

QMETH 450: Spreadsheet Models for Managerial Decision Making

Autumn 2021

Instructor:

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Course Website:

- You should check announcements for potential changes to the course schedule and deliverables.
- Lecture slides, assignments, and data files will all be available for downloads on course website.

Course Materials:

- Courses will be recorded.
- Lecture slides are the main materials of this course.
- You are recommended to read the textbook: **Hillier and Hillier, *Introduction to Management Science*, Fifth Edition, McGraw-Hill/Irwin, 2014.**

Software:

- You are required to access to the software remotely from Foster School's computer lab; read the instruction page carefully: [Remote Access to Computers in the Labs](#)

Academic Integrity:

By being a student in this course you acknowledge that you are a part of a learning community at the Foster School of Business that is committed to the highest academic standards. As a part of this community, you pledge to uphold the fundamental standards of honesty, respect, and integrity, and accept the responsibility to encourage others to adhere to these standards.

Students with Special Needs:

- Please contact me ASAP so that all the necessary arrangements for the course can be made.

University of Washington Religious Accommodations Policy

Any student seeking reasonable accommodations must provide written notice to the Office of the University Registrar of the specific dates of absence due to religious accommodation, within the first two weeks of the beginning of the course. Students who have requested and been denied a religious accommodation and wish to file a complaint should contact the [University Complaint Investigation and Resolution Office \(UCIRO\)](#) . UCIRO is responsible for investigating complaints that a university employee has violated the University's nondiscrimination policies, including a failure to accommodate a student under this policy.

Technology Courtesy Policy

The Foster Undergraduate Program is committed to providing an active learning environment where student participation and engagement is valued. In the spirit of creating such an experience in the classroom, I permit use of laptops or tablets for the explicit use of note-taking, watching course related video, doing in-class exercises, and accessing my course management tools in Canvas. That being said, in so far as these devices are used as part of the course activity, students should refrain from using any features or applications that do not directly relate to the course or are not approved as part of the lecture/discussion. Using features such as Facebook, Twitter, email, instant messaging, cameras, texting, and phone calls will not be permitted. If a question comes up about a technology used during my course, I will give you *one warning* to refrain from its use. If you do not adhere to this as my course policy participation grade will be lowered.

COVID-19 Mask Policy

Please remember that the current Washington State [indoor mask mandate](#), which took effect Aug. 23, requires everyone to wear a mask indoors. The University of Washington requires students and UW personnel [to attest to their vaccination status](#). The University also has [COVID-testing requirements](#) for students who receive an exemption from the UW's vaccination mandate. Please note that these standards are continually evolving and subject to change.

Evaluation:

- Your weighted total grade (out of 100) will be determined as follows:

Item	Weight
Problem Set 1: individual submission + team submission	4%+6%
Problem Set 2: individual submission + team submission	4%+6%
Problem Set 3: individual submission + team submission	4%+6%
Participation	5%
Project	15%
Midterm Exam	25%
Final Exam	25%

- Your GPA (out of 4.0) will be determined by the above weighted total grade and your rank in the class. The median of this class is targeted at 3.4.

Problem Sets:

- There will be 3 required assignments in order to provide you with the opportunity to develop and apply the concepts and tools learned in class. There are two submissions required for each problem set: an *individual submission* and a *team submission*.
- If you know that your submission will have to be late due to some special circumstances, contact the instructor at least 48 hours in advance. The assignments should be turned in via Canvas by 11:59 PM of the due date. Submissions delayed by no more than 24 hours will be given half credit at most. Late submissions with delays of more than 24 hours will NOT be accepted.
- **Individual Submission:** Modeling with spreadsheets is best learned by doing. Therefore, it is critical that every student first attempt to set up and solve each of the problems in the problem set on your own. Although it is fine to discuss and/or get help from classmates at this point, each problem should be set up and solved by the individual based on their understanding of the material (copying files or portions of files from others' work is not permitted). This individual attempt should be submitted to Canvas before the corresponding due date.
- **Team Submission:** Then you should meet with your study groups (self-registered on Canvas) to compare solutions, clarify issues that were encountered, and streamline the various analyses into a single submission from the team. Take this opportunity to make sure everyone on the team understands the material and everything in the team assignment that is being submitted. One member of each team should submit the team submission to Canvas. Include all spreadsheets in a single workbook on separate tabs.
- The team submissions will be graded for **accuracy** and **correctness**. The individual submissions will also be reviewed, but only graded for **completion** and **effort**.

Project:

- After the midterm exam, you're required to form project groups and propose a project topic and outline by **Fri, Nov 19**. The topics of the project should be based on your work/life experience or your knowledge of interesting/important business problems. The project should consist of a clear objective of optimization which needs to be analyzed quantitatively, key decisions to achieve the optimal objective, and any relevant constraints. You're required to apply methodologies learned in this class,

especially linear programming and/or simulation, to develop a spreadsheet model, analyze the results of the model, and make meaningful recommendations.

- There will be a project presentation on **Wed, Dec 8**, and the final project report is due on **Fri, Dec 10**. The score of your project will be graded based on your presentation and the final report.

Final Exam:

- There will be a midterm exam in class **Monday, Nov 8**, and a final exam, **2:30-4:20 pm Thursday, Dec 16**. They are open-book, open-notes, and must be completed individually without assistance from any other person.
- If you are unable to attend either exam at the scheduled time, a written explanation and arrangements with the professor must be made (on class or via email) at least 48 hours in advance; otherwise, no make-up exam will be offered.

Grading:

- If you believe that an error was made in grading, you should first contact the TA to make an argument and request for regrade. If the disagree persists, let the professor know. You have one week after the problem set is graded to submit the request.

Participation:

Participation grading will be based on contributions to lectures. Contributions that add new insights or advance the knowledge about the course materials, including clarifying questions or making comments based on your previous work or study experience, will be credited.

Week	Date	Topic	Note
1	Wed Sep 29	Session 1: Introduction to Linear Programming	Ch. 2 (Skip 2.6)
2	Mon Oct 4	Session 2: Formulation of LP Models	Ch. 3
	Wed Oct 6	Session 3: Applications of LP – Inventory Management	Read (but do NOT prepare): Problems 4.S1 and 4.6
3	Mon Oct 11	Session 4: Applications of LP – Aggregate Planning	Read (but do NOT prepare): Problems 4.S2 and 4.7
	Wed Oct 13	Session 5: Applications of LP – Financial Services	Read (but do NOT prepare): Case 4-1 of Ch. 4
4	Mon Oct 18	Session 6: Sensitivity Analysis	Ch. 5 (skip Parameter Analysis Reports)
	Wed Oct 20	Session 7: Integer Programming Models	Ch. 7
5	Mon Oct 25	No Class	Professor will attend a national annual conference
	Wed Oct 27	Session 8: Introduction to Decision Analysis	Ch. 9: Section 9.1-9.3
6	Mon Nov 1	Session 9: Information, Risk Averse, and Utility	Ch. 9: Section 9.4-9.11
	Wed Nov 3	Midterm Review	
7	Mon Nov 8	Midterm Exam	
	Wed Nov 10	Session 10: Simulation and Crystal Ball	Ch. 12, 20
8	Mon Nov 15	Session 11: Simulation – Project Management	Ch. 20: Section 20.2-20.3
	Wed Nov 17	Session 12: Simulation – Revenue Management	Ch. 20: Section 20.6
9	Mon Nov 22	Session 13: Simulation – Cash Flow Management	Ch. 20: Section 20.4
	Wed Nov 24	Session 14: Forecasting I	Ch. 10: Section 10.1 – 10.4
10	Mon Nov 29	Session 15: Forecasting II	Ch. 10: Section 10.4 – 10.6
	Wed Dec 1	Session 16: Queueing Models I	Ch. 11: Section 11.1 – 11.6
11	Mon Dec 6	Session 17: Queueing Models II	Ch. 11: Section 11.1 – 11.6
	Wed Dec 8	Project Presentation	
12	Thu Dec 16	Final Exam (2:30 – 4:20 pm)	