

Module P.GRK2300.D1:
Ecology of mixed forests and methods of ecophysiological research on trees
(2024)

Module content (according to the module catalogue)

Learning outcome core skills

The students get familiar with basics on mixed forest stands such as the diversity-productivity relationship and its variation in space and time. The students will also get to know various ecophysiological methods related to tree growth, water consumption, nutrient uptake etc.

Course: *Ecology of mixed forests and methods of ecophysiological research on trees*

Contents: Ecological and physiological processes, stand dynamics, gas exchange, sap-flow, water-use efficiency, root dynamics.

Literature:

- Leuschner, Ellenberg (2017): Ecology of Central European Forests. Springer Nature, Cham.
- Pretzsch, Forrester, Bauhus (eds) (2017): Mixed-species forests. Ecology and Management, Springer.
- Von Willert, Matyssek, Herppich (1995): Experimentelle Pflanzenökologie. Grundlage und Anwendungen. Georg Thieme Verlag

Examination: oral presentation or short paper

Lecturers: Prof. Christoph Leuschner, Dr. Dietrich Hertel and Sharath Paligi for the first part and the excursion
Prof. Christian Ammer and Dr. Jonas Glatthorn for the second part

Dates: The course consists of three parts:

1. **June 18 and 19, 2024:** "Drought response of central European forests under climate change and methods used to assess them" offered by the Department Plant ecology and ecosystems research
2. **Excursion** (date to be discussed with the participants)
3. **October 24 and 25, 2024:** "Ecology of mixed forests" offered by the Silviculture department together with Dr. Jonas Glatthorn

Credits: 2 ECTS (attendance of at least 80 % and an oral presentation or a short paper (to be discussed))

Language of instruction is English

Registration: Please send an email to serena.mueller@forst.uni-goettingen.de by June 17, 2024
[It is also possible to attend only the first or the third part of the course, but credits can only be awarded for attending all]

Detailed schedule and content for the first part of the course:

Title: "Drought response of central European forests under climate change and methods used to assess them"

Brief description: This course covers details about the basics of tree water relations including movement of water from soil to canopy, adaptation by plants to climatic stressors such as drought and heat. Additionally, the course aims to introduce the participants to latest methods used in the field of plant hydraulics to understand drought tolerance and drought resistance of plants under climate change.

Schedule:

June 18

- 9:00 to 12:00 Lecture on "Tree water relations and drought response"
- 12:00 to 13:00 Lunch break
- 13:00 to 14:00 Lecture on "Response of central European forests to climate change"

June 19

- 9:00 to 12:00 Role of soil properties and soil water status in functioning of trees (30 minutes lecture followed by demonstration of methods and discussion).
- 13:00 - 14:30 (*optional*) Visit to canopy walkway facility of department of plant ecology department

More information on the excursion and the third part of the course on ecology of mixed forests will be shared with the participants in due time.