

Aquaculture and Fisheries Group



Course Guide

Thesis Aquaculture and Fisheries

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

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Thesis Aquaculture and Fisheries

General

At the Aquaculture & Fisheries Group (AFI) a student may perform a thesis research Fish Culture and Fisheries 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 consults Prof. Dr. J.A.J. Verreth on the subject area, organisation and approximate planning of the thesis research. The consultation should be done well in advance (at least 6 months) to secure the actual start date of the research.
- **A copy of a valid BSc diploma should be handed over in order to start with any MSc thesis.**
- The thesis subject preferably should fit in one of the research fields of the group. Subjects are selected taking into account the interests of the thesis student.
- Once the choice of a subject is clear, a supervisor will be identified who is responsible for the co-ordination of the thesis research. If animal experiments are planned, these have to be approved before the start of the research (see section on **Animal Experiments**)
- Documentation on the thesis can be found on the website: <http://www.afi.wur.nl>. Additional information can also be obtained through the secretariat.
- 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 is necessary. This knowledge can be achieved by following relevant courses. Some are compulsory, others desired. Detailed information about these topics can be found in the MSc study guide of the University.

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 (\pm 3 months) a request must be submitted to the management of the research facilities "CARUS-FISH (ARF)". 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, data analysis and/or literature research;
- participate in weekly discussion meeting of the group in which work is performed;
- write a report and discuss the report with the supervisor;
- hold a presentation about the research;
- attend plenary seminars and work discussions of the group;
- a final examination.



Research plan

The thesis study starts with the preparation of a research plan. In some cases the research plan will already have been prepared in a so-called MLO-subject. The plan should contain the following elements:

1. *Title*: Be as brief as possible. If applicable, indicate if it is a pilot study.
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. *Bibliography*: List of relevant references with at least two key publications.
4. *Specific Aims and scope*: Main (+secondary) objective(s). What hypothesis(es) or research question is to be tested in this protocol? What do you hope to learn from this research?
5. *Research Design and Methods*: Describe the research design in relation to the following points:
 - Relate the design to your hypothesis(es).
 - A flow chart illustrating your study design is often helpful.
 - An appropriate statement should be included, describing which variables are measured, and how and where they are to be analysed (strategy for statistical analysis, tests and presentations, software and person(s) in charge). Appointments must be made with the person(s) in charge of the analysis.
 - In case an animal experiment is included 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, when).
 - Identify conditions that may be hazardous (e.g. lab-conditions) and describe precautions that will be taken to minimise risks.
 - All activities, including dates for presentations and handing in of the final thesis report are stated in a detailed time schedule.

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

House rules

- Various forms and rules of conduct for the research facilities, computers 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 and is present in the ZODIAC complex during regular office hours (9:00/17:00). 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 (in exceptional cases the examiner can allow Dutch). The text of tables and figures must always be written in English.

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

1. *Title* (should be clear, descriptive and not too long). All students' 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. Both pages, including the cover of the thesis, are generated by the secretariat after receiving an approved title page from the supervisor.



2. *Table of Content* with maximal 3 levels of the headings.
3. *Abstract/Summary* (should be clear, descriptive and not longer than 600 words). In case the report is written in Dutch, an (extensive) English summary must be included.
4. *Introduction* of the research (including motivation and objectives).
5. *Literature Review* of the subject.
6. *Material and methods* should contain material studied, area description, research methodology, techniques and way of (data) processing.
7. *Results*, reporting and interpretation of information gained from the research.
8. *Discussion*, a scientific and critical evaluation of the results of the research, evaluating the objectives from the Introduction.
9. *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".
10. *References*. An alphabetical range on author of literature references cited in the report. 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.

After approval of the draft version of the thesis report by the supervisor(s) **two (2) printed and bounded copies of the final version** of the report are handed over to the secretariat. First, the student needs to request the secretariat for a thesis number and a frontpage template. The PDF of the final/approved thesis report and 2 printed and bounded copies needs to be submitted **at least 3 weeks in advance before the final examination** to the secretariat. Documents in Word will *not* be accepted.

Student presentations

- The student presentations are given during regular meetings. The student arranges his/her presentation with the meeting co-ordinator.
- 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 to the network
- 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

Before submitting the final report and completion of the oral presentation of the research, a candidate can make an appointment for the final examination 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 head of department (Prof. Dr. J.A.J. Verreth), or his representative and one other staff member.

The final mark of the thesis subject will be based on several criteria such as:

- final report (both contents and form)
- thesis defence during the discussion
- scientific attitude (how does the work fit in the general context of the field)
- student presentations

For a detailed overview of these criteria see the thesis assessment form.

Staff AFI, April 2014.