Course Specifications
Valid as from the academic year 2019-2020

Bio-organic Chemistry (I001279)

Course

Course size (nominal values; actual values may depend on programme)

<table>
<thead>
<tr>
<th>Credits</th>
<th>Study time</th>
<th>Contact hrs</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.0</td>
<td>150 h</td>
<td>75.0 h</td>
</tr>
</tbody>
</table>

Course offerings and teaching methods in academic year 2019-2020

A (semester 1) Dutch
practicum 36.25 h
guided self-study 8.75 h
lecture 30.0 h

Lecturers in academic year 2019-2020

Stevens, Christian LA24 lecturer-in-charge
D’hooghe, Matthias LA24 co-lecturer

Offered in the following programmes in 2019-2020

<table>
<thead>
<tr>
<th>Programmes</th>
<th>credits</th>
<th>offering</th>
</tr>
</thead>
<tbody>
<tr>
<td>Master of Science in Bioscience Engineering: Chemistry and Bioprocess Technology</td>
<td>6</td>
<td>A</td>
</tr>
<tr>
<td>Master of Science in Bioscience Engineering: Food Science and Nutrition</td>
<td>6</td>
<td>A</td>
</tr>
</tbody>
</table>

Teaching languages

Dutch

Keywords

Enantioselective methods, up-scaling, organometallic chemistry, electrophilic reactions, rearrangements, enzyme chemistry, laboratory work, safety

Position of the course

This course aims at broadening the knowledge of organic chemistry and to comment on new industrial important techniques and reactions. Several important concepts will be part of this course, such as enantioselective reactions, organometallic based coupling reactions, electrophilic reactions and rearrangements, enzyme chemistry and the synthesis of bioactive compounds.

In addition, a thorough practical training in bio-organic chemistry by means of advanced laboratory exercises is provided. In that respect, students are expected to prepare and analyze organic compounds individually, with special attention to efficiency and safety.

Contents

THEORY:
1. Enantioselective methods
2. Microreactor technology
3. Ionic liquids
4. Fluorous chemistry
5. Eutectic solvents
6. Coupling reactions in organic synthesis
7. Electrophilic reactions
8. Introduction to enzyme chemistry

PRACTICAL TRAINING:
- Introductory session on safety in an organic chemistry laboratory
- To perform advanced lab experiments independently by means of an interdisciplinary approach (combination of organic synthesis and analysis)

Initial competences


(Approved)
reactivity'; or the learning outcomes have been achieved differently.

Final competences

1. Have a good knowledge of the covered topics on advanced organic synthesis methods and techniques (see 'Content'), be able to reproduce and be able to use this knowledge in practice.
2. Understand the importance of advanced organic chemistry in both an academic and an industrial context.
3. Be able to perform bio-organic chemistry lab experiments independently, focused on the preparation of organic compounds (including design, synthesis and analysis), in agreement with the general principles on safety in a chemical laboratory.

Conditions for credit contract

Access to this course unit via a credit contract is determined after successful competences assessment

Conditions for exam contract

This course unit cannot be taken via an exam contract

Teaching methods

Guided self-study, lecture, practicum

Extra information on the teaching methods

Theory: lectures (24 hours)
Guided self study (6 hours)
Exercises: guided exercises in the laboratory (45 hours)

Learning materials and price

Teaching material is available.

References

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Course content-related study coaching

The coaching of the students will be performed by the assisting personnel of the department.

Evaluation methods

end-of-term evaluation and continuous assessment

Examination methods in case of periodic evaluation during the first examination period

Written examination with open questions

Examination methods in case of periodic evaluation during the second examination period

Written examination with open questions

Examination methods in case of permanent evaluation

Job performance assessment, report

Possibilities of retake in case of permanent evaluation

examination during the second examination period is possible

Extra information on the examination methods

Theory: period aligned evaluation
Exercises: non-period aligned evaluation

Students who eschew period aligned and/or non-period aligned evaluations for this course unit may be failed by the examiner.

Theory: written (closed book) examination
Exercises: assessment of reports of the exercises and questioning during the exercises

Calculation of the examination mark

Theory: 80%
Lab work: 20%

Facilities for Working Students

The students are not obliged to be present during the lectures.
The presence during the practical exercises is obligatory.