

Master Thesis

Title Master Thesis
Semester F2025
Master programme in Mathematical Bioscience

Type of activity Master Thesis

Teaching language English

Study regulation Read about the Master Programme and find the Study Regulations at ruc.dk

Læs mere om uddannelsen og find din studieordning på ruc.dk

REGISTRATION AND STUDY ADMINISTRATIVE

Registration Tilmelding sker via [STADS-Selvbetjening](#) indenfor annonceret tilmeldingsperiode, som du kan se på [Studieadministrationens hjemmeside](#)

Registration through [STADS-Selvbetjening](#) within the announced registration period, as you can see on the [Studyadministration homepage](#).

Number of participants

ECTS 30

Responsible for the activity Jesper Schmidt Hansen (jschmidt@ruc.dk)

Head of study Jesper Schmidt Hansen (jschmidt@ruc.dk)

Teachers

Study administration INM Registration & Exams (inm-exams@ruc.dk)

Exam code(s) U60743

ACADEMIC CONTENT

Overall objective The overall purpose of the master thesis is that the student explores a current/exemplary and concrete research challenge that originates from

biology. The exploration must include mathematical formalism and reasoning, for example, through development of a model.

Detailed description of content In dialogue with supervisor the student must choose a scientific problem and through problem-oriented project learning and interdisciplinary independently work with the problem. This includes apply the necessary biological and mathematical competencies and skills needed to critically analyse, understand, and present complex biological data as well as to develop and implement mathematical models of biological systems.

Course material and Reading list Students themselves select relevant literature for their project work.

Master Thesis 30 ECTS / 810 hours

Overall plan and expected work effort

- Master Thesis Seminar: 4 hours
- Exam and assessment: 1 hour
- Supervision: 7 / 15 hours (theoretical / experimental)
- Report writing: 200 hours
- Literature search: 150 hours
- Practical project work (laboratory, model design, analysis, field work): 400 hours
- Exam preparation: 40 hours

Format

Evaluation and feedback All master thesis' processes will include ongoing dialogue-based (oral) evaluation between the students and the supervisor. Both students and supervisors are expected to provide constructive feedback and viewpoints during the process. Feedback concerning the academic content and progression, process and collaboration.

When the master thesis is handed in, there will also be an evaluation through a questionnaire in SurveyXact concerning the master thesis

process and the master program in general. The Study Board will handle all evaluations.

Furthermore, students can, in accordance with RUCs 'feel free to state your views' strategy through their representatives at the study board, send evaluations, comments or insights from their project process to the study board during or after the master thesis process.

Programme The student must attend the preparatory thesis seminar. Information available on study and moodle.

ASSESSMENT

After the master thesis the student will be able to

- Overall learning outcomes
- independently analyse, categorise, discuss, argue, reflect and solve biological research challenges based mathematical formalism and reasoning
 - independently and critically select mathematical and biological and general natural science sources, including literature, theory, models, and methods in order to solve biological research challenges
 - communicate research questions, formulate biological hypotheses, results, and conclusions to both biologists and mathematicians in a multi-disciplinary and critically reflected manner
 - independently organise workflow, plan, test, and conclude on a problem-oriented research question

Type of examination in special cases

Examination and assessment criteria

Master thesis written individually or in a group. Permitted group size: 2-4 students.

The student(s) can choose whether the assessment should be based on solely the written product or on both the written product and the oral exam.

The assessment criteria of the written part

- independently analyse, categorise, discuss, argue, reflect and solve biological research challenges based mathematical formalism and reasoning
- independently and critically select mathematical and biological and general natural science sources, including literature, theory, models, and methods in order to solve biological research challenges
- communicate research questions, formulate biological hypotheses, results, and conclusions to both biologists and mathematicians in a multi-disciplinary and critically reflected manner
- independently organise workflow, plan, test, and conclude on a problem-oriented research question

The assessment of the oral exam is based on the student's ability to meet the criteria mentioned above and their ability to

- clearly present and communicate the scientific content of the project
- engage in a scientific dialogue and discussion with the supervisor and assessor

Furthermore, whether the performance meets all formal requirements in regard to both for the written og oral exam.

Exam code(s) Exam code(s) : U60743