COURSE TITLE: Statistical Analysis		CODE: ST1002
LECTURERS: **Associate Prof. Myra O'Regan** (Myra.ORegan@tcd.ie)		
LEVEL: Senior Freshman	**Credits: 5**	**PREREQUISITES: None**
TERMS: Semester 1 Duration (weeks): **12**	**LECTURE/WEEK: 2** **TOTAL: 22**	**TUTORIALS/WEEK: 1** **TOTAL: 11**

AIMS/OBJECTIVES

The aim of the course is to introduce the students to basic statistical concepts. There will be considerable emphasis on the use of a statistical package to analyse data.

SYLLABUS

- Nature of data
- Descriptive statistics
- Displaying data using graphs
- Normal Distribution
- Select random sample
- Confidence intervals for means and proportions
- Hypothesis testing
- Independent t-tests
- Chi-Square tests
- Simple linear regression

LEARNING OUTCOMES

To explain basic statistical theory and apply the techniques to data. Students should be able to describe and interpret the results in a detailed fashion. More precisely students should be able to :

- Explain the nature of data
- Generate appropriate descriptive statistics
- Illustrate data with apropriate graphical techniques
- Create readable tables
- Use normal distribution tables
- Select a random sample
- Create estimates and confidence intervals of population parameters from samples
- Carry out and interpret the results of the following statistical tests including
    - Paired and independent t-tests
    - Chi-square test
- Explain the ideas behind simple linear regression

Considerable emphasis will be put on the use the statistical computing package MINITAB in exploring and analysing data.

ASSESSMENT

Class and lab attendance is compulsory. Students will be required to attend 80% of labs and lectures. Non-attendance will result in an additional project to complete.

Assessment is by written examination (contributing 70% to the overall mark) and continuous assessment (contributing 30% to the overall mark). To pass the module, students must achieve an overall mark of 40% in both the exam and the assessment.

BIBLIOGRAPHY

Stuart, M. An Introduction to Statistical Analysis for Business and Industry A problem Solving approach. London: Hodder Arnold, 2003

Moore, D.S, McCabe G.P & Craig, B.A. An Introduction to the practice of Statistics 6th ed. New York: W. H. Freeman, 2009