

## **Professional development course 2 Teaching and Learning in Science and Mathematics**

**Semester: Autumn 2020**

Professional training course in higher education teaching. The course is aimed at university teachers within the area of science or mathematics who have a previously completed training in higher education teaching, UL1 or equivalent.

### **Effort involved**

The course is equivalent to five weeks full time studies (7,5 ECTS) in higher education teaching.

### **Aim and intended learning outcomes**

The aim of the course is to further strengthen the basic teaching proficiency required for employment as a teacher in higher education. The course will give the participants an in-depth understanding of how higher education pedagogical and discipline-based research and theories can be used and translated into teaching and course development practice within the framework of their own discipline. After the course, participants will be able to:

- Identify educational problems of teaching and learning in their own discipline and suggest how problems may be solved based on higher education research.
- Plan, evaluate and analyse teaching and assessment on a scientific basis within their own disciplinary area.
- Make use of, and assist in the development of, physical and digital learning environments to promote learning for groups and for individuals.
- Reflect on their professional role as researcher and teacher within their subject area in relation to academic teaching, to the students, and to the fundamental values of higher education.
- Search, collect, analyse and communicate their own and others' experiences of teaching and learning practices, and relevant outcomes of research, as a basis for the development of educational practice and academic teaching.

### **Centre for the Advancement of University Teaching**

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### **Disposition of the course**

- Discipline based education
- Teaching in the Natural Sciences and Mathematics
- Student learning in the Natural Sciences and Mathematics
- Reflective teaching and formative assessment
- The professional teacher: Curriculum texts, rules and regulations, assessment of student learning and evaluation of teaching.

The course includes six full mandatory course days. Before each course day the participants read articles that deal with the topic of the session. On each course day individual course assignments are also reported and the results are discussed in groups. The participants write a course paper that deals with how teaching and student learning in the participant's own subject could be improved and relate this to articles written for the specific discipline. Absence from one of the six course days can be replaced by a written assignment. Any further absence requires re-registration for the entire course.

### **Assessment**

Participants who have completed all mandatory exercises will gain a pass and will be entitled to a certificate.

### **Course Literature**

Current articles about 200 pages and selected literature in relation to the individual task.

### **Course leader:**

Veronica Flodin, Ph.D. Department of Mathematics and Science Education, Stockholm University