



The University of Sydney

# ENVI5809

## Environmental Simulation Modelling

**Lecturers:** Dr David M. Chapman  
School of Geosciences  
Room 403  
Madsen Building (F09)  
University of Sydney  
Phone: +61 2 9351 3364  
Fax: +61 2 9031 0184  
Email: [dmc@usyd.edu.au](mailto:dmc@usyd.edu.au)

### **Classes**

Each session consists of a lecture followed by practical work on the same topic. Sessions are of five hours duration.

### **Synopsis**

The course introduces participants to the power of simulation modelling in understanding and predicting behaviour of natural systems. The unit of study covers fundamental concepts, logic, and techniques (including sensitivity analysis), and develops skills in application to environmental problems such as catchment management and population dynamics.

### **Assessment**

Assessment will be by means of project work, which will be based on the course content: there will be no formal written examination. The project will involve successful construction, testing, and documentation of a simulation model of a natural system – each student will develop his/her own topic in consultation with Dr. Chapman.

Each student will also be required to keep a log-book, which must be presented for assessment along with the completed project. Performance in class will be taken into account.

### **Lecture Outline**

Week 1	Introduction to Simulation Modelling
Week 2	Modelling the Behaviour of Natural Phenomena
Week 3	Modelling Population Dynamics
Week 4	Modelling a Natural System
Week 5	Modelling Managed Natural Systems
Week 6	Modelling a Human-Environment System

### **Practical Work Outline**

Week 1	Introduction to Simulation Modelling
Week 2	Modelling the Behaviour of Natural Phenomena
Week 3	Modelling Population Dynamics
Week 4	Modelling a Natural System
Week 5	Modelling Managed Natural Systems
Week 6	Modelling a Human-Environment System

### **Required Texts/Reading List**

A comprehensive laboratory manual will be supplied to each student, as will a selection of helpful readings.