

# Guidelines for internships: Chemical and Biotechnical Science AP

**For specific guidelines regarding students from Cphbusiness Laboratory and Environment in Hillerød, see appendix at the end of the document.**

## Framework

After the 3rd semester on the Chemical and Biotechnical programme, the student must do an internship.

The internship gives 50 ECTS credits and takes place in a company.

The internship is carried out as regular paid employment in one or more companies in Denmark. If the internship is done abroad, the student can apply for SU.

An internship in a company means that the student works with the company's tasks, including tasks related to safety, work environment and quality assurance, and thus meets the learning objectives. Teaching is primarily through instruction, and the integration of the learning objectives in the work.

In this context, 'company' is either the entire company or a part of a company or public institution.

## Responsibility

### The educational institution

The educational institution must ensure progression throughout the course of the programme.

During the internship period, the educational institution will remain in contact with the student and the company.

The dialogue may include:

- Advice in connection with setting out the timetable and completing the programme's internship agreement.
- Advice on the learning objectives.
- Any agreement on an extension of the internship period due to illness, maternity/paternity leave or other leave of absence
- Internship visits.
- Further guidance.

### The company

The company appoints a contact person who is responsible for the training and education of the student and communication with the educational institution. The contact person must have the competencies covering the topics indicated in the content of the internship and must act as a sparring partner for the learning that the student must experience. This may, for example, be done through regular scheduled meetings.

## Scope

The internship is weighted 50 ECTS corresponding to 5/6 of a full year of study

For absences due to pregnancy, maternity/paternity leave or an extended sickness or other leave, the study period will be correspondingly extended.

## Internship in company

### Content:

The internship deals with the following topics in relation to the internship company: analysis technique methods, organisational conditions, work environment and quality assurance.

### Learning objectives

#### **Knowledge and understanding**

The student will gain knowledge about:

- the company's core elements and organisation
- the laboratory's workflow, including the planning and allocation of tasks, communication and decision-making processes
- the company's safety organisation
- the laboratory's workplace risk assessment, workplace safety instructions and waste management
- the laboratory's quality assurance, including procedures that ensure reliable results and documentation
- and an understanding of applied analysis technique methods

#### **Skills**

The student will get the skills to:

- use the laboratory's existing rules for the working environment, including the use of safety equipment and personal protective equipment
- use the laboratory's existing quality assurance procedures for documentation of own work and quality assurance of analytical results, methods and equipment
- use a broad range of the laboratory's analysis technique methods as well as evaluate and communicate laboratory observations and results to business partners

#### **Competencies**

The student will learn to:

- participate in academic and interdisciplinary collaboration
- manage routine laboratory tasks as well as optimisation and developmental situations in the laboratory
- in a structured context, acquire new knowledge, skills and competencies in relation to the laboratory field

## Internship agreement

When the internship period starts, the company and the student must prepare an internship agreement together, which describes how the learning objectives for the internship will be reached. The educational institution may be involved as a consultant in the preparation of the internship agreement, if there is a need for this.

The student is responsible for ensuring that the educational institution receives the agreement within the first two weeks.

The agreement must be definitively approved during the first 4 weeks of the internship period.

The internship agreement must be approved by the educational institution. If there is a

problem with the approval, the agreement must be revised in consultation with the educational institution.

## Weekly journal

The student must keep a weekly journal during the internship period, which should specify the tasks, analyses, etc. that have been conducted each week. When the internship coordinator visits the company, the weekly journal must be available.

## Internship exam

The internship is completed with an exam.

The exam is assessed with an internal examiner on the basis of the attainment of the above learning objectives and a mark will be awarded according to the 7-point scale. See also the educational institution's exam description (institutional part of the curriculum).

The weekly journal and any other written material, see the educational institution's exam description, must be uploaded in Wiseflow as a PDF file before the deadline.

The deadline for hand-in depends on when the student starts their internship – see the following overview:

| Internship Start | Upload of the written material journal and any other written material in Wiseflow no later than |
|------------------|---|
| 3/12 - 16/3      | Wednesday in week 44  |
| 17/3 - 2/6       | Wednesday in week 5   |
| 3/6 - 2/9        | Wednesday in week 15  |
| 3/9 - 2/12       | Wednesday in week 25  |

Within a period of 10 working days after the hand-in deadline, the assessment will be available.

## Evaluation

In order to continuously improve the AP Degree Programme in Chemical and Biotechnical Science and the related internship, the company and the student are asked to evaluate the internship.

The evaluation forms are sent electronically from the educational institution to the contact person at the company and to the student.

The evaluations must be returned to the educational institution and are confidential - the company, the students and the educational institution must respect this.

The evaluation will, however, be included in the statistics for the Chemical and Biotechnical Science programme.

## Appendix

**Specific guidelines regarding students from Cphbusiness Laboratory and Environment in Hillerød, see appendix at the end of the document.**

### Internship agreement

The internship agreement is completed electronically:

<https://www.cphbusiness.dk/studerende/studievejledning#praktikaftale>

#### **Completion of the internship agreement:**

The internship agreement is completed by the student in cooperation with the contact person from the company. In the internship agreement 2 subjects are of special importance, hence it is from these subjects the school approves the agreement.

- **Learning objectives**

The learning objectives for the internship is given by the guidelines, thus this subject should just be a reference to the applicable study curriculum and guidelines:

"Learning objectives for the internship is, as according to":

- [Study curriculum for Laborant AK august 2018](#)
- [Guidelines for the internship: Chemical and biotechnical Science AP 5.0.](#)

- **Agreed working tasks**

Here is described how the internship is structured e.g. what working tasks/methods the student should carry out during the internship, to ensure the learning objectives are met.

This could e.g. be done by working out an educational plan, where the main tasks are listed for each week:

- Week 1: Safety training. Read, sign, and return safety handbook.
- Week 2: Sign up for and attend NMR and MS training for compound characterisation
- Week 3-5: Learn and employ computational chemistry/data analysis in Spartan/Origin/Excel, to guide the project. Demonstrate ability to critically evaluate data in comparison to results obtained within and outside the research group
- Week 6 - 10: Perform chemical synthesis of target compounds, including purification and characterisation of compounds to achieve publication quality data.
- Etc.

It is the relevance of the mentioned working tasks in relation to the learning objectives of the education, which is approved by the school.

#### **Approval of the internship agreement:**

- No later than 2 weeks after the internship start the electronic internship agreement must be completed and send.
- No later than 3 weeks after the internship start the agreement must be approved by the school.
- No later than 4 weeks after the internship start the, by the school approved agreement, must be approved by the student and the contact person from the company.
- Hereafter the agreement is approved by the student, the company and the school.

If the internship agreement cannot be approved, the student will be contacted and/or the company by the school to have the agreement changed.

## Internship exam

**Exam form:** A written report, where the student describes and reflects on how the learning objectives of the internship has been achieved.

For further description of the report form, assessment criteria, deadlines etc. see the school note on the internship exam, which should be available approximately halfway through the internship.

## Week journal

The week journal must document what the student has been working with on a weekly basis during the internship. The week journal must be written in a format that can be uploaded together with the internship report. It is recommended that the week journal is written in a consecutively document with overall notes. Se the example below.

| Week | Working tasks  |
|------|--|
| 1    | <ul style="list-style-type: none"><li>• Introduction to the department</li><li>• Introduction to safety</li><li>• Reading of SOP's</li><li>• Weighing of pipettes</li></ul>              |
| 2    | <ul style="list-style-type: none"><li>• Reagent preparation</li><li>• Introduction to quality systems</li><li>• Substrate preparation</li><li>• pH measurements</li></ul>                |
| 3    | <ul style="list-style-type: none"><li>• Testing of HPLC method for.....</li><li>• Testing of different eluents</li><li>• Sample running</li><li>• Quality assurance of results</li></ul> |
| 4    | <ul style="list-style-type: none"><li>• 3 - day course in HPLC</li><li>• Qualification of pH meters</li></ul>  |
| 5    | <ul style="list-style-type: none"><li>• Holiday</li></ul>  |
| Etc. |  |