

# EART 3005 STATISTICAL HYDROLOGY

**Credit Points** 10

**Legacy Code** 300991

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**Description** This unit covers the principles of statistical hydrology. It explores at-site flood frequency analysis, regional flood frequency analysis, trend analysis of hydrological data, linear regression analysis and multivariate statistical techniques to solve hydrological problems.

**School** Eng, Design & Built Env

**Discipline** Hydrology

**Student Contribution Band** HECS Band 2 10cp

Check your HECS Band contribution amount via the Fees ([https://www.westernsydney.edu.au/currentstudents/current\\_students/fees/](https://www.westernsydney.edu.au/currentstudents/current_students/fees/)) page.

**Level** Undergraduate Level 3 subject

**Pre-requisite(s)** EART 4001

## Learning Outcomes

On successful completion of this subject, students should be able to:

1. Apply at-site flood frequency analysis techniques to estimate design floods from recorded streamflow data.
2. Apply regional flood frequency analysis techniques to estimate design floods when no recorded streamflow data is available.
3. Apply trend analysis to rainfall and streamflow time series data to check the stationarity of the data.
4. Apply linear regression analysis to develop prediction models to estimate streamflow and rainfall indices.
5. Apply multivariate statistical techniques to hydrological problems.
6. Evaluate current Australian codes and software to solve statistical hydrological problems.
7. Critically evaluate current literature to benchmark recent problems and developments in statistical hydrology practice.
8. Design sustainable hydrology projects.

## Subject Content

1. At-site flood frequency analysis
2. Regional flood frequency analysis
3. Trend analysis of hydrological data
4. Linear regression analysis as applied to hydrological problems
5. Multivariate statistical techniques as applied to hydrological problems

## Assessment

The following table summarises the standard assessment tasks for this subject. Please note this is a guide only. Assessment tasks are regularly updated, where there is a difference your Learning Guide takes precedence.

Item	Length	Percent	Threshold	Individual/ Group Task
2 Quizzes (Short answer test) at 10% each = 20%	30 minutes each	20	N	Individual
Project (Students will produce group report, 3 students in a group, a group submits one report)	2,500 words	25	N	Individual
Final exam	2 hour	55	N	Individual

Teaching Periods