

# Pedagogical Framework at the Faculty of Science



March 2024

**SDU** 

## **Pedagogical Framework at the Faculty of Science**

The Faculty of Science hereby establishes a pedagogical framework for teaching within the faculty's programmes. With this, we aim to ensure that we continue to educate graduates with the right competencies for research and the labor market, while also optimizing the learning outcomes in relation to our teaching resources.

### ***Purpose***

The faculty aims to set a direction for teaching that creates clear expectations for both teachers and students through a pedagogical framework. This framework should ensure programmes that are flexible yet clear, and support students throughout their progression from high school to a bachelor's degree, further to a master's degree, and on to the subsequent labor market.

### ***Goals***

The implementation of the pedagogical framework should ensure retention and high well-being through an attractive and engaging academic study environment.

The pedagogical framework should promote,

- Teaching that is inspiring for both students and teachers, creating joy and engagement for both parties
- A balance between students' learning outcomes and responsibility and the teachers' workload in preparation and coordination
- Variation in methods, including open work processes, supports student learning, self-management, and initiative in order to promote high academic standards and deep learning.
- Alignment of expectations between teacher and students to clarify roles and ensure the success of the learning process

This can be summarized in several sub-goals for the faculty:

- We must live up to SDU's underlying principles of Active Teaching and Learning.
- We must ensure high well-being among both students and teachers.
- We must ensure students' connection through both academic and social integration into the programmes and by creating academic social communities from day one.
- We must ensure that students achieve relevant competencies and competency awareness, become independent, and maintain academic curiosity.
- We must counteract the culture of perfection and give students room to make mistakes as part of the learning process.
- We must create frameworks for deep learning rather than surface learning.
- Teachers should spend their time on teaching that yields high learning outcomes while simultaneously strengthening the students' responsibility in the learning environment.

### **Quality Goals**

- The competency portfolio is an important learning tool for students at NAT. It is fully integrated into all programmes and courses. The competency portfolio plays a key role in academic integration, clarifying cohesion in the programmes, and in the student's competency clarification in the transition from student to professional.
- There is a focus on variation in teaching methods and pedagogy *within* each course and on coherence *between* courses, so the education is experienced as coherent and complete. Semester coordination and student workload coordination play a central role here.
- The number of teacher-led lessons in the program is limited, allowing time for student-led activities and engaging teaching with feedback. Inspiration for this can be found in the study activity model (see appendix).
- Study groups are used in all semesters to strengthen students' academic social integration and support peer feedback.
- Teachers are supported in developing their teaching, and the development of teacher competencies is prioritized at all levels, from VIP (scientific staff) to instructors. Heads of department should pay special attention to newly hired staff.

### **Visibility of the Framework in Practice**

- The competency portfolio has a central function in students' competency awareness and is allocated the necessary resources.
- Teacher-led lessons are supplemented with other forms of teaching. Semester coordination ensures that there are periods where students acquire subject content through, for example, cases or projects that cover central parts of the course content.
- Teachers are supported in spending less time on preparation, production of material including slides, and on lectures. Instead, more time is spent on feedback, dialogue, active teaching, and coordination of instructors.
- The course description outlines and motivates the individual teaching activities.
- Students are involved in dialogue and alignment of expectations regarding their role in learning activities. Students are introduced to university codes and take mutual responsibility for creating a functional learning environment.
- Study groups are used to strengthen academic discussion and the flow of teaching. Study groups can be self-organized, but the formation of study groups is decided in connection with semester coordination – except in the first semester, where it is centrally organized.
- The evaluation culture supports the educational coherence and quality, among others through semester meetings and semester evaluations. Course evaluations are a shared responsibility for the program, and through conversations involving course evaluations, cohesion in the programs across semesters is created.
- Each program regularly reviews issues related to content overload, redundancy, unclear learning objectives, and exam formats.

Appendix

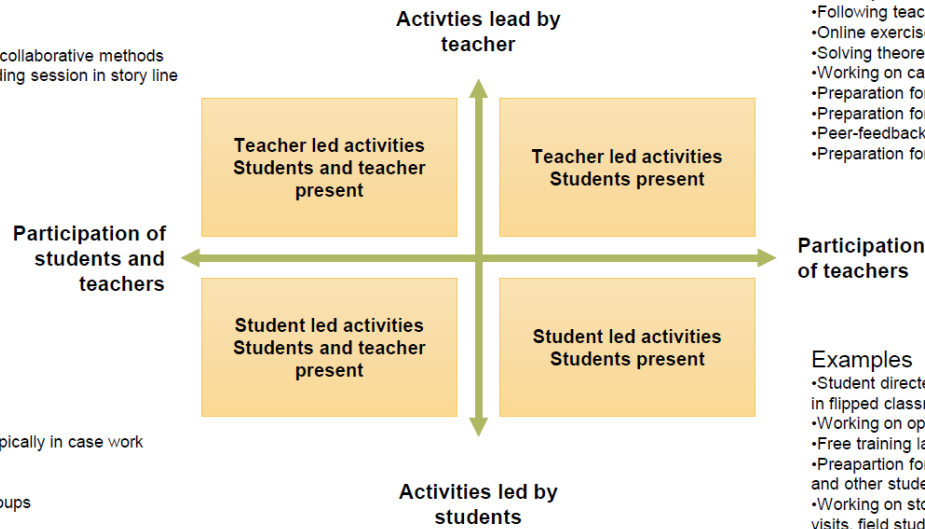
Study activity model\*

Examples

- Interactive lecturing
- In class case work
- Discussion classes
- Student activating hold-timer – use of collaborative methods
- Presentation of assignments i.e. ending session in story line
- Team Based Learning sessions
- Laboratory øvelser, organized
- Peer feedback elements

Examples

- Open training lab, supervised
- Tutorials/
- Postersessions, pitchsessions
- Other student presentations
- Requested guidance from teacher (typically in case work and project work)
- Student led lectures
- Back-up for student initiated study groups
- Guidance in exam preparation



Examples

- Following teachers' suggestion for lecture preparation
- Online exercises before in class activities
- Solving theoretical exercises
- Working on case or project (with se limitations)
- Preparation for specific laboratory exercises
- Preparation for tutorials
- Peer-feedback between groups
- Preparation for Team based learning sessions

Examples

- Student directed lecture preparation i. e. prep for discussion classes in flipped classroom
- Working on open projects with broad limits
- Free training lab without supervision
- Preparation for postersessions, pitches, and other student presentations
- Working on story line. Activities like: Literature studies, company visits, field studies, ...
- Self initiated peer feedback between groups or individually
- Student initiated study groups
- Working on bachelor project or master thesis
- Exam preparation

The content in this overview is detailed on the following page: [METHOD CATALOGUE UniPedPraksis](#)

***Other important References:***

SDU's [underlying principles](#) for education,

[SDU's pedagogical Competency Profile.](#)

SDU's codexes for digitality and AI

\*Studieaktivitetsmodellen : erfaringer og refleksioner / Hanna Mølgaard & Ane Qvortrup (red.) Grete Dolmer... [et. al.],  
**ISBN:** 9788761671707, Aarhus System profession 2015