

**UNIVERSITY OF TEXAS AT EL PASO
DEPARTMENT OF ECONOMICS AND FINANCE
FIN 4311A MANAGERIAL FINANCE LABORATORY, 1.5 CR.
FALL 2020 SYLLABUS**

Section 003, CRN 15351, ONLINE

INSTRUCTOR AND RELATED INFORMATION

| | |
|--|--|
| Erik Devos Professor of Finance Department of Economics and Finance Email:hdevos@utep.edu | Office: BUSN 102 Student Office Hours: 10:00am-11:00am Friday and by appointment (through blackboard) |
|--|--|

COURSE MATERIALS:

4 GB jump/thumb drive minimum
Projects Video Instructions on Course's Blackboard Site

OBJECTIVES:

This Managerial Finance Laboratory (Fin 4311) corresponds to the Managerial Finance Course (Fin 4311) and as such has several objectives that correspond with the objectives in the lecture course.

First, this laboratory will show the student how to apply managerial finance theory using financial data relevant to managerial finance integrated with use of a standard software package.

Second, the laboratory will expose the student to the process of creating financial models in the area of managerial finance.

Third, the laboratory will expose and educate the student in the use of Excel. Excel is a standard software package used extensively on Wall Street and in industry.

Finally, the data used in the laboratory projects is the same data used by practitioners in industry. The laboratory will expose and educate the student in the use of real world data, specifically from the COMPUSTAT financial statements database and the Center for Research in Security Prices (CRSP) stock market database in the Wharton

Research Data Services (WRDS) platform.

OUTCOMES AND MEASUREMENT:

Students will demonstrate knowledge of the application of managerial finance analysis through a set of assigned laboratory projects that will provide experience in highly marketable and valuable skills.

An additional objective of the managerial finance laboratory is the creation of a portfolio of project reports in the area of managerial finance. The reports can be used by students in interviews to show potential employers the quality of the student's work and demonstrate the skills acquired in the course of the laboratory

Student achievement in course objectives will be assessed based on performance on exams, accompanying lab projects, and through in class participation/attendance.

CATALOG DESCRIPTION/PREREQUISITES:

FIN 4311A - Portfolio Analysis laboratory (1.5)

STUDENT ACCOMODATIONS:

If you have a disability and need classroom accommodations, please contact The Center for Accommodations and Support Services (CASS) at 747-5148, or by email to cass@utep.edu, or visit their office located in UTEP Union East, Room 106. For additional information, please visit the CASS website at www.sa.utep.edu/cass.

E-Mail Policy of the Finance Department: It is the policy of the finance department that all e-mails sent to professors or teaching assistants be of a professional nature and format. A formal greeting and salutation are required. Proper grammar, spelling, and format are required. You must clearly state the problem or question that will be addressed. On the subject line of the email you must identify the class, section, time, and location where the class meets. We reserve the right to not reply to any e-mail that does not meet these requirements and is not of a professional nature.

Laboratory sessions:

Given that we are online there are no lab sessions scheduled. However, if you have questions you are encouraged to visit the online office hours on Friday (on blackboard).

LABORATORY PROJECT REQUIREMENTS / DEADLINES:

NOTE:

**Before starting project 1 make sure that the firm you have been assigned has a beta either in finance.yahoo.com or google.com/finance
At these sites enter your firm's ticker symbol**

**Also, make sure that the firm you have been assigned has at least 5 bonds in the website: finra-markets.morningstar.com/BondCenter/
At this site tick on Search and enter your firm's ticker symbol**

Your course grade will be determined by your weighted performance in the following categories, with the final course grade based on the 10 point scale, i.e. 90 percent is an A, 80 percent is a B, etc.

| <u>ASSIGNMENT</u> | <u>PROJECTS</u> | <u>PROJECT DUE DATES</u> | |
|--|--|--------------------------|---------------------------|
| | | <u>Excel file***</u> | <u>Written report****</u> |
| 1. Project 1 Sales Forecasting – cannot skip | 100 total* | Sept 19, 2020 | N/A |
| | 50 for Excel spreadsheet | | |
| | Excel report late submission deadline is Sept 20, 2020 with 10% penalty. | | |
| 2. Project 2 Income, Cash Flow and Balance Sheet Forecasting – cannot skip | 100 total | Oct 3, 2020 | Oct 8, 2020 |
| | 50 for Excel spreadsheet– requires Project 1 sales forecast | | |
| | 50 for Written report | | |
| | Excel report late submission deadline is Oct 4, 2020 with 10% penalty. | | |
| | Written report is due on the indicated date, by 4:00pm at the latest, with submissions after that date not accepted. | | |
| 3. Project 3 Financial Cash Flow Forecasting and Firm Value | 100 total | Oct 17, 2020 | Oct 22, 2020 |
| | 50 for Excel spreadsheet – requires Project 2 cash/balance sheet forecast | | |
| | 50 for Written report | | |
| | Excel report late submission deadline is Oct 18, 2020 with 10% penalty. | | |
| | Written report is due on the indicated date, by 4:00pm at the latest, with submissions after that date not accepted. | | |
| 4. Projects 4 and 5 (counts as one assignment) Weighted Average Cost of Capital (WACC) and Advanced Capital Budgeting – cannot skip | | | |

| | | |
|--|-------------|--------------|
| 100 total** | Nov 7, 2020 | Nov 12, 2020 |
| 25 for Project 4 Excel spreadsheet | | |
| 25 for Project 5 Excel spreadsheet – requires Project 1 sales forecast and Project 4 WACC | | |
| 50 for Written report | | |
| Excel report late submission deadline is Nov 8, 2020 with 10% penalty | | |
| Written report is due on the indicated date, by 4:00pm at the latest, with submissions after that date not accepted. | | |

5. Project 6. Monte Carlo Simulation with Capital Budgeting

| | | |
|--|--------------|-----|
| 100 total* | Nov 26, 2020 | N/A |
| 50 for Excel spreadsheet | | |
| Excel report late submission deadline is Nov 27, 2020 with 10% penalty | | |

Attendance

100 points

Total Points*****

500 points

* Since for projects 1 and 6 no written report is required, the 50 points value for the required Excel file is converted to 100 points maximum base value by taking the Excel grade earned for the project and dividing it by 50, and then multiplying by 100.

** Since Projects 4 and 5 are combined into one project worth 100 points, the Excel spreadsheets for each of these projects are worth 25 points. The computer grading system grades each of the Excel spreadsheets for projects 4 and 5 using a 50 points base. Thus, the computer system's combined grade for the Excel spreadsheets for projects 4 and 5 will be divided by 2 to make their combined grade 50 points rather than 100 points

***Excel files must be submitted to the course's Blackboard website by midnight on the indicated day as shown above.

****Written reports must be submitted to the course's Blackboard website by 5:00pm on the indicated day.

*****The total points add up to 500 because the lowest of the five assignment grades will be dropped – if an assignment is not turned in then its grade will be zero and this will be *de facto* the assignment grade that is dropped – **except note that you cannot skip project 1, 2 and 4/5 as the assignments associated with these projects are required for continuation of project 3 and 6.**

PROJECTS:

There are six Excel based projects for this class, with projects 4 and 5 counting as one assignment. Each project will incorporate advanced features of Excel and use real world data. Formal project reports are due for each project.

Students are encouraged to create a portfolio of these projects that can be used in interviews to demonstrate their proficiency in excel applications, writing, and finance.

Requirements for each project are posted on blackboard. These requirements also appear in this syllabus. Each student will be assigned a company to analyze when a project requires such.

The students will be guided through the projects by a series of YouTube videos showing the step by step process in Excel – these will be available in the course's Blackboard site. Students are encouraged to assist or collaborate with each other with the technical aspects of the excel projects. While the labs are scheduled one day a week for one hour and twenty minutes, outside work will be required.

A written report is required for projects 2, 3 and 4-5. Written reports are individual assignments, such that students should not assist or collaborate with each other on the writing of the written report. The style that the written report should follow is shown in this syllabus. Written reports will be returned to students after being graded, with feedback shown therein. Consequently, written report grades will not be posted on Blackboard.

The Excel portion for all projects is to be submitted on the class Blackboard website. The submission is timed and late submissions will be penalized. For projects 2 and 3, the Excel portion of the project is worth 50% of the grade and will be automatically graded with a computer program, while the written report is worth 50% of the grade. For projects 4 and 5, which count as one assignment, the Excel portion of each project is worth 25% of the grade (50% in total for both projects) and will be automatically graded with a computer program, while the written report is worth 50% of the grade. For projects 1 and 6, there is no written report required, such that the Excel portion, which will be automatically graded with a computer program, is worth 100% of the project's grade. Excel files will be returned via Blackboard to students with error markings shown by the computer grading process, and Excel file grades will be posted on Blackboard.

In the event of a Blackboard crash on the day of a submission, students will be given 1 full day after Blackboard returns to operation to submit. The Blackboard crash must be significant in the view of the professor and the extension is at the discretion of the professor assigned to the class.

Project 1: Sales Forecasting

Project 2: Income, Cash Flow and Balance Sheet Forecasting

Project 3: Financial Cash Flow Forecasting and Firm Value

Note: Projects 4 and 5 count as one project assignment.

Project 4: Weighted Average Cost of Capital

Project 5: Advanced Capital Budgeting

Project 6. Monte Carlo Simulation with Capital Budgeting

ACADEMIC HONESTY:

Academic honesty is paramount to the existence of academic integrity in a course. During the taking of exams, no student in this course is to receive or give assistance to any other student in this course, nor should assistance through the use of unauthorized materials be used by anyone. In fulfilling other course requirements, work submitted by any student, or any assigned group of students in the case of group projects, must be the original work of that student or group, with appropriate credit given when other sources are used.

Section 1.3.1 of UTEPs *Handbook of Operating Procedures* provides the basis for the academic administration of charges of scholastic dishonesty. The *Handbook* states: "Any student who commits an act of scholastic dishonesty is subject to discipline. Scholastic dishonesty includes, but is not limited to cheating, plagiarism, collusion, the submission for credit of any work or materials that are attributable in whole or in part to another person, taking an examination for another person, any act designed to give unfair advantage to a student or the attempt to commit such acts. Disciplinary proceedings may be initiated against any student for any of the following acts or omissions:

1.3.1.1 "cheating" includes:

- a.** copying from the test paper of another student, engaging in written, oral, or any other means of communication with another student during a test, or giving aid to or seeking aid from another student during a test;
- b.** possession and/or use during a test of materials which are not authorized by the person giving the test, such as class notes, books, or specifically designed "crib notes";
- c.** using, obtaining, or attempting to obtain by any means the whole or any part of non-administered test, test key, homework solution, or computer program, or using a test that has been administered in prior classes or semesters, but which will be used again either in whole or in part without permission of the instructor; or accessing a test bank without instructor permission;
- d.** substituting for another person, or permitting another person to substitute for one's self, to take a test; and

e. falsifying research data, laboratory reports, and/or other records or academic work offered for credit;

1.3.1.2 "plagiarism" means the appropriation, buying, receiving as a gift, or obtaining by any means another's work and the unacknowledged submission or incorporation of it in one's own academic work offered for credit, or using work in a paper or assignment for which the student had received credit in another course without direct permission of all involved instructors.

1.3.1.3 "collusion" means the unauthorized collaboration with another person in preparing academic assignments offered for credit or collaboration with another person to commit a violation of any provision of the rules on scholastic dishonesty."

GENERIC REPORT FORMAT

Project Title

Example for Project 2 - Income, Cash Flow and Balance Sheet Forecasting by

Joe (Jan) Smith

February xx, 2018

Finance 4311 Laboratory

Executive Summary: The Executive Summary should state the overarching objective of the project and state the major results that were found in about a maximum 200-word paragraph.

Word Count _____.

1.0 Introduction: The introduction should state the overall objectives of the project in more detail than in the executive summary, and state how the objectives are to be accomplished. The introduction should not present the results. The introduction should also give the reader an idea of what to expect in the remainder of the report along the lines of the following type of statement – “Section 2 presents the data and the sample used in the analysis (divided this section into two subsections, one for data and one for sample), whereas Section 3 presents the results concerning the (note this section can be divided into subsections if there are results for different components of the project). Section 4 presents the overall conclusions and summary.” Thus, the introduction should cover the goals of the project, the methods used to accomplish these goals, and the structural outline of the report.

2.0 Data and Sample:

2.1 Data – State the time periods involved in the data set (from year 20xx to 20xy), the frequency of the data (daily, monthly, yearly), and the sources from which the data comes.

2.2 Sample – Is the data for stocks, bonds – if stocks, mention the stocks, if bonds, mention the bonds, and give some description about them, including the ticker symbol,

an idea of what the company does, the industry it is in . Is the data some balance sheet data, or income statement data – if so, mention the items in the balance sheet or income statement that are being used. And also mention the company, its ticker symbol, what the company does, the industry it is in.

3.0 Results:

This section of the report presents the results obtained from the project. It describes the results and backs up the written description with appropriate numbered tables and graphs that are neatly constructed with appropriate headers and legends. Examples are shown in the associated videos. Tables and graphs should be appropriately integrated with the written report. This section should be subdivided by each results topic. That is to say, the subdivisions for example for project 2 should be shown as follows:

3.1 Sales Forecast – present results (incorporate the sales forecast from project 1)

3.2 Income Forecast– present results

3.3 Cash Flow Forecast – present results

3.3. Balance Sheet Forecast – present results

4.0 Overall Summary and Conclusion: An overall summary of your results should be presented in this section and also your overall conclusions, including any recommendations. This section should be no more than one page in length.

Appendix: The appendix would include any analysis tables separate from those in the body of the report and any other supporting material you wish to include in the report that does not belong in the body of the report. Your data is NOT to be included in this section. The appendix will not be page numbered, that is, its length will not count against or toward the maximum length required for the report.

Name _____

Lab – Managerial Finance

Assignment _____ Project _____

Written Report Grade _____ (maximum grade 50 points)

Grading Parameters for the Written Report

The report involves writing a 6 (double spaced) page report (+/-2 pages) of the project, excluding ancillaries such as the heading page and any tables or figures, submitted using a normal font like courier or arial with a font size of 12. The report should also be printed on 8.5 by 11 paper with maximum 1.5 inch margins, and simply stapled. The report must summarize the facts in the project following as its guideline the required outline structure. The writing should be neat, seamless and smooth using sound financial logic, and an understanding of the major themes and issues in the project. The following questions will be considered in the grading of the written report.

Is the Outline structure required for the report followed? **20%, 10 points**

Is the Material covered/described about the report in the Outline complete? **20%, 10 points**

Is the Writing in the Report well crafted, as well as neat, seamless and smooth using sound financial logic, and showing an understanding of the major themes and issues in the project? **20%, 10 points**

Is the Report neatly presented in 12 point Ariel or Courier font with the pages properly numbered, the paragraphs double spaced, misspellings and badly crafted sentences minimized, the writing efficiently done with minimal repetitions, and the length parameters honored? **20%, 10 points**

Are the Tables and Figures appropriately numbered and titled, with appropriate information contained within, and are they properly integrated into the report and the text within it? **20%, 10 points**

Was the report submitted when due? If not the report will be penalized a letter grade or, if the late deadline expires, not be accepted. Yes or No

Note: Printed copies must be legible. You are responsible for the quality of your print job. Print jobs that uses ink that is faded and which cannot be read will not be accepted. Tables which are not legible will not be accepted. Illegible reports will be penalized one letter grade after a legible print job is produced?

4311 Finance Lab
Project 1

Time Series Sales Forecast

Comment: Project overviews are meant to layout the minimum requirements for a given project and to explain the motivation for a given project. Meeting the minimum requirements does not guarantee an A or even a passing grade. These projects are very rich, with many possible extensions to the analysis, various interpretations and recommendations from the results, and alternative methods of analysis that can be applied or discussed relative to the primary method introduced in the project. The finance faculty wishes to give students a chance to differentiate themselves to potential employers in the interview process and have left “meat on the bone” for the students to explore.

In industry, project overviews are rarely, if ever, created. Your boss will simply say “do this” and expect you to formulate the required aspects of the project. In addition, detailed written reports, as are required for this class, are also rarely done in industry. However, employers want to know that potential employees are not only technically capable, but also can communicate their findings effectively in written form. Proof read your papers. DO NOT write sentences that you do not understand but think that the professor will. Use proper grammar, spelling, and effective organization of the material presented. Do not think “what does the professor want”, rather think “what would impress my boss” or “what would get the customer to choose my company”. Bosses and customers are busy. They hate too much information more than to little information. Be clear and to the point. Look for ways to table or plot critical information so that readers can understand the results at a glance. Good Luck.

Motivation: Finance is about the future while accounting is about the past. For finance, predicting the future consists of two parts; the estimate and the standard error of the estimate. The estimate represents the value you expect to occur in the future. The standard error of the estimate represents the accuracy or confidence you have in this prediction. In general, the smaller the standard error of the estimate, the better the model is considered to be.

The first project for the 4310 lab is to create a forecast model for sales. Forecasting sales is a natural starting point for companies. Sales drives labor requirements, material requirements, short term and long term financing requirements, and just about every other aspect of a company. Sales can be forecast on a short term basis, next week, next month, next year, or on a long term basis over many years. We adopt a long term sales forecast method because future projects in the 4310 lab on capital budgeting will be based on the long term sales forecast. While long term sales forecast models can be very complex, we selected a simple time series approach that is often the starting point for more complex modeling methods.

The goal of forecasting is to create an accurate forecast, not to ‘fit’ the historic data used to generate the forecast. Typically, the most recent several data points are

not used in forming the base model, but used to validate the out of sample predicting power of the model. While small standard errors of the estimate is considered a better model, a model with a slightly higher standard error but a better error structure to the out of sample data points is considered the better forecast model. After a model is selected, it is updated with the out of sample data points to create the final forecast model.

This project will give the student practical skills in forecasting. The forecast model created by the student will then be used in the balance of the projects, as is typical of a sales forecast in industry. Various Excel skills will be acquired in this project.

Basic requirements of the report:

1) A short description of the company assigned to the student is required. The description should be no longer than one page, double spaced, 11 point type, Garamond font. Give the reader key details of what the company does and how it performs, without boring them with details about the founding date, the address, and other needless information that can be quickly referenced but has no bearing on the sales forecast. Know your company!

2) Plot of sales relative to year with a linear fit line. This plot will be used to explain any key changes in the sales values. You will need to identify and explain major changes in the sales values. This will require research into the company and past economic conditions that might impact the company. Less time, if any, should be spent on older data. Know your data and what is driving the changes in the data!

3) Three regressions are required: a straight time series regression, a change of intercept regression, and a change of slope regression. You will select the points where change of slope and change of intercept are included. The selection of these points must be clearly explained and justified.

For each regression an error plot must be generated and analyzed in the report. These error plots should include the out of sample points.

A table must be created for each of the base regression showing the relevant information. An overlay plot showing the raw sales information, the change of intercept forecast, the change of slope forecast, and the linear fit line must be created and discussed. A discussion is required comparing the regression methods and justifying the selection of one of the forecast models. The selected model should be updated using the out of sample points and the final confidants and other relevant information must be tabled.

4) All tables and plots, except the working tables, must be integrated in the text and labeled as Table 1, Table 2, or Figure 1, Figure 2 ect.

5) Working tables should be labeled and included in the appendix as indicated in the videos.

Remember, you are building a portfolio of projects and work examples that can be used in the interview process, not just creating a report for a grade. While the projects will give you many marketable skills in Excel, the ability to clearly communicate your findings is another marketable skill that can only be demonstrated through the writing of your report.

UTEP has support for writing. Proof read your papers and have someone else proof read your papers. Points will be deducted if your writing is poor or cannot be understood.

4311 Finance Lab
Project 2

Balance Sheet and FCF Forecast

Comment: Project overviews are meant to layout the minimum requirements for a given project and to explain the motivation for a given project. Meeting the minimum requirements does not guarantee an A or even a passing grade. These projects are very rich, with many possible extensions to the analysis, various interpretations and recommendations from the results, and alternative methods of analysis that can be applied or discussed relative to the primary method introduced in the project. The finance faculty wishes to give students a chance to differentiate themselves to potential employers in the interview process and have left “meet on the bone” for the students to explore.

In industry, project overviews are rarely, if ever, created. Your boss will simply say “do this” and expect you to formulate the required aspects of the project. In addition, detailed written reports, as are required for this class, are also rarely done in industry. However, employers want to know that potential employees are not only technically capable, but also can communicate their findings effectively in written form. Proof read your papers. DO NOT write sentences that you do not understand but think that the professor will. Use proper grammar, spelling, and effective organization of the material presented. Do not think “what does the professor want”, rather think “what would impress my boss” or “what would get the customer to choose my company”. Bosses and customers are busy. They hate too much information more than to little information. Be clear and to the point. Look for ways to table or plot critical information so that readers can understand the results at a glance. Good Luck.

Motivation: The sales forecast typically form the basis for the establishment of management goals, budgets, and plans throughout a firm. This project uses the sales forecast to create pro-forma estimates of the current assets of a balance sheet and free cash flow. The method introduced can also be applied to other financial statements. A critical aspect of forecasting and financial management is risk management. Risk, in the sense of the sales forecast, refers to the standard error of the estimate. In other words, the sales forecast will likely be different from the actual value achieved, but inside of the high and low limits with a high degree of probability. Management must develop plans that take this risk into account, such that the plans will work with the most probable range of sales values. As a simple example, a labor plan could include overtime and temporary workers when sales are on the high side or reduced working hours and layoffs if sales are on the low side. By making these plans ahead of time, companies can become more efficient and quickly react to changes in the market.

Change is a constant in business. Strong spread sheet technique includes the ability to quickly update tables and results with only minimal changes to inputs. The technique of dynamic tabling is introduced in this project using the VLOOKUP function of Excel. Proper tables for management and planning purposes should incorporate the

risk of the forecast from the standard error. Excel has a process called the Scenario Manager that quickly incorporates the forecast risk to generate tables that can be used for planning purposes. This project also introduced the students to the Scenario Manager of Excel.

Basic requirements of the report:

1) A short description of the company assigned to the student is required. The description should be no longer than one page, double spaced, 11 point type, Garamond font. Give the reader key details of what the company does and how it performs, without boring them with details about the founding date, the address, and other needless information that can be quickly referenced but has no bearing on the sales forecast. You may copy this from the prior report, incorporating any feedback from the professor.

2) A formatted table showing the mean, standard deviation, low, and high values of the percentage of sales for each item in current assets and current liabilities is required.

3) A pro-forma table of current assets, current liabilities, and working capital for 1, 5, and 10 years ahead of the current year is required. Discussion should focus on the change in total current assets, total current liabilities, and working capital.

4) A working capital scenario table is required for 1 year ahead. Discuss the key aspects of this table in your view.

5) A formatted table showing the mean, standard deviation, low, and high values of the percentage of sales for each item in free cash flow is required.

6) A pro-forma table of free cash flow for 1, 5, and 10 years ahead of the current year is required. Discussion should focus on the change in free cash flow.

7) A free cash flow scenario table is required for 1 year ahead. Discuss the key aspects of this table in your view.

8) All tables and plots, except the working tables, must be integrated in the text and labeled as Table 1, Table 2, or Figure 1, Figure 2 ect.

9) Working tables should be labeled and included in the appendix as indicated in the videos.

Remember, you are building a portfolio of projects and work examples that can be used in the interview process, not just creating a report for a grade. While the projects will give you many marketable skills in Excel, the ability to clearly

communicate your findings is another marketable skill that can only be demonstrated through the writing of your report.

4311 Finance Lab
Project 3

Free Cash Flow Firm Valuation

Comment: Project overviews are meant to layout the minimum requirements for a given project and to explain the motivation for a given project. Meeting the minimum requirements does not guarantee an A or even a passing grade. These projects are very rich, with many possible extensions to the analysis, various interpretations and recommendations from the results, and alternative methods of analysis that can be applied or discussed relative to the primary method introduced in the project. The finance faculty wishes to give students a chance to differentiate themselves to potential employers in the interview process and have left “meet on the bone” for the students to explore.

In industry, project overviews are rarely, if ever, created. Your boss will simply say “do this” and expect you to formulate the required aspects of the project. In addition, detailed written reports, as are required for this class, are also rarely done in industry. However, employers want to know that potential employees are not only technically capable, but also can communicate their findings effectively in written form. Proof read your papers. DO NOT write sentences that you do not understand but think that the professor will. Use proper grammar, spelling, and effective organization of the material presented. Do not think “what does the professor want”, rather think “what would impress my boss” or “what would get the customer to choose my company”. Bosses and customers are busy. They hate too much information more than to little information. Be clear and to the point. Look for ways to table or plot critical information so that readers can understand the results at a glance. Good Luck.

Motivation: By necessity, the data used in our projects is publically available data. A company will have more detailed internal data to forecast sales and other financial parameters. However, financial analyst can only legally use publically available data to evaluate stock prices and firm values. There are multiple ways to value a firm. P/E ratios, free cash flow, dividend discount models, and other methods are applied to value a company for mergers, acquisitions, and for investment decisions. In this project we use the sales forecast to estimate the value of the stock price and high and low limits for the price. The project uses a simple Monte Carlo simulation to estimate the value of a firm. In forecasting free cash flow, there is uncertainty about the level of sales and uncertainty about the percent of sales that will be free cash flow. It is the joint distribution of sales and percent free cash flow that should be used in the valuation of the company. Although not part of the project, the uncertainty of the discount rate can also be incorporated into the financial model. This project introduces the concept and application of a sales forecast, integrated with a Monte Carlo simulation, to value a company.

There are two key Excel concepts introduced in this project. The first concept is that of Excel macros. Macros allow the user to execute a series of commands at the

press of a button. We also introduce macro programming. There are many applications in finance and business where macros will be required. Our goal is to introduce the student to the macro process and programming language. The second Excel concept is Goal Seek. Goal Seek allow the Excel user to identify the exact input value needed to get an exact output value. The use of Goal Seek requires the correct setup of the spread sheet, but will allow the user to quickly answer many questions regarding many applications in business.

Basic requirements of the report:

1) A short description of the company assigned to the student is required. The description should be no longer than one page, double spaced, 11 point type, Garamond font. Give the reader key details of what the company does and how it performs, without boring them with details about the founding date, the address, and other needless information that can be quickly referenced but has no bearing on the sales forecast. You may copy this from the prior report, incorporating any feedback from the professor.

2) The Monte Carlo simulation must be based over 100 years and 500 lifetimes.

3) A printout of the macro program is required and should be the first item in the appendix.

4) Create a table of the leverage adjusted discount rate data.

5) Create a table of the stock price information based on the calculated discount rate.

6) Create a table of the stock price information based on the Goal Seek discount rate.

7) All tables and plots, except the working tables, must be integrated in the text and labeled as Table 1, Table 2, or Figure 1, Figure 2 ect.

8) Working tables should be labeled and included in the appendix as indicated in the videos.

Remember, you are building a portfolio of projects and work examples that can be used in the interview process, not just creating a report for a grade. While the projects will give you many marketable skills in Excel, the ability to clearly communicate your findings is another marketable skill that can only be demonstrated through the writing of your report.

4311 Finance Lab
Project 4

Weighted Average Cost of Capital

4311 Finance Lab Project 4 Weighted Average Cost of Capital Comment: Project overviews are meant to layout the minimum requirements for a given project and to explain the motivation for a given project. Meeting the minimum requirements does not guarantee an A or even a passing grade. These projects are very rich, with many possible extensions to the analysis, various interpretations and recommendations from the results, and alternative methods of analysis that can be applied or discussed relative to the primary method introduced in the project. The finance faculty wishes to give students a chance to differentiate themselves to potential employers in the interview process and have left “meet on the bone” for the students to explore. In industry, project overviews are rarely, if ever, created. Your boss will simply say “do this” and expect you to formulate the required aspects of the project. In addition, detailed written reports, as are required for this class, are also rarely done in industry. However, employers want to know that potential employees are not only technically capable, but also can communicate their findings effectively in written form. Proof read your papers. DO NOT write sentences that you do not understand but think that the professor will. Use proper grammar, spelling, and effective organization of the material presented. Do not think “what does the professor want”, rather think “what would impress my boss” or “what would get the customer to choose my company”. Bosses and customers are busy. They hate too much information more than to little information. Be clear and to the point. Look for ways to table or plot critical information so that readers can understand the results at a glance. Good Luck. Motivation: Perhaps one of the most difficult aspects of evaluating a capital project is using the correct discount rate. In this project we calculate the Weighted Average Cost of Capital. Our calculations will be based on the debt and equity position of public firms. For private firms, the required return on equity is provided by the firm owner or management. While the evaluation of a WACC is fairly straight forward, though tedious, it is an important skill to acquire. Pay particular attention to the standard error of the estimate for the required rate of return equity. While the cost of debt can be estimated from market data, the cost of equity is estimated with error and sometimes substantial error. Basic requirements of the report: 1) A short description of the company assigned to the student is required. The description should be no longer than one page, double spaced, 11 point type, Garamond font. Give the reader key details of what the company does and how it performs, without boring them with details about the founding date, the address, and other needless information that can be quickly referenced but has no bearing on the sales forecast. You may copy this from the prior report, incorporating any feedback from the professor. 2) If your company has 10 outstanding bonds or less, the cost of debt must be estimated with all bonds. If your company has more than 10 outstanding bonds, select 10 sample bonds to estimate the cost of debt. Discuss the selection of

these bonds. Table the key bond characteristics and discuss. It is possible that your company has no long term debt. Note this in your report if it occurs. 3) Estimate the cost of equity using the market model based on 5 years of monthly data. Table and discuss the result of the regression. Compare the beta of the estimate to the beta from Yahoo Finance. 4) Calculate the WACC. Table and discuss the results. 5) All tables and plots, except the working tables, must be integrated in the text and labeled as Table 1, Table 2, or Figure 1, Figure 2 ect. 6) Working tables should be labeled and included in the appendix as indicated in the videos. Remember, you are building a portfolio of projects and work examples that can be used in the interview process, not just creating a report for a grade. While the projects will give you many marketable skills in Excel, the ability to clearly communicate your findings is another marketable skill that can only be demonstrated through the writing of your report.

4311 Finance Lab
Project 5

Advanced Capital Budgeting

Comment: Project overviews are meant to layout the minimum requirements for a given project and to explain the motivation for a given project. Meeting the minimum requirements does not guarantee an A or even a passing grade. These projects are very rich, with many possible extensions to the analysis, various interpretations and recommendations from the results, and alternative methods of analysis that can be applied or discussed relative to the primary method introduced in the project. The finance faculty wishes to give students a chance to differentiate themselves to potential employers in the interview process and have left “meet on the bone” for the students to explore.

In industry, project overviews are rarely, if ever, created. Your boss will simply say “do this” and expect you to formulate the required aspects of the project. In addition, detailed written reports, as are required for this class, are also rarely done in industry. However, employers want to know that potential employees are not only technically capable, but also can communicate their findings effectively in written form. Proof read your papers. DO NOT write sentences that you do not understand but think that the professor will. Use proper grammar, spelling, and effective organization of the material presented. Do not think “what does the professor want”; rather think “what would impress my boss” or “what would get the customer to choose my company”. Bosses and customers are busy. They hate too much information more than to little information. Be clear and to the point. Look for ways to table or plot critical information so that readers can understand the results at a glance. Good Luck.

Motivation: Capital is a limited resource that must be used wisely if a company is to survive in the long term. This project combines the sales forecast and WACC projects to evaluate a capital budget. The project also incorporates goal seek so that key questions can be answered quickly and efficiently. The law of supply and demand is also incorporated into this project. As prices go up quantity goes down, but the margin on the product increases. We use excel to set the price for the product so that the net present value of the project is maximized. Each student will be given a unique set of parameters to use in their projects.

The capital budget project is broken into three applications. The first uses a onetime capital expense. This would equate to a simple project such as buying a machine tool, computer, or software system. The second uses capacity balancing, where the project requires an expansion at some point in the future. New plants or production lines are budgeted this way. The third method uses a demand curve to price the product while maximizing the NPV. This is used for plant sizing and capital requirements. True capital budgeting is an iterative process but this project will give you the basic skills required to conduct capital budgeting in a real world environment.

Basic requirements of the report:

1) A short description of the company assigned to the student is required. The description should be no longer than one page, double spaced, 11 point type, Garamond font. Give the reader key details of what the company does and how it performs, without boring them with details about the founding date, the address, and other needless information that can be quickly referenced but has no bearing on the sales forecast. You may copy this from the prior report, incorporating any feedback from the professor.

2) Table your input parameters and discuss the parameters. This includes the WACC.

3) Table and discuss the sales growth evaluation.

4) Plot the NPV, IRR, and MIRR for each capital budget method. Table the main results for each method. Discuss the results and plots. As always tables and plots should be correctly labeled.

5) Create a table of your results from the demand estimation and discuss.

6) Conduct and table, for each capital budget method, a goal seek analysis that answers the following questions. Achieve a NPV of 0 in year 5 by changing 1) Price, 2) Units, 3) Capital required, 4) SG&A, and 5) the tax rate. Discuss the results relative to management objectives.

7) All tables and plots, except the working tables, must be integrated in the text and labeled as Table 1, Table 2, or Figure 1, Figure 2 etc.

8) Working tables should be labeled and included in the appendix as indicated in the videos.

Remember, you are building a portfolio of projects and work examples that can be used in the interview process, not just creating a report for a grade. While the projects will give you many marketable skills in Excel, the ability to clearly communicate your findings is another marketable skill that can only be demonstrated through the writing of your report.

4311 Finance Lab
Project 6

Capital Budgeting Monte Carlo Simulation

Comment: Project overviews are meant to layout the minimum requirements for a given project and to explain the motivation for a given project. Meeting the minimum requirements does not guarantee an A or even a passing grade. These projects are very rich, with many possible extensions to the analysis, various interpretations and recommendations from the results, and alternative methods of analysis that can be applied or discussed relative to the primary method introduced in the project. The finance faculty wishes to give students a chance to differentiate themselves to potential employers in the interview process and have left “meet on the bone” for the students to explore.

In industry, project overviews are rarely, if ever, created. Your boss will simply say “do this” and expect you to formulate the required aspects of the project. In addition, detailed written reports, as are required for this class, are also rarely done in industry. However, employers want to know that potential employees are not only technically capable, but also can communicate their findings effectively in written form. Proof read your papers. DO NOT write sentences that you do not understand but think that the professor will. Use proper grammar, spelling, and effective organization of the material presented. Do not think “what does the professor want”; rather think “what would impress my boss” or “what would get the customer to choose my company”. Bosses and customers are busy. They hate too much information more than to little information. Be clear and to the point. Look for ways to table or plot critical information so that readers can understand the results at a glance. Good Luck.

Motivation: A capital budget represents the intersection of multiple predictions of the future. We predict sales, prices, demand, discount rates, and many other variables into the future in order to estimate the NPV of a project. All predictions of the future come with uncertainty or risk. The previous capital budgeting project assumed that the mean values of the predictions were in fact the realized values. For example, the growth of sales in the 10th year was assumed to be exactly, for example, 2.41%. Every year government regulation increases at the federal, state, and local level, increasing the SG&A of a company. Inflation tends to increase the cost of creating a product faster than the price can increase to compensate due to competitive forces. For example, healthcare costs increase faster than inflation. In order to control for these factors and uncertainty a Monte Carlo simulation can be used to estimate the joint probability distribution of all modeled variables. In this project we execute a Monte Carlo simulation for the capital budget project.

The Monte Carlo simulation will be based on 500 lifetimes. Variable costs and the price of the project will be based on a triangular distribution with drift. SG&A percentage will be based on a normal distribution with drift. The drift term for SG&A

models regulatory costs increases and other overhead increases over time. The Monte Carlo simulation will be based on the demand optimized capital budget results.

Basic requirements of the report:

1) A short description of the company assigned to the student is required. The description should be no longer than one page, double spaced, 11 point type, Garamond font. Give the reader key details of what the company does and how it performs, without boring them with details about the founding date, the address, and other needless information that can be quickly referenced but has no bearing on the sales forecast. You may copy this from the prior report, incorporating any feedback from the professor.

2) Table the distribution parameters of each of the modeled variables. Give a short definition of each of the distributions used in the analysis; uniform, triangular, normal, and discuss the drift term and what the drift term models.

3) This Monte Carlo simulation assumes that the parameter distributions are independent. Explain why that is the case. Also include a discussion on what variables might not be independent and how the lack of independence could be modeled in the simulation.

4) Table the results of the NPV's of the various estimates; mean, min, max, ect. Discuss the results and compare to the straight estimate from the previous project.

5) Create a downside risk curve of the project and discuss the interpretation of this plot. Create a table of the frequency.

6) Discuss the risk of the project relative to the CV and standard deviation of the NPV's. Discuss the selection criteria for capital projects and how this project fits into the selection criteria.

7) All tables and plots, except the working tables, must be integrated in the text and labeled as Table 1, Table 2, or Figure 1, Figure 2 ect.

8) Working tables should be labeled and included in the appendix as indicated in the videos.

Remember, you are building a portfolio of projects and work examples that can be used in the interview process, not just creating a report for a grade. While the projects will give you many marketable skills in Excel, the ability to clearly communicate your findings is another marketable skill that can only be demonstrated through the writing of your report.