University of Connecticut

MATHEMATICS FOR BUSINESS & ECONOMICS

BILL SCHWENDNER
MATH 1070Q, Z84
FALL 2019
BILL.SCHWENDNER@UCONN.EDU

COURSE:
Mathematics for Business & Economics, 3 credits, T/Th, 11-12^{15} pm

TEXTBOOK: **Applied Finite Mathematics,** Customer Edition by *E. Tomastik and J. Epstein.* You can purchase the bundled version of Applied Finite Mathematics with a WebAssign code from the UConn Bookstore or directly from the publisher's website. Alternatively, you may also purchase a WebAssign access code directly from WebAssign and obtain a copy of the text elsewhere.

OBJECTIVES:
Four major topics are studied: (1) Math of Finance, (2) Linear Programming, (3) Probability and (4) Statistics.

Specifically, the course will study finance formulas, linear equations, inequalities, exponents, logarithms, matrices, linear programming, optimization, probability and basic statistics, and how these topics are used to solve/optimize business applications. This means you should: (1) be able to work through problems like those seen in homework, (2)can articulate the ideas presented in the course in a clear and coherent manner, and (3) be prepared to solve new business-related quantitative problems.

PREREQUISITES:
(1) Math 1010 or equivalent, (2) Solid understanding of algebra, and (3) Business / Economic concepts/principles, e.g., P = R - C.

EXPECTATIONS:
I expect you to do most of your learning outside of the classroom. You should expect to spend between 10-15 hours per week re-reading the lecture notes, reviewing worked-out textbook problems, studying and working on this material outside of class. **Mathematics is learned by doing problems**. We will not have time in class for you to do a lot of mathematics yourself. However, I do expect you to come to class and participate actively in class discussions. If you miss a class, I expect you to find out what was covered. You are responsible for everything that goes on in the class. Turn off your cellphones while in class.

HOMEWORK:
This is work you do outside of class. We will devote little class time to discussing homework problems. Homework questions can be addressed during office hours or with the math tutor. I encourage you to put a lot of effort into figuring out a problem before consulting assistance. Homework may be collected and graded periodically. Additional take-home problems sets may also be assigned (and graded) throughout the semester.

WEBASSIGN:
Online homework and MATH 1070 are assigned and completed using WebAssign. WebAssign must be **accessed through HuskyCT**. To get to WebAssign, go to the HuskyCT site for our Math 1070 class, and click the link on the left navigation menu which says "WebAssign Homework". This will take you directly to the WebAssign homework assigned for your class. You will usually have 5 attempts to answer each non-multiple-choice question. For multiple choice questions the number of attempts will vary based on the content. After

each attempt, you will be told whether your answer is correct or not. If you are not able to get the correct answer after a couple attempts, discuss with your classmates, the tutor lab in the Library or your tutor. When accessing your online homework, use **Firefox or Chrome as your browser**; there are problems that can occur if you use Internet Explorer or Safari.

TUTORING:
Math tutors are available through the Academic Services Center.

LECTURE NOTES:
Required lecture notes are on HuskyCT.

CALCULATOR POLICY:
A scientific calculator is allowed and recommended for exams (**Graphing calculators are not permitted**). At a minimum, your calculator should be able to perform the standard scientific calculator operations (for example, factorials, combinations, powers, etc.). Sharing of calculators will not be permitted for exams, so make sure to bring your own. You may **not** use a tablet, phone, or computer as a calculator. **Using a prohibited device on an exam may result in your exam receiving a grade of 0.**

EXAMS/GRADING:
Performance on 4 tests, a comprehensive midterm, comprehensive final exam and WebAssign will determine your course grade. Problems will test your understanding of the principles, process and concepts; rather than repeating what you see in class. All quizzes/tests will be closed notes and closed book. There will be **no make-ups, no re-takes, no papers, etc**. You are responsible to take the quiz/exam on the scheduled date. Extra credit is **not** given. Your final grade will be determined as follows:

Test	***Value***	***Target***
WebAssign Homework	15%	Ongoing
Your best 3 test grades	30%	See plan
Comprehensive midterm	20%	See plan
Comprehensive final	35%	See plan

FINAL EXAM: Final exam week for Fall 2019 takes place from Monday, December 9th through Sunday 15, 2019. Students are required to be available for their exam during the stated time. If you have a conflict with this time, you must visit the Dean of Students Office to discuss the possibility of rescheduling this exam.

INTEGRITY POLICY:
A fundamental tenet of all educational institutions is academic honesty; work depends upon respect for and acknowledgment of the work and ideas of others. Misrepresenting someone else's work as one's own work is a serious offense in any academic setting and it will not be condoned.

Academic misconduct includes, but is not limited to, providing or receiving assistance in a manner not authorized by the instructor in the creation of work to be submitted for academic evaluation (e.g., papers, projects, quizzes, tests – whether online or in class); presenting as one's own any ideas, words or calculations of another for academic evaluation; doing unauthorized academic work for which another person will receive credit or be evaluated; using unauthorized aids in preparing work for evaluation (e.g., unauthorized calculators, programs or formulas loaded into your calculator, etc.); and presenting the same or substantially the same papers or projects in two or more course without the explicit permission of the instructors involved.

A student who knowingly assists another student in committing an act of academic misconduct shall be equally accountable for the violation, and shall be subject to the sanctions and other remedies described in The Student Code.

Sanctions shall include, but not limited to, a letter sent to the Dean of Students of the University, a grade of 0 on the assignment, quiz or exam; a grade of F for the course.

COURSE CONDUCT:
To respect everyone's right to a productive learning environment, you do not want to distract yourself or your classmates. Please refrain from disruptive activities during lecture and discussion section. This includes browsing the internet. Please turn *off* all personal electronic gadgets, including smartphones, before entering a classroom (except calculators and, for lectures, clickers). You may not use a laptop during class unless you show me that you can take notes electronically on advanced math in real time. On a positive note do feel free to ask questions!

POLICY AGAINST DISCRIMINATION, HARASSMENT AND RELATED INTERPERSONAL VIOLENCE:
The University is committed to maintaining an environment free of discrimination or discriminatory harassment directed toward any person or group within its community – students, employees, or visitors. Academic and professional excellence can flourish only when each member of our community is assured an atmosphere of mutual respect. All members of the University community are responsible for the maintenance of an academic and work environment in which people are free to learn and work without fear of discrimination or discriminatory harassment. In addition, inappropriate amorous relationships can undermine the University's mission when those in positions of authority abuse or appear to abuse their authority. To that end, and in accordance with federal and state law, the University prohibits discrimination and discriminatory harassment, as well as inappropriate amorous relationships, and such behavior will be met with appropriate disciplinary action, up to and including dismissal from the University. Additionally, to protect the campus community, all non-confidential University employees (including faculty) are required to report sexual assaults, intimate partner violence, and/or stalking involving a student that they witness or are told about to the Office of Institutional Equity. The University takes all reports with the utmost seriousness. Please be aware that while the information you provide will remain private, it will not be confidential and will be shared with University officials who can help. More information is available at equity.uconn.edu and titleix.uconn.edu.

SEXUAL ASSAULT REPORTING POLICY:
To protect the campus community, all non-confidential University employees (including faculty) are required to report assaults they witness or are told about to the Office of Diversity & Equity under the Sexual Assault Response Policy. The University takes all reports with the utmost seriousness. Please be aware that while the information you provide will remain private, it will not be confidential and will be shared with University officials who can help. More information is available at sexualviolence.uconn.edu.

STATEMENT ON ABSENCES FROM CLASS DUE TO RELIGIOUS OBSERVANCES AND EXTRA-CURRICULAR ACTIVITIES:
Faculty and instructors are strongly encouraged to make reasonable accommodations in response to student requests to complete work missed by absence resulting from religious observances or participation in extra-curricular activities that enrich their experience, support their scholarly development, and benefit the university community. Examples include participation in scholarly presentations, performing arts, and intercollegiate sports, when the participation is at the request of, or coordinated by, a University official. Such accommodations should be made in ways that do not dilute or preclude the requirements

or learning outcomes for the course. Students anticipating such a conflict should inform their instructor in writing within the first three weeks of the semester, and prior to the anticipated absence, and should take the initiative to work out with the instructor a schedule for making up missed work. For conflicts with final examinations, students should contact the Office of the Dean of Students.

OFFICE HOURS: M/W, 8-9^{30}am

COURSE PLAN

Wk	Date	Topic/Section
1	8/27	Syllabus Review, F.1
	8/29	F.2, F.3
2	9/3	F.3, F.4
	9/5	1.1, 1.2
3	9/10	**Test 1**
	9/12	1.3
4	9/17	1.4, 1.5 (optional)
	9/19	2.1, 2.2
5	9/24	2.3, 2.4 (optional)
	9/26	3.1, 3.2
6	10/1	**Test 2**
	10/3	3.3, 4.1
7	10/8	4.2, 4.3
	10/10	4.3, 4.4
8	10/15	**Midterm**
	10/17	4.5
9	10/22	4.6, 4.7
	10/24	4.7
10	10/29	5.1, 5.2
	10/31	5.2, 5.3
11	11/5	**Test 3**
	11/7	5.4, 6.1
12	11/12	6.1
	11/14	6.2
13	11/19	6.3
	11/21	**Test 4**
14	11/26	Thanksgiving Holiday
	11/28	Thanksgiving Holiday
15	12/3	6.4
	12/5	Make Up
16	12/10	Finals Week

Section	Topic	Other Optional Exercises
	Syllabus review	
F.1	Simple Interest and Discount	357/1,5,9,13,21,27,29
F.2	Compound Interest	366/3,5,13,17,34
F.3 F.4	Annuities & Sinking Funds Amortization	374/3,7,17,21,23 383/1,7,11,15,31,43
F.4	Amortization	383/1,7,11,15,31,43
1.1	Mathematical models	13/1,3-5,7,10,13,15,23,27,29,31,37,51
1.2	System of Linear Equations	26/1,5,9,13,17,19,31
1.3	Gauss Elimination Sys Linear Equations	45/1-13,29,33,37,39,47
1.3	Gauss Elimination Sys Linear Equations	45/1-13,29,33,37,39,47
1.4	System of Linear Equations with Non-Unique Solutions	62/1-12,17-25odd,51,56
1.5	Method of Least Squares	74/10,13,19,31
2.1	Introduction to Matrices	94/1,3,21,43
2.2	Matrix Multiplication	108/1-15odd,35,41,53
2.3	Matrix Inverse	122/1-13odd,27,48
2.4	Additional Matrix Applications	136/1,3
3.1	Linear Programming Problems	150/1-13odd,15,21
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3.2 3.3	Graphing Linear Inequalities Graphing Solutions of Linear Programming Problems, Post Optimal Analysis	165/1-15odd,25,31,43,49-59odd 177/1-7,11,23-31odd,41 182/4,6
3.3	Graphing Solutions of Linear Programming Problems, Post Optimal Analysis	177/1-7,11,23-31odd,41 182/4,6
4.1 4.2	Introduction to Sets Number of Elements in a Set	191/1-7,11,13,23-29odd,47,51 199/1-11odd,21,23,25
4.3	Sample Space and Events	207/1-9odd
4.4	Basic Probability	214/1-14,19,21,23,29
4.5	Rules of Probability	222/1-18,31,33
4.6	Conditional Probability	234/1-17odd,25,27,37,39
4.7	Bayes' Theorem	243/1-7,9,21,25,31
5.1	The Multiplication Principle and Permutation	262/1-21odd,25,27,31,35
5.2	Combinations	270/1-21odd,25,27,29,31,35
5.3	Probability Applications of Counting Principle	276/1,3,5,7,10,11,25,27
5.4	Bernoulli Trials	282/1-5odd
6.1 6.2	Random Variables and Statistics Measures of Central Tendency	300/1-9odd,11,19,21 312/1-11odd,33,35,37
6.3	Measure of Spreads	325/1-9odd,19,21,25
6.4	The Normal Distribution	3371-5odd,9,11,23