

## **ACCT-5380-01: Systems Modeling for Financial Decisions**

Instructor: Elena Menagarishvili, MSF with business valuation specialization  
Email: [menagari@seattleu.edu](mailto:menagari@seattleu.edu)  
Canvas: <https://seattleu.instructure.com/courses/1562025>  
Office: Pigott 500  
Class days and time: Tuesdays from 6.00 PM to 8.40 PM, Pigott 102  
Office hours: Tuesdays from 4.30 PM to 5.30 PM, available by skype

### **1. Objective**

The objective of ACCT 5380 is to provide students with a palette of tools to formulate and solve quantitative decision-making problems—mostly in the fields of accounting, finance and economics—with the aid of computer software. Although students will develop models using Microsoft Excel, the concepts and techniques learned during the course are adaptable to other model building platforms. Decision-making approaches discussed during the course include mathematical programming (optimization) and the Monte Carlo method. Cases in financial analysis may cover topics such as preparation of pro-forma financials, budgeting, capital investment analysis and corporate valuation. Students who benefit most from ACCT 5380 enjoy analytics, have a strong dose of imagination, and are willing to tackle significant problems without simple or easy answers.

### **2. Prerequisites**

Prerequisites for ACCT 5380 include FINC 5000 and ECON 5040 or equivalent. Most students enrolled in ACCT 5380 have already mastered basic spreadsheet techniques.

### **3. Materials**

- Management Science: The Art of Modeling with Spreadsheets, 4th edition (2014), by Stephen G. Powell and Kenneth R. Baker.
- Software: Microsoft Excel 2013. (Excel 2010 is OK).
- A laptop computer is recommended for every class. If you don't have a laptop computer, or if it is not convenient for you to bring one to class, please let me know and I will attempt to reserve one for you with the IT group.

#### Notes:

- (1) If you own an Apple computer I recommend that you run Excel 2013 on Windows or use one of the school's laptops.
- (2) Even though many of the problems we will address can be solved using earlier versions of Excel, I recommend that you purchase a copy of Excel 2013 or later. (Excel 2013 is installed in Albers School computers.)

#### 4. Grades

Performance evaluation will be based on, (1) homework assignments, and (2) class participation. The grade on missing or late assignments is zero.

Relative weights in the final course grade are:

1. Group Projects ..... 90 % (9 projects, 10% each)
2. Class Participation ..... 10 %

An approximate correspondence of letter grades with numerical scores is as follows:

<50	≥50	≥60	≥70	≥75	≥85	≥90
F	D	C	B-	B	B+	A- / A

I expect that you will come to class regularly, ready and willing to participate in exercises and discussions.

Office hours are not offered as a substitute for regular class attendance.

Homework is a group effort. Homework is turned in from the course's website. Name your homework files Group#I.HW#J.xlsx.

Assignments will be graded taking into account some or all of the following rubrics (weights to be determined depending on the question and topic):

**USER FRIENDLINESS:** Purpose of spreadsheet, how to use it, what is input and what is output (what they mean, and in which units are they) and how the output is produced are clear to the user. Obtaining output is easy, including in printed format. Navigation is assisted by a logical, modular and intuitive design.

**SIMPLICITY:** Your solution (or model) is straightforward and elegant.

**POWER:** Your model is capable of solving not only the current problem, but also more general problems that contain the current specification. ("Hardwiring" affects this rubric since generality is limited if inputs are fixed.)

**EFFECTIVENESS:** Your spreadsheet finds the correct solution to the problem at hand employing user-defined or built-in functions/macros. ("Hardwiring" may affect this rubric as well.)

**ADAPTABILITY:** Your spreadsheet is designed with clear labels, titles, comments and instructions. Formulas are as clear as possible. Using variable names (sometimes) and splitting complex calculations (always) helps.

**RELIABILITY:** Your model provides correct solution time after time. Diagnostics tell user if inputs or solution are erroneous. Data validation guards against the most obvious errors of input.

On group work:

- All home assignments should be submitted in the groups of two.
- Groups will be formed during the second class meeting.

## **5. Honesty**

I expect that you will abide by the University's Academic Integrity Policy. "Seattle University is committed to the principle that academic honesty and integrity are important values in the educational process. Academic dishonesty in any form is a serious offense against the academic community." If you are not sure about whether a particular action is acceptable according to this policy, you should check with me before engaging in it.

Since group work receives a single grade, academic dishonesty by any member of the group will affect the grades of all members of the team. This means it is your responsibility to check that work presented with your name on it abides by the University's Code of Academic Integrity. If you are not sure, it is OK for you to submit your work independently of your group, and even to ask to be transferred to another group.

As required by University regulations I must report to the department's chair all verified instances of plagiarism, cheating and usage of unauthorized sources in exams, papers, projects, homework or any other academic assignment. Depending on the severity and circumstances of the violation I may recommend that the student receive a grade of D or F in the course. According to University policy, "a single instance of plagiarism can be the basis for suspension or expulsion from our programs." (Dean Joseph M. Phillips' letter to students, November 2003.)

## **6. Conduct**

I expect the highest level of professional conduct at all times. Reading of non-class materials must stop once class begins. Cell phones, pagers, MP3 players and similar devices must be turned off during class. Laptops, netbooks, iPads, PDAs and similar devices may be used for class-related activities, but please ask before video or audio recording any class session. Electronic devices other than your laptop computer must be turned off during the exam.

## **7. Scheduling**

I have prepared a week-by-week tentative distribution of topics throughout the quarter. Please check the schedule for assignment deadlines, and topics that we will cover in class each time we meet. I may adjust the schedule from time to time as the course progresses due to variations in the time needed to explain each topic. I will announce any scheduling changes by email and in class with sufficient time for you to prepare. Office hours (listed above) are a great opportunity for you and I to discuss the course, career choices, or basically any other topic that you think I may be able to help you with. It is best to come to office hours regularly throughout the course, rather than just before an important deadline, because at that time many of your classmates may want to see me as well.

## **8. Students with Disabilities**

If you have or think you may have a disability that interferes with your performance as a student in this class, I encourage you to arrange for special support and accommodations through the Disabilities Services staff at Seattle University's Learning Center (Loyola 100, tel. 206-296-5740). Disability-based adjustments to course expectations can only be arranged through this process. You may also let me know at the beginning of the course so that I can make appropriate arrangements for you.

### 9. Tentative Class Schedule

	<b>Date</b>	<b>Topic</b>	<b>Deliverables</b>
1	March 29	Introduction to the course What is Modeling?	HW#1 due: April 2 @ 11:59pm (Saturday!)
2	April 5	Craft Skills for Models	HW#2 due: April 10 @ 11:59pm
3	April 12	Case Study What-if Analysis Monte Carlo Simulation	HW#3 due: April 17 @ 11:59pm
4	April 19	Non-linear programming	HW#4 due: April 24 @ 11:59pm
5	April 26	Linear programming	HW#5 due: May 1 @ 11:59pm
6	May 3	Regression Analysis	
7	May 10	Pivot Tables	HW#6 due: May 15 @ 11:59pm
8	May 17	Binomial Model (Lattice): - Option Valuation	HW#7 due: May 22 @ 11:59pm
9	May 24	Monte Carlo Simulation: - Option Valuation	HW#8 due: May 29 @ 11:59pm
10	May 31	Programming Basics	HW#9 due: June 5 @ 11:59pm
11	June 7	Python: - Option Valuation	

Note: I assume you are familiar with basic Excel skills. If this is not entirely true in your case, diligent study and practice during the course should ensure that you will know the necessary Excel tools and concepts for each exam. If you have questions or encounter difficulties while studying each of the assigned topics, please do not hesitate to come to office hours or write and ask for help.