Interdisciplinarity at Roskilde University
1. Interdisciplinarity as a result of a problem-centred approach

Working with a problem-centred approach requires interdisciplinary integration because real problems do not respect subject boundaries. Working with a problem-centred approach therefore requires the courage to operate in the area between the established disciplines and it places great demands on methodological skills and reflection.

At RUC, therefore, interdisciplinarity is a premise: the bachelor education programmes are structured as broad disciplinary and holistic introductions to social science, the humanities, natural science and the humanities-technology field. The broad introduction is followed up in the students' choice of specialization, where the subjects are tested against each other in the combination structure, as well as in integrated, interdisciplinary master programmes.

The interdisciplinary approach is a fundamental principle of the pedagogical organization, through the problem-oriented and participatory project work, which allows for interdisciplinary processing of real problems in collaborative communities. The interdisciplinary approach is a guiding principle, because any formulation and processing of problems requires consideration and a carefully reasoned choice of theories and methodological approaches. This requires both qualified insight and a holistic approach that extends beyond disciplinary boundaries.

In step with historical and scientific progress, the boundaries of the disciplines shift, and new academic fields and specializations are created between and across the existing subjects and disciplines. In the context of the ongoing evaluation and development of the structure and content of the education programmes, the researchers, study boards and course coordinators at Roskilde University, consider how best to clarify, develop and disseminate the interdisciplinarity of the programmes.

A characteristic feature of RUC's graduates is that they are qualified to participate competently in the labour market in multiple forms of interdisciplinarity in the workplace. In this context, interdisciplinarity can consist both of cooperation between different technical groups, who each have their own area of expertise, or it may involve an approach where methods are used across the boundaries of individual professional fields.

2. Research-based teaching

The interdisciplinary approach in the education programmes is closely linked to the problem-oriented and interdisciplinary research at Roskilde University, which has been built up over the years in professional, boundary-transcending environments focusing on issues related to societal change, management, communication, learning, environment and sustainability etc. All researchers are part of research groups, which for the most part are interdisciplinary. The research groups, together with research centres, "labs" and interdisciplinary research topics, e.g. within health or globalization, constitute the key platforms for interdisciplinary research. Many research groups are also engaged in collaborations with actors from outside the university, who are often actively involved as co-producers of knowledge.

The development of RUC’s range of subjects is driven by research and by the dialogue between research, teaching and the surrounding society. As a ‘new’ university, RUC has had the opportunity to allow research and teaching to combine in ways that challenges the familiar framework. RUC has no patent on interdisciplinarity, but in relation to the education programmes’ interdisciplinary organization, RUC has had the opportunity to integrate research and education in ways that can challenge and develop the established disciplines. This is especially driven by a need in the society, where the ability to work both creatively and analytically to solve complex issues is increasingly sought by our candidates. Thus, interdisciplinarity also has a clear objective in relation to the student's future employment, in a labour market that will present unpredictable challenges.

3. Building interdisciplinarity

At RUC, the students are introduced to problem-oriented interdisciplinarity as soon as they start at one of the university's four bachelor programmes. Here, reflection and problem orientation are cultivated both scientifically and in close contact with actors who have interests in the research area.

Semester by semester, the students develop their ability to formulate, process and analyse problems. They thereby acquire a strong awareness of the possibilities and limitations that are associated with the various theoretical perspectives, research methods, academic traditions and target groups in society, when they collaborate with others to resolve problems. This ability should also develop the students’ capacity to tackle complex issues later in the job functions they will take up, and to continuously develop both themselves and others in a lifelong learning engagement. From the start of the bachelor programme, the focus is primarily on theories, methods and the theory of science in the selected main area of study.

During the first three semesters, the interdisciplinary approach is based on different principles.

- In the humanities basic studies programme, interdisciplinarity is established through interdisciplinary humanistic dimensions that characterize both the project work and the courses, as well as through interdisciplinary methodology courses. Here, the students work on topics like subjectivity and learning, culture and history, text and characters, as well as science and philosophy.
• In the basic studies part of the bachelor programme in social science, interdisciplinarity is established through project work and interdisciplinary methodology courses, as well as courses in the key theories and methods of social science. The students work with key social science theories within politics, sociology, economics, planning, space and resources.

• In the basic studies part of the bachelor programme in humanities, interdisciplinarity is established through a number of key dimensions that are present in both the project work and the course activities. The students work with design and construction, technological systems and artefacts, and subjectivity, technology and society.

• In the basic studies part of the bachelor programme in natural science, interdisciplinarity is established through semester themes that form the basis for the project work, and which are combined with single-subject elective courses from which the students can choose. The semester themes are within the use of natural science in technology and society, interaction between theory, models, experiments and simulation in natural science, as well as natural science and the theory of science.

When students choose the subjects in which they want to specialize, they bring the problem-oriented approach with them and they have a particular focus on how the two subjects they choose can interact in relation to real problems existing in the world.

The bachelor programmes’ specialisation part is comprised of either 2 different subject modules or of a single, interdisciplinary module. The master programmes are similarly based on either 2 subjects that are combined in an interdisciplinary whole, or in a combined subject-integrated programme.

In the combination programmes, the thesis is written based on the subject that the students chose as Subject 1. Subject 2 can be incorporated to a greater or lesser extent. When two experimental subjects are combined, a 1-year experimental thesis can be chosen. And in subject-integrated master programmes, the thesis shall be placed within the subject area of the overall education programme.

There is thus an increasing degree of specialization during the students’ education from bachelor to master, but the problem-oriented interdisciplinary approach is maintained throughout the programme.

It is characteristic of the combination programmes at Roskilde University, that students have the opportunity to select courses from across the academic fields that are represented in the bachelor programmes, i.e. natural science, humanities-technology, social science and the humanities. One of the 2 subject modules in a bachelor and master programme can thus be chosen from outside the main field of the bachelor programme.

The interdisciplinary approach is based on the subject choices and combinations of subjects offered by the university in its research-based range of subjects, and by virtue of the university’s assessment of academic quality and relevance, both scientifically and in relation to the needs of society. The university takes overall responsibility for the overall interdisciplinary aspect of the education programmes, either by organising coherent and subject-integrated interdisciplinary master programmes, or by organising combination programmes, where combination options, recommended courses and potentials are described by the responsible study board for Subject 1 in cooperation with the study board for Subject 2.

The RUC model can also be found at several other progressive universities in Australia, Asia and the United States. RUC works closely with some of these in the global Critical Edge Alliance.

At RUC, we work with interdisciplinarity as a means of developing professional competence and serious, academic problem-oriented studies. It is therefore a part of the learning philosophy that the best way for students to develop robust, interdisciplinary qualifications is to gain experience with interdisciplinary work from the very beginning of their studies. The problem-oriented, interdisciplinary approach supports the students’ motivation, because their own study interests and their interests in social issues constitute the driving force of the study work. The broad, interdisciplinary approaches to bachelor studies allow the students to explore and test their professional and academic interests, before making their subject choices in the bachelor’s programme and then choosing their master degree programme.

4. Focus on multidisciplinary education programmes' qualifications profile and labour market relevance

An increasing number of jobs in both the private and public sectors require an interdisciplinary and holistic approach to analysis and problem solving. The students need to build their awareness of their qualifications in this context. When the opportunity is provided to combine a range of different subjects, and when the students themselves shall also articulate the problems they will work with, a special focus is required on learning outcomes and qualifications profile. All education programmes therefore evaluate the holistic aspect of the education programmes. Emphasis is also placed on the students’ ability to reflect on and develop their professional profile and interdisciplinary understanding. This is done on the basis of the compulsory courses in the selected programme and also based on their own choice of project topics, courses and their personal experiences from the study process. Examples of specific tools for reflection are study process descriptions, progression reports and study portfolios.
FRAMEWORK DOCUMENTS

Three framework documents describe RUC’s philosophy and practice in key areas:

- Pedagogical profile
- Researched-based education
- Interdisciplinarity

The documents form a common foundation for education programmes across the university.