



Collegial Teaching and Learning in STEM Education (MNPED660, 2024/25)

Course Information

[Collegial Teaching and Learning in STEM Education](#) is an elective teaching and learning course in higher education for all MN-UiB staff¹. The course is offered by MN-UiB through The STEM Education Research Center ([SERC](#)), in collaboration with the Centre for Engineering Education ([CEE](#)) at LTH, Lund University. The course is given in English and requires no previous pedagogical training. Both experienced and novice teachers and staff are welcome. On completion of the course, you will receive a diploma that states the content and extent of the course (5 ECTS), which corresponds to three weeks, full-time work. This course can count as part of the basic pedagogical competence requirement at UiB.

The course introduces you to core concepts of teaching and learning in higher education to develop your ability to improve student learning. In the course you will read, discuss, explore, and reflect on pedagogical topics specifically related to teaching and learning in STEM (Science, Technology, Engineering and Mathematics) within your educational practice. Activities in the course will provide participants with a common language for teaching and learning, support collegial reflections and a scholarly approach to teaching and learning.

The main component of the course is a group project, addressing a teaching and learning issue of relevance to your educational practice. The final project product is an artefact and public presentation of the project. The format of the artefact and presentation depends on the type of project, the intended audience, and the participants' interest. Examples of a final artefact are a project report, a paper intended for publication in a teaching and learning journal, a teaching resource, or a submission to a teaching and learning conference - followed by a public presentation at a seminar, conference, or relevant meeting.

Application/Admission

All MN-UiB staff are eligible to apply. You may apply as a group of colleagues with a common interest, or individually. If you apply individually, you will be assigned to a group of 3-5 others. Application deadline: **2 September 2024**.

Apply here: <https://skjemaker.app.uib.no/view.php?id=17308622>

Course team

Oddfrid Førland, oddfriid.forland@uib.no
Senior Advisor, UiB

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Professor and Director [SERC](#), UiB

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¹ This includes all categories of employees that work with education, teaching and learning (i.e. professors, PhDs, administration, technicians etc).



Scheduled activities (main topics)

Full class meetings	Project group assignments	Individual assignments
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Date/deadline	Time/deadline	Content
Before session 1		<i>Read the paper</i> Consultation Using Critical Friends (Handal 1999)
20 Sept 2024	12:15-15:00	Session 1 a. Introduction, requirements b. Core pedagogical concepts
Before session 2		<i>Submit literature assignment (instructions below)</i>
18 Oct 2024	12:15-15:00	Session 2 a. Literature reporting b. Scholarship of Teaching and Learning (SoTL), Group project workshop
Before session 3		<i>Submit Project draft (instructions below)</i>
Nov – Dec 2024		Session 3 Groupwise feedback on project development (online if more convenient)
8 Jan 2025		<i>Submit preliminary project text for session 4</i>
Before session 4		<i>Read the paper</i> Structure matters: ... (Tanner 2013)
10 Jan 2025	12:15-15:00	Session 4 a. Active teaching and inclusion workshop b. Project session – feedback in mixed groups
7 Mar 2025	9:15-11:30	Session 5a Project session - feedback on almost final product
7 Mar 2025	12:15-15:00	Session 5b Teaching portfolio workshop
19 Mar 2025		<i>Last day to send in final project product</i>
23 Apr 2025		<i>Last day to submit the individual teaching portfolio</i>
30 Apr 2025		<i>Last day to submit the peer-reviewed portfolio feedback</i>
TBA – decided by group		<i>Project presentation</i>

Assessment

For a pass on the course participants must have:

- attended at least 75% of the scheduled activities (session 1-5)
- submitted and passed the individual course assignments (individual reading, individual portfolio writing and peer-review)
- completed the group project (final project product and peer-feedback)
- Presented their work publicly to a relevant audience of peers (this can be local, regional, or international)



Literature (preliminary list)

Biggs, J. & Tang, C. (2011), *Teaching for Quality Learning at University*, 4th ed, The Society for Research into Higher Education.

Biggs, J. (1999) What the Student Does: teaching for enhanced learning, *Higher Education Research & Development*, 18:1, 57-75. <https://doi.org/10.1080/0729436990180105>

Handal, G. (1999), Consultation Using Critical Friends, *New Directions for Teaching and Learning*, 76, pp 59-70. <https://doi.org/10.1002/tl.7907>

Tanner K. D. (2013). Structure matters: twenty-one teaching strategies to promote student engagement and cultivate classroom equity. *CBE life sciences education*, 12(3), 322–331. <https://doi.org/10.1187/cbe.13-06-0115>

Participants' chosen papers about teaching and learning in their discipline or relevant to your work. Relevant literature to complete the course project.

Literature assignment (individual)

Before session 2 the reading and writing assignments must be completed (corresponding to approximately 15-20 hours). The assignments will be presented and discussed with the other course participants in smaller groups.

1. Write a summary of, and your reflections on, Biggs' (1999) paper "What the Student Does: teaching for enhanced learning" (1 page in total).
2. Choose and read a few (2-3) relevant papers about education, teaching and learning in your discipline or a topic relevant to your work. Give a short justification of your choice of papers and how it can benefit the education, learning environment, and/or student learning at your institution. Write a reflective piece (½-1 page) on one of them.

Project work (in groups)

The main component of the course is the group project, addressing a teaching or education issue of relevance to the participants' own teaching and learning situation. The project work corresponds to 65-75 hours of work per person and is reported orally and in writing. The final project product is an artefact and public presentation of the project. The format of the artefact and presentation depends on the type of project, the intended audience, and the participants' interest. Examples of a final artefact are a project report, a paper intended for publication in a teaching and learning journal, a teaching resource, or a submission to a teaching and learning conference - followed by a public presentation at a seminar, conference, or relevant meeting (this can be local, regional, or international). The format will be agreed upon in the group and with the course leaders.

The final project product shall:

- have your institution, leader and/or colleagues as target group(s)



- include/incorporate relevant literature from the university teaching and learning field, properly referenced.
- have a developmental focus, i.e., have improved student learning as the objective.
- be able to work as a stand-alone product for future development use.

Portfolio writing (individual)

The portfolio part of the course corresponds to approximately 30 hours of work. The teaching portfolio for this course is not a complete portfolio but shall:

- be short and concise (max 3 pages).
- describe and discuss your pedagogical philosophy/core teaching principles and may include a short description of your pedagogical journey.
- include concrete case(s) from your own practice and situation where you reflect in relation to your pedagogical philosophy, and relate to relevant literature in university teaching and learning, properly referenced (full reference list for the literature referenced in the portfolio).
- All participants will give written peer feedback on one other participant's teaching portfolio.