

PR220 — Property Data Analysis 2

Second Semester 1999

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Prescribed text: J. Flaherty, R. Lombardo, P. Morgan, B. DeSilva & D. Wilson, *A Spreadsheet Approach to Quantitative Methods*, 1999.

Available from Property Studies Education Unit, Level 14.

Price \$50. Students who purchased a copy of the book chapters during first semester for \$20 will be able to purchase the text for \$30 if they present their receipt at the time of purchase.

Subject Web site address: http://www.bf.rmit.edu.au/Property/subjects/pr220/sub_info.htm

The username and password to access the subject homepage is:



Enter username for property-subjects at
www.bf.rmit.edu.au :

Name :

Password :

The Web site may be accessed either on campus or off, all that is required is an Internet connection and a current *free* Web browser such as Netscape or Internet Explorer.

Downloading Excel files: it is recommended that you use **Internet Explorer**

Students will find a number of resources relating to the subject at the Web site. These include a copy of the subject guide, past exam papers, assignments, data for tutorial exercises as well as a host of statistical and spreadsheet resources.

Students who experience difficulties accessing the Web site should contact me immediately.

The subject guide for this subject was distributed in class at the start of first semester. Additional copies may be downloaded from the Web site if required. Details of assessment and other information concerning PR220 are set out in this guide.

Students should become familiar with the use of the Internet and recognise the long term benefits of mastering this skill.

Special Classes to Cover Advanced Material Semester Two

Throughout second semester a special class will be held to cover more advanced material. It is recommended that all students attend these classes. The material will be presented at a higher level and classes will move at a faster pace than in the regular sessions. Students who are not sufficiently challenged by the material presented in the regular classes are strongly encouraged to attend these sessions. While attendance at these sessions, and study of the material presented, is a matter of personal choice for each student, the material covered in these classes will form part of the end of year examination. This section of the examination paper will be titled **Part B**. Students should be aware that it will not be possible to achieve the award of distinction or better in PR220 unless they attempt Part B of the examination paper.

Students who elect not to cover the more advanced material will be marked out of all the available marks up to a credit only. The award of distinction or higher is available only to those students who attempt Part B of the end of year examination paper.

Day and time of class: Friday 1.30 – 3.30 PM Room 108.6.17

TIMETABLE FOR SECOND SEMESTER 1999

Week No.	Week Beginning	Topic No	Topic Description
1	19th July	11	Revisiting the classical assumptions of the least squares model: Multicollinearity, Autocorrelation & Heteroscedasticity
2	26th July	12	Analysis of variance for Regression Comparing Regression Models Model selection criteria
3	2nd August	13	Functional form and qualitative variables
4	9th August	14	Carrying out a regression project
5	16th August	15	Time Series – Classical Decomposition
6	23rd August	15	Time Series – Exponential Smoothing
7	30th August	15	Time Series – Model selection
8	6th Sept	16	Multivariate Analysis
9	13th Sept	17	Project analysis - Gantt charts & networks
10	20th Sept	17	Project analysis - CPM and PERT
27th Sept — 1st Oct		Student Vacation	
11	4th October	17	Project analysis - probabilistic completion times
12	11th October	17	Project analysis - Project Crashing
13	18th October	Revision	

Tutorial Guide

Students are reminded that attempting all the set exercises before attending tutorial sessions is an essential step in understanding the material presented during semester.

A significant amount of the practical work set is spreadsheet based. This work should be completed progressively from week to week outside class. Wherever difficulties are encountered bring them up in class and if the problem persists see your lecturer without delay. Most spreadsheet problems can be easily and quickly resolved, however, a lack of understanding of fundamental principles indicates that improved study techniques are perhaps warranted.

Tutorial Exercises: **Semester 2**

Week No.	Week Beginning	Topic No	Topic Description
1	19th July		No tutorials
2	26th July	11	Least Squares Assumptions Chapter 12: Q's 1, 2 and 3 (i).
3	2nd August	12	Regression ANOVA Chapter 11: Q's 11 and 16 (i) & (ii)
4	9th August	13	Functional form & Qualitative variables Chapter 11: Q's 12, 13, 14, 15 & 17
5	16th August	14	Carrying out a Regression project Replicate the analysis in Section 12.6 and then do Chapter 11: Q. 18
6	23rd August	15	Time Series – Decomposition Chapter 13: Q's 1, 2, 4, 5 & 12
7	30th August	15	Time Series – Exponential Smoothing Chapter 13: Q's 7, 8, 9, 10, 13 (i) & (ii)
8	6th Sept	15	Time Series – Model Selection Chapter 13: Q. 15 (ignore Brown's seasonal)
9	13th Sept	17	Project analysis Chapter 20: Q's 2, 3, 4, 5 and 6
10	20th Sept	17	Project analysis Chapter 20: Q's 7, 8, 10 and 12
27th Sept — 1st Oct			Student Vacation
11	4th October	17	Project analysis Chapter 20: Q 19 part (a)
12	11th October	17	Project analysis Chapter 20: Q 19 part (b)
13	18th October		Revision

Detailed Topic Guide

Topic 11 Multicollinearity, Autocorrelation & Heteroscedasticity

- implications for the least squares model
- detecting these problems

Flaherty Chapter 12, Sections 12.1 – 12.3
Hanke & Reitsch Chapter 15, pp. 620-621, 665-672
Lewis, et al Chapter 14.

Topic 12 Analysis of Variance for the Regression

- Using the F statistic to test model significance
- Using the F statistic to test the significance of extra sums of squares
- Model Selection criteria

Flaherty Chapter 11, Sections 11.4, 11.5 & 11.7
Hanke & Reitsch Chapter 15, pp. 630-644

Topic 13 Functional Form and Qualitative Variables

- variable transformations
- non-linear models
- dummy independent variables
- index variables

Flaherty Chapter 11, Sections 11.6 & 11.8
Hanke & Reitsch Chapter 15, pp. 644-659, 674-675
Lewis, et al Chapter 13.

Topic 14 Carrying out a Regression Project

- defining and modelling the problem
- the contribution of theory
- identification of variables and data collection
- model estimation
- model validation - essential checks

Flaherty Chapter 12, Section 12.6
Hanke & Reitsch Chapter 15, pp. 673

Topic 15 Time Series Analysis

- examining patterns in data
- classes of models
- decomposition of a time series
- predictive models
- forecasting

Flaherty	Chapter 13
Bails & Peppers	Chapters 4, 9, 10, & 11.
Hanke & Reitsch	pp. 718 - 761 & Chapter 17
Makridakis, et al,	pp 2-13, 25-54, Ch's 3 &4, pp 379-389, Ch's 11, 14, & 17.
Sandy	Chapter 15
Render & Stair Jr.	Chapter 5
Waxman	Chapter 17

Topic 16 Multivariate Analysis

Students are required to complete a research assignment in this topic. details will be provided in the second assignment.

Topic 17 Network Analysis

- Some basic terminology
- PERT/CPM
- Gantt Charts and Network diagrams
- The critical path
- Activity scheduling
- Earliest time, latest time and activity slack
- Calculating activity time statistics
- Probability estimates of project completion times
- Time/Cost trade-offs and project crashing
- Optimal project duration

Flaherty	Chapter 20
Render & Stair Jr.	Chapter 13.