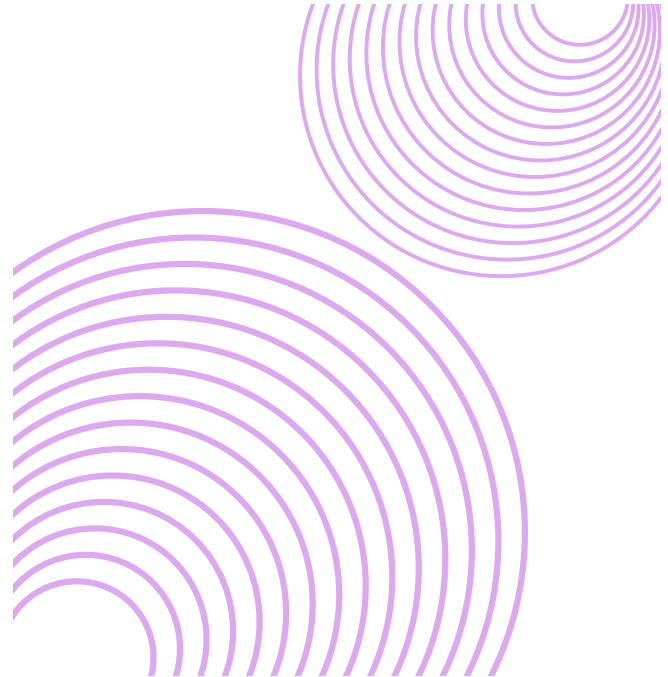
Major Topics

Python Programming	→
Pandas	→
Structured Query Language (SQL)	→
Data Visualization using Plotly and Tableau	→
Descriptive Statistics	→

Weekly Topical Outline ●

Week	Topic 1	Topic 2
01	Course Overview	Intro to Python
02	Variables and Data Types	Conditionals
03	Course Overview	Intro to Python
04	Loops	Collections and Strings
05	String Methods	Intro to Functions
06	Functions (cont'd)	Intro to Pandas
07	Filter / Sort Data	Filter / Sort Data (cont'd)
08	Column Operations	Aggregation (Groupby)
09	Workday	Merges
10	Pandas Wrap-up	Intro to SQL
11	More Queries	Joins
12	Intro to DataViz	DataViz (cont'd)
13	Advanced DataViz	Intro to Tableau
14	Tableau (cont'd)	Advanced Tableau
15~	Capstone Project	

Prerequisites •

Although we do not require any formal prerequisites, a basic understanding of statistics will be helpful.

No programming experience is required. This course will be a great opportunity to get lots of coding exercises.

A laptop or a desktop with at least 4GB of RAM is required.

Instructional Team •

Ye Joo Park
Course Instructor

Instructor of Accountancy
UI-Deloitte Center Fellow

Greetings! Please call me "Park". I started programming as a hobby in elementary school. During my final year as an accounting major here, I've made up my mind to pursue what I love to do! Fast-forward to 2021, I'm back to my alma mater to be a part of a leading-edge data analytics curriculum.

Sandip Sonawane
Teaching Assistant

I am pursuing a Master's Degree in Statistics-Analytics at UIUC. In my previous role at Eaton Research Labs, I had an extensive range of responsibilities including selecting features, mining data, improving data collection techniques, processing data, optimizing classifiers, and doing ad-hoc analyses.
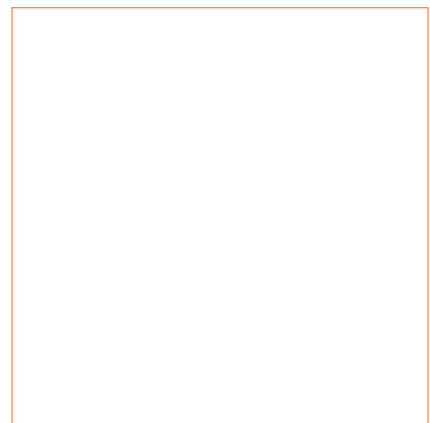
Grading Components ●

Component	Points	%	Notes
Participation [1]	100	10%	Mostly in-class exercises
After-class Exercises [2]	200	20%	10 @ 20 points each
Quizzes [3]	100	10%	5 @ 25 points each, drop 1
Problem Sets [4]	120	12%	2 @ 60 points each
Case Studies [5]	320	32%	4 @ 80 points each
Capstone Project [6]	160	16%	Independent final project
Extra Credit	10	1%	ARL Subject Pool
Total	**1010**	**101%**	

Participation [1]

During the live lectures, you will work on coding exercises. Your participation is measured by a mix of the correctness, efforts in those exercises, and attendance. It's perfectly okay to get a few questions wrong.

After-class Exercises [2]

These exercises aim to reinforce your understanding of topics we discuss in lectures. The challenges are highly similar to the ones you see in lectures. You will get an unlimited number of attempts.

Quizzes ③

Each quiz will test your understanding of the topics we discuss in lectures. All quizzes are open note and open internet (able to search). However, no P2P discussions are allowed.

Problem Sets ④

Each problem set is consisted of coding challenges. You will be able to check whether your code is correct before submission.

Case Studies ⑤

You will work with a real-world dataset to load, clean, transform, and derive insights.

Capstone Project ⑥

During the last few weeks of this course, you will work on an independent capstone project. The goal is to create a portfolio that showcases your data analytic skills. You will publish your work on GitHub.

Letter Grades •

% Range	Letter Grade
97 - 100%	A+
93 - 96.9%	A
90 - 92.9%	A-
87 - 89.9%	B+
83 - 86.9%	B
80 - 82.9%	B-
77 - 79.9%	C+
73 - 76.9%	C
70 - 72.9%	C-
67 - 69.9%	D+
63 - 66.9%	D
60 - 62.9%	D-
0 - 59.9%	F

Policies

Attendance

Your attendance is reflected towards the participation points. Up to 2 absences are allowed without a prior approval (no points will be deducted for the first 2 absences). For any special occasions, please email me in advance.

Course Recordings

I will post a recording of each lecture on Mediaspace within 24 hours. Some lecture sessions may be workdays without a discussion of new topics. I will not upload the recordings for these sessions.

Communication

I will use **Canvas** as the primary means of communicating with the class. You are responsible for ensuring that you have access to Canvas for this course.

If I need to communicate with you individually, I will send you an email.

Getting Help

Please post any course-related questions on the Course Discord channel. For any other questions or feedback, e-mail me at ypark32@illinois.edu. If I am not available, I may refer you to one of the TAs.

Extra Credit Opportunities

You can earn extra credit in this course by participating in research studies conducted by our professors and doctoral students in the Accountancy department. As you may know, UIUC ACCY faculty and doctoral students are recognized for conducting world-class research on a variety of topics. The ARL student subject pool was established for the mutual benefit of UIUC students and researchers. Students are provided with opportunities to contribute to the accounting profession by participating in meaningful research while also earning extra credit and sometimes cash. Meanwhile, researchers receive access to high-quality student data for use in their research. You will receive an email from the Illinois Accountancy Research Lab (ARL) after the Add/Drop deadline with instructions on how to sign up for and complete these studies.

I will offer **1%** of the total points available in this course. When you participate in a study, 0.5% of course credit is provided for (a) 1 completed study lasting an hour or less, or (b) each hour of a completed study that lasts more than one hour. Thus, each significant part of an hour of a completed study = 0.5 Research Study Credits = Class Credit of 0.5% of the total points available in this course.

If you are enrolled in multiple courses that offer credit for your participation in these studies, then for each study, you must choose the course to which you will apply your credit earned. You may also reassign your credits to a different course throughout the semester. However, the deadline for assigning (or reassigning) your credit to your courses is **11:59pm on the reading day**. You may not reassign your credit to another course (or to this course) after that deadline.

If you do not show up for a scheduled study you have signed up for, you will not be allowed to participate in any further studies this semester because your absence hurts the researchers and your classmates who would have participated in that timeslot. If you need to cancel your appointment, please do so by logging into the system and clicking "View or cancel my study appointments." You will not be penalized for canceling your appointment before the study starts.

Please note that extra credit for completion of a study is NOT automatic. If you do not take due care in completing the experimental materials, you will not receive extra credit and your account will be suspended. This determination is at the discretion of the researcher following ARL data quality standards. Our researchers depend on your high-quality data for their livelihoods. If you rush through and/or do not pay sufficient attention to the materials, your data is useless, and you will not be awarded credit. To encourage your full attention, we kindly ask that you complete these studies in a quiet place free from distraction. Additionally, please do not begin a study unless you can devote your attention to completing the study in one sitting (most studies are one hour or less).

Some studies pay cash. Usually, the average amount paid is about $12 an hour. However, the actual amount you get in any particular study varies and may depend upon choices made in the study, choices made by other participants in the study, and/or luck.

If you have questions about participating in research studies, please email the ARL at accyresearchlab@illinois.edu. Please do **NOT** ask me because I cannot assist you with the system or the experiments.

Honor Policy

The University (http://admin.illinois.edu/policy/code/Full_Code_web.pdf) has honor codes that students are expected to follow. The following parameters should be followed for assignments in this course. Group Assignments: Group work must never be discussed with anyone other than members of your group, the instructor, or TA, unless specifically allowed. This prohibition includes classmates not in your group, students not in this class, tutors, other instructors or professors, friends, parents, etc. Individual Assignments: All work submitted to fill the requirements of individual assignments must represent your independent effort. You may discuss your ideas with your fellow students. However, you must not plagiarize anyone else's work. Obtaining and using a case key / solution from any other sources is cheating, whether you copy the authors' exact words or not.

Disclosures

Food/Housing Insecurity Statement

Any student who faces challenges securing their food or housing and believes this may affect their performance in the course is urged to contact the Dean of Students for support and alert the course instructor.

Disability Resource Statement

To obtain disability-related academic adjustments and/or auxiliary aids, students with disabilities must contact the course instructor and the Disability Resources and Educational Services (DRES) as soon as possible. To contact DRES, you may visit 1207 S. Oak St., Champaign, call 217-333-4603, email disability@illinois.edu or go to the DRES website: www.disability.illinois.edu.

COVID-19 Statement

General - Following University policy, all students are required to engage in appropriate behavior to protect the health and safety of the community. Students are also required to follow the campus COVID-19 protocols.

Students who feel ill must not come to class. In addition, students who test positive for COVID-19 or have had an exposure that requires testing and/or quarantine must not attend class. The University will provide information to the instructor, in a manner that complies with privacy laws, about students in these latter categories. These students are judged to have excused absences for the class period and should contact the instructor via email about making up the work.

Students who fail to abide by these rules will first be asked to comply; if they refuse, they will be required to leave the classroom immediately. If a student is asked to leave the classroom, the non-compliant student will be judged to have an unexcused absence and reported to the Office for Student Conflict Resolution for disciplinary action. Accumulation of non-compliance complaints against a student may result in dismissal from the University.

Face Coverings - All students, faculty, staff, and visitors are required to wear face coverings in classrooms and university spaces. This is in accordance with CDC guidance and University policy and expected in this class.

Please refer to the University of Illinois Urbana-Champaign's COVID-19 website for [further information on face coverings](). Thank you for respecting all of our well-being so we can learn and interact together productively.

Building Access - In order to implement COVID-19-related guidelines and policies affecting university operations, instructional faculty members may ask students in the classroom to show their Building Access Status in the Illinois app or the Boarding Pass. Staff members may ask students in university offices to show their Building Access Status in the Illinois app or the Boarding Pass. If the Building Access Status says "Granted," that means the individual is compliant with the university's COVID-19 policies—either with a university-approved COVID-19 vaccine or with the on-campus COVID-19 testing program for unvaccinated students.

Students are required to show only the Building Access Screen, which shows compliance without specifying whether it was through COVID-19 vaccination or regular on-campus testing. To protect personal health information, this screen does not say if a person is vaccinated or not. Students are not required to show anyone the screen that displays their vaccination status. No university official, including faculty members, may ask students why they are not vaccinated or any other questions seeking personal health information.

Building Emergency Procedures

In the event of a tornado warning, please seek shelter in the Wohlers Hall basement or the Armory, or in the BIF basement between 8 am and 4:30 pm weekdays (the nearest designated University tornado shelters). If a tornado is imminent, the BIF basement stairwells also can be used on an emergency basis. In the event of a fire in BIF, exit BIF and proceed to 141 Wohlers Hall. In the event of threat from a shooter on campus, lock down the classroom and move to a place of safety within the classroom. If you encounter a suspicious package, do not touch the package; alert campus security, and refrain from cell phone usage until the situation is resolved. More detailed information and action instructions are available in the Building Emergency Action Plan.

Campus Emergency Statement

Emergencies can happen anywhere and at any time, so it's important that we take a minute to prepare for a situation in which our safety could depend on our ability to react quickly. Take a moment to learn the different ways to leave this building. If there's ever a fire alarm or something like that, you'll know how to get out and you'll be able to help others get out. Next, figure out the best place to go in case of severe weather – we'll need to go to a low-level in the middle of the building, away from windows. And finally, if there's ever someone trying to hurt us, our best option is to run out of the building. If we cannot do that safely, we'll want to hide somewhere we can't be seen, and we'll have to lock or barricade the door if possible and be as quiet as we can. We will not leave that safe area until we get an Illini-Alert confirming that it's safe to do so. If we can't run or hide, we'll fight back with whatever we can get our hands on. If you want to better prepare yourself for any of these situations, visit police.illinois.edu/safe. Remember you can sign up for emergency text messages at http://emergency.illinois.edu/.

Sexual Misconduct Policy and Reporting

The University of Illinois is committed to combating sexual misconduct. Faculty and staff members are required to report any instances of sexual misconduct to the University's Title IX and Disability Office. In turn, an individual with the Title IX and Disability Office will provide information about rights and options, including accommodations, support services, the campus disciplinary process, and law enforcement options. A list of the designated University employees who, as counselors, confidential advisors, and medical professionals, do not have this reporting responsibility and can maintain confidentiality, can be found here: http://wecare.illinois.edu/resources/students/#confidential. Other information about resources and reporting is available here: http://wecare.illinois.edu.

Mental Health Information

Diminished mental health, including significant stress, mood changes, excessive worry, substance/alcohol abuse, or problems with eating and/or sleeping can interfere with optimal academic performance, social development, and emotional wellbeing. The University of Illinois offers a variety of confidential services including individual and group counseling, crisis intervention, psychiatric services, skill-building workshops, and specialized screenings at no additional cost. If you or someone you know experiences any of the above mental health concerns, it is strongly encouraged to contact or visit any of the University's resources provided below. Getting help is a smart and courageous thing to do – for yourself and for those who care about you.

Counseling Center

217-333-3704

610 East John Street, Champaign, IL

Jennifer House is the Gies Embedded Clinical Counselor from the Counseling Center. Jennifer provides individual counseling as well as consultation hours to Gies students. Contact Jennifer directly via email at jhouse@illinois.edu to schedule an appointment or for additional information. You can also visit the counseling center website site at: http://counselingcenter.illinois.edu/about-us/embedded-counselors

McKinley Health Center

217-333-2700

1109 South Lincoln Avenue, Urbana, IL

Disability Resources & Educational Services (DRES)

217-333-1970

1207 S Oak St, Champaign, IL

Kognito

Kognito teaches skills to recognize distress in others, talk to them about it, and connect them to resources that can help. Kognito offers modules specific to concerns of LGBTQ individuals and student veterans. Having conversations about suicide can be difficult, but it is important to have them. If you are unsure where to begin, practice at http://ui.kognito.com

This class is supported by **DataCamp**, the most intuitive learning platform for data science and analytics. Learn any time, anywhere and become an expert in R, Python, SQL, and more. DataCamp's learn-by-doing methodology combines short expert videos and hands-on-the-keyboard exercises to help learners retain knowledge. DataCamp offers 350+ courses by expert instructors on topics such as importing data, data visualization, and machine learning. They're constantly expanding their curriculum to keep up with the latest technology trends and to provide the best learning experience for all skill levels. Join over 6 million learners around the world and close your skills gap.