▲UCL

## Civil, Environmental and Geomatic Engineering

# Data Analysis (CEGE0044)

## Description

The course covers statistical principles and techniques for analysing data, with an increasing level of complexity and sophistication as it progresses. You will be introduced to essential tools such as matrix algebra and calculus in the early sessions. The course then proceeds to cover basic ideas on the nature of errors, probability distributions and statistical tests - including tests for outliers, variance ratios, goodness of fit, and so on. You will study the nature and theory of error propagation and the correlation of errors in space and time. The course then covers the least squares treatment of observational data, including both linear and non-linear problems, constrained solutions, reliability and quality control procedures.

The topics covered are mainly applicable to the analysis of observational data acquired in geospatial sciences, and most real-world examples are drawn from this area; but there is some generic applicability to other engineering fields handling observational data.

### Learning Outcomes

At the end of the module, students should be able to apply statistical tests to experimental data. They should understand the generic concept of least squares, be able to form appropriate functional and stochastic models for a variety of circumstances and observational set-ups, generate quality indicators and interpret results.

## Key information

| | |
|---|---|
| **Year** | 2019/20 |
| **Credit value** | 15 (150 study hours) |
| **Delivery** | PGT L7, Campus-based |
| **Reading List** | View on UCL website |
| **Tutor** | Dr Jonathan Iliffe |
| **Term** | Term 1 |
| **Timetable** | View on UCL website |

## Assessment

- Coursework: 10%
- Coursework: 20%
- Coursework: 20%
- Coursework: 25%
- Coursework: 25%

## Find out more

For more information about the department, programmes, relevant open days and to browse other modules, visit **ucl.ac.uk**

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