Advanced Supramolecular Chemistry and Self-Assembly (C002570)

Valid as from the academic year 2015-2016

Course Specifications

Lecturers in academic year 2017-2018
Hoogenboom, Richard
WE07 lecturer-in-charge

Course offerings and teaching methods in academic year 2017-2018
A (semester 1) lecture 15.0 h

Offered in the following programmes in 2017-2018

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<tr>
<th>Programme</th>
<th>Credits</th>
<th>Offering</th>
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<tbody>
<tr>
<td>Master of Science in Chemistry</td>
<td>3</td>
<td>A</td>
</tr>
<tr>
<td>Master of Science in Sustainable Materials Engineering</td>
<td>3</td>
<td>A</td>
</tr>
<tr>
<td>Exchange Programme in Chemistry (master's level)</td>
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<td>A</td>
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Teaching languages
English

Keywords
Supramolecular chemistry, self-assembly, advanced materials, responsive materials

Position of the course
This course is situated in the first or second master and continues on previous gained knowledge on organic chemistry and polymer chemistry, including: 'Inleiding tot organische structuren' (Ba1); 'Organische chemie: reactiviteit 1', 'Organische chemie: reactiviteit 2'; 'Organische chemie: reactiviteit 3' en 'Structuuranalyse' (Ba2); 'Synthesemethoden in organische chemie' (Ba3).

It is recommended that the course 'Trends in Organic Chemistry' has already been followed.

The aim of this course is to teach the main principles of contemporary supramolecular chemistry by providing an overview and critical evaluation of recent developments in this area.

Contents
Ionic interactions; multiple hydrogen bonding: self-complementary and complimentary hydrogen bonding arrays; metal coordination: homoleptic, heteroleptic and grid-like metal complexes; supramolecular polymers: chain-extended polymers and block copolymers; principles of surfactant self-assembly; polymer self-assembly; responsive polymer self-assembly: pH, temperature and chemoresponsive micellization; polymer-peptide conjugate assembly; supramolecular polymer assembly.

Initial competences
Passed the courses 'Inleiding tot organische structuren' (Ba1); 'Structuuranalyse' (Ba2) and 'Synthesemethoden in organische chemie' (Ba3).

Final competences
1. Gain insight in recent developments in scientific research on supramolecular chemistry and the most frequently used supramolecular binding units, as we as the most common methods to analyze these systems.
2. Able to critically evaluate and judge binding constants for different supramolecular interactions.

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

(Approved)
assessment

**Conditions for exam contract**
This course unit cannot be taken via an exam contract

**Teaching methods**
Lecture

**Learning materials and price**
Available on Minerva

**References**
Supramolecular Chemistry, Steed and Atwood ISBN978-0-470-51234-0

**Course content-related study coaching**
Through questions during the course and individual explanations on request

**Evaluation methods**
end-of-term evaluation

**Examination methods in case of periodic evaluation during the first examination period**
Written examination with open questions, oral examination

**Examination methods in case of periodic evaluation during the second examination period**
Written examination with open questions, oral examination

**Examination methods in case of permanent evaluation**

**Possibilities of retake in case of permanent evaluation**
not applicable

**Calculation of the examination mark**
Periodic evaluation 100%

(Approved)