

Course

## ENVS6525 - Sustainability and Ecosystem Health

### Study level

Postgraduate Coursework

### Course level

6000-level

### Units

10

### College

College of Engineering Science and Environment

### School

School of Environmental and Life Sciences

[View the timetable](#)

[Course outline](#)

### Course description

Sustainability and Ecosystem Health offers a systematic examination of an emergent paradigm in environmental management, ecosystem health and resilience thinking. It explores these concepts via the theoretical perspectives

and methodologies of complexity and transdisciplinarity. The ecosystem health paradigm examines environmental issues using key indicators of system health such as integrity, resilience, vigour, diversity, stability and adaptability. Major environmental issues are analysed from a complex adaptive systems perspective with humans and their institutions seen as integral parts of socio-ecological systems, i.e. a 'humans in the ecosystem' approach. The Hunter Valley of New South Wales, Australia provides a rich setting for case studies at the regional level. Other case studies are explored, including human induced climate change and global warming at the biosphere scale. Links between complex adaptive socio-ecological systems at varied scales are also explored. All case studies are used to highlight interdependencies and opportunities for diagnosing, maintaining or restoring ecosystem and human health and resilience.

## Course content

### Theme 1: Basic Concepts

1. Resilience: and indicator of sustainability

### Theme 2: Complex Adaptive Systems

1. Ecological and social systems as linked complex adaptive systems
2. Feedback, thresholds and tipping points
3. Panarchy and scale
4. Resilience, adaptability and vulnerability
5. Sustainability indicators: a systems approach

### Theme 3: Case Study in Sustainability

1. Social learning, adaptive management and governance for ecosystem health and sustainability
2. The Hunter region of NSW, Australia

### Theme 4: Creating Sustainable Futures

1. Individual case studies identified by students

## Learning outcomes

Upon completion of this course, graduates will be able to:

1. Articulate the difference between complicated systems and complex adaptive systems;
2. Explain why complex adaptive systems change the way they do;
3. Use ecosystem health and resilience theory to interpret, understand and analyse real world case studies;

4. Justify approaches to managing complex adaptive systems;

---

5. Critique the management of complex adaptive systems and recommend best practice approaches that respond to the behaviour of complex adaptive systems;

---

6. Explain the relationship between resilience and sustainability.

## Availability

### Enrolment term

Trimester 1

#### **F2F-NAIHES-TRI1**

**Location:** Singapore NAIHE

**Delivery mode:** On Campus

---

#### **ONL-ONL-TRI1**

**Location:** Online

**Delivery mode:** Online

## Contact hours

### Live Virtual Lecture

**Offerings:** ONL-ONL-TRI1

**Duration:** 1 hour(s) per week

**Number of sessions:** 12 week(s)

**Starting week:** 1

**Format:** Online

---

### Self-Directed Learning

**Duration:** 48 hour(s) per term

**Number of sessions:** 1 term

**Starting week:** 1

**Format:** Self-Directed

---

## **Tutorial**

**Offerings:** F2F-NAIHES-TRI1

**Duration:** 2 hour(s) per fortnight

**Number of sessions:** 6 fortnight(s)

**Starting week:** 1

**Format:** Face to Face On Campus

If **Starting week** or **Number of sessions** = 0, please refer to the Course Outline.

## **Assessments**

### **Presentation**

**Name:** Audio/visual Blackboard Collaborate presentation and facilitation of discussion board

**Weighting (%):** 30

**Individual or group work:** Individual

---

### **Essay**

**Name:** Essay

**Weighting (%):** 30

**Individual or group work:** Individual

---

### **Report**

**Name:** Applied major report

**Weighting (%):** 40

**Individual or group work:** Individual

## **Course utilisation**

This course is available to be undertaken taken as an elective.

## **Course contacts**

To contact your course coordinator, please see Canvas.

---

The University of Newcastle acknowledges the traditional custodians of the lands within our footprint areas: Awabakal, Darkinjung, Biripai, Worimi, Wonnarua, and Eora Nations. We also pay respect to the wisdom of our Elders past and present.

DISCLAIMER: Every effort has been made to ensure the accuracy of the information on this website. However, changes to courses and programs may occur. The University accepts no responsibility for any information supplied on this website or any actions taken on the basis of the information. Users are advised to seek confirmation of the information from the relevant area of the University.

The University of Newcastle, Australia © 2024