ZeL Zentrum für Lehren und Lernen
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Teaching in STEM disciplines

(also part of the SU-University Didactics Programme, module: electives of higher education didactics competencies)

Target group: academic teachers and scientists

How can courses in STEM fields be taught in an engaging and entertaining, yet instructive way? What methods can be used? How can a Universal Design for Leaning cater for individual needs of students, support instructors and contribute to improvements in teaching effectiveness?

This workshop offers insights into methods and results of educational research in science and engineering courses, but – as a universal approach – is applicable to other areas as well. As suggested by these findings, teaching methods that allow students to participate actively and account for individual demands, have a greater chance of achieving substantial student learning gains and generate true understanding. Among the methods presented in the workshop are:

- Classroom Assessmnent Techniques – simple, non-graded, anonymous, in-class activities designed as useful feedback to both students and instructors on the teaching-learning process
- Peer Instruction – a format to have students think about, discuss and answer specifically designed multiple-choice questions
- Just-in-Time Teaching – a specific type of inverted classroom setting, that uses students' answers to preparatory questions to focus instruction on challenging points

Participants in this workshop will have the opportunity to experience these methods themselves and to adapt some of them for their own teaching situation. In addition, we will discuss what factors affect or hinder the success of these methods, and participants are invited to share examples from their own teaching experience.

Lecturer: Dr. habil. Philipp Hövel is a trained mathematician and physicist at the Center for Biophysics (Saarland University). From 2018 to 2022, he held a faculty position at University College Cork (Department of Applied Mathematics, Ireland), where he also completed a postgraduate program (Master of Arts) in Teaching and Learning in Higher Education.

Single course, programme, certificate: You can also attend the workshop as an individual seminar regardless of the subsequent certificate. For the full and dedicated attendance of an single course from 5 work units you will receive a competence-based proof of participation from the Division for University Didactics at Saarland University. This workshop is one of the workshops of the module "Electives of Higher Education Didactics Competencies" of the Saarland University´s Certificate of Teaching in Higher Education.

The certificate comprises a total of three modules (modules: core workshops of higher education competencies, electives of higher education competencies, collegial coaching and teaching portfolio) at least 120 work units or at least 3x40 work units.

Programme and Certificate Responsible:
Dr. Birgit Roßmanith (Head University Didactics Unit), hochschuldidaktik@uni-saarland.de

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