B.Sc. - Statistical Modelling and Data Analysis/
MAS/MASOR/MASSM - Statistical Analysis - Spring Term

Course Home page at:
http://www.econ.bbk.ac.uk/faculty/brooms/personal/teaching/smda.htm

LECTURER: DR. ALI TASIRAN

Spring 2006

This is a course option for students on the following programmes:
B.Sc. Mathematics and Statistics
B.Sc. Statistics and Management
B.Sc. Statistics and Economics
M.Sc. Applied Statistics (+Operational Research/Stochastic Modelling)

Prerequisites
(BSc2) Analysis of Experimental and Survey Data, or (MSc1) Statistical Analysis - Autumn Term.

Teaching
Lectures: Room 407; Computing Sessions ¹: Room 402.
10 × 3 hour sessions:
This schedule is provisional: please consult the website for the announcement of any last minute changes.

<table>
<thead>
<tr>
<th>Week</th>
<th>Date</th>
<th>Type of Session</th>
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<tbody>
<tr>
<td>1</td>
<td>January 9</td>
<td>Full Lecture</td>
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<tr>
<td>2</td>
<td>January 16</td>
<td>Full Lecture</td>
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<tr>
<td>3</td>
<td>January 23</td>
<td>Half Lecture 6-7.30p.m.; Computing Session 7.30-9p.m.</td>
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<td>4</td>
<td>January 30</td>
<td>Half Lecture 6-7.30p.m.; Computing Session 7.30-9p.m.</td>
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<td>5</td>
<td>February 6</td>
<td>Full Lecture</td>
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<td>6</td>
<td>February 13</td>
<td>No Lecture: reading week</td>
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<td>7</td>
<td>February 20</td>
<td>Full Lecture</td>
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<td>8</td>
<td>February 27</td>
<td>Full Lecture</td>
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<td>9</td>
<td>March 6</td>
<td>Computing Session 6-7.30p.m.; Half Lecture 7.30-9p.m.</td>
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<td>10</td>
<td>March 13</td>
<td>Computing Session 6-7.30p.m.; Half Lecture 7.30-9p.m.</td>
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<td>11</td>
<td>March 20</td>
<td>Full Lecture</td>
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Course Outline
MULTIVARIATE ANALYSIS:
• Covariance and Correlation Matrices.
• Principal Components Analysis.
• Procedures based on The Multivariate Normal distribution.

¹Priority Access will be given to undergraduate students.
• Discriminant Analysis.

**Log-linear Models:**
• The Generalized Linear Model.
• Use of log-linear models for the analysis of contingency tables in more than two dimensions. Data will be analyzed using the package SPLUS.

In addition, M.Sc. Students will study:
• Numerical procedures for parameter estimation.
• Modelling Binary Response Data

**Examination Methods**
B.Sc:
1 written paper (80%): 2 hour examination in June.
2 pieces of coursework (20%):
   1st piece (10%):- to be handed out during week 4, with a deadline for week 6.
   2nd piece (10%):- to be handed out by the last week of term, with a deadline for the 1st week of the Summer Term.

M.Sc:
3 questions on paper 2.
1 piece of coursework to be handed out by the last week of term, with a deadline for the 1st week of the Summer Term.

**Lectures**
A set of notes will be provided at the start of each lecture, or at the start of each major topic. *Very informal* notes will be written up on the board, and sometimes on the OHP to emphasize particular points. Students can read around the course by using one or more of the suggested texts, perhaps for extra clarification; however, the notes are intended to be fairly self-contained.

**Suggested Texts**

The following statistical tables are supplied by the College during examinations:

A good book to use for revising topics from Matrix Algebra, including Quadratic Forms, is:

[1, 2], and [4], are available from [www.waterstones.co.uk/](http://www.waterstones.co.uk/)