| Module Code | STU33011 | | | | | |
|-------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|---------------------------------------------------------------------|-----------------------------|-------------------------|-------------------------|
| Module Name | Multivariate Linear Analysis | | | | | |
| ECTS Weighting ¹ | 5 ECTS | | | | | |
| Semester taught | Semester 1 | | | | | |
| Module Coordinator/s | Arthur White | | | | | |
| <u>Module Learning</u> <u>Outcomes</u> | On successful completion of this module, students will be able to: LO1. Define and describe various classical dimension reduction techniques for multivariate data. LO2. Implement clustering and/or classification algorithms and assess and compare the results. LO3. Interpret output of data analysis performed by a computer statistics package. | | | | | |
| Module Content | Classical multivariate techniques of discriminant analysis, principal component analysis, clustering and logistic regression are examined. There is a strong emphasis on the use and interpretation of these techniques. More modern techniques, some of which address the same issues, are covered in the SS module Data Mining. | | | | | |
| Teaching and Learning Methods | Lectures and labs. | | | | | |
| Assessment Details ² | Assessment Component Examination Continuous Assessment | Brief Description 2 hour written examination Mid-Term Assignment | Learning Outcomes Addressed LO1, LO2, LO3 LO1, LO2, LO3 | % of total 80% 20% | Week set n/a 6 | Week due n/a 9 |
| Reassessment Details | Examinatior | n (2 hours, 100%) | | | | |

¹ <u>TEP Glossary</u> ² <u>TEP Guidelines on Workload and Assessment</u>

| Contact Hours and | Contact Hours (scheduled hours per student over full module), broken down by: | 33 hours | | | |
|-----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|--|--|--|
| Workload | lecture | 22 hours | | | |
| | laboratory | 11 hours | | | |
| | tutorial or seminar | 0 hours | | | |
| | other | 0 hours | | | |
| | Independent study (outside scheduled contact hours), broken down by: | 83 hours | | | |
| | preparation for classes and review of material (including preparation for examination, if applicable) | 42 hours | | | |
| | completion of assessments (including examination, if applicable) | 41 hours | | | |
| | Total Hours | 116 hours | | | |
| List | | | | | |
| Module Pre-requisites | Prerequisite modules: N/A | | | | |
| | Other/alternative non-module prerequisites: Knowledge of linear algebra, e.g., matrix notation, eigenvalues and eigenvectors. Some familiarity with regression models, and with the R programming language, will also be helpful. | | | | |
| Module Co-requisites | N/A | | | | |
| Module Website | scss.tcd.ie/~arwhite/Teaching/STU33011.html | | | | |
| Last Update | 22/08/2019 by Arthur White | | | | |