EGR 505 Course Syllabus

Managerial Finance for Engineers

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INSTRUCTOR INFORMATION

Name	Office Phone	Mobile Phone	Email	Office Location
Ed Addison	910-398-1200	910-398-1200	eraddiso@ncsu.edu	Virtual

Ed Addison, is Director of AI Solutions Delivery for IQVIA, a world leader in using data science in healthcare. Ed is also Chairman of Cloud Pharmaceuticals, a Research Triangle Park company from Duke University that applies AI to drug discovery and development, and has a large pipeline of novel drug candidates. Ed is further a technology adviser to Quantum Ventures, a venture fund that focuses on technology and healthcare. With over 30 years of experience, Ed is on the advisory board or board of directors of a number of companies deploying novel technologies in life sciences, including Valor Diagnostics, Drug Logic, Parallel Profile, PolarisQB, and Quantum Cures Foundation.

With a technical background in Artificial Intelligence and Bioinformatics, and a strong business development and capital raising background, Ed is an industry executive, an adjunct professor and an established serial entrepreneur of disruptive ventures. Ed has three degrees in engineering (with a focus in bioinformatics and AI), an MBA and a law degree.

Ed has taught at NC State as an adjunct lecturer for over 12 years. He has taught courses in electrical and biomedical engineering, product management, entrepreneurship, and engineering management. Ed's contact information can be found below. He further invites students to connect with him via Linked In.

Virtual Office Hours

Wednesdays 4-6pm, and by Zoom appointment

Preferred Method of Communication

Email eraddiso@ncsu.edu is my preferred communication method, expect a response within 24 hours
Text 910-398-1200 [between 7am and 9pm] for more urgent matters, do not call without appointment

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COURSE INFORMATION

Course Website: https://wolfware.ncsu.edu/courses/my-wolfware/
Course Credit Hours: [3 credits]

Meeting Time and Tool Used

Synchronous consultations, if needed, will be arranged via Zoom by appointment

Prerequisites/Corequisites

Graduate standing in EOL or another MS program, seniors by permission of program director

COURSE OVERVIEW

Course Description

Engineers are often called upon to solve many of the company's biggest problems. These problems typically cross functional boundaries and require a working knowledge not only of the technical considerations but also considerations association with other key areas of the business. One such area, often overlooked by technical professionals is the language of business which often requires a good working knowledge of key principles of accounting and finance. The structure of this course is not to take a traditional finance class and offer it to engineers. The course is structured to use a pragmatic approach to teach engineers the most relevant and significant financial concepts they will need to differentiate themselves in leadership positions in their companies. The class includes both individual and collaborative (team) learning.

This course is an "Executive Summary" level course in the subject of Managerial Finance, as adapted for engineers. The primary goal is for the students to become familiar with the language, common computations, and statements of finance as applied to technical projects and products, and to be able to make decisions for such projects and products as well as develop budgets. The course is not a course to train a CPA or finance expert. It will enable the student to communicate with finance professionals, apply the concepts to engineering, and make better decisions. There will be overview lectures, readings, regular group spreadsheet projects, individual homework on basic concepts. The course is broad rather than deep, intending to expose students to the major concepts of finance and how they overlap the engineering manager's job. Many chapters are referenced in this course, but only core portions of each are covered. Course exercises and projects are chosen from engineering or high-tech examples rather than nontechnical businesses.

Structure

- This course delivers all learning materials, activities, and assignments, through **Moodle**, a secure and easy-to-use online learning platform.
- The online section of this course is completely **asynchronous**, which means that students have no real-time class meeting requirements. The in-class section of this course meets on Fridays from 1:30-4:00, and the remainder of the course is online. Lectures are recorded so that students who miss a lecture may still view the lecture.
- Learning activities include reading assignments, quizzes, videos, discussion forums, and individual and group projects and "lab" assignments (i.e., homework problems)..
- This course consists of an orientation to the course, followed by four 3-week modules, and then a final exam. The 3-week modules consist of two lecture weeks followed by a group project week. Each module begins on a Friday and ends on Thursday three weeks later. Assignments are due by the posted dates, usually on Sundays (see course assignment calendar or posted assignments in Moodle).

LEARNING OUTCOMES

Upon completion of this course, students will be able to:

1. Apply basic tools of finance to the needs of an engineering manager.
2. Read and interpret financial statements and apply the information to management needs.
3. Understand the time value of money and cost of capital as applied to capital projects.
4. Prepare budgets for engineering projects and products.
5. Determine the ROI on capital projects and investments.
6. Effectively make short and long term financial decisions for an engineering firm or division.
7. Communicate effectively with financial professionals including accountants and CFOs.

COURSE MATERIALS

Required Textbook and/or Software

Principles of Managerial Finance, 16th edition, Chad Zutter and Scott Smart, Pearson Publishing. Students may use the printed book or the electronic book and may rent or buy the book.

Students will work extensively in "My Lab Finance", the companion problem solving and evaluation site. Both homework problems and group projects will be drawn from this lab and graded online by the lab resources.

TECHNOLOGY REQUIREMENTS

Hardware

NC State's Online and Distance Education provides [technology requirements and recommendations](#) for computer hardware.

Software

The following technologies should be available to you to fully engage in this course.

- > [Moodle and Wolfware](#)
    - o [Moodle Accessibility Statement](#)
    - o [Moodle Privacy Policy](#)
    - o [NC State Privacy Policy](#)
- > [Adobe Reader](#) (for reading PDF files)
    - o [Accessibility Statement](#)
    - o [Adobe Privacy Policy](#)
- > [Zoom](#):
    - o [Zoom Accessibility Statement](#)
    - o [Zoom Privacy Policy](#)
- > [Panopto](#)
    - o [Accessibility Features](#)
    - o [Privacy Policy](#)
- > [Office 365](#)
    - o [Accessibility Statement](#)
    - o [Privacy Policy](#)
- > [TopHat](#)
    - o [Accessibility Statement](#)
    - o [Privacy Policy](#)
- > Specific mobile applications
- > Headsets with microphone (optional for synchronous events)

Minimum Computer and Digital Literacy Skills

- > Obtain regular access to a reliable internet connection
- > Proficient typing and word processing skills (MS Word, text editors, Google Docs)
- > Ability to use online communication tools, such as email (create, send, receive, reply, print, send/receive attachments), discussion boards (read, search, post, reply, follow threads), chats, and messengers.
- > Download and upload attachments
- > Knowledge of copy/paste and use of spell check
- > Use computer networks to locate and store files or data
- > Internet skills and ability to perform online research using various search engines and library databases. Visit [Distance Learning Services](#) at NC State Libraries for more information.
- > Properly cite information sources using MLA format

NETIQUETTE

Netiquette is the term used to describe the special set of rules for online communication. Students should be aware that their behavior impacts other people, even online. I hope that we will all strive to develop a positive and supportive environment and will be courteous to fellow students and your instructor. Due to the nature of the online environment, there are some things to remember when taking an online course and engaging with others.

> **Do**: Follow the same standards of behavior that you subscribe to offline. Keep in mind that all online communication is documented and therefore permanent.
> **Don't**: Flame others in discussion forums. Flaming is the act of responding in a highly critical, sarcastic, or ridiculing manner – especially if done on a personal level. Remember that these discussions are meant for constructive exchanges and learning!

> **Do**: Ensure you are responding to forums by the due date, to leave time for peers to comment on your response.
> **Don't**: Go for long periods of time without communicating to your instructors or classmates. It is important to stay a part of the online community!

> **Do**: Remember to read over your posts before selecting "Submit."
> **Don't**: Use slang, poor grammar, and other informal language in discussion forums or email messages to instructors or classmates.

GRADING

Grading Policy

> **20% - Homework:** - students will be required to complete 4 problem sets, one per module, via a "Lab". Students submit each problem set for online grading by the textbook publisher. Problems will be like homework. Each homework set is 20 problems.
> **20% - Group Assignments**: There will be a group spreadsheet project for each of the 4 Modules. Each group will submit one spreadsheet, which will be submitted to the Lab for online grading prior to submission in Moodle. The spreadsheet problems are more in depth than the homework problems.
> **20% - Quizzes**: There will be four online quizzes, one for each of the modules, consisting of approximately 10-15 questions each, to be taken in a single sitting of one hour or less, open book, multiple choice and short answer, machine graded by percentage.
> **40% - Final Exam:** - taken online in one 2.5 hour sitting over a 3-day period, it is open book, multiple choice, and short answer, approximately 40 questions, machine graded by percentage. Of these questions, 30 of them will be like homework problems and the remaining 10 will based on the material but different than previously assigned problems.
> **This course is machine graded!** The grading program has been vetted and is accurate. Grading Scale

This course uses this grading scale. The entire course is machine graded. Grades are assigned precisely according to this scale. Students must avoid requesting extra points at the end of the term. You get what you earn and there are no exceptions!

Low	Letter	High
97 ≤	A+	≤ 100
93 ≤	A	< 97
90 ≤	A-	< 93
87 ≤	B+	< 90
83 ≤	B	< 87
80 ≤	B-	< 83
77 ≤	C+	< 80
73 ≤	C	< 77
70 ≤	C-	< 73
67 ≤	D+	< 70
63 ≤	D	< 67
60 ≤	D-	< 63
0 ≤	F	< 60

COURSE SCHEDULE

Week	Start	Module	Topic	Reference	Required Activities	Due
Week 1	1/8	Intro	Course Intro	Ch-1	Practice HW	1/16
Week 2	1/16	1	Financial Statements	Ch-3	–	
Week 2, cont.	1/22	1	Time Value of Money	Ch-5	–	
Week 3	1/29	1	Group Work	Ch 6-7	HW 1	2/5
Week 4	2/5	2	Risk and Return	Ch-8	Quiz 1	2/12
Week 5	2/12	2	The Cost of Capital	Ch-9	Group Project 1	2/19
Week 6	219	2	Group Work	Ch-4	HW 2	2/26
Week 7	2/26	3	Capital Budgeting	Ch-10	Quiz 2	3/4
Week 7	3/4	3	Cash Flow Analysis	Ch-11	Group Project 2	3/18
Break	3/11					
Week 8	3/18	3	Group Work	Ch-12	HW 3	3/25
Week 9	3/25	4	Working Capital Management	Part 7	Quiz 3	4/1
Week 10	4/1	4	International Finance	Part 8	Group Project 3	4/8
Week 11	4/8	4	Review	All Prior	HW 4	4/15
	4/15	Study	No Lecture	Textbook	Quiz 4 and Group Project 4	4/22
Week 15	4/22	Exam	Take Exam 4/27-30	Textbook	Final Exam	4/30

Topics Covered:

- Role of Managerial Finance
- Financial Statement Analysis
- Ratio Analysis
- Financial Planning
- Time Value of Money
- Valuation of Securities
- Risk and Return, ROI
- Cost of Capital
- Capital Budgeting

- Cash Flow Analysis
- Budget Refinement
- Capital Structure
- Working Capital Management
- Liabilities Management
- Derivative Securities
- Mergers
- International Finance

COURSE POLICIES

Late Assignments

Late assignments are accepted in this course up to one week late for a 20% penalty. Due dates are selected to be about a week beyond when the material is covered, giving you plenty of time and flexibility on when to complete assignments. The late date is a "drop dead" date. You cannot submit beyond the late date. This is usually one week beyond the due date, but for assignments late in the course, the late date does not go beyond the final exam start date. You should try to complete the assignments earlier than posted ideally. There are no exceptions and due dates will not be modified for any reason. The final exam and quizzes may not be accepted late. All assignments are due on the last day of class regardless.

Incomplete Grades

Incomplete grades will be allowed by discretion for extenuating personal circumstances. When an Incomplete grade request is granted, it must be made up within 30 days and a 5% penalty applies.

Attendance and Participation

Students must attend or view all lectures. Students must actively participate in all group assignments. Attendance is not graded, but failure to attend will adversely affect your grade. Participation in class or in the online forums is encouraged. Participation is not graded, but students who consistently do not attend will have their letter grade reduced by one full letter. (Example, a student with an A- who attended less than half the classes will receive a B- in the course.)

UNIVERSITY POLICIES

Academic Integrity and Honesty

Students are required to comply with the university policy on academic integrity found in the Code of Student Conduct. Therefore, students are required to uphold the university pledge of honor and exercise honesty in completing any assignment. Please refer to the Academic Integrity web page for a detailed explanation of the University's policies on academic integrity and some of the common understandings related to those policies.

Students may be required to disclose personally identifiable information to other students in the course, via electronic tools like email or web-postings, where relevant to the course. Examples include online discussions of class topics and posting of student coursework. All students are expected to respect the privacy of each other by not sharing or using such information outside the course. Students are responsible for reviewing the NC State University PRR's which pertains to their course rights and responsibilities:
> Equal Opportunity and Non-Discrimination Policy Statement and additional references
> Code of Student Conduct
> Grades and Grade Point Average

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> [Credit-Only Courses](#)
> [Audits](#)

Students with Disabilities

Reasonable accommodations will be made for students with verifiable disabilities. In order to take advantage of available accommodations, students must register with the [Disability Resource Office](#) at Holmes Hall, Suite 304,Campus Box 7509, 919-515-7653 . For more information on NC State's policy on working with students with disabilities, please see the [Academic Accommodations for Students with Disabilities Regulation (REG02.20.01)](#)

Trans-Inclusive Statement

In an effort to affirm and respect the identities of transgender students in the classroom and beyond, please contact me if you wish to be referred to using a name and/or pronouns other than what is listed in the student directory.

Basic Needs Security

Any student who faces challenges securing their food or housing or has other severe adverse experiences and believes this may affect their performance in the course is encouraged to notify the professor if you are comfortable in doing so. Alternatively, you can contact the Division of Academic and Student Affairs to learn more about the Pack Essentials program https://dasa.ncsu.edu/pack-essentials/

COURSE EVALUATIONS

ClassEval is the end-of-semester survey for students to evaluate instruction of all university classes. The current survey is administered online and includes 12 closed-ended questions and 3 open-ended questions. Deans, department heads, and instructors may add a limited number of their own questions to these 15 common-core questions.

Each semester students' responses are compiled into a ClassEval report for every instructor and class. Instructors use the evaluations to improve instruction and include them in their promotion and tenure dossiers, while department heads use them in annual reviews. The reports are included in instructors' personnel files and are considered confidential. Online class evaluations will be available for students to complete during the last two weeks of the semester for full semester courses and the last week of shorter sessions. Students will receive an email directing them to a website to complete class evaluations. These become unavailable at 8am on the first day of finals.

> Contact ClassEval Help Desk: classeval@ncsu.edu
> [ClassEval website](#)
> [More information about ClassEval](#)

SYLLABUS MODIFICATION STATEMENT

Our syllabus represents a firm agreement. It outlines the topics we will cover and the order we will cover them in. Dates for assignments are fixed, subject to the late policy. The instructor reserves the right to modify the syllabus with advance notice, but this is expected to occur very rarely, and only for special circumstances.

COURSE TEXTBOOK, ASSIGNMENTS AND TESTS

All course assignments and tests can be found in "MyLab". A tentative statement of assignments is below, but these are subject to change based on course progress and actual topics covered.

HW1: Chap 3 [4,10, 19, 22, 23]; Chap 5 [1,11,21,35,43], Chap 6 [6,11,21, 26, 30], Chap 7 [1,6, 10,15,19]
HW2: Chap 8 [2,5,6,24,26,30, 35]; Chap 9 [1,11,14,19, 21,24]; Chap 4 [3,8,11,14,17, 18,21]
HW3: Chap 10 [4,11,16,18,24,26,28]; Chap 11 [2,7,13,19,25,28,30]; Chap 12 [6,10,21,22,25,28]
HW4: Chap 15 [1,4,6,8,12,14]; Chap 16 [6,13,15,19,20]; Chap 19 [1,2,4,5]; Chap 17 [1,4,8,12,16]
Group Project 1: Spreadsheet Exercises from Chapters 3 and 5
Group Project 2: Spreadsheet Exercises from Chapters 8 and 9
Group Project 3: Spreadsheet Exercises from Chapters 10 and 11
Group Project 4: Spreadsheet Exercises from Chapters 16 and 19

The textbook for this course has many useful features. You should become familiar with them and use them for self-learning as the course progresses. This includes a required "lab", MyLab, where all graded assignments take place, and it also includes many ungraded problems are available for study.

You should ideally preview the chapters before class lecture, then listen to the class lecture. After that, read the chapters in detail, then try the "warm up" exercises and "self-test" problems (solutions are given to self-test problems in the appendix). From there, you should do the assigned homework. On average, there are 5 problems per chapter assigned as homework. You may submit multiple times, but it must be completed by the due dates. As a rule, homework due dates are not extended.

The PowerPoint for each lecture is posted in Moodle. These are subject to copyright, and they may not be shared or copied.

You have 4 homework assignments of about 20 problems each. You have three weeks to do each of these. However, you should do them weekly as we cover about one chapter per week in this course. Falling behind is a bad idea, as it is hard to catch up. Completing 6-7 problems per week is reasonable but completing 20 problems the day before the due date is not.

The group projects are spreadsheet exercises which also come from the textbook and are in MyLab. Your group may work these together, but you must submit individually. This gives you a chance to modify the answer if you do not agree with the group. There are three of these assignments in this course. You may only submit them once. Late submissions are docked 20% and accepted up to one week late. No assignments may be submitted after the last day of the course.

All quizzes and the final exam are also done in MyLab. These are online, open book, no proctor required tests. However, they are timed and must be done in one sitting and may be submitted only once.

Grading for this course is automated. It is done by the programming in MyLab. Students may not ask the instructor for overrides. Your grade is your grade. Your final course grade is a conversion from your percentage average to the university grading scale. This is non-negotiable. In other words, do not email for a grade adjustment at the end of the course. It will be denied. This insures absolute fairness and integrity of all final grades.