UNITED STATES INTERNATIONAL UNIVERSITY
SEMESTER : SPRING 2008
MTH 2210C: INTRODUCTION TO APPLIED STATISTICS
COURSE SYLLABUS
DAY/TIME: SATURDAY,   9:00 - 12:20 PM   (ROOM B2)
LECTURER :   DR FRANCIS NJUI
CREDIT: 3 UNITS

COURSE DESCRIPTION

Role of Statistics, Methods of data collection, Planning and Statistical survey, Presentation of Statistical data, Frequency distributions, Measures of Central Tendency, measures of Dispersion, Correlations, Linear Regression Probability, Special Univariate Distributions, Sampling, Estimation, Tests of Hypotheses.

COURSE OBJECTIVES

This course aims at equipping students with a strong statistical base in solving decision-making problems, especially those involving numerical data. The key to correct decisions is probability. It is with this idea in mind that probability distributions are introduced to minimize the risk of making incorrect statistically based decisions. At the end of the course, students should be able to;

    i.   Collect data, analyse it and make valid conclusions.
    ii.   Use sample statistic to make conclusion about a population.
    iii.   Make good estimate about an unknown statistical parameter.
    iv.   Make use of various probability distributions.
    v.   Forecast and predict events.

TEACHING METHODOLOGY

Lectures, handouts and individual consultations form the backbone of the teaching methodology. Students are required to go over lecture notes after every lecture for better cumulative understanding of the subject. Calculators are the most important tools and must be brought to the lecture room at all times. Mobile phones must be switched off throughout the lectures.

DETAILED COURSE CONTENT AND APPROXIMATE TIME SCHEDULE

Week	Main Topics	Sub-Topics
1	Introduction Data Collection and Presentation	Introduction Definition of Statistics Role of Statistics Methods of collecting data Presentation of data (Bar-charts; Pie-charts; Pictographs)
2	Frequency Distribution	Variables Frequency Distributions Histogram, Frequency Polygon, Ogilves Examples/Applications
3	Measures of Central Tendency	Mean, Mode, Median, Geometric Mean, Harmonic mean, Quartiles Examples.
4	Measure of Dispersion	Range, Quartile, Deviation, Mean, Deviation, Standard Deviation, Coefficient of Variation
5	Moments, Skewness, Kurtosis	

6	Correlation	Bivariate Distributions, Scatter diagrams, Product-moment, correlation, Rank
7	MID-SEMESTER EXAMINATION	
8	Regression	Linear Regression applications
9 & 10	Probability	Review of set theory, combinations and Permutations, Approaches to probability : Classical and Axiomatic.
11	Probability	Conditional Probability and Independence, Bayes' Rule: Applications.
12 & 13	Random Variables	Random variables, Introduction to Special Univariate Distributions.
14	FINAL EXAMINATION	

ASSESSMENT

i. **Take-Home Assignment**
There will be at least two 'Take-Home" assignments. Questions will cover all topics covered in class. These assignments will constitute 20% of the total course work.

ii. **Invigilated Quizzes / Term Paper**
There will be at least two Quizzes: These quizzes will constitute 25% of the total course mark.

iii. **Mid-Semester Test**
This will be an invigilated test which will be conducted in or around the seventh week. It is a detailed test, covering all topics covered before the due date of the test. It constitutes 25% of the course mark.

iv. **Final Examination**
This examination will be conducted in the last week of the term week as per the expected examination time-table. It is a detailed examination which covers all the main topics in the course outline. It constitutes 25% of the course mark.

v. **Attendance**
Attendance is very important. Any truant will be penalized accordingly. 5 Marks are earned for attending all sessions.

TEACHING METHODOLOGY

Lectures
Assignments
Class tests
Class discussions

COURSE TEXT

Wonnacott Thomas H. et al., *Introductory Statistics for Business and Economics*, (New York: John Wiley, 1990)

The following text book is very important for the course and is available in the library.
Gupta C, *Fundamentals of Mathematical Statistics,*

Another good textbook by the same author is entitled;
An Introduction to Statistical Methods.

Any other statistical book with topics similar or identical to those in this course outline could be a good reference book.

GRADING SYSTEM

90 - 100	A		70 - 73	C
87 - 89	A-		67 - 69	C-
84 - 86	B+		64 - 66	D+
80 - 83	B		62 - 63	D
77 - 79	B-		60 - 61	D-
74 - 76	C+		59 -	F