



## Ecohydrological modeling for climate change impact assessment

**ONLINE EDITION**

**Lecturers/Organizers:** João Pedro Nunes (cE3c-FCUL); Luís Dias (cE3c-FCUL); Amandine Pastor (cE3c-FCUL); Sílvia Carvalho (cE3c-FCUL); Bruno Aparício (cE3c-FCUL)

**Note:** This course will be given online

**Date:** April 12<sup>nd</sup> to 16<sup>th</sup> 2021

**Duration:** 36 hours

**Schedule:** Monday to Friday, 9h00 to 12h45 / 14h00 to 17h30

**Objectives:**

This course will teach how to apply the SWAT eco-hydrological model to assess the impacts of climate and associated changes on water-soil-plant interactions, and consequences to water resources, soil erosion and nutrient cycles.

**General plan:**

The course will consist of 10 half-day blocks. Each block will start with 1 hour of theoretical lecture, followed by 2h30 of practical application of the concepts using the SWAT hydrological model. Throughout the course, the students will learn how to apply the model for climate change adaptation assessment, using real case-studies from Portugal.

**Program:**

1. Course introduction and SWAT model set-up
2. Climate impacts on hydrology and vegetation processes
3. Water and soil movement in landscapes
4. Water-soil-plant processes
5. Sociohydrology: agriculture and water supply systems
6. Hydrological model evaluation and uncertainty
7. Climate change scenarios
8. Socioeconomic change scenarios
9. Adapting to climate and socioeconomic change
10. Course conclusion and analysis of SWAT applications

**This course can have a recognition of 6 ECTS for FCUL PhD students enrolling in it as part of their first doctoral year. For students only requiring 5 ECTS recognized in their specific PhD programmes the last 6 hours of the course are not mandatory and the certificate will be on 'Topics in Ecohydrological modeling for climate change impact assessment'.**

**Nº (min, max) students:** 8-15

**Minimal formation of students:** Familiarity with Excel and GIS (preferably QGIS)

**Directed to:** MSc or PhD students in Environmental Sciences, Hydrology or related sciences, as well as postdocs and professionals working in related topics.

**Fee:** free for 1st year PhD students in Doctoral programmes at FCUL (e.g. Biologia, Earth Systems), Biodiversity, Genetics and Evolution (BIODIV FCUL/FCUP) and Biology and Ecology of Global Changes (BEAG UL/UA) when the course counts credits for their formation, in which case the delivery of a final report done after the course is mandatory; the course is also free for 1<sup>st</sup> year PhD students enrolling in the programme Climate Change and Sustainable Development Policies (CCSDP, UL, Univ. Nova) and for more advanced PhD students of the BIODIV programme (ULisboa or UPorto); 30 € for other PhD students from cE3c, 60 € for PhD students from institutions of the PEERS network (CFE-Coimbra); 105 € for FCUL Master students and unemployed; 160 € for BTI, BI and other PhD students; 230 € for Professional and postdocs.

When the maximum number of students is reached, 8 vacancies will be available for non-paying 1st year PhD students mentioned above, being, by order of preference: 1) cE3c students; 2) Climate Change and Sustainable Development Policies (not from cE3c); 3) BIODIV students (not from cE3c); 4) FCUL students (not from cE3c); 5) BEAG students (not from FCUL).

**Deadline for applications:** 31 January 2021

Candidates should send to João Pedro Nunes ([jpcnunes@fc.ul.pt](mailto:jpcnunes@fc.ul.pt)) a short CV and motivation letter explaining why they are interested in the course. The cv and letter should be named as *1st-lastNAME-CV.pdf* and *1st-lastNAME-ML.pdf* (that is personalize the name of each file with your first and last name).

**In the email please add the following information:**

Full Name:

E-mail:

Phone:

Professional activity: Professional/Postdoc, BTI, BI (or other non-post-doc research grant), PhD student (with/ without scholarship), Lic. (Bachelor)/Master student

Academic formation:

PhD student of the 1st year of a Doctoral programme at FCUL (e.g. Biologia, Earth Systems), BIODIV (FCUL/FCUP), BEAG (FCUL or UA) or CCSDP?:

If yes to the above question, PhD student doing the Course to count credits for 1st year?:

PhD student of cE3c or CEF (Centro de Ecologia Funcional)?:

Name of the PhD programme: