

# PAB3101

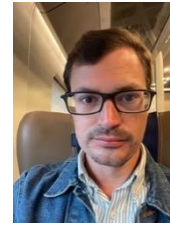
## Soil Science

**Module description:** This module will provide you with an introduction to soil science in the context of natural and agricultural environments, in Ireland globally.

**Why does soil matter?** Lectures and seminars will introduce you to why the of soil relevance for agriculture, biodiversity, plant ecology/distribution, and for humanity. You will learn how plants, crops and vegetation respond to soil characters, nutrients, toxins and salinity. You will also study how soil carbon can be measured, conserved, and enhanced; gain greater appreciation of soil biodiversity; and understand how greenhouse gas emissions from agricultural soils can be mitigated. Among the nutrient cycles, we will focus particularly on Nitrogen and Phosphorus; the importance of microbial communities and plant-microbe symbioses; and the critical role of decomposers. The stresses associated with soils which are nutrient-deprived will be considered, including the critical roles of preventing nutrient loading for conservation.

This module will prepare you for understanding soil-plant-environment interactions in diverse contexts and is supported by laboratory soil analyses, a nutrient calculations workshop and a write-up to develop your transferable skills and prepare you for writing up your final year thesis.

The relation of soil to Sustainable Development Goals such as *SDG2: Zero Hunger*, *SDG13: Climate Action* and *SDG15: Life on Land* will also be discussed.



Coordinator and Lecturer

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Room: ADB-2011

### Module Assessment:

Written examination (40%)

Soil nutrients calculation  
workshop (10%)

Write-up of practical soils  
labs (50%)

*IMPORTANT NOTE: your 3<sup>rd</sup> year marks contribute 30% of your final degree grade. It is therefore critical that you engage with all taught materials and provide evidence of additional reading (e.g. from the list overleaf) to get the best mark possible.*

**Feedback:** You will get feedback of their lab write-up skills, as a shorter version of the same format as their final year project, from your lecturer.

## Learning Outcomes:

- **LO1** Critically assess the importance of links between plant and crop communities and their prevailing environment, including climate, soil type, and the availability of water and nutrients
- **LO2** Relate the characters of plant communities to variation in nutrient status, soil, and salinity.
- **LO3** Describe, measure, and calculate key characteristics of soils from different habitats.
- **LO4** Make and interpret soil profiles and texture triangles.
- **LO5** Relate different soils to their possible agricultural uses and consider possible environmental impacts of these.



## Students' Testimonials

- I liked that it was a very practical module with real life lab experiences
- I took it as it was coherent in my timetable but I'm glad I did, I do EOS, I found I was more interested than I thought I would be in relation to fertilizer side effects
- Labs helped to understand some aspects of the lectures more + the write up helped to tie it all together.
- I liked how the course is structured so all the weight of marks is not put on the final written exam