Environmental Systems Analysis and Scenarios

NB2002 English course information

GENERAL

Official source section General

Official title	Environmental Systems Analysis and Scenarios
Course code	NB2002
Study area	Natural Sciences
Credits	5 EC
Indicative price	From EUR 410

Course schedule

This course has a fixed start date. Consult the annual timetable to see when the course begins.

Course content

In this English-language course, you learn how examples of natural systems can be converted into mathematical models and analysed with the Stella software package. One example is modelling the maximum sustainable fish catch while maintaining a stable fish population. Working with models also develops your understanding of feedback between environmental subsystems, such as the soil-water system.

The course examines how exponential and logistic growth equations can be used to model a maximum sustainable fish catch; how substances originating outside a lake spread through it and how chemical reactions affect this process; and how interactions and feedback operate in systems such as predator-prey and competition models. The final part considers the meaning of scenarios in mathematical models of environmental systems. You formulate simple scenarios for future environmental projections and complete a final assignment by developing your own model with scenarios.

Learning objectives

After completing the course, you will be able to:

- explain and apply basic systems analysis to examine environmental problems and propose solution strategies
- formulate mathematical models of real-world systems
- analyse mathematical models through computer simulation
- understand the role of scenarios in environmental science and develop alternative scenarios

SIGNING UP

Official source section Signing Up

Eligibility

Anyone may register.

Registration information

The course starts on 16 November 2026. OU recommends registering by Sunday 1 November 2026 so that course materials and access to the online learning environment arrive on time and, where applicable, you can be assigned to a study group. OU cannot guarantee this for registrations submitted after 1 November. Registration remains open through 15 November 2026.

Prior knowledge

Some prior mathematics is expected, particularly algebra, functions, and an understanding of differential equations. Course NB0302 Mathematics for Environmental Sciences is one way to acquire this knowledge.

GUIDANCE

Official source section Guidance

Guidance format

This course has a fixed start date. Guidance consists of two online sessions and one meeting during a themed study day. A further online session discusses the final assignment and gives you an opportunity to discuss your model with the lecturer.

Teaching staff

Dr R Lyana Curier, examiner, and Dr Ir Joop de Kraker.

EXAM

Official source section Exam

Assessment method

Assignment.

Assessment details

The assessment consists of an interim assignment graded pass or fail and a final assignment that receives a mark. The lecturer assesses the final assignment only after the interim assignment has received a pass.

Assessment dates

By arrangement.

MORE INFO

Official source section More Info

Course materials

The course uses an online learning environment containing source documents and selected chapters from Thinking in Systems by Donella Meadows. Every registered student receives access through the online environment to a student licence for Stella software.

Technology requirements

You need a recent laptop throughout the course and should preferably bring it to online tutorials and the themed study day. If you need to buy another laptop, note the Stella requirements:

- Windows 10 or later, or Macintosh OS 10.12
- a powerful graphics card
- a 64-bit operating system is recommended
- at least 4 GB RAM is required, while 8 GB is recommended
- a drive of at least 120 GB with at least 50 GB of free space is recommended

You are responsible for your laptop and for installing the required software with the recommended settings. The software FAQ is available at https://www.iseesystems.com/resources/faqs/software.aspx.

Students registered one month before the course begins receive an email from the software supplier two weeks before the start date. Check your spam folder for an email from an address ending in @iseesystems.com and follow its instructions. Students who register one week before the course begins receive the licence information after the course has started. Until then, you can begin the exercises with the trial version and take screenshots for your assignments.

Online learning environment

The course page provides access to discussion groups where you can exchange information and discuss the material with other students and the tutor.