IDS 1020: Introduction to Information Systems, Fall 2023

Instructor:	Liteshwar Rao (he/his/him)
Office Hours (Wilf Campus, In-Person):	4:30-5:30 PM on Tuesday and Thursday (Tentative)
Office Hours (Online / Zoom):	9:30 PM-12:00 AM every day (except Saturday and Sunday)
By Appointment (In-person / online):	via Email
Email:	liteshwar.rao@yu.edu
Class Time:	3:00-4:15 PM on Tuesday and Thursday
Credits:	3 credits

If you read nothing else on the syllabus, read this:

- The ***most important*** thing you need to do is ***communicate*** with me.
- I want to see you succeed. I will give my best effort, so give me your best effort.

Software: Students are required to download Microsoft 365 from the ITS portal of YU. From MS 365 package, we will use MS Excel 365 daily. We will explore programming in R during the last 3-4 weeks. Instructions will be uploaded on Canvas before August 24, 2023, on how to download these softwares.

Textbook: We will not follow any standard textbook for this course. But we cover different aspects of this course from different sources such as GitHub, Kaggle, LeetCode, Coding Ninja, Hummingbirds AI, and Google.

Programming: This course introduces students to MS Excel and R programming in general. Particularly, we use **Excel 365** and R Studio during the semester because Excel 365 has additional features over Excel 2021, and R Studio is a beginner-friendly IDE. Excel 365 is available as part of a paid subscription but free to every student of YU for personal use through the ITS portal of YU. Its corresponding IDE **Laptop/Desktop** version we will use for writing scripts. Both R and R Studio are open source and thus free for everyone. Please check that your softwares are working in your systems before coming to the class. If you don't check it, we won't be able to fix the problem during the class, and you will have to wait until the end. All homework and exam problems will be done in Excel or R Studio, assuming you understand particular scripts covered in the class. Use the following link to download **Excel 365** on your laptop or follow the instructions uploaded on Canvas to download Excel 365 and R Studio.

`https://yuad.sharepoint.com/sites/ITSPortal/SitePages/Office-365.aspx`

Canvas: Our class has a Canvas page. Please check it regularly (daily, preferably) for assignments and other documents. This is where you will *submit all homework assignments*; neither paper copies nor emailed copies will be accepted. You can find your course grade as well (note that it will be an approximation of your grade while the class is ongoing, not exact.)

Cell Phones: As stated above, you are not allowed to use your phone in class, and you should not be on your phone in class. During your class, your phone should be on the front desk, and they should be on silent or do not disturb mode. If any student needs to use his phone, he may go outside with his phone.

Computers: You must bring your laptops to class daily.

Course Delivery: This course lasts 15 weeks, with hands-on in-class lessons and homework exercises. It includes downloadable course and exercise files, so you can follow along with the instructor and practice what you have learned at the end of each section.

Objectives:

1. How to navigate the Excel 365 interface.
2. How to create Excel spreadsheets.
3. Basic and intermediate Excel formulas and functions.

4. To effectively apply formatting to cells and use conditional formatting.
5. Effective use of Excel lists and sorting and filtering.
6. Linking to other worksheets and workbooks.
7. How to analyze data using charts.
8. How to insert pictures into a spreadsheet.
9. Setting page layout and print options.
10. Use logical functions to make better business decisions.
11. Construct functional and flexible lookup formulas.
12. Extract unique values from a list.
13. Import data and clean it up for analysis.
14. Analyze data using PivotTables.
15. Represent data visually with PivotCharts.
16. Create an interactive dashboard to present high-level metrics.
17. Use WhatIf analysis tools to see how changing inputs affect outcomes.
18. Work with Excel charts, including clustered columns, line graphs, and waterfalls.
19. Utilize database functions explicitly created to work with large datasets.
20. Use the Analysis ToolPak to calculate basic statistical concepts such as correlation and covariance.
21. View, enter, and format data types in Excel.
22. Sort data and apply filters, including advanced filtering techniques.
23. Useful formulas for creating dashboards in Excel.
24. How to create a Sales Dashboard from scratch.
25. How to create an HR Dashboard from scratch.
26. Data types in R, including matrices, vectors, and arrays.
27. Use of lists and functions in R.
28. Construct for loop and while loop for iterations.
29. How to create and manipulate dataframes.
30. How to execute basic statistical functions in R.

Homework: Homework will be assigned in every class, and you must turn them in electronically on Canvas. You are required to submit an Excel 365 or R file directly on the Canvas App. **All homework will be due within 48 hours of the assigned date**, with some exceptions around exams or holidays. You are strongly encouraged to collaborate with other students and to work on additional problems for more practice. However, you must turn in your own solutions. If you incorporate ideas from another student or a solutions manual, you must write so on the last sheet of your file. Regardless, you should make sure you understand every step of a solution.

Homework Grading Policy: To get full credit on any assignment, you must show, explain, and justify your work. Communicating your intended meaning and indicating your understanding to the reader is essential. A general guideline for the detail required in a solution is to imagine that a fellow student will review your homework to study for an exam. Your work should be detailed enough to be helpful. Another student reading your solution should be

able to guess the question you are trying to answer without referring to the original question. In other words, do not turn in scratch work with the answer highlighted.

Late Homework Policy: Homework will be accepted up to 1 week after its due date for 60% credit. Remember that it is always better to get some points than no points. Homework is not accepted more than one week after the due date except in extraordinary circumstances.

Exams: There will be one midterm and final exam in class. All of the exams will be cumulative. The dates for the two in-class exams are listed below. If you miss or expect to miss any exam for a legitimate reason (for example, a severe illness or a YU-sanctioned event or activity), then notify me as early as possible. Booking personal travel without looking at the exam dates first is not a valid excuse. Missing the final exam will result in an automatic F in the course.

Midterm Exam : October 26th, 2023 (Tentative)
Final Exam: December 19th, 2023 (Tentative)

Project and presentation: One project will be assigned to each group of 2-3 students, and all groups are required to work on it gradually as we progress in the semester. Because the project will have computational components, they will primarily focus on conceptual understanding and writing Excel or R scripts and, therefore, must have a narrative written report detailing your solution along with scripts. Each group will be assigned ten stocks/equities (financial data) on which students must perform functions, formulas, tables, and charts learned during the semester. The project's outcome must have a dashboard to summarize what has been done in the project. Each group will present its dashboard to the class in 10 minutes, followed by 5 minutes for discussion.

Quizzes: Beginning from the second class, we will have a short, maybe 10 minutes, in-class quiz at the beginning of every class. All students must write the scripts in Excel or R and submit the script file on Canvas. It would include questions from the material we covered in the last class.

Class Expectations: Because learning is most productive in an interactive environment, you are expected to attend class regularly (attendance will be taken!) and come prepared (with **paper, a writing utensil, and your laptop**) to participate in the discussion about solutions to homework problems or questions evoked by projects. Attending class without the proper materials will result in you being marked **absent**.

Generally, you should spend two hours of preparation for each hour in class, so you should expect to spend about **6-8 hours** working outside of class. Keep going even if you struggle with assignments during the term; your most productive learning will occur when you persevere in the face of challenging problems or erroneous solutions. If you encounter a problem, please ask for help from classmates or the instructor during office hours. **Don't hesitate to ask questions during class.** In class, that is the time to be wrong and to make mistakes. It is acceptable to say "I don't know" or "pass".

The most successful students:

- participate in every class.
- read the material shared in the class and review notes **daily**.
- work on all homework problems that are assigned.
- spend sufficient time outside class practicing the material, including working on extra practice problems.
- regularly works with other classmates.
- seek help from the instructor during office hours promptly when they encounter trouble.

Participation: You are expected to participate in class daily. Ask questions and answer when I ask (which I do **a lot**). Attempt the practice problems in class. You are expected to present a practice problem in Excelor R in every class. Note: Your solution doesn't need to be perfect or even correct; you can ask for help from me or your classmates. *The goal is for you to practice and present material with programming in Excel.*

Participation Points: To earn participation points, you must submit in-class Excel or R files of the exercise at the end of each class. Every example and practice problem should be contained in your file. Incomplete files will earn partial participation points.

Classroom Etiquette: You should be attentive and take notes during class. It would be best not to be on your phone or laptop unless directed. You will not be permitted to stay in the classroom if you are repeatedly disruptive to the class, other students, or instructor(s). You will receive **one** verbal warning to stop being disruptive. If you continue to be disruptive after the warning, you will be asked to leave the classroom. When asked about your disruptive behavior, security will be contacted if you do not exit the classroom. Should you choose not to be attentive and take notes during class, you may remain in the classroom as long as you are not disruptive to the class, other students, or the instructor(s).

Attendance: Attendance will be taken at the beginning of each class period. Any student absent for five or more class sessions who does not officially withdraw from the course will receive an 'F' (counted as failure) and repeat the course.

Tardiness/Leaving Early: (Or otherwise leaving class)

Tardiness/Leaving early/Missing by 10-15 minutes:	$\frac{1}{2}$ an absence
Tardiness/Leaving early/Missing by 30+ minutes:	1 absence

Absences:

Number of Absences	Effect on Final Grade
0-2	No grade reduction
3	1 full letter grade reduction
4	2 full letter grade reduction
5+	Receive an 'F'; must repeat the course

Grading Summary:
Homework: 20%
Midterm: 20%
Final Exam: 20%
Project and presentation: 20%
In-class quiz: 10%
Participation: 5%
Attendance: 5%

Grading Scale:

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

Academic Integrity: The cornerstone of our mission at Yeshiva University is to provide students with an education consistent with the values and ideals of traditional religious learning combined with contemporary academic secular study. As such, academic dishonesty violates the fundamental principles upon which our institution is founded. The submission by a student of any examination, course assignment, or degree requirement is assumed to guarantee that the thoughts and expressions therein not expressly credited to another are the student's own. Evidence to the contrary will result in appropriate penalties, described in the AS in Management catalog. You can find the AS in Management catalog on the Registrar's Website: `https://www.yu.edu/registrar/ug-catalog` (look under "Current Undergraduate Catalogs" for the current AS in Management catalog); academic integrity information is listed on pages 23-25.

As a reminder, we have asked all AS in Management students to sign the following academic integrity pledge: "As a student of Katz School, I pledge to undertake my academic work with honor and integrity. I will submit only original work, giving credit to others where appropriate. I will not give or receive unauthorized aid on exams or other work to be evaluated by the instructor. I will represent myself honestly. I agree to respect the rights and property of others as required of good citizens and to act by the rules and regulations of the University."

Accessibility and Accommodations The Office of Disability Services collaborates with students, faculty, and staff to provide reasonable accommodations and services to students with disabilities. Students with disabilities who are enrolled in this course and who will be requesting documented disability-related accommodations should make an appointment with the Office of Disability Services during the first week of classes:

Wilf Campus: Abigail Kelsen, Assistant Director of Disability Services
500 West 185th Street - Furst Hall, Suite 412
Tel: (646) 592-4280
akelsen@yu.edu

Once you have been approved for accommodations, contact me to ensure the successful implementation of those accommodations. For more information on the Office of Disability Services, please visit: `http://yu.edu/Student-Life/Resources-and-Services/Disability-Services/`

Course Modules The course will cover the following six modules:

1. Beginner
    (a) Getting started with Excel 365.
    (b) Introduction to Excel formulas and functions.
    (c) Formatting numbers and cells and worksheets.
    (d) Analyzing data with charts.
    (e) Conditional formatting.
    (f) Page layout, print options.
2. Intermediate
    (a) Logical functions.
    (b) Lookup functions.
    (c) Advanced sorting and filtering.
    (d) Formula auditing.
    (e) Data validation.
    (f) What-if analysis tools.
3. Pivot tables and charts
    (a) Preparing data for analysis.
    (b) Creating Pivot tables and charts.
    (c) Aggregation and grouping.
    (d) Sorting, filtering, formatting.
    (e) Updating the Pivot tables and charts and customization.
    (f) Layout options.
4. Data analysis
    (a) Exploring data analysis.
    (b) Cleaning and managing data.
    (c) Working with charts and tables.
    (d) Analysis tool pack.
5. Excel dashboards
    (a) Preparing data for dashboard.
    (b) Advance chart techniques.
    (c) Form controls.
    (d) Sales analysis dashboard.
    (e) HR dashboard.

6. Introduction to R Studio
    (a) Basics of R programming.
    (b) Vectors and matrices.
    (c) Arrays and lists.
    (d) Loops and functions.
    (e) Dataframes.

Schedule: You will find a *tentative* schedule below. I reserve the right to change the schedule as I see fit, subject to the progress made in the class. Check Canvas for updates.

Week	**Topic(s)**
Week 1 -2	Module 1
Week 3- 4	Module 2
Week 5- 7	Module 3
Week 8- 10	Module 4 & Midterm
Week 11- 12	Module 5
Week 13- 15	Module 6 & Final exam & Project presentation