Australian School of Business

COMM5005
QUANTITATIVE METHODS FOR BUSINESS

COURSE OUTLINE
SEMESTER 1, 2011

COURSE WEBSITE
http://lms-blackboard.telt.unsw.edu.au/
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[COMM5005 Quantitative Methods for Business]
1. STAFF CONTACT DETAILS
The lecturer for this course is Mrs Judith Watson

Judith will be available for consultation from on Tuesdays 3.00 – 4.00 and
Thursdays 3.00 – 5.00 and other times by appointment.
Office: Quad 3126
Email address is: J.Watson@unsw.edu.au
Phone: 9385 3285

Her office is located in the western wing, third floor of the Quadrangle building
above the UNSW bookshop.

The tutor is Lyla Zhang
Email address is: le.zhang1@unsw.edu.au
and her consultation hours will be made available on the course website.

2. COURSE DETAILS

2.1 Teaching Times and Locations
As the public holiday on Friday April 22 causes a problem we will not have any
classes that week. We will have seven weeks of classes then a two week break
before the final five weeks of classes. For Weeks 1-7 and 9-13 you should attend a
two hour lecture on Thursdays from 6.00 - 8.00 p.m. or on Fridays from 11.00 -
1.00 p.m. You should also attend a one hour tutorial in Weeks 1-7 and 9-13.

For latest information about lecture and tutorial locations see:
http://www.timetable.unsw.edu.au/current/subjectSearch.html

2.2 Units of Credit
This course is worth six units of credit.

2.3 Summary of Course
This course provides an introduction to the basic mathematical and statistical tools
needed in a business degree. There is an emphasis on problem solving by both
manual and computer methods. The first six lectures focus on algebra and graphs,
financial mathematics and optimisation methods including linear programming
and calculus. The second six lectures focus on probability, descriptive and
inferential statistics.

2.4 Course Aims and Relationship to Other Courses
This course aims to enhance your ability to analyse financial and economic data
and thereby to assist in making business decisions. It is a core course of the
MCom program for students in specialisations where quantitative skills are
required. It is designed for those who have had little or no quantitative training in
their undergraduate degree but who need mathematical and statistical skills for
specialisations in the areas of Finance, Accounting and Business Strategy. The
skills learned are also relevant for other MCom specialisations such as Marketing
and in many aspects of business life.
2.5 Student Learning Outcomes
By the end of this course you should be able to
1. solve problems using a variety of mathematical and statistical techniques relevant to a postgraduate business degree
2. analyse business problems and apply critical thinking
3. interpret output from analysis performed by yourself or others
4. engage in independent and reflective learning
5. use a calculator and a spreadsheet program (Microsoft Excel) effectively to perform calculations
6. familiarise yourself with the relevant English mathematical and statistical terminology (if you have previously studied these subjects in a foreign language)
7. participate in general class discussions
8. express your arguments clearly in writing.

Graduate Attributes

<table>
<thead>
<tr>
<th>Course Learning Outcomes</th>
<th>ASB Graduate Attributes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,2</td>
<td>1. Critical thinking and problem solving</td>
</tr>
<tr>
<td>7,8</td>
<td>2. Communication</td>
</tr>
<tr>
<td>4,6</td>
<td>3. In-depth engagement with relevant disciplinary knowledge</td>
</tr>
<tr>
<td>3,5</td>
<td>4. Professional skills</td>
</tr>
</tbody>
</table>

More information on the ASB Graduate Attributes and how they align with the UNSW Graduate Attributes (2010) is available on the ASB Graduate Attributes webpage http://www.asb.unsw.edu.au/currentstudents/resources/studentfeedback/Pages/default.aspx

3. Learning and Teaching Activities

3.1 Approach to Learning and Teaching in the Course

This course aims to enhance your ability to analyse financial and economic data and thereby to assist in making business decisions. It also aims to prepare you for further MCom courses which require the use of numerical skills. Mathematical skills can only be acquired by sustained practice in problem solving. It is often some years since postgraduate students have used basic techniques so renewing “rusty” skills is an important objective. You must learn to organise your independent study and practise a sufficient number of problems to gain a thorough understanding of concepts and how to apply them.
3.2 Learning Activities and Teaching Strategies

In order to assist you to develop quantitative skills the lectures contain many examples which will be demonstrated step by step. It is anticipated that the lectures will be very interactive with plenty of chances for questions to be both answered and asked by students. Questions will help to probe what you do understand and what you don’t. Asking for clarification during the lecture is a good way of improving your understanding so that following topics are clearer. Generally, others will be having similar difficulties so it helps everyone if you ask questions during the lecture rather than waiting till later. Please bring a calculator to lectures so that you can attempt problems as required.

After seeing lecture examples you are encouraged to try more problems by yourself after class and to attempt the questions set for the following tutorial.

In order to promote regular study, the assessment has a number of small tasks spread through the session. To stimulate and reward good tutorial preparation your homework attempts will be collected and marked on three occasions. You may wish to bring a photocopy to class for note-taking purposes. Marks will be awarded on the quality of effort made as well as the accuracy of answers so if you are unable to finish a question show as much working as possible. You will receive marks for the best two preparations out of three.

The assignment in this course will test your ability to analyse data, to use the Microsoft Excel program, and to think critically. Some knowledge of current events in business will add to your understanding of the assignment material.

You will also need to develop good calculator skills in order to perform well in exams. Familiarity with the use of memories and built-in functions will increase your speed in solving problems. Students who have not practiced maths for some time can be quite slow in doing calculations and this can affect their exams results adversely.

The object of this course is not to memorise information. Therefore the mid-session test and final exam will have an open-book format. The focus of the assessment will be on your understanding of concepts, your ability to apply formulae appropriately, your problem solving and critical thinking.

4. Assessment

4.1 Formal Requirements

In order to pass this course, you must:
- achieve a composite mark of at least 50; and
- make a satisfactory attempt at all assessment tasks (see below).
### 4.2 Assessment Details

<table>
<thead>
<tr>
<th>Assessment Task</th>
<th>Weighting</th>
<th>Learning Outcomes assessed</th>
<th>ASB Graduate Attributes assessed</th>
<th>Length</th>
<th>Due Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 x Online Quizzes</td>
<td>3% each (6% total)</td>
<td>1,2,4,5,6</td>
<td>1,4,5</td>
<td>30 minutes each</td>
<td>Weeks 5 and 9</td>
</tr>
<tr>
<td>4x eLearning tutorials + New Excel eLearning tutorial trial</td>
<td>1.5% each (6% total) + 1.5% bonus (as long as total mark is not &gt;100)</td>
<td>1,2,4,5,6</td>
<td>1,4,5</td>
<td>No time limit</td>
<td>Available Weeks 2 and 7, 11, 12 + Available in session break (2 weeks)</td>
</tr>
<tr>
<td>Midsession Test</td>
<td>10%</td>
<td>1,2,5,6</td>
<td>1,4,5</td>
<td>30 minutes</td>
<td>During your normal tutorial time in week 7</td>
</tr>
<tr>
<td>Assignment</td>
<td>15%</td>
<td>1,2,3,4,5, 9</td>
<td>1,2,4,5</td>
<td>12 pages including tables or graphs</td>
<td>May 13, Week 10</td>
</tr>
<tr>
<td>Tutorial Preparation</td>
<td>3% (best 2 of 3)</td>
<td>1,2,3,4,5, 6</td>
<td>1,4,5</td>
<td>As per questions set</td>
<td>Collected at least three times during Weeks 2-13.</td>
</tr>
<tr>
<td>Final Exam</td>
<td>60%</td>
<td>1,2,3,5</td>
<td>1,4,5</td>
<td>3 hours</td>
<td>Exam period (10-27 June)</td>
</tr>
</tbody>
</table>

**Quality Assurance**

The ASB is actively monitoring student learning and quality of the student experience in all its programs. A random selection of completed assessment tasks may be used for quality assurance, such as to determine the extent to which program learning goals are being achieved. The information is required for accreditation purposes, and only aggregated findings will be used to inform changes aimed at improving the quality of ASB programs. All material used for such processes will be treated as confidential and will not be related to course grades.
4.3 Online Quiz Format

The online quizzes are designed to be used as learning tools as well as assessing your quantitative skills development. They must be attempted by you without assistance. They will each be available for a one week period, beginning on Monday morning and finishing on Sunday night, so should be fitted easily into your work/study schedules. You will be allowed two attempts for each quiz and the higher of the two marks will be counted. You should be able to complete each attempt within 30 minutes.

You are encouraged to use the feedback from your first attempt to check the reasons for any mistakes. You should not expect to be given exactly the same questions on your second attempt, however further practice may be rewarded with improved marks. Research in a similar course has shown that, after controlling for other factors, final examination marks for the average student were higher when they had made an attempt on all online quizzes than when they had not.

Quiz dates:

1. Week 5 – Monday March 28, 1.00 a.m. – Sunday April 3, 11.59 p.m.
2. Week 9 – Monday May 2, 1.00 a.m. – Sunday May 8, 11.59 p.m.

Occasionally unscheduled shutdown periods may occur so try not to leave your attempts till the last minute.

The questions in online quizzes will require you to calculate answers. Care should be taken to avoid rounding errors by keeping full numbers in memory and giving your answers to the required number of decimal places. For financial maths questions, a tolerance of five units of the least significant unit will be used i.e. if the correct answer is 1.234 answers between 1.229 and 1.239 will be accepted as being correct. In other questions a lower tolerance may be appropriate.

When you enter an answer do not include symbols such as $.

4.4 eLearning Tutorials Format

Four online tutorials have been developed as a project in conjunction with the Adaptive eLearning Research group at UNSW. They will give you feedback to help you while you progress through a series of questions. The first two tutorials will assist you to make sure you are on the right track in graphing linear equations and later in using the graphical method for linear programming. The other two will check your use of normal tables and understanding of hypothesis tests. To access the tutorials you will need to click on the link on the course website, then register before signing in with Adaptive eLearning.

The tutorials will be scored with points deducted for each extra attempt you have at a question up to a certain limit. Marks will be earned as follows:

<table>
<thead>
<tr>
<th>% of available points scored</th>
<th>Mark</th>
</tr>
</thead>
<tbody>
<tr>
<td>75-100%</td>
<td>1.5</td>
</tr>
<tr>
<td>50-74%</td>
<td>1</td>
</tr>
<tr>
<td>25-49%</td>
<td>0.5</td>
</tr>
<tr>
<td>0-24%</td>
<td>0</td>
</tr>
</tbody>
</table>
The eLearning Tutorials will be available as follows:
Tutorial 1, during Week 2 – Monday March 7, 1.00 a.m.– Sunday March 13, 11.59 p.m.
Tutorial 2, during Week 7 – Monday April 11, 1.00 a.m.– Sunday April 17, 11.59 p.m.
Tutorial 3, during Week 11– Monday May 16, 1.00 a.m.– Sunday May 22, 11.59 p.m.
Tutorial 4, during Week 12 - Monday May 23, 1.00 a.m.– Sunday May 29, 11.59 p.m.
Apart from completing the tutorials within the designated weeks there is no other time limit and you may log-in more than once.

In addition this session we have the pilot run of a new Excel based eLearning Tutorial which has just been developed. We need your feedback to make sure it is running smoothly. The tutorial should assist you in learning how to use Excel to calculate some of the descriptive statistics which you will need for your assignment. You can earn 1.5 bonus marks by working through the tutorial and giving feedback at the end. The only limitation to gaining the bonus is that no student can have total marks for the course of more than 100.

The Excel Tutorial will be available during our session break 2 week period: Monday April 18 1.00 a.m. to Sunday May, 11.59 p.m. For further information about installation see the course website.

4.5 Assignment Format and Submission Procedure
The assignment will test your ability to use a spreadsheet to analyse and critically evaluate business data and will require a clear explanation of the results you obtain. Marks will be allocated on the basis of accuracy and the quality of your interpretation, arguments and referencing.

The assignment topic will be posted on the website by Week 3. Both your assignment spreadsheet and report should be submitted to the course website by the due date and a hard copy of the assignment report should be submitted to your tutor or lecturer during your normal tutorial in Week 10.

The final date for submission for all students is May 13.

4.6 Late Submission
Unless approval for an extension is given on medical grounds (supported by a medical certificate) there will be a penalty of 1 mark per calendar day for late submission of assignments.

4.7 Tutorial Preparation
To stimulate and reward good tutorial preparation your homework attempts will be collected and marked on three occasions. You may wish to bring a photocopy to class for note-taking purposes. Marks will be awarded on the effort made as well as the accuracy of answers so if you are unable to finish a question, show as much working as possible. You will receive marks for the best two preparations out of three.
5. ACADEMIC HONESTY AND PLAGIARISM

The University regards plagiarism as a form of academic misconduct, and has very strict rules regarding plagiarism. For UNSW policies, penalties, and information to help you avoid plagiarism see: http://www.lc.unsw.edu.au/plagiarism/index.html as well as the guidelines in the online ELISE Plus tutorial for all new UNSW students: http://info.library.unsw.edu.au/skills/tutorials/InfoSkills/index.htm.

To see if you understand plagiarism, do this short quiz: http://www.lc.unsw.edu.au/plagiarism/plagquiz.html

For information on how to acknowledge your sources and reference correctly, see: http://www.lc.unsw.edu.au/onlib/ref.html

For the ASB Referencing and Plagiarism webpage see: http://www.asb.unsw.edu.au/learningandteaching/studentservices/resources/Pages/referencingandplagiarism.aspx


For descriptions of academic misconduct (including plagiarism) see: https://my.unsw.edu.au/student/academiclife/assessment/examinations/AcademicMisconduct.html

In the School of Economics all cases of substantial plagiarism are reported to the Associate Head of School. The following penalties will apply:

- Reduction in marks for the assessment item, including zero;
- Failure in the course [00FL] in extreme cases;
- Other additional penalties in accordance with the UNSW Procedures for Dealing with Student Plagiarism, may be considered in extreme cases;
- All cases will be recorded on the UNSW Plagiarism Central Register

6. COURSE RESOURCES

6.1 Books

There are two textbooks for this course. For the first six lectures we use:

For the second half of the course we will use:

Note that the answers, data sets and an additional program for use with Excel called PHStat are available at the companion website www.pearson.com.au/highered/berenson2e

The password needed for PHStat will be made available on our course website next to the link to Pearson’s website.

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The textbook is also available as a downloadable e-book at a lower price than the hard copy. Before choosing this option though you should **consider that exams in this course are open book but computers may not be used** so you might need to print out materials for the exams. For information see: [http://www.mypearsonstore.com.au/Title/TitleDetails.aspx?isbn=9781442528901](http://www.mypearsonstore.com.au/Title/TitleDetails.aspx?isbn=9781442528901)

Steps needed are to purchase an access code then download VitalSource Bookshelf software then download the e-book.

**Reference texts** that are available in the my.course reserve section of the library are:


### 6.2 Website

The course **website** can be accessed at [http://lms-blackboard.telt.unsw.edu.au](http://lms-blackboard.telt.unsw.edu.au) Lecture notes will be made available there prior to each lecture. You should print these out and bring them to class so that extra information and your own notes may be added.

The tutorial questions for each week will also be placed on the website. You should also check the website for assignment questions, practice exam questions, data sources, online quizzes, eLearning Tutorials and other useful information. You will need to upload your assignment and accompanying spreadsheet to the course website as well as giving us a hard copy of the report.

### 6.3 Harvard Online Courses

The Australian School of Business is making available to students a number of resources from Harvard Business Publishing. In COMM5005 we will have two online learning modules available for you to use as additional resources. These are Mathematics for Management and Quantitative Methods. Each section consists of a pre-test which you can try, material from various topics arranged in a number of screens with practice exercises and a final test. You can start working through these at your own pace prior to the commencement of session to give yourself a good preparation. Note that the tests are purely for practice purposes and marks for them will not count towards your assessment in COMM5005. For a link to register for the Harvard material and more information see the course website.

### 6.4 Calculator

A basic scientific calculator is required for this course and it must be approved for use in exams. It must be able to perform logarithmic and exponential calculations such as \( \ln x \), \( e^x \) and \( x^y \). The calculator must not be a programmable one (i.e. should not have an
alpha-numeric keypad) or have a graphic display. It should not be capable of storing or solving equations, differentiation or factoring. For a list of approved calculators see https://my.unsw.edu.au/student/academiclife/assessment/examinations/Calculator.html#Calculatorsinexams
You should take the calculator to the ASB Student Centre to have the approval sticker attached.

If you need to purchase a new calculator, keep in mind that it will be desirable to have a two variable statistical mode to perform linear regression (LR) calculations.

6.5 Software
If you wish to complete the computing requirements of this course using your own computer rather than the university laboratories you will need to have the Microsoft Excel program installed. Either the 2010 or 2007 version is suitable but there are differences in the way some features are accessed. Make sure that you install the full version that enables add-ins to be used.

6.6 The Economics Pitstop Room
The Economics Pitstop Room is designed to provide convenient tutor assistance for students in the large courses, including COMM5005 which is taught by staff from the School of Economics. This means that instead of having to wait until your lecturer’s consultation time, you will be able to get help as soon as you run into a problem in your study.

The Pitstop contact details are:
Location: Quadrangle Building Room 3113
Times: Tuesday-Thursday (10am-6pm) from week 3 – week 15 (exam period)
Phone (9385 1346) or email on tutcentre@unsw.edu.au.

Pitstop tutors will give help over the phone or through email when they can, but will give priority to students who attend in person. A Pitstop timetable will be posted on the course website before the start of Week 3. Tutors allocated for undergraduate courses BES or QABE should be able to assist you as well as your own tutor.
7. COURSE EVALUATION AND DEVELOPMENT

Each year feedback is sought from students and other stakeholders about the courses offered in the School and continual improvements are made based on this feedback. UNSW's Course and Teaching Evaluation and Improvement (CATEI) Process is one of the ways in which student evaluative feedback is gathered. You are strongly encouraged to take part in the feedback process. Feedback is also sought at the end of each eLearning Tutorials. This feedback from students has been used to make the questions clearer and to improve the hints provided for incorrect answers so please continue to contribute to this process.

8. STUDENT RESPONSIBILITIES AND CONDUCT

Students are expected to be familiar with and adhere to university policies in relation to class attendance and general conduct and behaviour, including maintaining a safe, respectful environment; and to understand their obligations in relation to workload, assessment and keeping informed. Information and policies on these topics can be found in the ‘A-Z Student Guide’: [https://my.unsw.edu.au/student/atoz/A.html](https://my.unsw.edu.au/student/atoz/A.html). See information on ‘Attendance and Absence’, ‘Assessment Information’, ‘Examinations’, ‘Special Consideration’, ‘Student Responsibilities’, ‘Workload’ and policies such as ‘Occupational Health and Safety’. In particular make sure you are aware of the rules about ‘Academic Misconduct’ including plagiarism at [https://my.unsw.edu.au/student/academiclife/assessment/examinations/AcademicMisconduct.html](https://my.unsw.edu.au/student/academiclife/assessment/examinations/AcademicMisconduct.html).

8.1 Workload

It is expected that you will spend at least ten hours per week studying this course. This time should be made up of reading, research, working on exercises and problems, and attending classes. In periods where you need to complete assignments or prepare for examinations, the workload may be greater.

Over-commitment has been a cause of failure for many students. You should take the required workload into account when planning how to balance study with employment and other activities. For more information see: [https://my.unsw.edu.au/student/atoz/UnitsOfCredit.html](https://my.unsw.edu.au/student/atoz/UnitsOfCredit.html)

8.2 Attendance

Your regular and punctual attendance at lectures and seminars is expected in this course. University regulations indicate that if students attend less than eighty per cent of scheduled classes they may be refused final assessment.

8.3 Special Consideration and Supplementary Examinations

You must submit all assignments and attend all examinations scheduled for your course. You should seek assistance early if you suffer illness or misadventure which affects your course progress.
**General Information on Special Consideration:**

1. For assessments worth 20% or more, all applications for special consideration must go through UNSW Student Central (https://my.unsw.edu.au/student/academiclife/StudentCentralKensington.html) and be lodged within 3 working days of the assessment to which it refers;

2. Applications will not be accepted by teaching staff, but you should notify the lecture-in-charge when you make an application for special consideration through UNSW Student Central;

3. Applying for special consideration **does not** automatically mean that you will be granted a supplementary exam;

4. Special consideration requests **do not allow** lecturers-in-charge to award students additional marks.

**Policy re requests for Special Consideration**

The policy of the School of Economics is that the Lecturer-in-charge will need to be satisfied on each of the following before agreeing to or supporting a request for special consideration:

1. For a medical certificate to be accepted, the degree of illness **must be stated** by the medical practitioner (severe, moderate, mild). A certificate without this will not be valid;

2. Has the student performed satisfactorily in the other assessment items? Satisfactory performance would require at least 40% in each assessment item specified in the Course Outline and meeting the obligation to have attended 80% of tutorials;

3. History of previous applications for special consideration. Previous applications may preclude a student from being granted special consideration;

**Special Consideration and Assessments other the Final Exam**

For the application of special consideration to assessment items other than the final exam, refer to the specific policies outlined. The School of Economics does not provide supplementary assessment items other than for the final exam.

**8.4 General Conduct and Behaviour**

You are expected to conduct yourself with consideration and respect for the needs of your fellow students and teaching staff. Conduct which unduly disrupts or interferes with a class, such as ringing or talking on mobile phones, is not acceptable and students may be asked to leave the class. More information on student conduct is available at: https://my.unsw.edu.au/student/atoz/BehaviourOfStudents.html
8.5 Occupational Health and Safety

UNSW Policy requires each person to work safely and responsibly, in order to avoid personal injury and to protect the safety of others. For more information, see http://www.ohs.unsw.edu.au/

8.6 Keeping Informed

You should take note of all announcements made in lectures, tutorials or on the course web site. From time to time, the University will send important announcements to your university e-mail address without providing you with a paper copy. You will be deemed to have received this information. It is also your responsibility to keep the University informed of all changes to your contact details.

9. Additional Student Resources and Support

The University and the ASB provide a wide range of support services for students, including:

- **ASB Education Development Unit (EDU)** (www.business.unsw.edu.au/edu) Academic writing, study skills and maths support specifically for ASB students. Services include workshops, online and printed resources, and individual consultations. EDU Office: Room GO7, Ground Floor, ASB Building (opposite Student Centre); Ph: 9385 5584; Email: edu@unsw.edu.au

- **Blackboard eLearning Support**: For online help using Blackboard, follow the links from www.elearning.unsw.edu.au to UNSW Blackboard Support / Support for Students. For technical support, email: itservicecentre@unsw.edu.au; ph: 9385 1333

- **UNSW IT Service Centre**: Technical support for problems logging in to websites, downloading documents etc. Library Annex, Ground Floor; Ph: 9385 1333. Website: https://www.it.unsw.edu.au/students/index.html

- **Capturing the Student Voice**: An ASB website enabling students to comment on any aspect of their learning experience in the ASB. To find out more, go to http://www.asb.unsw.edu.au/currentstudents/resources/studentfeedback/Pages/default.aspx

- **UNSW Learning Centre** http://www.lc.unsw.edu.au/ Academic skills support services, including workshops and resources, for all UNSW students. See website for details.

- **Library training and search support services**: http://info.library.unsw.edu.au/web/services/services.html

- **UNSW Counselling and Psychological Services** https://www.counselling.unsw.edu.au/)
Free, confidential service for problems of a personal or academic nature; and workshops on study issues such as ‘Coping With Stress’ and ‘Procrastination’. Office: Level 2, Quadangle East Wing; Ph: 9385 5418

- **Student Equity & Disabilities Unit** ([http://www.studentequity.unsw.edu.au](http://www.studentequity.unsw.edu.au))

Advice regarding equity and diversity issues, and support for students who have a disability or disadvantage that interferes with their learning. Office: Ground Floor, John Goodsell Building; Ph: 9385 4734

### 10. Course Schedule

Note: As the text/reference book titles are long readings are shown either using:

- **HPW** to denote Haeussler, Paul and Wood
- **KZB** to denote Knox Zima and Brown
- **SP** to denote Swift and Piff
- **Ber** to denote Berenson et al.

<table>
<thead>
<tr>
<th>Week</th>
<th>Date</th>
<th>Topic</th>
<th>Learning Objective</th>
<th>Textbook Reading</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Thur 3 and Fri 4 March</td>
<td>Introduction + Describing the problem</td>
<td>Learn how to represent a business problem in terms of graphical and functional relationships.</td>
<td>HPW 2.1-2.2, 2.5, 2.8, 3.1-3.3, 4.1-4.3</td>
</tr>
<tr>
<td>2</td>
<td>Thur 10 and Fri 11 March</td>
<td>Possible answers</td>
<td>Learn to represent business problems in terms of equations, solve them and interpret solutions.</td>
<td>HPW 0.7-0.8, 1.1-1.3, 3.4, 3.6, 4.4</td>
</tr>
<tr>
<td>3</td>
<td>Thur 17 and Fri 18 March</td>
<td>Valuing alternatives</td>
<td>Learn to value costs and benefits occurring at different times, evaluate rates of return on alternative projects and work with annuities.</td>
<td>HPW 5.1-5.4, KZB 1.3-3.3 and 8.1-8.2, SP pp757-788</td>
</tr>
<tr>
<td>4</td>
<td>Thur 24 and Fri 25 March</td>
<td>Calculating for loans and savings</td>
<td>Learn to calculate the payments required to repay a loan as interest rates change. See how savings payments are affected by rate changes.</td>
<td>HPW 5.4-5.6, KZB pp 80-84, 97-112,135-156</td>
</tr>
<tr>
<td>5</td>
<td>Thurs 31 March and Fri 1 April</td>
<td>Considering changes</td>
<td>Learn to use calculus to examine inter-relationships between factors that influence the business environment.</td>
<td>HPW Ch 11, 12.1-2.3,12.5, 17.1-17.3</td>
</tr>
<tr>
<td>6</td>
<td>Thurs 7 and Fri 8 April</td>
<td>The best solution</td>
<td>Learn how to use graphical and calculus techniques to solve optimisation problems.</td>
<td>HPW 12.7, 13.1-13.6, 7.1-7.3</td>
</tr>
</tbody>
</table>
## Part 2 – Interpreting Business Data

### (Statistical topics)

<table>
<thead>
<tr>
<th>Week</th>
<th>Date</th>
<th>Topic</th>
<th>Learning Objectives</th>
<th>References</th>
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</thead>
<tbody>
<tr>
<td>7</td>
<td>Thurs 14 &amp; Fri 15 April</td>
<td>Describing the data</td>
<td>Learn to present data in frequency tables and graphs and to calculate and interpret summary statistics.</td>
<td>Ber 2.1-2.6, 3.1-3.5</td>
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<td><strong>Session break (2 weeks)</strong></td>
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<tr>
<td>8</td>
<td>Thurs 5 &amp; Fri 6 May</td>
<td>Probability and expectation</td>
<td>Learn to describe business environments that involve uncertainty and risk.</td>
<td>Ber 4.1-5.3 + tables pp.586-588 HPW Ch8, 9.1-9.2</td>
</tr>
<tr>
<td>9</td>
<td>Thurs 12 &amp; Fri 13 May</td>
<td>Evaluating parameters</td>
<td>Learn to calculate normal probabilities and use them to make statistical estimates with a given degree of confidence.</td>
<td>Ber 6.1-6.4, 7.1-7.3 + tables pp. 576-577</td>
</tr>
<tr>
<td>10</td>
<td>Thurs 19 &amp; Fri 20 May</td>
<td>More estimation + Testing hypotheses</td>
<td>Estimate with unknown variance. Learn to use statistical techniques to evaluate the likelihood of some statement about a financial or economic relationship being true</td>
<td>Ber 8.1-8.4, 9.1-9.5 + tables pp. 578-579</td>
</tr>
<tr>
<td>11</td>
<td>Thurs 26 &amp; Fri 27 May</td>
<td>Estimating regression parameters</td>
<td>Learn to estimate unknown parameters in key financial and economic relationships using regression techniques.</td>
<td>Ber 12.1-12.6</td>
</tr>
<tr>
<td>12</td>
<td>Thurs 2 &amp; Fri 3 June</td>
<td>Forecasting the future</td>
<td>Learn the use of statistically based models to forecast the values of particular variables in an economic or financial relationship</td>
<td>Ber 12.7,13.1-13.4, 13.6, 14.1-14.4, 14.9 + tables pp.581-584</td>
</tr>
</tbody>
</table>