



Course Guide

MSc Thesis Aquaculture and Fisheries

AFI-80424, AFI-80427, AFI-80430, AFI-80433, AFI-80436, AFI-80439

December 2019



WAGENINGEN
UNIVERSITY & RESEARCH

MSc Thesis Aquaculture and Fisheries

General

At the Aquaculture & Fisheries Group (AFI) a student may perform MSc thesis research with a workload of 24, 27, 30, 33, 36, or 39 credits (ECTS). The purpose of a thesis subject is to train a student's academic skills by means of an in-depth study of a scientific subject.

Choice and planning of the thesis research

- The student contacts a staff member in the research field of interest. This may be done directly, or through the secretariat. The staff member will consult the student on the subject area, organisation, and approximate planning of the thesis research and will act as a daily supervisor. To secure the intended start date of the research, the consultation should be done well in advance (at least 6 months).
- The thesis subject should fit in one of the research fields of the group.
- If animal experiments are planned, these have to be approved before the start of the research (see section on **Animal Experiments**)
- Appointments about the content and organisation of the research are laid down in a **thesis contract** by student and supervisor(s). The candidate submits a completed copy of the contract and a (recent) passport photograph (preferably digital) to the secretariat.
- Some specific additional preliminary knowledge may be necessary. This knowledge can be achieved by following relevant courses. Some are compulsory, others desired. Detailed information about these courses can be found in the MSc course guide of the University and/or through the study advisers.
- Additional information on the thesis can be obtained through the supervisor and secretariat (office.afi@wur.nl).

Animal experiments

- Please be aware that if the thesis research includes animal experiments, these experiments can only be carried out once approval has been obtained from the Ethical Committee for Animal Experiments (DEC). The supervisor will submit the appropriate forms to the committee.
- Well before the actual start of an experiment with animals (ca. 3 months) a request must be submitted to the management of the research facilities "CARUS". It consists of a working protocol and a research contract. All requests must be procured through the liaison person with the experimental facilities staff.

Contents of the thesis research

Generally the following activities are included in the thesis research activity:

- prepare a research plan (see section on Research Plan);
- perform experimental research / field work, data analysis and/or literature research;
- participate in bi-weekly plenary AFI-meetings in which final presentations are given and guest speakers will appear;
- participate in bi-weekly workgroup meetings (aquaculture workgroup or fisheries & fish ecology workgroup);
- participate in MSc thesis rings;
- write a report and discuss the report with the supervisor;
- hold a presentation about the research in the plenary AFI-meetings;
- a final examination.

Research plan

The thesis study starts with the preparation of a research plan. The plan should contain the following elements:

1. *Title*: Be as brief and to-the-point as possible.
2. *Background and Significance*: Presentation of the problem. Provide a literature review that sketches current knowledge of the topic, including previous work, if applicable. Evaluate knowledge gaps, which your project could fill. State concisely the importance of the research described in the protocol. Relate this work to longer-term research objectives.
3. *Specific Aims and scope*: Main (+secondary) objective(s). What hypothesis or research question is to be tested? What do you hope to learn from this research?
4. *Research Design and Methods*: Describe the research design in relation to your research questions / hypotheses. A flow chart illustrating your study design could be helpful. A statement, describing which variables are measured, and how and where they are to be analysed, should be included (strategy for laboratory and statistical analysis, tests and presentations, software. Appointments must be made with the person(s) in charge of the (laboratory) analysis.
 - a. In case of animal experiments, a form is attached with information on (number of) experimental animals, maintenance conditions, treatments tested (reference, formulation, dosage etc.), study procedure (biological procedures, time schedule) sampling periods and observations (what is done, who does it, and when).
 - b. Identify conditions that may be hazardous (e.g. lab conditions) and describe precautions that will be taken to minimize risks.
5. *Bibliography*: List of relevant references.

The research plan is to be presented at one of the bi-weekly workgroup meetings.

House rules

- Various forms and rules of conduct for the research facilities and laboratories are available on request from the supervisor, and on the website.
- On the first day of the thesis research a candidate reports to the secretariat to acquire access on his/her Key Card to the ZODIAC building.
- A thesis student is expected to work 40 hours/week. Any change in schedule or absence should be reported to the supervisor, research facilities management and laboratory technicians.
- The student should inform the secretariat how to be reached in urgent cases. Please provide (mobile) phone number(s), e-mail address(es) and home address.

Thesis manuscript

The thesis manuscript is written in English.

Manuscripts should, in general, be organised in the following order:

1. *Title:* This should be clear, descriptive and not too long. All MSc thesis reports have a similar title page. Name of the author, course reference (code) & credits, supervisor(s), place, and date are all included on one page. The second page contains a message on copyrights. A template of both pages, including the cover of the thesis, can be obtained from the secretariat.
2. *Table of Content:* This has a maximum of 3 levels of headings.
3. *Abstract/Summary:* This should describe all aspects of the research in a concise and descriptive manner and be **no longer than 600 words**).
4. *Introduction:* This includes a presentation of the **problem**, its **context**, and **importance**. Provide a **literature review** that sketches current knowledge of the topic, including previous work, and evaluate knowledge gaps. If preferred by the supervisor, the literature review can have the form of a separate chapter.
5. *Material and methods:* This should contain material studied, area description, research methodology, techniques, and way of (data) processing. The description should be so precise that, in principle, this chapter should enable the reader to re-do the research.
6. *Results:* This reports the information gained from the research, supported by figures and tables. Text, tables, and figures should be complementary.
7. *Discussion:* A scientific and critical evaluation of the results of the research, evaluating the objectives from the Introduction. Both the methodological limitations and their potential impact on the results, as well as the scientific relevance of the research are discussed.
8. *Conclusions* (if applicable). A thesis will, generally, not have more than five substantial conclusions. **Each conclusion must be succinct and occupy one sentence of less than two lines**. Try to avoid modifiers like "however". Do not re-do the discussion!

9. *References.* Check a guide for authors of a relevant journal for the appropriate way of citing publications in the text of the report and the reference list. The whole report must be carefully checked to ensure that the spelling of authors names and year of publication are correct and similar in the text and reference list. Preferably use software to automate your reference management.

The student will hand in a complete first draft version of the thesis report, that will be commented in detail by the supervisor(s). After discussion of the annotated first draft, the student will submit a final draft version. After approval of the final draft by the supervisor, the student needs to request the secretariat for a thesis number and a front page template. The **PDF of the final/approved thesis report needs to be submitted at least 2 weeks in advance before the final examination** to the secretariat. Documents in Word will *not* be accepted.

Thesis rings

Thesis rings are weekly meetings with students and their ring leader to discuss parts of thesis documents. The aim of thesis rings is to provide the student with the opportunity to give and receive feedback in interaction with the other thesis students of the Aquaculture and Fisheries group. Thesis rings help you to improve your document before handing it in with your supervisor, who will focus mostly on the content. Not only will this greatly enhance the quality of your work, you will also get the chance to read documents that your peers are writing, which might give you inspiration for both writing style as well as content. Involvement in a thesis ring is compulsory.

Student presentations

- A student can plan his/her final presentation after approval of the supervisor(s). If the supervisor agrees the presentation may be given before the final version of the thesis report is handed in.
- Student presentations are given during bi-weekly plenary AFI-meetings. The student plans his/her presentation with the AFI secretariat (office.afi@wur.nl).
- A presentation will take maximally 20 minutes, followed by 10 minutes discussion.
- PowerPoint can be used to illustrate the oral presentations. In such cases the student is responsible for the timely uploading of the presentation.
- Group staff members will evaluate the presentation quality (via a **presentation evaluation form**) and the result is communicated to the candidate via the supervisor. This result is part of the final examination of the thesis.

Final examination and marking

The student can make an appointment for the final examination of the MSc thesis at the secretariat and submit the necessary documents. The final examination is a discussion on the contents of the thesis, in which knowledge, understanding, insight, but also creativity, and scientific attitude are evaluated. The final examination will be held by the supervisor and one other staff member.

The final mark is based on the quality of the thesis report, research competences, the final presentation, and the final examination. For a detailed overview of these criteria see the thesis assessment form and the accompanying rubric.

December 2019,
AFI staff