Basic Course 3: Theory of Natural Science

About the course

subject	Den internationale naturvidenskabelige bacheloruddannelse
Activity type	Basic course
Teaching language	English
Registration	**Students will be signed up for this course by the study administration. If you have taken the course before and need to be signed up again please contact inm-exams@ruc.dk**
Detailed description of content	The goal of Basic course 3 is to give you some tools for reflections on the natural sciences and their role and function in education, research, and applications, so that you can gain insight into natural science as an object and phenomenon. The course covers the fundamental philosophy of science, so that you both learn how the theory of science can be used for reflections on natural science and how you can do your own investigations of and reflections on the natural sciences and their role and function in education, research, and applications. In the course, we will cover the following issues: How is natural scientific knowledge obtained? What ethical challenges arise in scientific work and how should we respond to them? How can we demarcate natural science from pseudoscience? Does natural history differ from experimental natural science? Does the use of computer simulations challenges more traditional ideas of natural science – For example, how does the knowledge of climate simulations from more traditional natural science? How does mathematics fit into the picture – what is mathematics from a philosophical perspective and from an internal mathematical perspective (mathematics as seen by the mathematicians). Basic course 3 supports Basic project 3, where the students are doing scientific-theoretical analysis of natural science. Detailed description of the exam format: During the course, the students must work out six group assignments, set by the course teacher. The groups consist of 2-3 students. The group assignments have the character of written and oral tasks, possibly including video productions. The groups are formed at the start of the course. Group splits may occur during the course, but new groups cannot be formed. The group assignments are worked out and handed in by specified deadlines during the course, and feedback is given. At the end of the course, the final versions of all group assignments must be submitted in the Digital Exam system.
Expected work effort (ECTS-declaration)	• Lectures: 12 h • Team exercises: 12 h • Preparation for lectures: 29 h • Preparation for team exercises: 24 h • Doing assignments: 53 h • Preparation for oral presentation: 5 h Read more about expected work efford at Natbach here
Course material and Reading list	Material that can be found at Moodle
Evaluation- and feedback forms	There will be given feedback at the assignments that are handed in during the course. An electronic evaluation will take place by the end of the course
Head of studies/ academic coordinator	Martin Niss (maniss@ruc.dk)
Administration of exams	INM Registration & Exams (inm-exams@ruc.dk)
Responsible for the activity	Martin Niss (maniss@ruc.dk) Torben Braüner (torben@ruc.dk)
ECTS	5
Learning outcomes and	• Knowledge of scientific-theoretical aspects in subjects within the Natural Sciences • Knowledge of philosophical, historical, didactic and ethical aspects of Natural Sciences

assessment criteria	• Skills to be able to select and draw upon relevant literature, including scientific-theoretical literature and relevant original scientific sources • Skills to be able to describe an area or an issue within the Natural Sciences, so that it becomes accessible to scientific-theoretical analysis and reflection • Skills to be able to carry out investigations of and reflections on the Natural Sciences and their roles and functions in education, research and application • The competence to be able to carry out scientific-theoretical analysis on a delimited natural scientific research question • The competence to be able to share knowledge about investigations of and reflections on scientific-theoretical aspects of subjects and issues within the Natural Sciences
Overall content	The course is designed around a number of science theory themes with associated cases. Among other things, this will include traditional philosophy of science positions such as logical positivism, Popper's falsificationism and Kuhn's theory on scientific revolutions, as well as core issues concerning scientific methods, natural history versus experimental science, the foundation of mathematics and mathematics as a modelling tool, pseudo-science, ethics, and the role of computersimulation in science.
Teaching and working methods	Lectures and group work with reports for the cases.
Type of activity	Mandatory course
Form of examination (p1)	The course is passed through active and satisfactory participation. Active participation is defined as: The student must participate in course-related activities (e.g., workshops, seminars, field excursions, process study groups, working conferences, supervision groups, and feedback sessions). Satisfactory active participation is defined as: - During the course, the student must submit six written and oral assignments. - During the course, the student must participate in minimum one group presentation (oral). Assessment: Pass/Fail
Form of Re-examination (p1)	Individual oral exam with a starting point in an assignment possibly done by a group. The student begins the exam with a short presentation after which the exam takes place as a dialogue There may be posed questions in any part of the curriculum. If you choose to work in a group, the permitted group size is: 2-3 students. The character limits of the written product are: For 1 student: 4,800-24,000 characters, including spaces. For 2 students: 4,800-24,000 characters, including spaces. For 3 students: 4,800-24,000 characters, including spaces. The character limits include the cover, table of contents, bibliography, figures and other illustrations, but exclude appendices. Time allowed for the exam including time used for assessment: 20 minutes. The assessment is an overall assessment of the written product(s) and the subsequent oral examination.. The assessment is individual and based on the student's individual performance. Permitted support and preparation materials for the oral exam: All. Assessment: Pass/Fail Moderation: Internal co-assessor.
Exam code(s)	Exam code(s) : U27325

Course days:

Hold: 1

BC3 Theory of natural science (NIB)

time 02-09-2024 10:15 til
02-09-2024 12:00

location 27.2-064 - pc lokale (40)

Teacher Torben Braüner (torben@ruc.dk)

BC3 Theory of natural science (NIB)

time 04-09-2024 10:15 til
04-09-2024 12:00

location 15.0-003 - auditorie 15 (68)

Teacher Torben Braüner (torben@ruc.dk)

BC3 Theory of natural science (NIB)

time 06-09-2024 10:15 til
06-09-2024 12:00

location 15.0-003 - auditorie 15 (68)

Teacher Torben Braüner (torben@ruc.dk)

BC3 Theory of natural science (NIB)

time 13-09-2024 12:15 til
13-09-2024 14:00

location 27.1-089 - teorirum 27 (66)

Teacher Torben Braüner (torben@ruc.dk)

BC3 Theory of natural science (NIB)

time 20-09-2024 12:15 til
20-09-2024 14:00

location 27.1-089 - teorirum 27 (66)

BC3 Theory of natural science (NIB) - Note: 09.2

time 27-09-2024 12:15 til
27-09-2024 14:00

location 09.2-009 - teorilokale (60)

Teacher Torben Braüner (torben@ruc.dk)

BC3 Theory of natural science (NIB)

time 04-10-2024 12:15 til
04-10-2024 14:00

location 27.1-089 - teorirum 27 (66)

Teacher Torben Braüner (torben@ruc.dk)

BC3 Theory of natural science (NIB)

time 11-10-2024 12:15 til
11-10-2024 14:00

location 27.1-089 - teorirum 27 (66)

Teacher Torben Braüner (torben@ruc.dk)

BC3 Theory of natural science (NIB)

time 18-10-2024 12:15 til
18-10-2024 14:00

location 27.1-089 - teorirum 27 (66)

Teacher Torben Braüner (torben@ruc.dk)

BC3 Theory of natural science (NIB)

time 25-10-2024 12:15 til
25-10-2024 14:00

location 27.1-089 - teorirum 27 (66)

Teacher Torben Braüner (torben@ruc.dk)

BC3 Theory of natural science (NIB)

time 01-11-2024 12:15 til
01-11-2024 14:00

location 27.1-089 - teorirum 27 (66)

Teacher Torben Braüner (torben@ruc.dk)

BC3 Theory of natural science (NIB)

time 08-11-2024 12:15 til
08-11-2024 14:00

location 27.1-089 - teorirum 27 (66)

Teacher Torben Braüner (torben@ruc.dk)

BC3 Theory of natural science - Hand-in of assignment (reexam) (NIB)

time	13-11-2024 10:00 til 13-11-2024 10:00
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BC3 Theory of natural science - Reexam (NIB)

time	25-11-2024 08:15 til 25-11-2024 16:00
Teacher	Torben Braüner (torben@ruc.dk)