

Guidelines for project work

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Contents

1 Introduction

1.1 Studying Nanosciences 2

1.2 Aim of a project work 2

2 Procedure

2.1 Time frame 3

2.2 Supervision 3

3 Assessment

3.1 Guidelines for the report 4

4 Project works abroad or at a different Swiss University

5 Agreement for the duration of the project work

1 Introduction

The following guidelines for project work should be taken as a supplement to the Nanosciences study guidelines. The manual provides a basis for students and supervisors to plan and accomplish project work and should incorporate certain points that were not fully explained in the guidelines. The following terms all draw on the study conditions and regulations and decisions of the nanosciences teaching committee.

1.1 Studying Nanosciences

Since Autumn 2002, the University of Basel has offered an interdisciplinary study course based on biology, chemistry and physics. This course in Nanosciences in Basel is unique in Switzerland. During their Bachelor studies, students are introduced to fundamentals of molecular and structural biology, organic and inorganic chemistry, as well as experimental physics. In the second and third years, knowledge in particular aspects of nanosciences is broadened and experimentally deepened through block courses.

To achieve the Masters degree, students not only follow lectures and seminars, but also complete two different projects. Project work will provide students with important skills needed to carry out their own independent scientific research. With a Master's thesis and an examination at the end of the course, students will obtain the degree of a Master of Science in Nanosciences.

1.2 Aim of a project work

Projects are a follow up of the block courses in the third year. Working in a laboratory on his/her own project will bring students into contact with methods of scientific working and encourage independent working skills. Students are expected to be fully in charge of organising and planning their project work, i.e. it is the student's responsibility to find a research group and apply for a project position. A project should equip students with important laboratory skills, and train their scientific and analytical thinking. Students will learn how an experiment should be planned, accomplished and analysed. Literature research, a project proposal, experiments and a final discussion and conclusion are therefore part of the project work. Students are not asked to work on a publication, but rather to develop curiosity and motivation for a further research project (Master's Thesis). A project forms an introduction to scientific thinking and working only. It is therefore desirable that students are part of an ongoing project where they can introduce new ideas and thoughts. The time frame of the project work does not allow an independent project that involves planning and executing completely new experiments.

2 Procedure

Groups are asked to publicise free positions. Nevertheless, finding a project is, in principle, the student's own responsibility.

First of all, students and supervisors are asked to fill in the study contract (Studienvertrag) from MOnA. Supervisors are asked hand in the signed contract to Prof. Wolfgang Meier, head of the teaching committee. The contract defines the start and endpoints of the project and defines it briefly. Furthermore, the contract identifies the supervisor and examiner.

Prior to the practical work, students work out a concept with their supervisor that governs the following points:

- . scientific question
- . educational objectives (which methods have to be mastered and understood)
- . time frame, division between experimental and analytical (writing) parts.

2.1 Time frame

Projects are credited with 10 ETCS. This corresponds, according to the study conditions, to an effort of 300 hours. At a 100% pensum, the project therefore will last for about two months.

All experiments and writing the report are in the time frame of these 300 hours. Students may work fulltime (during free periods) or halftime and follow lectures at the same time. Due to unforeseen problems, projects might have to last longer than this projected time frame. In this case, students (in agreement with their supervisor) have to make an application to the Teaching Committee in Nanoscience in order to prolong their project. During the project, the previously defined educational objectives have to be fulfilled, students are not asked to prolong their work in order to achieve better research results.

The project report has to be handed in four weeks after completion of the research. Reports that are handed in later, are not necessarily accepted by the supervisor and might be rejected.

2.2 Supervision

For the entire duration of the project work, students are supervised by a Master student, a PhD student or a scientific worker of the group. The supervisor schedules the project work together with the student and provides an introduction to all laboratory skills that are needed. She or he is then the contact person for all questions and problems during the project. If required, she or he may also ask for a progress report and preliminary results while the project is still ongoing.

Before a project position is offered, supervisors as well as the head of the group should be conscious of the time and space needed for an additional person in the lab. Lab space and equipment might be rather busy and in short supply, especially when a block course takes place at the same time. Groups are asked to carefully evaluate if a project is feasible.

3 Assessment

Projects are assessed with a written report and a short talk, in the frame of a group seminar. Grades are given

according to the Swiss grading system, where 6 is the best mark and 1 the worst. Everything above a 4 is a Pass. Half marks are possible to be given. The written report and the presentation, as well as the practical work in the laboratory are included in the assessment.

3.1 Guidelines for the report

The extent of the report must be compatible with the number of points to be awarded, hence the required hours. No reports longer than 30 pages are requested. The report should include an introduction, a materials and methods section, results and a discussion. Evidence that the student got involved with the available literature and that experiments can be analysed and discussed critically must be seen in the introduction and the discussion. Students should be able to draw scientifically relevant conclusions. They are encouraged to study reports written by former Masters students.

4 Project works abroad or at a different Swiss University

It is possible to accomplish project abroad or at any Swiss university. It is the student's responsibility to find an appropriate research group at the University of choice and to discuss and arrange the project. Students have to submit a request, including a confirmation from the University of choice and a short description of the project. Requests have to be handed in to the Nanoscience Teaching Committee.

Although the project will be accomplished at a different University, grades will be given by the Faculty of Sciences of the University of Basel. Students are responsible of finding a supervisor at the University of Basel who will finally assess their report in the end (This supervisor has to be mentioned in the Student Contract). The experimental part is particularly important for the grading of the project. Hence, the person who supervises the research procedures should write a short recommendation with a grading suggestion, that will be considered by the supervisor at the University of Basel.

Generally, students will remain matriculated at the University of Basel, otherwise, no credit points (no examinations) can be achieved. It is nevertheless possible, to take a Sabbatical from Basel and matriculate at another University in order to attend lectures. Information regarding mobility and accreditation of credit points from lectures abroad can be found on <http://studierende.unibas.ch>, see Mobility Office.

For project works carried out abroad, it is particularly important to fill in the Student Contract. The contract serves as a protection for the student and his/her supervisor.

5 Agreement for the duration of the project work

To comply with the given time frame of project works, students, supervisors and group leaders are asked to fill in the following information. This information must be handed in to the Student Secretary in Nanosciences. The agreement should protect students as well as supervisors in case the research should drag on disproportionately. If required, intervention from the Teaching Committee is possible.

Student:

Supervisor:

Group Leader:

Title:

Begin:

End:

Signature/Date: Student, Supervisor, Group Leader