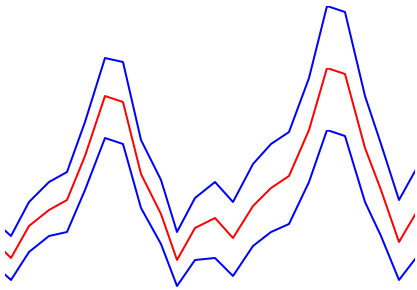
Business Forecasting

Finance 425



Syllabus
Fall 2003
Instructor:
Pieter Vandenberg

Contents

Catalog Description

Finance 425 Business Forecasting
Prerequisites: Finance 323
Business fluctuations; forecasting and related problems confronting the business firm; forecasting techniques; specific forecasts. The use of forecasts in the firm.

Course Objectives

Almost every business endeavor requires some sort of forecast. Forecasts are an essential part of making decision. Results of a business decision are usually not known as the decision is being made, since decisions can only be made about events in the future, not events that have already happen. Even though forecasts are constantly needed most of us are very uncomfortable with the thought of forecasting.

Even though we may be uncomfortable with forecasting we are all pretty good forecasters. Why? Because we have managed to survive to this point. Every day decisions in life also require that we forecast. Finding food, clothing, and shelter requires we all make decisions about our actions and these decisions are based on forecasts. If you were really terrible at forecasting you probably wouldn't be reading this.

So if we all have done forecasting, and in reality are pretty good at it then what's the purpose of this course? We all recognize that if we could improve our forecasts, perhaps only marginally we would be better decision makers. This is very apparent in those uncomfortable situations where we are questioned as to our "assumptions," which frequently are really forecasts of future events. How much better would our decisions be if we felt more secure about our ability to predict outcomes?

The premise of this course is not that we are going to become prefect prognosticators, but that with practice we can become better at forecasting. This margin of improvement may just the be the difference between being a labelled a successful decision maker and being labeled as unsuccessful.

We are going to spend the semester looking at various forecasting techniques. Hopefully when you have completed this course you will be able to evaluate various forecasts and the techniques used to generate them; be able to implement new forecasting techniques; and be

able to communicate your forecasts to others.

My personal observations are that you will be more successful at learning new forecasting techniques if you are actively involved in solving problems. The exercises in this class are designed to have you become involved in finding, evaluating and applying forecasting techniques.

An assumption of this class is that people involved in forecasting have access to computers. While there is a variety of software available to aid in forecasting most computers do not have this type of software. In fact it is fairly expensive. So we are going to use as much standard software as we can, particularly a spreadsheet.

Unfortunately, certain types of forecasting techniques are relatively difficult to implement in a spreadsheet and we will use some specialized software in those cases. It might also be helpful to have access to a statistics package.

When you have completed this course you should have a good understanding and be able to use the most popular techniques currently available.

Finally, good forecasting requires that you have an understanding of your environment, both in terms of specifics and generalities. So please keep current about general business conditions.

Class Assignments

Class assignments will consist of a variety of different experiences. Again, in order to become familiar with forecasting techniques you have to forecast. So the assignments are designed to allow you to become actively involved in the learning process.

We will progress through the basic text in chapter order. We will also do the exercises in the Forecast Pro user's manual. I expect that a significant number of class periods will be devoted to problem solving. You will also need to spend time in the computer lab using the software.

Specific assignments in addition to the reading, will be end-of-the-chapter questions.

(See Calendar for problems and due dates.) These consist of two types of problems. Some questions are verbal in nature, and others involve applying the forecasting techniques presented in the chapter. Many of the problems will require that you complete them using the appropriate software (These are marked with an asterisk on the calendar.). You will need to turn in a copy of the output. For verbal problem you will need to be prepared to discuss these, but the answers will not be collected.

In addition each individual will be assigned to work on a semester's forecast project as part of a team. There will also be at least one case in addition to those in the text. There will be a midterm and final exam.

Semester Project

Each student will be assigned to a team. The team will be required to produce a forecast. The forecast will be presented to the class in a oral presentation and to me as a written report. We will assign teams and topics a little later in the semester.

As an example a team may be required to forecast housing starts for 1999 on a monthly basis. Another team might be assigned to develop a forecast of retail sales for next year or a another case that involves forecasting.

Two teams will be assigned to work independently on each topic. This will allow everyone in the class to see how the two different teams approached the same task. It will be important that the team use several methodologies in doing their forecasts. Remember no one will know if the forecast is accurate since it will be for next year.

The listener/reader will need to make a judgement on the quality of your forecast based on the quality of your presentation. Thus a complete analysis will be necessary to convince the listener that you have done an effective job.

Homework

Problem homework will require a computer model. One of the neat things about the current availability of computers is that we will be able to

work with large data sets and yet not spend all of our time doing numerical calculations. I will make available most of the data that is necessary to work the homework problems in data files.

Plan on using a spreadsheet along with specialized software. A spreadsheet makes an excellent input vehicle to numerical software since most can read spreadsheet files directly (particularly the Lotus wk1 file formats).

On the homework due date please turn in a computer printed solution to the assigned problem (those with an asterisk). Please keep the models you design on disk. You will find that you can frequently save time by modifying an existing spreadsheet to solve a problem rather than creating a new one from scratch. Buy a few floppy disks and keep a backup of your files!

Exams

The exams will consist of essay and problem questions. We will discuss the exact nature of the exams as we get closer to the exam dates. If you do the assignments you should do well on the exams.

Grades

A major emphasis in the grading system is to reward you for being actively involved in the class' activities.

I believe that most important aspect of learning how to forecast— is to do it. Thus the grading system will reward you for completing assignments and participating in the class' activities. Getting "correct answers" by using short cuts is much less important than working your way through the assignments.

The assignments are weighted as follows:

Mid-Term Exam	20%
Final	20%
Term Presentation	25%
Class Participation, Homework, etc.	35%
Total	100%

As you can see your work on forecasting assignments represent the majority of your grade.

Grading policy

Final grade assignment will be done using Figure 1.

If you are significantly

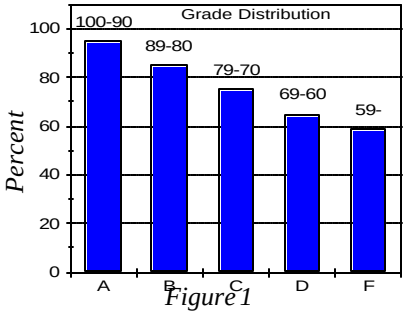


Figure 1

above or below the mid point you will receive a plus or minus. The above grades are an absolute standard. If you achieve the above percentage on all of you work in *total*, then you are assured of getting that particular grade. I do not convert your numerical scores on assignments into a grade until the end of the semester. It is possible that you might still receive a higher grade than the above if you are very close to the cutoff line. Whether you receive the higher grade will depend upon a variety of individual factors such as: the pattern of your grades during the semester, (Do they go up or down—they should go up.) your performance on homework and your participation in class.

Term Project

We will devote the last several weeks of the semester to team presentations of the term forecasting project. Two teams will be assigned to each forecast.

Both teams will be expected to have a professional presentation ready. You may choose the most effective way to present your solution. I expect that you will limit severely the use of the blackboard for any prepared remarks. You might use it for answering unexpected questions. However, you should learn to "anticipate unexpected questions." I would normally expect that you would use professional looking projections to present your solution. And if you have developed numerical solutions be prepared to distribute these in the form of handouts. *Do not expect the audience to listen to a speech without visual aids*. You are free to use other visual aids if you believe that they will be more effective at presenting your solution.

In developing your presen-

tation remember to have a beginning, a middle, and an end. First, give the audience some idea of where you are going. Second, take them there in a logical, straight forward manner. Third, give a brief summary of your conclusion at the end of your presentation.

We will determine on the day of the presentation which team will go first. The second team should concentrate on the differences between the first team and them when it comes time for them to present their results. The purpose of this is to allow another team, who is very familiar with the topic, a chance to help clarify the issues, the assumptions, and the forecast. This should enhance the opportunity for everyone to learn. We will then spend a few minutes discussing the results as a group.

Both teams are required to turn in a written forecast to me on the day of their presentation.

Grade Distribution

I will assume that grades on team work will be equally distributed. If the team wishes to unequally distribute points then due the next period after a case is presented is a distribution of points for each team member to be determined by the team. These points are to assigned based on the teams collective opinion as to the relative overall contribution of each individual during the evaluation period. You can assign a weight for each individual between zero (no credit) and one (full credit). Whatever you decide is final. I will not participate, change or do anything to alter the judgement of the team. In the grading process those with low scores will have their grade lowered, no one will have their grade raised.

Writing Reports

In general any material that you turn in should be printed and well written. How well something is written will likely have a direct bearing on the reaction of the reader. No matter how clever you are, if the report is poorly written and has an unprofessional format the reader will likely react negatively. This is true whether it's a college professor, a potential employer, or your boss!

In writing your report remember that a busy executive, the type of individual you will likely be writing reports for, expects you to come to the point quickly and to support your recommendation and analysis.

The executive does not expect to have to do the work that you were hired to do. For example do not say, "if you look at the appendix material carefully you will see....." It is your job in the report to do the analysis and tell the individual what the results are. Thus a report is not a compendium of data. So carefully describe what your results are and how and why you arrived at the results. Remember that no one will be able to judge whether the forecast you supply is accurate so the reader will be forced to assess the report by judging the quality of your arguments

While it is probably required that you attach supporting documents, tables etc. the report should be understandable and definitive *even* if the supporting documents were removed from the report.

Contacting Me

If you have a problem with any class assignment please contact me immediately so that we may discuss your situation. It might be possible to reach an accommodation with respect to class requirements and your particular situation. But problems do not improve with age! A successful resolution may not be possible if you delay in contacting me. You can always leave a phone or Email message, if all else fails, and then see me during my office hours.

I keep all of your exams and assignments that you turn in to me and you are welcome to come in and discuss them. This term will go faster than you think. So please don't let problems pile up.

My office is in SS 3367. You can call me at 594-3027. This number is on voice mail so you can leave a message 24 hours a day, every day. My cell phone number is 977-8596. You can send electronic mail to pieter.vandenberg@sdsu.edu. My office hours are from 2:30

to 3:30 PM Tuesdays and Thursdays.

I assume all of you have an email address. if you don't you can obtain one by choosing one of the local computers and opening an account on it.

Resource Material

The following are the resource materials I recommend you have access to:

Text: Dale G. Bails and Larry G. Peppers, *Business Fluctuatons* (B&P) 2nd Edition, Prentice-Hall.

Notes: Pieter A Vandenberg *Business Forecasting Lecture Notes,* Montezuma Press.

Manual: Business Forecast Systems, *Forecast Pro For Windows* (FPW).

Computer: Any spreadsheet and possibly a general Purpose Statistical Program (*Minitab* is an example.)

The Software

In addition to a spreadsheet we will be using Forecast Pro for Windows (FPW). This software is available in the library computer lab and the manual is available in the bookstore.

I evaluated a number of alternative packages and found this one very powerful and relatively easy to use (but it will take some learning time). It does have a very powerful expert system feature, something most statistical programs don't have. This expert system suggests the appropriate forecasting technique given the data that you supply.

The expert system also applies to a technique commonly called Box-Jenkins (ARIMA). One of the difficult things about ARIMA models is "identification." FPWsuggests an appropriate ARIMA model.

The expert system is very helpful, but remember that the program can only judge the relationships that are in the data. It cannot make judgements about things that are not part of the data. So be careful, you can easily fool the software. You might forecast that the GM will have record sales for the year based on historical data, but the software has no way to discover that there was a strike, which makes all predictions suspect.

Finance 425 Planning Calendar Fall 2003

Sunday	Augest 31

Monday	September 1

Holiday

Tuesday	2

Introduction

Office Hours 2:30 -3:30 PM

Wednesday	3

Thursday	4

B&P 1

FPW (Browse)

Office Hours 2:30-3:30 PM

Friday	5

Saturday	6

Sunday	September 7

Monday	8

Tuesday	9

[C1-3,4,15]**H**

Office Hours 2:30 -3:30 PM

Wednesday	10

Thursday	11

B&P 2

Office Hours 2:30-3:30 PM

Friday	12

Saturday	13

AUGUST

				1	2	
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

SEPTEMBER

	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30				

OCTOBER

		1	**2**	**3**	**4**	
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

HMeans Chapter 1 problems 3,4, and 15

Finance 425 Planning Calendar Fall 2003

Sunday	September 14	Sunday	21
Monday	15	Monday	22
		Last Day to drop	
Tuesday	16	Tuesday	23
C2-9*] B&P 3 FPW Lessons 1 and 2 Office Hours 2:30 -3:30 PM		[C3-16*,27*] Office Hours 2:30 -3:30 PM	
Wednesday	17	Wednesday	24
Thursday	18	Thursday	25
FPW Lesson 6 B&P 3 [C3-18,19,20,21,22] Office Hours 2:30-3:30 PM		B&P 4 Office Hours 2:30-3:30 PM	
Friday	19	Friday	26
Saturday	20	Saturday	27

AUGUST

				1	2	
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

SEPTEMBER

	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30				

OCTOBER

			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

Finance 425 Planning Calendar Fall 2003

Sunday September 28	Sunday October 5
Monday 29	Monday 6
Tuesday 30 [C4-1*,3,4,6,11,20] Office Hours 2:30 -3:30 PM	Tuesday 7 [C5-2,3,6,7,8,9] Office Hours 2:30 -3:30 PM
Wednesday October 1	Wednesday 8
Thursday 2 B&P 5 Office Hours 2:30-3:30 PM	Thursday 9 [C5-15*,17*,18*] Office Hours 2:30-3:30 PM
Friday 3	Friday 10
Saturday 4	Saturday 11

AUGUST

				1	2	
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

SEPTEMBER

	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30				

OCTOBER

			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

Finance 425 Planning Calendar Fall 2003

Sunday	1October 2
Monday	13
Tuesday	14
	Catch up and Review Office Hours 2:30 -3:30 PM
Wednesday	15
Thursday	16
	Mid-Term Exam Office Hours 2:30-3:30 PM
Friday	17
Saturday	18

Sunday	October 19
Monday	20
Tuesday	21
	B&P 6 [C6-1,9,11,12,13,,16,20] Office Hours 2:30 -3:30 PM
Wednesday	22
Thursday	23
	[C6-2*,21*,26*] FPW Lesson 6 Office Hours 2:30-3:30 PM
Friday	24
	We're half way!
Saturday	25

SEPTEMBER

	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30				

OCTOBER

			1	**2**	**3**	**4**
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

NOVEMBER

						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30						

Finance 425 Planning Calendar Fall 2003

Sunday	October 26	Sunday	November 2
Monday	27	Monday	3
Tuesday	28 B&P 7 [C7-1,2,3,C7-7*,10*,11*] Office Hours 2:30 -3:30 PM	Tuesday	4 B&P 8 [C8-1,2,5,6,11] Office Hours 2:30 -3:30 PM
Wednesday	29	Wednesday	5
Thursday	30 FPW Lessons 3,4 Office Hours 2:30-3:30 PM	Thursday	6 [C8-16*,19*] Office Hours 2:30-3:30 PM
Friday	October 31	Friday	7
Saturday	November 1	Saturday	8

SEPTEMBER

	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30				

OCTOBER

			1	**2**	**3**	**4**
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

NOVEMBER

						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30						

Finance 425 Planning Calendar Fall 2003

Sunday	November 9	Sunday	November 16
Monday	10	Monday	17
Tuesday	11	Tuesday	18
B&P 9 [C9-1,16,17] Office Hours 2:30 -3:30 PM		Harmon Foods written report due (all teams) Office Hours 2:30 -3:30 PM	
Wednesday	12	Wednesday	19
Thursday	13	Thursday	20
[C9-13*,14*,15*] Office Hours 2:30-3:30 PM		Presentation Office Hours 2:30-3:30 PM	
Friday	14	Friday	21
Saturday	15	Saturday	22

OCTOBER

		1	**2**	**3**	**4**	
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

NOVEMBER

						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30						

DECEMBER

	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

Finance 425 Planning Calendar Fall 2003

Sunday November 23	Sunday November 30
Monday 24	Monday December 1
Tuesday 25 Presentation Office Hours 2:30 -3:30 PM	Tuesday 2 Presentation Office Hours 2:30 -3:30 PM
Wednesday 26	Wednesday 3
Thursday 27 Thanksgiving	Thursday 4 Presentation Office Hours 2:30-3:30 PM
Friday 28 Holiday	Friday 5
Saturday 29	Saturday 6

OCTOBER

		1	**2**	**3**	**4**	
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

NOVEMBER

						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30						

DECEMBER

	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

Finance 425 Planning Calendar Fall 2003

Sunday December 7	Sunday December 14
Monday 8	Monday 15
Tuesday 9 Presentation Office Hours 2:30 -3:30 PM	Tuesday 16
Wednesday 10	Wednesday 17
Thursday 11 Presentation Office Hours 2:30-3:30 PM	Thursday 18 Final Exam 10:30-12:30 PM
Friday 12 Last Day of Classes	Friday 19
Saturday 13	Saturday 20

NOVEMBER

						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30						

DECEMBER

	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

JANUARY

			1	2	3	
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

Finance 425 Planning Calendar Fall 2003

Sunday	December 21
Monday	22
Tuesday	23
Wednesday	24
Thursday	25
Friday	26
Saturday	27

Sunday	December 28
Monday	29
Tuesday	30
Wednesday	31
Thursday	January 1
Friday	2
Saturday	3

NOVEMBER

						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30						

DECEMBER

	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

JANUARY

			1	2	3	
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

Notes