



Drug Discovery & Safety MSc

Vrije Universiteit Amsterdam - Faculteit der Exacte Wetenschappen - M Drug Discovery and Safety - 2015-2016

Specializations

During the Master's in Drug Discovery and Safety students can specialize themselves by doing a Major in one of the following disciplines:

- Drug Discovery & Target Finding (Molecular Pharmacology)
- Drug Disposition & Safety Assessment (Molecular Toxicology)
- Drug Design & Synthesis
- Computational Medicinal Chemistry & Toxicology
- Biomarkers & Clinical Chemical Analysis

Variants

The Master programme Drug Discovery and Safety offers four different variants for graduation:

- Research variant (O-variant)
- Society oriented variant for natural and life sciences (M-variant)
- Communication variant (C-variant)
- Education variant (E-variant)

Global Composition of Master Programme

| Variant | O | M | C | E |
|---|------------|------------|------------|------------|
| Compulsory courses | 36-42* | 30 | 30 | 30 |
| Research project (Major) including report | 42 | 24 | 24 | 24 |
| Colloquium and Thesis | 12 | 6 | 6 | 6 |
| Practical training (company training) | - | 30 | 30 | - |
| M or C projects | - | 18 | 12 | - |
| Educational training | - | - | - | 60 |
| Optional programme | 24-30* | 12 | 18 | - |
| Ethics and portfolio academic skills | 6 | - | - | - |
| Total EC | 120 | 120 | 120 | 120 |

Ad *) Depends on the specialization: Biomarkers & Clinical Analysis requires 42 EC compulsory courses with 24 EC optional programme, other specializations require 36 EC compulsory courses with 30 EC optional programme.

In order to start a minor or major research project or a company training or an internship abroad, at least 18 EC of the Master's programme should be obtained. Upon recommendation from the Master's coordinator, the examination board may also require that a specific course has been completed successfully within the mentioned 18 EC.

Students should arrange the composition of their Master's programme in consult with the Master's coordinator. The examination board formally has to approve the composition and extent of the Master's programme.

[Master co-ordinators](#)

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Communication Variant

This specialization is intended for students with a BSc degree in any of the bèta-studies who want to specialize in communication. The programme focuses on science communication theory, research and practice. The programme of the communication (C) specialization is 1 year (60 EC). This specialization may not be combined with the Societal specialization (M) or the Education specialization (E). C-courses are shared with master students from the Faculty of Earth and Life Sciences.

Programme

For a specialization degree it is required to spend 60 credits on Science Communication components. Two courses, one internship and a thesis are compulsory. The rest of the programme can be filled with optional courses. While science communication research is always a component of a students' internship, students have the opportunity to choose for placement at institutes such as newspapers, museums, science centers, companies, etc. to hone their practical as well as academic skills. Students' thesis comprise short (9 credits) literature studies on research questions about aspects of science communication.

To complete his or her entire Master programme (120 credits), the student has to choose 60 credits Chemistry courses.

Before formal enrolment, the students' programme has to be approved by the master coordinator as well as the programme coordinator for the Science Communication

Opleidingsdelen:

- [Recommended optional courses. 18 EC](#)
- [DDS courses](#)
- [Compulsory Courses](#)

Recommended optional courses. 18 EC

Vakken:

| Naam | Periode | Credits | Code |
|--|-----------|---------|-----------|
| Communication, Organization and Management | Periode 2 | 6.0 | AM_470572 |
| Science in Dialogue | Periode 2 | 6.0 | AM_1002 |
| Science Journalism | Periode 2 | 6.0 | AM_471014 |
| Science Museology | Periode 3 | 6.0 | AM_470590 |

DDS courses

This specialization is intended for students with a BSc degree in any of the bèta-studies who want to specialize in communication. The programme focuses on science communication theory, research and practice. The programme of the communication (C) specialization is 1 year (60

credits). This specialization may not be combined with the Societal specialization (M) or the Education specialization (E). C-courses are shared with master students from the Faculty of Earth and Life Sciences.

To complete the entire Master programme (120 EC) of the Communication, education or social variant, the student has to choose 60 EC in DDS courses.

Opleidingsdelen:

- Specialisation Courses
- Literature and Colloquium (compulsory choose 1 of 5)
- DDS Research project (choose 1 of 5) (24 EC)
- Deficiency Courses

Specialisation Courses

In consultation with the master coordinator and depending on the chosen specialization, 6 EC have to be chosen from the following list.

Vakken:

| Naam | Periode | Credits | Code |
|---|-------------|---------|----------|
| ADMET | Periode 1 | 6.0 | X_432721 |
| Biomolecular Simulation in Medicinal Chemistry and Toxicology | Periode 5+6 | 6.0 | X_432664 |
| Chemical Biology | Periode 1 | 6.0 | X_432538 |
| Computer-Aided Drug Design and Virtual Screening | Periode 2 | 6.0 | X_432673 |
| Drug Action | Periode 3 | 6.0 | X_432724 |
| Drug-induced Stress and Cellular Responses | Periode 2 | 6.0 | X_432536 |
| Mass Spectrometry | Periode 2 | 6.0 | X_435604 |
| Physical-Organic Chemistry | Periode 1 | 6.0 | X_435663 |
| Project Computational Design and Synthesis of Drugs | Periode 4 | 6.0 | X_432734 |
| Signal Transduction in Health and Disease | Periode 2 | 6.0 | X_432535 |
| Synthetic Approaches in Medicinal Chemistry | Periode 2 | 6.0 | X_435685 |

Literature and Colloquium (compulsory choose 1 of 5)

Students need to select a total of 6 EC or more from the following list.

Note: Every programme, including the choice of optional courses, has to be discussed and agreed upon with the master coordinator or a personal

mentor and approved by the Examination Board.

Vakken:

| Naam | Periode | Credits | Code |
|---|----------------------|---------|----------|
| Colloquium and Literature Thesis CMCT (C,E,M) | Ac. Jaar (september) | 6.0 | X_432571 |
| Colloquium and Literature Thesis DDS BDA (C,E,M) | Ac. Jaar (september) | 6.0 | X_432570 |
| Colloquium and Literature Thesis DDS MC, DD&S (C,E,M) | Ac. Jaar (september) | 6.0 | X_432623 |
| Colloquium and Literature Thesis DDS MC, DDTF (C,E,M) | Ac. Jaar (september) | 6.0 | X_432624 |
| Colloquium and Literature Thesis DDS Molecular Toxicology, DDSA (C,E,M) | Ac. Jaar (september) | 6.0 | X_432572 |

DDS Research project (choose 1 of 5) (24 EC)

Students need to select at least 30 credits or more from the following list.

Note: Every programme, including the choice of optional courses, has to be discussed and agreed upon with the master coordinator or a personal mentor and approved by the Examination Board.

Vakken:

| Naam | Periode | Credits | Code |
|---|----------------------|---------|----------|
| Major Research Project DDS Biomolecular Drug Analysis (C,E,M) | Ac. Jaar (september) | 24.0 | X_432727 |
| Major Research Project DDS Medicinal Chemistry, DD&S | Ac. Jaar (september) | 24.0 | X_432728 |
| Major Research Project DDS Medicinal Chemistry, DDTF | Ac. Jaar (september) | 24.0 | X_432729 |
| Major Research Project DDS Molecular Toxicology, CMCT | Ac. Jaar (september) | 24.0 | X_432730 |
| Major Research Project DDS Molecular Toxicology, DDSA (C,E,M) | Ac. Jaar (september) | 24.0 | X_432731 |

Deficiency Courses

Compulsory course for students without a Bachelor degree Pharmaceutical Sciences VU.

Not specified: all courses start with an summary of required knowledge.

Vakken:

| Naam | Periode | Credits | Code |
|--|-----------|---------|----------|
| Principles of Pharmaceutical Sciences / Pharmacology | Periode 1 | 6.0 | X_435675 |

Compulsory Courses

Opleidingsdelen:

- [Internship communication: choose one](#)

Vakken:

| Naam | Periode | Credits | Code |
|---|-----------|---------|-----------|
| Research methods for analyzing complex problems | Periode 1 | 6.0 | AM_1182 |
| Science and Communication | Periode 1 | 6.0 | AM_470587 |

Internship communication: choose one

Vakken:

| Naam | Periode | Credits | Code |
|--|----------------------|---------|---------|
| Reflective Practice Internship Science Communication | Ac. Jaar (september) | 30.0 | AM_1163 |
| Research Internship Science Communication | Ac. Jaar (september) | 30.0 | AM_1162 |

Education variant

The teaching in these variant is mainly in Dutch. Therefore we also give the requirements in Dutch.

Programma

De opleiding voor het behalen van de eerstegraads lesbevoegdheid start twee keer per jaar, in september en in februari. De opleiding wordt aangeboden in twee semesters. Uitgaande van de start in september duurt semester 1 tot en met januari en semester 2 tot juli. De opleiding is sterk praktijkgericht. De helft van de opleiding bestaat uit praktijk door werkervaring of stage (ook wel schoolpracticum genoemd) op een school voor voortgezet onderwijs. Daarnaast kent de opleiding vier componenten: vakdidactiek, algemene didactiek/pedagogiek,

praktijkonderzoek en verdiepingsmodulen.

Naast de educatievakken volgt de student 60 sp Chemistry vakken, in overleg met de mastercoördinator van de gekozen specialisatie. Hierbij zijn de twee vakken Literature thesis and Colloquium Chemistry Education Variant en Master Research Project Chemistry-Education Variant verplicht.

Studenten die bij de Communicatie variant de vakken 'interpersoonlijke communicatie' en 'museologie en buitenschoolse educatie' volgen, krijgen bij de lerarenopleiding een vrijstelling voor verdiepingsmodulen, een deel van het praktijkonderzoek en een deel van algemene didactiek.

Opleidingsdelen:

- [Master Leraar VHO Scheikunde 2015](#)
- [Leraar voorbereidend hoger onderwijs in Scheikunde verplicht](#)
- [LVHO Scheikunde, overgangsregeling](#)
- [DDS courses](#)

Master Leraar VHO Scheikunde 2015

Vakken:

| Naam | Periode | Credits | Code |
|--------------------------------------|------------------------------|---------|--------------|
| Didactiek 1 | Periode 1, Periode 4 | 6.0 | O_MLDIDAC_1 |
| Didactiek 2 | Periode 2+3, Periode 5+6 | 6.0 | O_MLDIDAC_2 |
| Didactiek 3 | Periode 4+5+6 | 9.0 | O_MLDIDAC_3 |
| Peergroup fase 1 | Periode 1+2+3, Periode 4+5+6 | 0.0 | O_MLPEERGR_1 |
| Peergroup Fase 2 | Periode 3+4+5 | 0.0 | O_MLPEERGR_2 |
| Praktijk 1 | Periode 1, Periode 4 | 6.0 | O_MLPRAK_1 |
| Praktijk 2 | Periode 2+3, Periode 5+6 | 9.0 | O_MLPRAK_2 |
| Praktijk 3 | Periode 4+5+6 | 15.0 | O_MLPRAK_3 |
| Praktijk onderzoek 2 | Periode 4+5+6 | 6.0 | O_MLPROZ_2 |
| Praktijkonderzoek 1 | Periode 3, Periode 6 | 3.0 | O_MLPROZ_1 |

Leraar voorbereidend hoger onderwijs in Scheikunde verplicht

Vakken:

| Naam | Periode | Credits | Code |
|--|---------------|---------|------------|
| Algemene Didactiek en Pedagogiek II | Periode 1+2 | 3.0 | O_MLADEPII |
| Praktijk II | Periode 1+2+3 | 15.0 | O_MLPRAKII |
| Professionele ontwikkeling en onderzoek II | Periode 1+2+3 | 6.0 | O_MLVPOOII |
| Vakdidactiek Scheikunde II | Periode 1+2 | 6.0 | O_MLVDSKII |

| | | | |
|----------------------------|-------------|-----|----------|
| Verdieping | Periode 2+3 | 3.0 | O_MLVERD |
|----------------------------|-------------|-----|----------|

LVHO Scheikunde, overgangsregeling

Vakken:

| Naam | Periode | Credits | Code |
|---|---------------|---------|-----------|
| Algemene didactiek en Pedagogiek I | Periode 1+2 | 6.0 | O_MLADEPI |
| Praktijk I | Periode 1+2+3 | 15.0 | O_MLPRAKI |
| Professionele ontwikkeling en onderzoek I | Periode 1+2+3 | 3.0 | O_MLVPOOI |
| Vakdidactiek Scheikunde I | Periode 1+2 | 3.0 | O_MLVDSKI |

DDS courses

This specialization is intended for students with a BSc degree in any of the bèta-studies who want to specialize in communication. The programme focuses on science communication theory, research and practice. The programme of the communication (C) specialization is 1 year (60 credits). This specialization may not be combined with the Societal specialization (M) or the Education specialization (E). C-courses are shared with master students from the Faculty of Earth and Life Sciences.

To complete the entire Master programme (120 EC) of the Communication, education or social variant, the student has to choose 60 EC in DDS courses.

Opleidingsdelen:

- [Specialisation Courses](#)
- [Literature and Colloquium \(compulsory choose 1 of 5\)](#)
- [DDS Research project \(choose 1 of 5\) \(24 EC\)](#)
- [Deficiency Courses](#)

Specialisation Courses

In consultation with the master coordinator and depending on the chosen specialization, 6 EC have to be chosen from the following list.

Vakken:

| Naam | Periode | Credits | Code |
|---|-------------|---------|----------|
| ADMET | Periode 1 | 6.0 | X_432721 |
| Biomolecular Simulation in Medicinal Chemistry and Toxicology | Periode 5+6 | 6.0 | X_432664 |
| Chemical Biology | Periode 1 | 6.0 | X_432538 |

| | | | |
|---|-----------|-----|----------|
| Computer-Aided Drug Design and Virtual Screening | Periode 2 | 6.0 | X_432673 |
| Drug Action | Periode 3 | 6.0 | X_432724 |
| Drug-induced Stress and Cellular Responses | Periode 2 | 6.0 | X_432536 |
| Mass Spectrometry | Periode 2 | 6.0 | X_435604 |
| Physical-Organic Chemistry | Periode 1 | 6.0 | X_435663 |
| Project Computational Design and Synthesis of Drugs | Periode 4 | 6.0 | X_432734 |
| Signal Transduction in Health and Disease | Periode 2 | 6.0 | X_432535 |
| Synthetic Approaches in Medicinal Chemistry | Periode 2 | 6.0 | X_435685 |

Literature and Colloquium (compulsory choose 1 of 5)

Students need to select a total of 6 EC or more from the following list.

Note: Every programme, including the choice of optional courses, has to be discussed and agreed upon with the master coordinator or a personal mentor and approved by the Examination Board.

Vakken:

| Naam | Periode | Credits | Code |
|---|----------------------|---------|----------|
| Colloquium and Literature Thesis CMCT (C,E,M) | Ac. Jaar (september) | 6.0 | X_432571 |
| Colloquium and Literature Thesis DDS BDA (C,E,M) | Ac. Jaar (september) | 6.0 | X_432570 |
| Colloquium and Literature Thesis DDS MC, DD&S (C,E,M) | Ac. Jaar (september) | 6.0 | X_432623 |
| Colloquium and Literature Thesis DDS MC, DDTF (C,E,M) | Ac. Jaar (september) | 6.0 | X_432624 |
| Colloquium and Literature Thesis DDS Molecular Toxicology, DDSA (C,E,M) | Ac. Jaar (september) | 6.0 | X_432572 |

DDS Research project (choose 1 of 5) (24 EC)

Students need to select at least 30 credits or more from the following list.

Note: Every programme, including the choice of optional courses, has to be discussed and agreed upon with the master coordinator or a personal mentor and approved by the Examination Board.

Vakken:

| Naam | Periode | Credits | Code |
|---|----------------------|---------|----------|
| Major Research Project DDS Biomolecular Drug Analysis (C,E,M) | Ac. Jaar (september) | 24.0 | X_432727 |
| Major Research Project DDS Medicinal Chemistry, DD&S | Ac. Jaar (september) | 24.0 | X_432728 |
| Major Research Project DDS Medicinal Chemistry, DDTF | Ac. Jaar (september) | 24.0 | X_432729 |
| Major Research Project DDS Molecular Toxicology, CMCT | Ac. Jaar (september) | 24.0 | X_432730 |
| Major Research Project DDS Molecular Toxicology, DDSA (C,E,M) | Ac. Jaar (september) | 24.0 | X_432731 |

Deficiency Courses

Compulsory course for students without a Bachelor degree Pharmaceutical Sciences VU.

Not specified: all courses start with an summary of required knowledge.

Vakken:

| Naam | Periode | Credits | Code |
|---|-----------|---------|----------|
| Principles of Pharmaceutical Sciences / Pharmacochemistry | Periode 1 | 6.0 | X_435675 |

Research Variant DDTF

The programme consists of 120 EC

- compulsory courses 36 credits (including a Literature Thesis and Colloquium 12 EC)
- compulsory choice Ethics and Portfolio Academic Skills 6 EC
- compulsory choices Major Research Project at least 42 EC
- optional courses to complete 120 EC.

Note: Every programme, including the choice of optional courses, has to be discussed and agreed upon with the master coordinator or a personal mentor and approved by the Examination Board.

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Opleidingsdelen:

- [Ethics and Academic Skills](#)
- [Deficiency Courses](#)
- [Research project \(choose 42, 48, 54 or 60 EC\)](#)
- [Recommended optional courses](#)
- [Compulsory courses](#)
- [Compulsory courses research master DDS](#)

Ethics and Academic Skills

In consultation with the master coordinator and depending on the chosen specialization, 6 EC have to be chosen from the following list.

Vakken:

| Naam | Periode | Credits | Code |
|---|----------------------|---------|-----------|
| Business Management in Health and Life Sciences | Periode 2 | 6.0 | AM_470584 |
| Clinical Development and Clinical Trials | Periode 3 | 3.0 | AM_1180 |
| Communication, Organization and Management | Periode 2 | 6.0 | AM_470572 |
| Entrepreneurship in Health and Life Sc. | Periode 2 | 6.0 | AM_470575 |
| Epidemiology | Periode 3 | 3.0 | AM_1179 |
| Ethics and Academic skills | Ac. Jaar (september) | 1.0 | X_432725 |
| Ethics and Academic skills | Ac. Jaar (september) | 2.0 | X_432726 |
| Ethics and Academic Skills | Ac. Jaar (september) | 6.0 | X_437556 |
| Ethics and Academic Skills | Ac. Jaar (september) | 3.0 | X_432517 |
| Ethics in Life Sciences | Periode 3 | 3.0 | AM_470707 |
| Managing Science and Technology in Society | Periode 1 | 6.0 | AM_470586 |
| Research methods for analyzing complex problems | Periode 1 | 6.0 | AM_1182 |
| Science and Communication | Periode 1 | 6.0 | AM_470587 |
| Science in Dialogue | Periode 2 | 6.0 | AM_1002 |
| Science Journalism | Periode 2 | 6.0 | AM_471014 |
| Scientific Writing in English | Periode 2, Periode 6 | 3.0 | X_400592 |
| Teaching Assistant | Ac. Jaar (september) | 3.0 | X_432741 |
| Teaching Assistant | Ac. Jaar (september) | 6.0 | X_432742 |
| Tutoring Students | Periode 2 | 3.0 | X_432625 |

Deficiency Courses

Compulsory course for students without a Bachelor degree Pharmaceutical Sciences VU.

Not specified: all courses start with an summary of required knowledge.

Vakken:

| Naam | Periode | Credits | Code |
|--|-----------|---------|----------|
| Principles of Pharmaceutical Sciences / Pharmacology | Periode 1 | 6.0 | X_435675 |

Research project (choose 42, 48, 54 or 60 EC)

Compulsory choice of at least 42 credits.

Note: Every programme, including the choice of optional courses, has to be discussed and agreed upon with the master coordinator or a personal mentor and approved by the Examination Board.

Vakken:

| Naam | Periode | Credits | Code |
|--|----------------------|---------|----------|
| Major Research Project Med. Chem., Drug Disc. & Target Find. | Ac. Jaar (september) | 48.0 | X_432550 |
| Major Research Project Med. Chem., Drug Disc. & Target Find. | Ac. Jaar (september) | 54.0 | X_432551 |
| Major Research Project Med. Chem., Drug Disc. & Target Find. | Ac. Jaar (september) | 60.0 | X_432552 |
| Major Research Project Med. Chem., Drug Disc. & Target Find. | Ac. Jaar (september) | 42.0 | X_432547 |

Recommended optional courses

The subject options of 30, 24, 18 or 12 EC can be completed with the possibilities below.

Note: Every programme, including the choice of optional courses, has to be discussed and agreed upon with the master coordinator or a personal mentor and approved by the Examination Board.

Vakken:

| Naam | Periode | Credits | Code |
|--|----------------------|---------|----------|
| Advanced Course on Drug Disp. & Safety Assessment (Mol.Tox.) | Periode 5+6 | 6.0 | X_435681 |
| Applied Theoretical Chemistry | Ac. Jaar (september) | 12.0 | X_432501 |

| | | | |
|---|----------------------|------|----------|
| Applied Theoretical Chemistry | Periode 4 | 6.0 | X_435612 |
| Biomolecular Simulation in Medicinal Chemistry and Toxicology | Periode 5+6 | 6.0 | X_432664 |
| Company Training Drug Discovery & Target Finding | Ac. Jaar (september) | 18.0 | X_432621 |
| Company Training Drug Discovery & Target Finding | Ac. Jaar (september) | 24.0 | X_432747 |
| Company Training Drug Discovery & Target Finding | Ac. Jaar (september) | 30.0 | X_432752 |
| Company Training Drug Discovery & Target Finding | Ac. Jaar (september) | 36.0 | X_432836 |
| Computer-Aided Drug Design and Virtual Screening | Periode 2 | 6.0 | X_432673 |
| Drug-induced Stress and Cellular Responses | Periode 2 | 6.0 | X_432536 |
| Internship abroad DDS Drug Disc. & Target Find. | Ac. Jaar (september) | 18.0 | X_432678 |
| Internship abroad DDS Drug Disc. & Target Find. | Ac. Jaar (september) | 36.0 | X_432840 |
| Internship abroad DDS Drug Disc. & Target Finding | Ac. Jaar (september) | 24.0 | X_432757 |
| Internship abroad DDS Drug Disc. & Target Finding | Ac. Jaar (september) | 30.0 | X_432762 |
| Mass Spectrometry | Periode 2 | 6.0 | X_435604 |
| Minor Research Project Biomol. Drug Analysis | Ac. Jaar (september) | 24.0 | X_432658 |
| Minor Research Project Biomol. Drug Analysis | Ac. Jaar (september) | 18.0 | X_432689 |
| Minor Research Project Biomol. Drug Analysis | Ac. Jaar (september) | 30.0 | X_432704 |
| Minor Research Project DDS Medicinal Chemistry, DD&S | Ac. Jaar (september) | 18.0 | X_432692 |
| Minor Research Project DDS Medicinal Chemistry, DD&S | Ac. Jaar (september) | 24.0 | X_432693 |
| Minor Research Project DDS Medicinal Chemistry, DD&S | Ac. Jaar (september) | 30.0 | X_432705 |
| Minor Research Project DDS Molecular Toxicology, CMCT | Ac. Jaar (september) | 24.0 | X_432632 |
| Minor Research Project DDS Molecular Toxicology, DDSA | Ac. Jaar (september) | 24.0 | X_432591 |
| Minor Research Project DDS Molecular Toxicology, DDSA | Ac. Jaar (september) | 30.0 | X_432592 |

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|--|----------------------|------|----------|
| Minor Research Project DDS Molecular Toxicology, DDSA | Ac. Jaar (september) | 18.0 | X_432620 |
| Minor Research Project DDS, CMCT | Ac. Jaar (september) | 18.0 | X_432507 |
| Minor Research Project DDS, CMCT | Ac. Jaar (september) | 30.0 | X_432707 |
| Minor Research Project Med. Chem., Drug Disc. & Target Find. | Ac. Jaar (september) | 18.0 | X_432696 |
| Minor Research Project Med. Chem., Drug Disc. & Target Find. | Ac. Jaar (september) | 30.0 | X_432706 |
| Minor Research Project Med. Chem., Drug Disc. & Target.Find. | Ac. Jaar (september) | 24.0 | X_432635 |
| Protein Analysis | Periode 5 | 6.0 | X_435045 |
| Supramolecular Chemistry and Nanomaterials | Periode 1 | 6.0 | X_435653 |

Compulsory courses

Vakken:

| Naam | Periode | Credits | Code |
|--|----------------------|---------|----------|
| Colloquium and Literature Thesis DDS MC, DDTF | Ac. Jaar (september) | 12.0 | X_432574 |
| High-Throughput Screening | Periode 2 | 6.0 | X_435047 |
| Signal Transduction in Health and Disease | Periode 2 | 6.0 | X_432535 |

Compulsory courses research master DDS

Vakken:

| Naam | Periode | Credits | Code |
|---|-----------|---------|----------|
| ADMET | Periode 1 | 6.0 | X_432721 |
| Chemical Biology | Periode 1 | 6.0 | X_432538 |
| Drug Action | Periode 3 | 6.0 | X_432724 |
| Project Computational Design and Synthesis of Drugs | Periode 4 | 6.0 | X_432734 |

Research Variant DDSA

The programme consists of 120 EC
- compulsory courses 30 EC (including a Literature Thesis and

Colloquium 12 EC)

- compulsory choice Ethics and Portfolio Academic Skills 6 EC
- compulsory choices Major Research Project at least 42 EC
- optional courses to complete 120 EC.

Note: Every programme, including the choice of optional courses, has to be discussed and agreed upon with the master coordinator or a personal mentor and approved by the Examination Board.

Master Coordinator:

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Opleidingsdelen:

- [Ethics and Academic Skills](#)
- [Deficiency Courses](#)
- [Research project \(choose 42, 48, 54 or 60 EC\)](#)
- [Recommended optional courses](#)
- [Compulsory Courses](#)
- [Compulsory courses research master DDS](#)

Ethics and Academic Skills

In consultation with the master coordinator and depending on the chosen specialization, 6 EC have to be chosen from the following list.

Vakken:

| Naam | Periode | Credits | Code |
|---|----------------------|---------|-----------|
| Business Management in Health and Life Sciences | Periode 2 | 6.0 | AM_470584 |
| Clinical Development and Clinical Trials | Periode 3 | 3.0 | AM_1180 |
| Communication, Organization and Management | Periode 2 | 6.0 | AM_470572 |
| Entrepreneurship in Health and Life Sc. | Periode 2 | 6.0 | AM_470575 |
| Epidemiology | Periode 3 | 3.0 | AM_1179 |
| Ethics and Academic skills | Ac. Jaar (september) | 1.0 | X_432725 |
| Ethics and Academic skills | Ac. Jaar (september) | 2.0 | X_432726 |
| Ethics and Academic Skills | Ac. Jaar (september) | 6.0 | X_437556 |
| Ethics and Academic Skills | Ac. Jaar (september) | 3.0 | X_432517 |
| Ethics in Life Sciences | Periode 3 | 3.0 | AM_470707 |
| Managing Science and Technology in Society | Periode 1 | 6.0 | AM_470586 |
| Research methods for analyzing complex problems | Periode 1 | 6.0 | AM_1182 |

| | | | |
|-------------------------------|----------------------|-----|-----------|
| Science and Communication | Periode 1 | 6.0 | AM_470587 |
| Science in Dialogue | Periode 2 | 6.0 | AM_1002 |
| Science Journalism | Periode 2 | 6.0 | AM_471014 |
| Scientific Writing in English | Periode 2, Periode 6 | 3.0 | X_400592 |
| Teaching Assistant | Ac. Jaar (september) | 3.0 | X_432741 |
| Teaching Assistant | Ac. Jaar (september) | 6.0 | X_432742 |
| Tutoring Students | Periode 2 | 3.0 | X_432625 |

Deficiency Courses

Compulsory course for students without a Bachelor degree Pharmaceutical Sciences VU.

Not specified: all courses start with an summary of required knowledge.

Vakken:

| Naam | Periode | Credits | Code |
|--|-----------|---------|----------|
| Principles of Pharmaceutical Sciences / Pharmacology | Periode 1 | 6.0 | X_435675 |

Research project (choose 42, 48, 54 or 60 EC)

Compulsory choice of at least 42 EC.

Note: Every programme, including the choice of optional courses, has to be discussed and agreed upon with the master coordinator or a personal mentor and approved by the Examination Board.

Vakken:

| Naam | Periode | Credits | Code |
|---|----------------------|---------|----------|
| Major Research Project DDS Molecular Toxicology, DDSA | Ac. Jaar (september) | 42.0 | X_432559 |
| Major Research Project DDS Molecular Toxicology, DDSA | Ac. Jaar (september) | 48.0 | X_432561 |
| Major Research Project DDS Molecular Toxicology, DDSA | Ac. Jaar (september) | 54.0 | X_432562 |
| Major Research Project DDS Molecular Toxicology, DDSA | Ac. Jaar (september) | 60.0 | X_432563 |

Recommended optional courses

The subject options of 36, 30, 24, or 18 EC can be completed with the possibilities below.

Note: Every programme, including the choice of optional courses, has to be discussed and agreed upon with the master coordinator or a personal mentor and approved by the Examination Board.

Vakken:

| Naam | Periode | Credits | Code |
|---|----------------------|---------|----------|
| Applied Theoretical Chemistry | Ac. Jaar (september) | 12.0 | X_432501 |
| Applied Theoretical Chemistry | Periode 4 | 6.0 | X_435612 |
| Biomolecular Simulation in Medicinal Chemistry and Toxicology | Periode 5+6 | 6.0 | X_432664 |
| Company Training DDS Drug, Disp. and Saf. Assessm. | Ac. Jaar (september) | 18.0 | X_432672 |
| Company Training DDS Drug, Disp. and Saf. Assessm. | Ac. Jaar (september) | 24.0 | X_432746 |
| Company Training DDS Drug, Disp. and Saf. Assessm. | Ac. Jaar (september) | 30.0 | X_432751 |
| Company Training DDS Drug, Disp. and Saf. Assessm. | Ac. Jaar (september) | 36.0 | X_432834 |
| Computer-Aided Drug Design and Virtual Screening | Periode 2 | 6.0 | X_432673 |
| Internship abroad DDS Drug, Disp. and Saf. Assessm. | Ac. Jaar (september) | 18.0 | X_432677 |
| Internship abroad DDS Drug, Disp. and Saf. Assessm. | Ac. Jaar (september) | 24.0 | X_432756 |
| Internship abroad DDS Drug, Disp. and Saf. Assessm. | Ac. Jaar (september) | 30.0 | X_432761 |
| Internship abroad DDS Drug, Disp. and Saf. Assessm. | Ac. Jaar (september) | 36.0 | X_432841 |
| Minor Research Project Biomol. Drug Analysis | Ac. Jaar (september) | 24.0 | X_432658 |
| Minor Research Project Biomol. Drug Analysis | Ac. Jaar (september) | 18.0 | X_432689 |
| Minor Research Project Biomol. Drug Analysis | Ac. Jaar (september) | 30.0 | X_432704 |
| Minor Research Project DDS Medicinal Chemistry, DD&S | Ac. Jaar (september) | 18.0 | X_432692 |

| | | | |
|--|----------------------|------|----------|
| Minor Research Project DDS Medicinal Chemistry, DD&S | Ac. Jaar (september) | 24.0 | X_432693 |
| Minor Research Project DDS Medicinal Chemistry, DD&S | Ac. Jaar (september) | 30.0 | X_432705 |
| Minor Research Project DDS Molecular Toxicology, CMCT | Ac. Jaar (september) | 24.0 | X_432632 |
| Minor Research Project DDS Molecular Toxicology, DDSA | Ac. Jaar (september) | 24.0 | X_432591 |
| Minor Research Project DDS Molecular Toxicology, DDSA | Ac. Jaar (september) | 30.0 | X_432592 |
| Minor Research Project DDS Molecular Toxicology, DDSA | Ac. Jaar (september) | 18.0 | X_432620 |
| Minor Research Project DDS, CMCT | Ac. Jaar (september) | 18.0 | X_432507 |
| Minor Research Project DDS, CMCT | Ac. Jaar (september) | 30.0 | X_432707 |
| Minor Research Project Med. Chem., Drug Disc. & Target Find. | Ac. Jaar (september) | 18.0 | X_432696 |
| Minor Research Project Med. Chem., Drug Disc. & Target Find. | Ac. Jaar (september) | 30.0 | X_432706 |
| Minor Research Project Med. Chem., Drug Disc. & Target.Find. | Ac. Jaar (september) | 24.0 | X_432635 |
| Signal Transduction in Health and Disease | Periode 2 | 6.0 | X_432535 |
| Supramolecular Chemistry and Nanomaterials | Periode 1 | 6.0 | X_435653 |

Compulsory Courses

Vakken:

| Naam | Periode | Credits | Code |
|---|----------------------|---------|----------|
| Advanced Course on Drug Disp. & Safety Assessment (Mol.Tox.) | Periode 5+6 | 6.0 | X_435681 |
| Drug-induced Stress and Cellular Responses | Periode 2 | 6.0 | X_432536 |
| Literature thesis and Colloquium DDS Molecular Toxicology, DDSA | Ac. Jaar (september) | 12.0 | X_432575 |

Compulsory courses research master DDS

Vakken:

| Naam | Periode | Credits | Code |
|---|-----------|---------|----------|
| ADMET | Periode 1 | 6.0 | X_432721 |
| Chemical Biology | Periode 1 | 6.0 | X_432538 |
| Drug Action | Periode 3 | 6.0 | X_432724 |
| Project Computational Design and Synthesis of Drugs | Periode 4 | 6.0 | X_432734 |

Research Variant CMCT

The programme consists of 120 EC

- compulsory courses 36 EC (including a Literature Thesis and Colloquium 12 EC)
- compulsory choice Ethics and Portfolio Academic Skills 6 EC
- compulsory choices Major Research Project at least 42 EC
- optional courses to complete 120 EC.

Note: Every programme, including the choice of optional courses, has to be discussed and agreed upon with the master coordinator or a personal mentor and approved by the Examination Board.

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Opleidingsdelen:

- [Ethics and Academic Skills](#)
- [Deficiency Courses](#)
- [Research project \(choose 42, 48, 54 or 60 EC\)](#)
- [Recommended optional choice](#)
- [Compulsory Courses](#)
- [Compulsory courses research master DDS](#)

Ethics and Academic Skills

In consultation with the master coordinator and depending on the chosen specialization, 6 EC have to be chosen from the following list.

Vakken:

| Naam | Periode | Credits | Code |
|------|---------|---------|------|
|------|---------|---------|------|

| | | | |
|---|----------------------|-----|-----------|
| Business Management in Health and Life Sciences | Periode 2 | 6.0 | AM_470584 |
| Clinical Development and Clinical Trials | Periode 3 | 3.0 | AM_1180 |
| Communication, Organization and Management | Periode 2 | 6.0 | AM_470572 |
| Entrepreneurship in Health and Life Sc. | Periode 2 | 6.0 | AM_470575 |
| Epidemiology | Periode 3 | 3.0 | AM_1179 |
| Ethics and Academic skills | Ac. Jaar (september) | 1.0 | X_432725 |
| Ethics and Academic skills | Ac. Jaar (september) | 2.0 | X_432726 |
| Ethics and Academic Skills | Ac. Jaar (september) | 6.0 | X_437556 |
| Ethics and Academic Skills | Ac. Jaar (september) | 3.0 | X_432517 |
| Ethics in Life Sciences | Periode 3 | 3.0 | AM_470707 |
| Managing Science and Technology in Society | Periode 1 | 6.0 | AM_470586 |
| Research methods for analyzing complex problems | Periode 1 | 6.0 | AM_1182 |
| Science and Communication | Periode 1 | 6.0 | AM_470587 |
| Science in Dialogue | Periode 2 | 6.0 | AM_1002 |
| Science Journalism | Periode 2 | 6.0 | AM_471014 |
| Scientific Writing in English | Periode 2, Periode 6 | 3.0 | X_400592 |
| Teaching Assistant | Ac. Jaar (september) | 3.0 | X_432741 |
| Teaching Assistant | Ac. Jaar (september) | 6.0 | X_432742 |
| Tutoring Students | Periode 2 | 3.0 | X_432625 |

Deficiency Courses

Compulsory course for students without a Bachelor degree Pharmaceutical Sciences VU.

Not specified: all courses start with an summary of required knowledge.

Vakken:

| Naam | Periode | Credits | Code |
|--|-----------|---------|----------|
| Principles of Pharmaceutical Sciences / Pharmacology | Periode 1 | 6.0 | X_435675 |

Research project (choose 42, 48, 54 or 60 EC)

Compulsory choice of at least 42 credits.

Note: Every programme, including the choice of optional courses, has to be discussed and agreed upon with the master coordinator or a personal mentor and approved by the Examination Board.

Vakken:

| Naam | Periode | Credits | Code |
|---|----------------------|---------|----------|
| Major Research Project Mol. Tox., Comp. Med. Chem. & Tox. | Ac. Jaar (september) | 42.0 | X_432553 |
| Major Research Project Mol. Tox., Comp. Med. Chem. & Tox. | Ac. Jaar (september) | 48.0 | X_432556 |
| Major Research Project Mol. Tox., Comp. Med. Chem. & Tox. | Ac. Jaar (september) | 54.0 | X_432557 |
| Major Research Project Mol. Tox., Comp. Med. Chem. & Tox. | Ac. Jaar (september) | 60.0 | X_432558 |

Recommended optional choice

The subject options of 30, 24, 18 or 12 EC can be completed with the possibilities below.

Note: Every programme, including the choice of optional courses, has to be discussed and agreed upon with the master coordinator or a personal mentor and approved by the Examination Board.

Vakken:

| Naam | Periode | Credits | Code |
|---|----------------------|---------|----------|
| Applied Theoretical Chemistry | Ac. Jaar (september) | 12.0 | X_432501 |
| Applied Theoretical Chemistry | Periode 4 | 6.0 | X_435612 |
| Company Training Comp. Med. Chem. & Tox. | Ac. Jaar (september) | 18.0 | X_432619 |
| Company Training Comp. Med. Chem. & Tox. | Ac. Jaar (september) | 24.0 | X_432744 |
| Company Training Comp. Med. Chem. & Tox. | Ac. Jaar (september) | 30.0 | X_432749 |
| Company Training Comp. Med. Chem. & Tox. | Ac. Jaar (september) | 36.0 | X_432835 |
| Density Functional Theory for Chemists | Ac. Jaar (september) | 6.0 | X_435111 |
| Density Functional Theory for Chemists | Ac. Jaar (september) | 12.0 | X_435112 |
| Drug-induced Stress and Cellular Responses | Periode 2 | 6.0 | X_432536 |
| Internship abroad DDS Comp. Med. Chem. & Tox. | Ac. Jaar (september) | 18.0 | X_432675 |
| Internship abroad DDS Comp. Med. Chem. & Tox. | Ac. Jaar (september) | 24.0 | X_432754 |

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|--|----------------------|------|----------|
| Internship abroad DDS Comp. Med. Chem. & Tox. | Ac. Jaar (september) | 30.0 | X_432759 |
| Internship abroad DDS Comp. Med. Chem. & Tox. | Ac. Jaar (september) | 36.0 | X_432838 |
| Minor Research Project Biomol. Drug Analysis | Ac. Jaar (september) | 24.0 | X_432658 |
| Minor Research Project Biomol. Drug Analysis | Ac. Jaar (september) | 18.0 | X_432689 |
| Minor Research Project Biomol. Drug Analysis | Ac. Jaar (september) | 30.0 | X_432704 |
| Minor Research Project DDS Medicinal Chemistry, DD&S | Ac. Jaar (september) | 18.0 | X_432692 |
| Minor Research Project DDS Medicinal Chemistry, DD&S | Ac. Jaar (september) | 24.0 | X_432693 |
| Minor Research Project DDS Medicinal Chemistry, DD&S | Ac. Jaar (september) | 30.0 | X_432705 |
| Minor Research Project DDS Molecular Toxicology, CMCT | Ac. Jaar (september) | 24.0 | X_432632 |
| Minor Research Project DDS Molecular Toxicology, DDSA | Ac. Jaar (september) | 24.0 | X_432591 |
| Minor Research Project DDS Molecular Toxicology, DDSA | Ac. Jaar (september) | 30.0 | X_432592 |
| Minor Research Project DDS Molecular Toxicology, DDSA | Ac. Jaar (september) | 18.0 | X_432620 |
| Minor Research Project DDS, CMCT | Ac. Jaar (september) | 18.0 | X_432507 |
| Minor Research Project DDS, CMCT | Ac. Jaar (september) | 30.0 | X_432707 |
| Minor Research Project Med. Chem., Drug Disc. & Target Find. | Ac. Jaar (september) | 18.0 | X_432696 |
| Minor Research Project Med. Chem., Drug Disc. & Target Find. | Ac. Jaar (september) | 30.0 | X_432706 |
| Minor Research Project Med. Chem., Drug Disc. & Target.Find. | Ac. Jaar (september) | 24.0 | X_432635 |
| Signal Transduction in Health and Disease | Periode 2 | 6.0 | X_432535 |
| Supramolecular Chemistry and Nanomaterials | Periode 1 | 6.0 | X_435653 |

Compulsory Courses

Vakken:

| Naam | Periode | Credits | Code |
|---|----------------------|---------|----------|
| Biomolecular Simulation in Medicinal Chemistry and Toxicology | Periode 5+6 | 6.0 | X_432664 |
| Colloquium and Literature Thesis DDS MC, CMCT | Ac. Jaar (september) | 12.0 | X_432576 |
| Computer-Aided Drug Design and Virtual Screening | Periode 2 | 6.0 | X_432673 |

Compulsory courses research master DDS

Vakken:

| Naam | Periode | Credits | Code |
|---|-----------|---------|----------|
| ADMET | Periode 1 | 6.0 | X_432721 |
| Chemical Biology | Periode 1 | 6.0 | X_432538 |
| Drug Action | Periode 3 | 6.0 | X_432724 |
| Project Computational Design and Synthesis of Drugs | Periode 4 | 6.0 | X_432734 |

Research Variant DD&S

The programme consists of 120 EC

- compulsory courses 36 EC (including a Literature Thesis and Colloquium 12 EC)
- compulsory choice Ethics and Portfolio Academic Skills 6 EC
- compulsory choices Major Research Project at least 42 EC
- optional courses to complete 120 EC.

Note: Every programme, including the choice of optional courses, has to be discussed and agreed upon with the master coordinator or a personal mentor and approved by the Examination Board.

Master Coordinator:

Dr. M. Wijtmans
K room G-343a
T +31 (0) 20 598 7603
E m.wijtmans@few.vu.nl

Opleidingsdelen:

- [Ethics and Academic Skills](#)
- [Deficiency Courses](#)
- [Research project \(choose 42, 48, 54 or 60 EC\)](#)

- Recommended optional choice
- Compulsory Courses
- Compulsory courses research master DDS

Ethics and Academic Skills

In consultation with the master coordinator and depending on the chosen specialization, 6 EC have to be chosen from the following list.

Vakken:

| Naam | Periode | Credits | Code |
|---|----------------------|---------|-----------|
| Business Management in Health and Life Sciences | Periode 2 | 6.0 | AM_470584 |
| Clinical Development and Clinical Trials | Periode 3 | 3.0 | AM_1180 |
| Communication, Organization and Management | Periode 2 | 6.0 | AM_470572 |
| Entrepreneurship in Health and Life Sc. | Periode 2 | 6.0 | AM_470575 |
| Epidemiology | Periode 3 | 3.0 | AM_1179 |
| Ethics and Academic skills | Ac. Jaar (september) | 1.0 | X_432725 |
| Ethics and Academic skills | Ac. Jaar (september) | 2.0 | X_432726 |
| Ethics and Academic Skills | Ac. Jaar (september) | 6.0 | X_437556 |
| Ethics and Academic Skills | Ac. Jaar (september) | 3.0 | X_432517 |
| Ethics in Life Sciences | Periode 3 | 3.0 | AM_470707 |
| Managing Science and Technology in Society | Periode 1 | 6.0 | AM_470586 |
| Research methods for analyzing complex problems | Periode 1 | 6.0 | AM_1182 |
| Science and Communication | Periode 1 | 6.0 | AM_470587 |
| Science in Dialogue | Periode 2 | 6.0 | AM_1002 |
| Science Journalism | Periode 2 | 6.0 | AM_471014 |
| Scientific Writing in English | Periode 2, Periode 6 | 3.0 | X_400592 |
| Teaching Assistant | Ac. Jaar (september) | 3.0 | X_432741 |
| Teaching Assistant | Ac. Jaar (september) | 6.0 | X_432742 |
| Tutoring Students | Periode 2 | 3.0 | X_432625 |

Deficiency Courses

Compulsory course for students without a Bachelor degree Pharmaceutical Sciences VU.

Not specified: all courses start with an summary of required knowledge.

Vakken:

| Naam | Periode | Credits | Code |
|--|-----------|---------|----------|
| Principles of Pharmaceutical Sciences / Pharmacology | Periode 1 | 6.0 | X_435675 |

Research project (choose 42, 48, 54 or 60 EC)

Compulsory choice of at least 42 EC.

Note: Every programme, including the choice of optional courses, has to be discussed and agreed upon with the master coordinator or a personal mentor and approved by the Examination Board.

Vakken:

| Naam | Periode | Credits | Code |
|--|----------------------|---------|----------|
| Major Research Project DDS Medicinal Chemistry, DD&S | Ac. Jaar (september) | 42.0 | X_432509 |
| Major Research Project DDS Medicinal Chemistry, DD&S | Ac. Jaar (september) | 48.0 | X_432544 |
| Major Research Project DDS Medicinal Chemistry, DD&S | Ac. Jaar (september) | 54.0 | X_432545 |
| Major Research Project DDS Medicinal Chemistry, DD&S | Ac. Jaar (september) | 60.0 | X_432546 |

Recommended optional choice

The subject options of 30, 24, 18 or 12 EC can be completed with the possibilities below.

Note: Every programme, including the choice of optional courses, has to be discussed and agreed upon with the master coordinator or a personal mentor and approved by the Examination Board.

Vakken:

| Naam | Periode | Credits | Code |
|---|----------------------|---------|----------|
| Biomolecular Simulation in Medicinal Chemistry and Toxicology | Periode 5+6 | 6.0 | X_432664 |
| Company Training DDS Drug Design & Synth. | Ac. Jaar (september) | 18.0 | X_432671 |
| Company Training DDS Drug Design & Synth. | Ac. Jaar (september) | 24.0 | X_432745 |
| Company Training DDS Drug Design & Synth. | Ac. Jaar (september) | 30.0 | X_432750 |

| | | | |
|--|----------------------|------|----------|
| Company Training DDS Drug Design & Synth. | Ac. Jaar (september) | 36.0 | X_432833 |
| Computer-Aided Drug Design and Virtual Screening | Periode 2 | 6.0 | X_432673 |
| Drug-induced Stress and Cellular Responses | Periode 2 | 6.0 | X_432536 |
| Internship abroad DDS Drug Design & Synth. | Ac. Jaar (september) | 18.0 | X_432676 |
| Internship abroad DDS Drug Design & Synth. | Ac. Jaar (september) | 24.0 | X_432755 |
| Internship abroad DDS Drug Design & Synth. | Ac. Jaar (september) | 30.0 | X_432760 |
| Internship abroad DDS Drug Design & Synth. | Ac. Jaar (september) | 36.0 | X_432839 |
| Minor Research Project Biomol. Drug Analysis | Ac. Jaar (september) | 24.0 | X_432658 |
| Minor Research Project Biomol. Drug Analysis | Ac. Jaar (september) | 18.0 | X_432689 |
| Minor Research Project Biomol. Drug Analysis | Ac. Jaar (september) | 30.0 | X_432704 |
| Minor Research Project DDS Medicinal Chemistry, DD&S | Ac. Jaar (september) | 18.0 | X_432692 |
| Minor Research Project DDS Medicinal Chemistry, DD&S | Ac. Jaar (september) | 24.0 | X_432693 |
| Minor Research Project DDS Medicinal Chemistry, DD&S | Ac. Jaar (september) | 30.0 | X_432705 |
| Minor Research Project DDS Molecular Toxicology, CMCT | Ac. Jaar (september) | 24.0 | X_432632 |
| Minor Research Project DDS Molecular Toxicology, DDSA | Ac. Jaar (september) | 24.0 | X_432591 |
| Minor Research Project DDS Molecular Toxicology, DDSA | Ac. Jaar (september) | 30.0 | X_432592 |
| Minor Research Project DDS Molecular Toxicology, DDSA | Ac. Jaar (september) | 18.0 | X_432620 |
| Minor Research Project DDS, CMCT | Ac. Jaar (september) | 18.0 | X_432507 |
| Minor Research Project DDS, CMCT | Ac. Jaar (september) | 30.0 | X_432707 |
| Minor Research Project Med. Chem., Drug Disc. & Target Find. | Ac. Jaar (september) | 18.0 | X_432696 |
| Minor Research Project Med. Chem., Drug Disc. & Target Find. | Ac. Jaar (september) | 30.0 | X_432706 |

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|--|----------------------|------|----------|
| Minor Research Project Med. Chem., Drug Disc. & Target.Find. | Ac. Jaar (september) | 24.0 | X_432635 |
| Signal Transduction in Health and Disease | Periode 2 | 6.0 | X_432535 |

Compulsory Courses

Vakken:

| Naam | Periode | Credits | Code |
|--|----------------------|---------|----------|
| Literature thesis and Colloquium DDS Medical Chemistry, DD&S | Ac. Jaar (september) | 12.0 | X_432573 |
| Physical-Organic Chemistry | Periode 1 | 6.0 | X_435663 |
| Synthetic Approaches in Medicinal Chemistry | Periode 2 | 6.0 | X_435685 |

Compulsory courses research master DDS

Vakken:

| Naam | Periode | Credits | Code |
|---|-----------|---------|----------|
| ADMET | Periode 1 | 6.0 | X_432721 |
| Chemical Biology | Periode 1 | 6.0 | X_432538 |
| Drug Action | Periode 3 | 6.0 | X_432724 |
| Project Computational Design and Synthesis of Drugs | Periode 4 | 6.0 | X_432734 |

Research Variant Biomarkers and CCA

Opleidingsdelen:

- Ethics and Academic Skills
- Deficiency Courses
- Choose 1 out of 3
- Compulsory Choice Research project (Major) including report
- Elective Space
- Compulsory Courses
- Compulsory courses research master DDS

Ethics and Academic Skills

In consultation with the master coordinator and depending on the chosen specialization, 6 EC have to be chosen from the following list.

Vakken:

| Naam | Periode | Credits | Code |
|---|----------------------|---------|-----------|
| Business Management in Health and Life Sciences | Periode 2 | 6.0 | AM_470584 |
| Clinical Development and Clinical Trials | Periode 3 | 3.0 | AM_1180 |
| Communication, Organization and Management | Periode 2 | 6.0 | AM_470572 |
| Entrepreneurship in Health and Life Sc. | Periode 2 | 6.0 | AM_470575 |
| Epidemiology | Periode 3 | 3.0 | AM_1179 |
| Ethics and Academic skills | Ac. Jaar (september) | 1.0 | X_432725 |
| Ethics and Academic skills | Ac. Jaar (september) | 2.0 | X_432726 |
| Ethics and Academic Skills | Ac. Jaar (september) | 6.0 | X_437556 |
| Ethics and Academic Skills | Ac. Jaar (september) | 3.0 | X_432517 |
| Ethics in Life Sciences | Periode 3 | 3.0 | AM_470707 |
| Managing Science and Technology in Society | Periode 1 | 6.0 | AM_470586 |
| Research methods for analyzing complex problems | Periode 1 | 6.0 | AM_1182 |
| Science and Communication | Periode 1 | 6.0 | AM_470587 |
| Science in Dialogue | Periode 2 | 6.0 | AM_1002 |
| Science Journalism | Periode 2 | 6.0 | AM_471014 |
| Scientific Writing in English | Periode 2, Periode 6 | 3.0 | X_400592 |
| Teaching Assistant | Ac. Jaar (september) | 3.0 | X_432741 |
| Teaching Assistant | Ac. Jaar (september) | 6.0 | X_432742 |
| Tutoring Students | Periode 2 | 3.0 | X_432625 |

Deficiency Courses

Compulsory course for students without a Bachelor degree Pharmaceutical Sciences VU.

Not specified: all courses start with an summary of required knowledge.

Vakken:

| Naam | Periode | Credits | Code |
|--|-----------|---------|----------|
| Principles of Pharmaceutical Sciences / Pharmacology | Periode 1 | 6.0 | X_435675 |

Choose 1 out of 3

Choice of 1 out of 3 subjects depending on the Major Project (to be discussed with the master coordinator)

Vakken:

| Naam | Periode | Credits | Code |
|---|-----------|---------|----------|
| High-Throughput Screening | Periode 2 | 6.0 | X_435047 |
| Mass Spectrometry | Periode 2 | 6.0 | X_435604 |
| Protein Analysis | Periode 5 | 6.0 | X_435045 |

Compulsory Choice Research project (Major) including report

Compulsory choice of minimal 42 EC.

Vakken:

| Naam | Periode | Credits | Code |
|--|----------------------|---------|----------|
| Major Research Project Biomol. Drug Analysis | Ac. Jaar (september) | 42.0 | X_432564 |
| Major Research Project Biomol. Drug Analysis | Ac. Jaar (september) | 48.0 | X_432567 |
| Major Research Project Biomol. Drug Analysis | Ac. Jaar (september) | 54.0 | X_432568 |
| Major Research Project Biomol. Drug Analysis | Ac. Jaar (september) | 60.0 | X_432569 |

Elective Space

Students need to select 30, 24, 18 or 12 EC from the following list:

Vakken:

| Naam | Periode | Credits | Code |
|---|----------------------|---------|----------|
| Biomolecular Simulation in Medicinal Chemistry and Toxicology | Periode 5+6 | 6.0 | X_432664 |
| Company Training DDS Biomol. Drug Analysis | Ac. Jaar (september) | 18.0 | X_432670 |
| Company Training DDS Biomol. Drug Analysis | Ac. Jaar (september) | 24.0 | X_432743 |
| Company Training DDS Biomol. Drug Analysis | Ac. Jaar (september) | 30.0 | X_432748 |
| Company Training DDS Biomol. Drug Analysis | Ac. Jaar (september) | 36.0 | X_432832 |
| Computer-Aided Drug Design and Virtual Screening | Periode 2 | 6.0 | X_432673 |

| | | | |
|--|----------------------|------|----------|
| Drug-induced Stress and Cellular Responses | Periode 2 | 6.0 | X_432536 |
| Internship abroad DDS Biomol. Drug Analysis | Ac. Jaar (september) | 18.0 | X_432674 |
| Internship abroad DDS Biomol. Drug Analysis | Ac. Jaar (september) | 24.0 | X_432753 |
| Internship abroad DDS Biomol. Drug Analysis | Ac. Jaar (september) | 30.0 | X_432758 |
| Internship abroad DDS Biomol. Drug Analysis | Ac. Jaar (september) | 36.0 | X_432837 |
| Minor Research Project Biomol. Drug Analysis | Ac. Jaar (september) | 24.0 | X_432658 |
| Minor Research Project Biomol. Drug Analysis | Ac. Jaar (september) | 18.0 | X_432689 |
| Minor Research Project Biomol. Drug Analysis | Ac. Jaar (september) | 30.0 | X_432704 |
| Minor Research Project DDS Medicinal Chemistry, DD&S | Ac. Jaar (september) | 18.0 | X_432692 |
| Minor Research Project DDS Medicinal Chemistry, DD&S | Ac. Jaar (september) | 24.0 | X_432693 |
| Minor Research Project DDS Medicinal Chemistry, DD&S | Ac. Jaar (september) | 30.0 | X_432705 |
| Minor Research Project DDS Molecular Toxicology, CMCT | Ac. Jaar (september) | 24.0 | X_432632 |
| Minor Research Project DDS Molecular Toxicology, DDSA | Ac. Jaar (september) | 24.0 | X_432591 |
| Minor Research Project DDS Molecular Toxicology, DDSA | Ac. Jaar (september) | 30.0 | X_432592 |
| Minor Research Project DDS Molecular Toxicology, DDSA | Ac. Jaar (september) | 18.0 | X_432620 |
| Minor Research Project DDS, CMCT | Ac. Jaar (september) | 18.0 | X_432507 |
| Minor Research Project DDS, CMCT | Ac. Jaar (september) | 30.0 | X_432707 |
| Minor Research Project Med. Chem., Drug Disc. & Target Find. | Ac. Jaar (september) | 18.0 | X_432696 |
| Minor Research Project Med. Chem., Drug Disc. & Target Find. | Ac. Jaar (september) | 30.0 | X_432706 |
| Minor Research Project Med. Chem., Drug Disc. & Target Find. | Ac. Jaar (september) | 24.0 | X_432635 |
| Signal Transduction in Health and Disease | Periode 2 | 6.0 | X_432535 |

Compulsory Courses

Compulsory courses

Vakken:

| Naam | Periode | Credits | Code |
|--|----------------------|---------|----------|
| Bio-analysis & Clinical Diagnostics | Periode 1 | 6.0 | X_432765 |
| Literature thesis and Colloquium | Ac. Jaar (september) | 12.0 | X_432577 |
| Omics-procedures in molecular clinical Diagnostics | Periode 5 | 6.0 | X_432766 |

Compulsory courses research master DDS

Vakken:

| Naam | Periode | Credits | Code |
|---|-----------|---------|----------|
| ADMET | Periode 1 | 6.0 | X_432721 |
| Chemical Biology | Periode 1 | 6.0 | X_432538 |
| Drug Action | Periode 3 | 6.0 | X_432724 |
| Project Computational Design and Synthesis of Drugs | Periode 4 | 6.0 | X_432734 |

Double Degree

Opleidingsdelen:

- [Ethics and Academic Skills](#)
- [Deficiency Courses](#)
- [Elective Space](#)
- [Choice Thesis 1 out of 6](#)
- [Compulsory Courses](#)
- [Compulsory courses research master DDS](#)

Ethics and Academic Skills

In consultation with the master coordinator and depending on the chosen specialization, 6 EC have to be chosen from the following list.

Vakken:

| Naam | Periode | Credits | Code |
|---|----------------------|---------|-----------|
| Business Management in Health and Life Sciences | Periode 2 | 6.0 | AM_470584 |
| Clinical Development and Clinical Trials | Periode 3 | 3.0 | AM_1180 |
| Communication, Organization and Management | Periode 2 | 6.0 | AM_470572 |
| Entrepreneurship in Health and Life Sc. | Periode 2 | 6.0 | AM_470575 |
| Epidemiology | Periode 3 | 3.0 | AM_1179 |
| Ethics and Academic skills | Ac. Jaar (september) | 1.0 | X_432725 |
| Ethics and Academic skills | Ac. Jaar (september) | 2.0 | X_432726 |
| Ethics and Academic Skills | Ac. Jaar (september) | 6.0 | X_437556 |
| Ethics and Academic Skills | Ac. Jaar (september) | 3.0 | X_432517 |
| Ethics in Life Sciences | Periode 3 | 3.0 | AM_470707 |
| Managing Science and Technology in Society | Periode 1 | 6.0 | AM_470586 |
| Research methods for analyzing complex problems | Periode 1 | 6.0 | AM_1182 |
| Science and Communication | Periode 1 | 6.0 | AM_470587 |
| Science in Dialogue | Periode 2 | 6.0 | AM_1002 |
| Science Journalism | Periode 2 | 6.0 | AM_471014 |
| Scientific Writing in English | Periode 2, Periode 6 | 3.0 | X_400592 |
| Teaching Assistant | Ac. Jaar (september) | 3.0 | X_432741 |
| Teaching Assistant | Ac. Jaar (september) | 6.0 | X_432742 |
| Tutoring Students | Periode 2 | 3.0 | X_432625 |

Deficiency Courses

Compulsory course for students without a Bachelor degree Pharmaceutical Sciences VU.

Not specified: all courses start with an summary of required knowledge.

Vakken:

| Naam | Periode | Credits | Code |
|--|-----------|---------|----------|
| Principles of Pharmaceutical Sciences / Pharmacology | Periode 1 | 6.0 | X_435675 |

Elective Space

Vakken:

| Naam | Periode | Credits | Code |
|------|---------|---------|------|
|------|---------|---------|------|

| | | | |
|---|----------------------|------|----------|
| Advanced Course on Drug Disp. & Safety Assessment (Mol.Tox.) | Periode 5+6 | 6.0 | X_435681 |
| Bio-analysis & Clinical Diagnostics | Periode 1 | 6.0 | X_432765 |
| Biomolecular Simulation in Medicinal Chemistry and Toxicology | Periode 5+6 | 6.0 | X_432664 |
| Computer-Aided Drug Design and Virtual Screening | Periode 2 | 6.0 | X_432673 |
| Drug-induced Stress and Cellular Responses | Periode 2 | 6.0 | X_432536 |
| Minor Research Project Biomol. Drug Analysis | Ac. Jaar (september) | 18.0 | X_432689 |
| Minor Research Project DDS Molecular Toxicology, DDSA | Ac. Jaar (september) | 18.0 | X_432620 |
| Minor Research Project DDS, CMCT | Ac. Jaar (september) | 18.0 | X_432507 |
| Minor Research Project Med. Chem., Drug Disc. & Target Find. | Ac. Jaar (september) | 18.0 | X_432696 |
| Omics-procedures in molecular clinical Diagnostics | Periode 5 | 6.0 | X_432766 |
| Physical-Organic Chemistry | Periode 1 | 6.0 | X_435663 |
| Signal Transduction in Health and Disease | Periode 2 | 6.0 | X_432535 |
| Synthetic Approaches in Medicinal Chemistry | Periode 2 | 6.0 | X_435685 |

Choice Thesis 1 out of 6

Vakken:

| Naam | Periode | Credits | Code |
|---|----------------------|---------|----------|
| Colloquium and Literature Thesis DDS MC, CMCT | Ac. Jaar (september) | 12.0 | X_432576 |
| Colloquium and Literature Thesis DDS MC, DDTF | Ac. Jaar (september) | 12.0 | X_432574 |
| Literature thesis and Colloquium | Ac. Jaar (september) | 12.0 | X_432577 |
| Literature thesis and Colloquium DDS Medical Chemistry, DD&S | Ac. Jaar (september) | 12.0 | X_432573 |
| Literature thesis and Colloquium DDS Molecular Toxicology, DDSA | Ac. Jaar (september) | 12.0 | X_432575 |

Compulsory Courses

Vakken:

| Naam | Periode | Credits | Code |
|---|-----------|---------|----------|
| ADMET | Periode 1 | 6.0 | X_432721 |
| Chemical Biology | Periode 1 | 6.0 | X_432538 |
| Drug Action | Periode 3 | 6.0 | X_432724 |
| Project Computational Design and Synthesis of Drugs | Periode 4 | 6.0 | X_432734 |

Compulsory courses research master DDS

Vakken:

| Naam | Periode | Credits | Code |
|---|-----------|---------|----------|
| ADMET | Periode 1 | 6.0 | X_432721 |
| Chemical Biology | Periode 1 | 6.0 | X_432538 |
| Drug Action | Periode 3 | 6.0 | X_432724 |
| Project Computational Design and Synthesis of Drugs | Periode 4 | 6.0 | X_432734 |

Social Variant

Due to the growing complexity of technological and medical issues and the interaction with society, organisations working in this sector have a growing and urgent need for academic professionals in the natural and life sciences, who have knowledge of policy management and entrepreneurship. The Society oriented variant offers students with a bachelor degree in the natural and life sciences the chance to combine a specialization in this field with a specialization in research.

To complete the entire Master programme (120 EC) of the Communication, education or social variant, the student has to choose 60 EC in DDS courses.

Opleidingsdelen:

- [DDS courses](#)
- [Recommended Optional Courses](#)
- [Compulsory Courses](#)

DDS courses

This specialization is intended for students with a BSc degree in any of the bèta-studies who want to specialize in communication. The programme focuses on science communication theory, research and practice. The programme of the communication (C) specialization is 1 year (60 credits). This specialization may not be combined with the Societal specialization (M) or the Education specialization (E). C-courses are shared with master students from the Faculty of Earth and Life Sciences.

To complete the entire Master programme (120 EC) of the Communication, education or social variant, the student has to choose 60 EC in DDS courses.

Opleidingsdelen:

- [Specialisation Courses](#)
- [Literature and Colloquium \(compulsory choose 1 of 5\)](#)
- [DDS Research project \(choose 1 of 5\) \(24 EC\)](#)
- [Deficiency Courses](#)

Specialisation Courses

In consultation with the master coordinator and depending on the chosen specialization, 6 EC have to be chosen from the following list.

Vakken:

| Naam | Periode | Credits | Code |
|---|-------------|---------|----------|
| ADMET | Periode 1 | 6.0 | X_432721 |
| Biomolecular Simulation in Medicinal Chemistry and Toxicology | Periode 5+6 | 6.0 | X_432664 |
| Chemical Biology | Periode 1 | 6.0 | X_432538 |
| Computer-Aided Drug Design and Virtual Screening | Periode 2 | 6.0 | X_432673 |
| Drug Action | Periode 3 | 6.0 | X_432724 |
| Drug-induced Stress and Cellular Responses | Periode 2 | 6.0 | X_432536 |
| Mass Spectrometry | Periode 2 | 6.0 | X_435604 |
| Physical-Organic Chemistry | Periode 1 | 6.0 | X_435663 |
| Project Computational Design and Synthesis of Drugs | Periode 4 | 6.0 | X_432734 |
| Signal Transduction in Health and Disease | Periode 2 | 6.0 | X_432535 |
| Synthetic Approaches in Medicinal Chemistry | Periode 2 | 6.0 | X_435685 |

Literature and Colloquium (compulsory choose 1 of 5)

Students need to select a total of 6 EC or more from the following list.

Note: Every programme, including the choice of optional courses, has to be discussed and agreed upon with the master coordinator or a personal mentor and approved by the Examination Board.

Vakken:

| Naam | Periode | Credits | Code |
|---|----------------------|---------|----------|
| Colloquium and Literature Thesis CMCT (C,E,M) | Ac. Jaar (september) | 6.0 | X_432571 |
| Colloquium and Literature Thesis DDS BDA (C,E,M) | Ac. Jaar (september) | 6.0 | X_432570 |
| Colloquium and Literature Thesis DDS MC, DD&S (C,E,M) | Ac. Jaar (september) | 6.0 | X_432623 |
| Colloquium and Literature Thesis DDS MC, DDTF (C,E,M) | Ac. Jaar (september) | 6.0 | X_432624 |
| Colloquium and Literature Thesis DDS Molecular Toxicology, DDSA (C,E,M) | Ac. Jaar (september) | 6.0 | X_432572 |

DDS Research project (choose 1 of 5) (24 EC)

Students need to select at least 30 credits or more from the following list.

Note: Every programme, including the choice of optional courses, has to be discussed and agreed upon with the master coordinator or a personal mentor and approved by the Examination Board.

Vakken:

| Naam | Periode | Credits | Code |
|---|----------------------|---------|----------|
| Major Research Project DDS Biomolecular Drug Analysis (C,E,M) | Ac. Jaar (september) | 24.0 | X_432727 |
| Major Research Project DDS Medicinal Chemistry, DD&S | Ac. Jaar (september) | 24.0 | X_432728 |
| Major Research Project DDS Medicinal Chemistry, DDTF | Ac. Jaar (september) | 24.0 | X_432729 |
| Major Research Project DDS Molecular Toxicology, CMCT | Ac. Jaar (september) | 24.0 | X_432730 |
| Major Research Project DDS Molecular Toxicology, DDSA (C,E,M) | Ac. Jaar (september) | 24.0 | X_432731 |

Deficiency Courses

Compulsory course for students without a Bachelor degree Pharmaceutical Sciences VU.

Not specified: all courses start with an summary of required knowledge.

Vakken:

| Naam | Periode | Credits | Code |
|--|-----------|---------|----------|
| Principles of Pharmaceutical Sciences / Pharmacology | Periode 1 | 6.0 | X_435675 |

Recommended Optional Courses

Vakken:

| Naam | Periode | Credits | Code |
|---|-----------|---------|-----------|
| Business Management in Health and Life Sciences | Periode 2 | 6.0 | AM_470584 |
| Clinical Development and Clinical Trials | Periode 3 | 3.0 | AM_1180 |
| Entrepreneurship in Health and Life Sc. | Periode 2 | 6.0 | AM_470575 |
| Epidemiology | Periode 3 | 3.0 | AM_1179 |
| Policy, Politics and Participation | Periode 2 | 6.0 | AM_470589 |

Compulsory Courses

Vakken:

| Naam | Periode | Credits | Code |
|---|----------------------|---------|-----------|
| Analysis of Governmental Policy | Periode 1 | 6.0 | AM_470571 |
| Communication, Organization and Management | Periode 2 | 6.0 | AM_470572 |
| Internship Societal Specialisation | Ac. Jaar (september) | 30.0 | AM_471147 |
| Research methods for analyzing complex problems | Periode 1 | 6.0 | AM_1182 |

ADMET

| | |
|----------------|-------------|
| Vakcode | X_432721 () |
|----------------|-------------|

| | |
|----------------------|------------------------------------|
| Periode | Periode 1 |
| Credits | 6.0 |
| Voertaal | Engels |
| Faculteit | Faculteit der Exacte Wetenschappen |
| Coördinator | dr. J.N.M. Commandeur |
| Examinator | dr. J.N.M. Commandeur |
| Docent(en) | dr. J.N.M. Commandeur |
| Lesmethode(n) | Hoorcollege |
| Niveau | 400 |

Doel vak

To get familiar with the biochemical and physiological processes underlying the pharmacokinetics and adverse side effects of drugs, and strategies to improve ADMET-properties by structural modification

Inhoud vak

Of the thousands of novel compounds that are developed by drug discovery project teams, only a fraction have the appropriate pharmacokinetic properties to become a drug product. Pharmacokinetics is determined by the complex processes involved in absorption (A), distribution (D), metabolism (M) and excretion (E) of the drug, the so-called ADME-processes. Furthermore, 20% of the drug entering the clinical development phase fail, because of unwanted/toxic (T) side-effects.

In this course, the students will be familiarized with:

- the pharmacokinetic concepts and the mathematical models by which the time-course of plasma- and tissueconcentration of a drug can be described and which plays an important role in identification of the pharmacokinetic defect(s) of a drug.
- experimental and computational approaches used to predict the ADMET-properties of a new chemical entity;
- the relationship between physico-chemical properties (pKa, logP, logD, solubility, permeability, etc) and ADME-properties, and analytical-chemical approaches to determine physico-chemical properties;
- role of drug metabolism in adverse drug reactions: metabolic stability, drug-drug interactions, active metabolites, genetic polymorphism
- strategies to improve ADME-properties by structural modification of compounds;
- Covalent drugs

Onderwijsvorm

lectures and case studies.

Toetsvorm

Written exam and case reports.

Literatuur

Book: 'Drug-like properties: concepts, structure design and methods. From ADME to Toxicity optimization.' Eds. E.H. Kerns and L. Di, Academic Press, 2008, ISBN: 978-0-1236-9520-8.

Doelgroep

mDDS-BCCA, mDDS-CMCT, mDDS-DD&S, mDDS-DDSA, mDDS-DDTF, mDDS-C-var, mDDS-E-var, mDDS-M-var

Advanced Course on Drug Disp. & Safety Assessment (Mol.Tox.)

| | |
|----------------------|------------------------------------|
| Vakcode | X_435681 (435681) |
| Periode | Periode 5+6 |
| Credits | 6.0 |
| Voertaal | Engels |
| Faculteit | Faculteit der Exacte Wetenschappen |
| Coördinator | prof. dr. N.P.E. Vermeulen |
| Examinator | prof. dr. N.P.E. Vermeulen |
| Lesmethode(n) | Werkcollege |
| Niveau | 500 |

Doel vak

Obtaining an in-depth overview and knowledge of drug disposition and safety assessment, with emphasis on molecular and biochemical mechanisms.

Inhoud vak

After a general introduction in toxicology, drug absorption, drug distribution, drug elimination, drug metabolism and toxickinetics will be treated. More general mechanisms of toxicity, such as mutagenesis, carcinogenesis, developmental toxicity and idiosyncratic drug reactions, will then be treated. Subsequently, organ-selective toxicities of drugs and other chemicals will be treated, with special emphasis on molecular and biochemical mechanism and structure dependencies. Methods to test toxicities as well as the evaluation of toxicities in terms of safety and health risks will also be treated. Special attention will be given to biotransformation enzymes and their role in drug toxication and detoxication and to the most recent developments in molecular toxicology.

Toetsvorm

Written examination, blackboard and cases.

Literatuur

Casarett, and Doull, Toxicology: The Basic Science of Poisons 7th ed. New York: Pergamon Press (ISBN 987-0-07-147051-3).
Selected research papers.

Vereiste voorkennis

Courses "Molecular pharmacology & toxicology of drugs and/or Drug toxicity: concepts and experimentele approaches" or equivalent courses are advised.

Doelgroep

mDDS-DDSA, mDDS-DDTF

Algemene didactiek en Pedagogiek I

| | |
|--------------------|---|
| Vakcode | O_MLADEPI () |
| Periode | Periode 1+2 |
| Credits | 6.0 |
| Voertaal | Nederlands |
| Faculteit | Fac. der Gedrags- en Bewegingswetensch. |
| Coördinator | dr. A. Handelzalts |

| | |
|----------------------|--|
| Examinator | dr. A. Handelzalts |
| Docent(en) | drs. J.K.W. Riksen, drs. H.R. Goudsmit, drs. Y.G. Meindersma, drs. W.S. Hoekstra, drs. C.D.P. van Oeveren, drs. S. Donszelmann, drs. B. Klein, drs. W. Jongejan, dr. H.B. Westbroek, dr. E. van den Berg, C.L. Geraedts, drs. A. Krijgsman, dr. A.A. Kaal, drs. K.L. Schaap, W. Maas, drs. G.D. van Hummel, F.L. de Vries MSc, drs. H. Stouthart, drs. I. Pauw |
| Lesmethode(n) | Hoorcollege |
| Niveau | 500 |

Doel vak

De student kan algemene onderwijskundige en pedagogische inzichten op het terrein van (activerende) didactiek (rol van ontwerper), communicatie in de klas (rol van uitvoerder) en gedrag- en leerproblemen (verdiepende module) vertalen naar de eigen lespraktijk.

Inhoud vak

Deze module kent 4 onderdelen:

- de startweek (1 erts), waarin de student kennis maakt met de opleiding, met het basisinstrumentarium van een docent en de eigen startcompetenties in kaart brengt;
- colleges ten aanzien van de rol van Ontwerper en de rol van Uitvoerder;
- colleges over gedrag- en leerproblemen, waarin problematiek en aanpak van meest gangbare gedrag- en leerproblemen aan bod komen.

Onderwijsvorm

Colleges (hoorcolleges en werkgroepen)

Toetsvorm

- beoordeling van het portfolio
- tentamen over de colleges gedrag- en leerproblemen

Literatuur

Een literatuurlijst wordt verstrekt aan het begin van de opleiding

Vereiste voorkennis

Dit vak is alleen te volgen als onderdeel van de universitaire lerarenopleiding

Overige informatie

Overgangsregeling met ingang van 31 augustus 2015:

Studenten die in september 2015 nog niet klaar zijn met het volgen van onderwijs van de eerste fase van het oude curriculum moeten voor het concrete onderwijs aanschuiven bij (een deel van) de colleges van het nieuwe curriculum. Dit wordt per geval besproken met de mentor.

Algemene Didactiek en Pedagogiek II

| | |
|------------------|---|
| Vakcode | O_MLADEPII () |
| Periode | Periode 1+2 |
| Credits | 3.0 |
| Faculteit | Fac. der Gedrags- en Bewegingswetensch. |

| | |
|----------------------|--|
| Coördinator | dr. A. Handelzalts |
| Examinator | dr. A. Handelzalts |
| Docent(en) | drs. J.K.W. Riksen, drs. H.R. Goudsmit, drs. Y.G. Meindersma, drs. W.S. Hoekstra, drs. C.D.P. van Oeveren, drs. S. Donszelmann, drs. B. Klein, dr. T. Bosma, dr. H.B. Westbroek, dr. E. van den Berg, C.L. Geraedts, drs. A. Krijgsman, dr. A.A. Kaal, drs. K.L. Schaap, W. Maas, drs. G.D. van Hummel, F.L. de Vries MSc, drs. H. Stouthart, drs. I. Pauw |
| Lesmethode(n) | Hoorcollege, Werkcollege |
| Niveau | 500 |

Doel vak

De student kan:

1. leerlingen, als individu en als lid van de groep, ondersteunen en stimuleren in hun verdere persoons- en identiteitsontwikkeling;
2. de voorbeeldfunctie ten opzichte van leerlingen vormgeven en daarop reflecteren;
3. leerlingen helpen bij de voorbereiding op hun rol in de samenleving als actief participierend burger;
4. deze en eerdere verworven competenties aantonen in een showcaseportfolio

Inhoud vak

Deze module kent 2 onderdelen:

- colleges ten aanzien van de rol van Pedagoog;
- het werken aan de rol opdrachten voor de rol van uitvoerder, ontwerper en pedagoog voor het showcaseportfolio;

Onderwijsvorm

Colleges (hoorcolleges en werkgroepen) en zelfstudie

Toetsvorm

- een tentamen betreffende de rol van Pedagoog
- beoordeling van het showcase portfolio, waarin de student de verworven competenties ten aanzien van alle rollen aantoont

Literatuur

Een literatuurlijst wordt verstrekt aan het begin van de opleiding, en staat op Blackboard bij de betreffende studieonderdeel

Vereiste voorkennis

Dit vak is alleen te volgen als onderdeel van de universitaire lerarenopleiding

Overige informatie

Voor de colleges geldt een aanwezigheidsplicht. Studenten die dit vooraf met de vakdidacticus/mentor overeengekomen zijn, kunnen in zelfstudie onderdelen afronden.

Analysis of Governmental Policy

| | |
|----------------|--------------|
| Vakcode | AM_470571 () |
| Periode | Periode 1 |
| Credits | 6.0 |

| | |
|----------------------|---|
| Voertaal | Engels |
| Faculteit | Fac. der Aard- en Levenswetenschappen |
| Coördinator | M.J. Kishna |
| Examinator | prof. dr. J.T. de Cock Buning |
| Docent(en) | prof. dr. J.T. de Cock Buning |
| Lesmethode(n) | Hoorcollege, Werkgroep, Computerpracticum |
| Niveau | 500 |

Doel vak

- To acquire critical knowledge regarding different policy models and theories
- To master the correct use of central concepts in political and policy discourses.
- To further deepen your analytic skills with respect to the critical assessment of a complex societal question or dilemma in the health and life science;
- To learn to integrate science- specific knowledge with the knowledge and skills of other disciplines of the social sciences
- To practice skills in data collection and analysis
- To learn to set up valid lines of argumentation;
- To learn to translate research findings into policy recommendations;
- To get experienced in writing a policy advisory report;
- To improve your communication skills;
- To improve your skills in working effectively in a project team, through team building, team analysis and feedback.

Inhoud vak

Governmental policy affects millions of people and is thus object of intensive debate and target of strong societal forces, like political parties, media and interest groups. Being an advisor or policy maker requires a thorough understanding of the dynamics of policy making, as well as from the psychological side as from the more social structures and their influence on a deliberative democracy.

The course contains several lectures on theoretical concepts and models concerning policy analysis. Furthermore you will be challenged, under supervision, to apply and practice these concepts and models in the project assignment. From the very first day, you will be part of a project team of about ten students. You are confronted with a real policy problem from an external commissioning institution (e. g. a non-governmental organization, a Ministry, an advisory council). Within those 4 weeks you will collect data by literature review and interviews and conduct an interdisciplinary analysis on the basis of which you provide an advice. Specific attention is paid to working in a project team and team building. At the end of the course, you prepare an advisory report. On the last day of the course you present the report to the representative of the external institution who commissioned the project. In that presentation your team will highlight the main results of your analysis and defend the recommendations you propose.

Onderwijsvorm

Analysis of Governmental Policy is a fulltime course of four weeks (6 ECTS). The most recent course schedule is to be found on Blackboard. Tuition methods include lectures, training workshops, and self-study. The different elements have the following study time:

- lectures: 15 hours
- project and self-study: remaining hours (within the project: 18x 1

hour coach meeting)
- examination: 2 hours

Please note that attendance to the project meetings is compulsory. Attendance to the lectures is highly recommended. In our experience, relying on self-study alone is insufficient to pass the exam

Toetsvorm

Written exam (25%) and individual evaluation based on personal performance in the project team (50%), and assessment of various group products (report and presentation (25%)). All parts have to be passed successfully.

Literatuur

Buse, Mays and Walt: "Making Health Policy" McGrawHill/Open University press. (at least 2nd edition 2012).

Aanbevolen voorkennis

The project integrates the learned lessons from the first compulsory MPA courses: Qualitative & Quantitative Methods.\

Doelgroep

Compulsory course within the Masterprogramme Management, Policy Analysis and entrepreneurship for the health and life sciences (MPA) and the Societal differentiation of Health, Life and Natural Sciences Masters programmes.

Overige informatie

The case is policy analysis and advice, but the exercised methods and skills are equally applicable to strategic marketing advice or evaluation studies. The teams will be coached by workgroup leaders.

Applied Theoretical Chemistry

| | |
|--------------------|------------------------------------|
| Vakcode | X_432501 (432501) |
| Periode | Ac. Jaar (september) |
| Credits | 12.0 |
| Voertaal | Engels |
| Faculteit | Faculteit der Exacte Wetenschappen |
| Coördinator | prof. dr. F.M. Bickelhaupt |
| Examinator | prof. dr. F.M. Bickelhaupt |
| Niveau | 500 |

Doel vak

Understanding and predicting molecular structure and chemical reactivity.

Inhoud vak

Theoretical Chemistry has become an integral part of modern chemistry. Numerous properties can be computed with chemical accuracy, thus, enabling one to study or predict quantities that are hardly or not at all accessible through experimental techniques. But with this, the potential of theoretical chemistry is still not exhausted. In order to design syntheses, catalysts or pharmacologically active molecules in a more rational fashion (i.e., instead of using a trial-and-error approach), it

is of crucial importance to combine accuracy with solid and profound insight into the underlying mechanisms in the electronic structure. This holds true also if such investigations are done in the form of computational chemistry. Such insight can be obtained through detailed analyses of the computed wavefunction and bond energy. The purpose of this course is to acquire the skills that one needs for a minute understanding of the nature of a chemical phenomenon. Here, the molecular orbital (MO) model contained in the so-called Kohn-Sham density functional theory plays a pivotal role.

Onderwijsvorm

The course consists of an intensive theoretical introduction in the first week followed by a research project in which the student participates in one of the research lines of the group.

Toetsvorm

Examination of the course occurs on the basis of a research report.

Literatuur

Parts of: (a) T. A. Albright, J. K. Burdett, M.-H. Whangbo, Orbital Interactions in Chemistry, Wiley-Interscience, New York, 1985; (b) F.M. Bickelhaupt, E.J. Baerends, Kohn-Sham Density Functional Theory: Predicting and Understanding Chemistry, in: Rev. Comput. Chem.; K.B. Lipkowitz, D.B. Boyd, Eds.; Wiley-VCH: New York, Vol. 15.

Aanbevolen voorkennis

BSc Scheikunde of BSc Farmaceutische Wetenschappen

Doelgroep

MSc Chemistry en MSc DDS

Applied Theoretical Chemistry

| | |
|----------------------|------------------------------------|
| Vakcode | X_435612 (435612) |
| Periode | Periode 4 |
| Credits | 6.0 |
| Voertaal | Engels |
| Faculteit | Faculteit der Exacte Wetenschappen |
| Coördinator | prof. dr. F.M. Bickelhaupt |
| Examinator | prof. dr. F.M. Bickelhaupt |
| Docent(en) | prof. dr. F.M. Bickelhaupt |
| Lesmethode(n) | Onderwijs, Computerpracticum |
| Niveau | 500 |

Doel vak

Understanding and predicting molecular structure and chemical reactivity.

Inhoud vak

Theoretical Chemistry has become an integral part of modern chemistry. Numerous properties can be computed with chemical accuracy, thus, enabling one to study or predict quantities that are hardly or not at all accessible through experimental techniques. But with this, the potential of theoretical chemistry is still not exhausted. In order to design syntheses, catalysts or pharmacologically active molecules in a more

rational fashion (i.e., instead of using a trial-and-error approach), it is of crucial importance to combine accuracy with solid and profound insight into the underlying mechanisms in the electronic structure. This holds true also if such investigations are done in the form of computational chemistry. Such insight can be obtained through detailed analyses of the computed wavefunction and bond energy. The purpose of this course is to acquire the skills that one needs for a minute understanding of the nature of a chemical phenomenon. Here, the molecular orbital (MO) model contained in the so-called Kohn-Sham density functional theory plays a pivotal role.

Onderwijsvorm

The course consists of an intensive theoretical introduction in the first week followed by a research project in which the student participates in one of the research lines of the group.

Toetsvorm

Examination of the course occurs on the basis of a research report.

Literatuur

Parts of: (a) T. A. Albright, J. K. Burdett, M.-H. Whangbo, *Orbital Interactions in Chemistry*, Wiley-Interscience, New York, 1985; (b) F.M. Bickelhaupt, E.J. Baerends, *Kohn-Sham Density Functional Theory: Predicting and Understanding Chemistry*, in: *Rev. Comput. Chem.*; K.B. Lipkowitz, D.B. Boyd, Eds.; Wiley-VCH: New York, Vol. 15.

Aanbevolen voorkennis

BSc Scheikunde of BSc Farmaceutische Wetenschappen

Doelgroep

mCh, mDDS

Overige informatie

This course exists in two variants. The first variant is worth 6 cp (code 435612) and can be extended to 12 cp (code 432501).

Bio-analysis & Clinical Diagnostics

| | |
|----------------------|------------------------------------|
| Vakcode | X_432765 () |
| Periode | Periode 1 |
| Credits | 6.0 |
| Voertaal | Engels |
| Faculteit | Faculteit der Exacte Wetenschappen |
| Coördinator | dr. H. Lingeman |
| Examinator | dr. H. Lingeman |
| Docent(en) | dr. H. Lingeman |
| Lesmethode(n) | Hoorcollege |
| Niveau | 400 |

Doel vak

Giving a clear account on the instrumental bio-analytical techniques and strategies in bio-analysis and clinical diagnostics.

Inhoud vak

This basic course on bio-analytical and clinical chemistry is focusing on decision trees (strategic decisions) that can be used during the method development and optimization of analytical procedures to determine both endogenous and exogenous compounds in complex biological samples. Approaches and procedures with respect to sampling, sample preparation, separation, spectroscopy, electrochemistry, as well as immunological and enzymatic procedures will be dealt with. Case studies will be used to clarify the decisions that have to be taken.

Onderwijsvorm

Lectures and tutorials.

Toetsvorm

Written or oral examination.

Literatuur

Hand-outs (electronically available).

Aanbevolen voorkennis

Basic knowledge of biochemistry, chromatography, electrophoresis and mass spectrometry.

Doelgroep

mCH-AS, mDDS, mMNS

Biomolecular Simulation in Medicinal Chemistry and Toxicology

| | |
|----------------------|------------------------------------|
| Vakcode | X_432664 (432664) |
| Periode | Periode 5+6 |
| Credits | 6.0 |
| Voertaal | Engels |
| Faculteit | Faculteit der Exacte Wetenschappen |
| Coördinator | dr. D.P. Geerke |
| Examinator | dr. D.P. Geerke |
| Docent(en) | dr. C. de Graaf, dr. D.P. Geerke |
| Lesmethode(n) | Hoorcollege |
| Niveau | 400 |

Doel vak

Providing theoretical background on biomolecular simulation and free-energy calculation methods and an overview of recent developments, applications, and trends.

Inhoud vak

Methods and techniques for calculating molecular energies of biomolecular systems (molecular mechanics / force fields) and for flexibility analysis (conformational search methods).

Theory (statistical mechanics), method development (algorithms) and application of molecular dynamics simulations and free energy calculations.

Proper and efficient treatment of nonbonded interactions: force field development, boundary conditions, long-range forces.

Analysis of simulation data: secondary structure, solvation and thermodynamic properties, transport and correlation.

Special focus on methods to predict binding affinities from MD simulation (thermodynamic integration, free energy perturbation) and their application.

Onderwijsvorm

Lectures, tutorials, exercises, and self-study.

Toetsvorm

Written or oral examination

Literatuur

Leach, A.R., Molecular Modelling: Principles and Applications. (ISBN 0-582-38210-6).

Recent review articles that will be made available via Blackboard.

Vereiste voorkennis

Course "Computational Design and Synthesis of Drugs"

Aanbevolen voorkennis

Course "Computational Design and Synthesis of Drugs"

Doelgroep

mDDS

Overige informatie

Please contact the coordinator two weeks prior to the start of the course (e-mail: d.p.geerke@vu.nl).

Business Management in Health and Life Sciences

| | |
|----------------------|---------------------------------------|
| Vakcode | AM_470584 () |
| Periode | Periode 2 |
| Credits | 6.0 |
| Voertaal | Engels |
| Faculteit | Fac. der Aard- en Levenswetenschappen |
| Coördinator | prof. dr. H.J.H.M. Claassen |
| Examinator | prof. dr. H.J.H.M. Claassen |
| Docent(en) | prof. dr. H.J.H.M. Claassen |
| Lesmethode(n) | Hoorcollege, Computerpracticum |
| Niveau | 500 |

Doel vak

To acquire knowledge and understanding into theory of knowledge valorisation in health and life sciences

To acquire knowledge and insight in how to organise, protect and finance a business in health and life sciences

3To acquire knowledge and understanding into the pharmaceutical industry's business model and business processes

To acquire knowledge and understanding into the challenges that face the pharmaceutical industry

To apply newly acquired knowledge and understanding in writing a business plan

To apply newly acquired knowledge and understanding by solving case examples

To reflect on and critically evaluate the role of the pharmaceutical

industry in the healthcare system
To learn to autonomously write a business plan

Inhoud vak

As a result of external factors (for example ageing of the population), it is being stated that our healthcare system is under pressure. As a central stakeholder in this healthcare system, the pharmaceutical industry is facing significant challenges the coming years and more than ever, the pharmaceutical industry is challenged to survive. Business Management in the Health and Life Sciences focuses on gaining insight in the pharmaceutical industry, its business model, business processes, challenges, as well as strategies and actions to overcome these challenges.

During the course, prof.dr. Eric Claassen (<http://www.falw.vu.nl/en/research/athena-institute/staff/claassen.asp>) together with highly experienced guest lecturers from the field will teach theoretical and practical knowledge during lectures and seminars. Tangible subjects that will be discussed during the lectures and seminars include the pharmaceutical industry's business model and business processes, intellectual property, portfolio management, finance, risk capital, grants and subsidies, team building and people management, different legal entities, fiscal and legal aspects when starting a new company, SWOT analysis in the life sciences and clinical trials.

The newly acquired knowledge is tested via an assignment (during which students will write either a personal career business plan or a 'real' business plan) and a written exam, both counting for 50% of the final grade.

Onderwijsvorm

Lectures: 35h

Assignment: 4h

Work on assignment (self study): 40h

Self-study: remaining hours

Toetsvorm

Written exam: 50%

Personal Business Plan: 50%

Both have to be passed

Literatuur

- Osterwalder, A. & Pigneur, Y. (2009). Business model generation. Self-published.
- Kubr, Marchesi & Ilar (McKinsey & company). (1998). Starting up. Achieving success with professional business planning. McKinsey & Company, Inc. The Netherlands, Amstel 344, 1017 AS Amsterdam.

Doelgroep

Optional course for Master students Management, Policy Analysis and Entrepreneurship in Health and Life Sciences (MPA), Societal differentiation of the Health, Life & Natural Sciences.

Overige informatie

Guest lecturers/organisations:

- Robert Al, TU Eindhoven
- Tamar Weenen, VU university
- Esther Pronker, VU university

- Patrick de Boer & Jochem Bosschenbroek, Ttopstart BV
- Bart van Weezenbeek
- Bart Bergstein, Forbion Capital partners
- Michael Mellink & Majorie Soeter, Odgersberndtson
- Marga Janse, innovatief LerenLeren BV
- NL Octrooicentrum
- Price Waterhouse Coopers
- AsjesBisseling Belastingadviseurs
- And others to be announced

Chemical Biology

| | |
|----------------------|------------------------------------|
| Vakcode | X_432538 (432538) |
| Periode | Periode 1 |
| Credits | 6.0 |
| Voertaal | Engels |
| Faculteit | Faculteit der Exacte Wetenschappen |
| Coördinator | prof. dr. R. Leurs |
| Examinator | prof. dr. R. Leurs |
| Docent(en) | prof. dr. R. Leurs |
| Lesmethode(n) | Hoorcollege, Computerpracticum |
| Niveau | 400 |

Doel vak

To get students acquainted with modern chemical biology techniques to study proteins and the modulation of their function, with a specific emphasis on drug discovery

Inhoud vak

In this course emphasis will be given on the interface between Chemistry and Biology. How can one understand biological processes using small molecules? How can one identify small molecules targeting new biochemical pathways, either by using modern biochemical or cellular assays (e.g. SPR, FRET, BRET, High-content & High resolution analysis), or in silico using the wealth of new information from structural biology? How to detect and/or modulate DNA, RNA and protein expression and/or function with chemical probes? These are the questions that are central to this course.

Onderwijsvorm

lectures, tutorial, consultancy sessions and case study/presentation

Toetsvorm

Students will work in small groups on an integrated case study. Based on primary literature, background information from Comprehensive Medicinal Chemistry, interaction with "Protein Champions", students will work on a "Chemical Biology Protein Report" and oral presentation. Finally, there will be a written examination at the end of the course on the various topics presented in the course.

Final grades will be based on results of the case study (35%), case presentation and discussion (15%) and final exam (50%). Each part must at least be satisfactory (mark "6 out of 10" or higher).

Literatuur

Selected book chapters from Comprehensive Medicinal Chemistry II, 2007, Elsevier, Editors-in-Chief: John B. Taylor and David J. Triggle (available at VU library as e-book) and primary literature.

Vereiste voorkennis

Bachelor Pharmaceutical Sciences, Medical Natural Science, Science, Business and Innovation or Chemistry. Portal course MSc Biomolecular Science or Principles of Pharmaceutical Sciences, Signal Transduction in Health and Disease, or equivalent for mBMS students and students with Bsc SBI of Chemistry.

Doelgroep

mBMS-BC, mCh-SBI (2nd year), mDDS-BCCA, mDDS-CMCT, mDDS-DD&S, mDDS-DDSA, mDDS-DDTF, mDDS-C-var, mDDS-E-var, mDDS-M-var, mPhys-SBI (2nd year)

Intekenprocedure

Please register as soon as possible online.

Overige informatie

Presence is obliged at predefined moments of the course (e.g. kick-off meeting, computer practical, presentation session, examination) for finishing the course successfully.

Clinical Development and Clinical Trials

| | |
|----------------------|---------------------------------------|
| Vakcode | AM_1180 () |
| Periode | Periode 3 |
| Credits | 3.0 |
| Voertaal | Engels |
| Faculteit | Fac. der Aard- en Levenswetenschappen |
| Coördinator | prof. dr. H.J.H.M. Claassen |
| Examinator | prof. dr. H.J.H.M. Claassen |
| Lesmethode(n) | Hoorcollege, Werkgroep |
| Niveau | 500 |

Doel vak

- to gain knowledge and insight into the function of clinical trials
- to gain knowledge and insight into the design of clinical trials
- to gain knowledge and insight into the conduct of clinical trials, including the applying rules and regulations (including ICH-GCP)
- to gain knowledge and insight into and reflect on the roles, tasks and responsibilities of the stakeholders involved in clinical trials
- to reflect on the role of golden standard in our healthcare system
- to learn where and how to look up rules and regulations.

Inhoud vak

In today's healthcare system, clinical trials have gained the status of golden standard to test the safety and efficacy of newly developed drugs. For new drugs to enter the market, clinical trials must be passed and as a consequence, clinical trial outcomes have major effects on our healthcare system. While our healthcare system currently is under pressure to remain affordable and available to all, at the same time, clinical trial regulations are increasingly tightened and the prominence

of clinical trials in our healthcare system is being criticized. For that matter, it is of great importance to learn about and reflect on the role of clinical trials in today's healthcare system.

The Clinical Development & Clinical Trials course will elaborate on the function, design and conduct of clinical trials, as well as the relevant stakeholders involved. The course consists of a theoretical part and an important practical part (e.g. gaining knowledge on clinical trial regulations). Classes include for example: 'Life Cycle of a Clinical Trial', 'Clinical Trial Methodology', 'ICH-GCP Principles', 'The Ethics Committee', 'Safety Considerations in Clinical Trials', 'Quality Control & Quality Assurance', 'Compliance, Misconduct & Fraud'.

The gained knowledge and skills will be evaluated by means of a written exam at the end of the course.

Onderwijsvorm

Lectures: 35 h.

Self study: remaining hours

Toetsvorm

Written exam: 100%.

Literatuur

Will be announced on Blackboard 1 month before the start of the course.

Doelgroep

Optional course for Master students Management, Policy Analysis and Entrepreneurship in Health and Life Sciences (MPA), Societal differentiation of the Health, Life & Natural Sciences.

Overige informatie

Guest lecturers/organisations:

- Eric Klaver
- DOCS
- Others to be announced.

Colloquium and Literature Thesis CMCT (C,E,M)

| | |
|--------------------|------------------------------------|
| Vakcode | X_432571 (432571) |
| Periode | Ac. Jaar (september) |
| Credits | 6.0 |
| Voertaal | Engels |
| Faculteit | Faculteit der Exacte Wetenschappen |
| Coördinator | dr. D.P. Geerke |
| Examinator | dr. D.P. Geerke |
| Niveau | 600 |

Colloquium and Literature Thesis DDS BDA (C,E,M)

| | |
|----------------|----------------------|
| Vakcode | X_432570 (432570) |
| Periode | Ac. Jaar (september) |
| Credits | 6.0 |

| | |
|--------------------|------------------------------------|
| Voertaal | Engels |
| Faculteit | Faculteit der Exacte Wetenschappen |
| Coördinator | dr. H. Lingeman |
| Examinator | dr. H. Lingeman |
| Niveau | 600 |

Doel vak

Literature study on a topic related to biomolecular analysis.

Inhoud vak

The topic will be chosen in close cooperation and with approval of the master coordinator.

Onderwijsvorm

Selfstudy and discussion sessions.

Toetsvorm

Report and presentations.

Doelgroep

mDDS

Overige informatie

Please contact the coordinator.

Colloquium and Literature Thesis DDS MC, CMCT

| | |
|--------------------|------------------------------------|
| Vakcode | X_432576 (432576) |
| Periode | Ac. Jaar (september) |
| Credits | 12.0 |
| Voertaal | Engels |
| Faculteit | Faculteit der Exacte Wetenschappen |
| Coördinator | dr. D.P. Geerke |
| Examinator | dr. D.P. Geerke |
| Niveau | 600 |

Doel vak

To be able to efficiently retrieve in-depth information about a given scientific topic, logically categorize and describe the information in a thesis, and present the main findings in a colloquium.

Inhoud vak

Completion of an academic MSc degree does not only imply practical experience and knowledge from the scientific specialization, it also implies that one is able to deal with substantial amounts of scientific information in an efficient way and distill this into the main points. During the literature thesis, the student will collect recent in-depth scientific literature about a given research topic, usually a topic of direct interest to the research group. The literature information is described in a coherent form in a thesis, which is also presented orally during a colloquium.

Onderwijsvorm

Self-study, contact hours with supervisor.

Toetsvorm

Thesis, colloquium.

Doelgroep

mDDS-CMCT

Overige informatie

Please contact the coordinator in advance for a discussion and planning of the topic.

Colloquium and Literature Thesis DDS MC, DD&S (C,E,M)

| | |
|--------------------|------------------------------------|
| Vakcode | X_432623 (432623) |
| Periode | Ac. Jaar (september) |
| Credits | 6.0 |
| Voertaal | Engels |
| Faculteit | Faculteit der Exacte Wetenschappen |
| Coördinator | dr. M. Wijtman |
| Examinator | dr. M. Wijtman |
| Niveau | 600 |

Doel vak

To be able to efficiently retrieve in-depth information about a given scientific topic, logically categorize and describe the information in a thesis, and present the main findings in a colloquium.

Inhoud vak

Completion of an academic MSc degree does not only imply practical experience and knowledge from the scientific specialisation, it also implies that one is able to deal with substantial amounts of scientific information in an efficient way and distill this into the main points. During the literature thesis, the student will collect recent in-depth scientific literature about a given Medicinal Chemistry research topic, usually a topic of direct interest to the research group. The literature information is described in a coherent form in a thesis, which is also presented orally during a colloquium.

Onderwijsvorm

Self-study, contact hours with supervisor.

Toetsvorm

Thesis, colloquium.

Literatuur

A guide with general hints and tips on writing a thesis will be provided.

Doelgroep

mDDS-DD&S

Intekenprocedure

Please contact the coordinator in advance for a discussion and planning of the topic.

Colloquium and Literature Thesis DDS MC, DDTF

| | |
|--------------------|------------------------------------|
| Vakcode | X_432574 (432574) |
| Periode | Ac. Jaar (september) |
| Credits | 12.0 |
| Voertaal | Engels |
| Faculteit | Faculteit der Exacte Wetenschappen |
| Coördinator | dr. M.H. Siderius |
| Examinator | dr. M.H. Siderius |
| Niveau | 600 |

Doel vak

To be able to efficiently retrieve in-depth information about a given scientific topic, logically categorize and describe the information in a thesis, and present the main findings in a colloquium.

Inhoud vak

Completion of an academic MSc degree does not only imply practical experience and knowledge from the scientific specialisation, it also implies that one is able to deal with substantial amounts of scientific information in an efficient way and distill this into the main points. During the literature thesis, the student will collect recent in-depth scientific literature about a given research topic, usually a topic of direct interest to the research group. The literature information is described in a coherent form in a thesis, which is also presented orally during a colloquium.

Onderwijsvorm

Self-study, contact hours with supervisor.

Toetsvorm

Thesis, colloquium.

Doelgroep

mDDS-DDTF

Overige informatie

Please contact the coordinator in advance for a discussion and planning of the topic.

Colloquium and Literature Thesis DDS MC, DDTF (C,E,M)

| | |
|--------------------|------------------------------------|
| Vakcode | X_432624 (432624) |
| Periode | Ac. Jaar (september) |
| Credits | 6.0 |
| Voertaal | Engels |
| Faculteit | Faculteit der Exacte Wetenschappen |
| Coördinator | dr. M.H. Siderius |
| Examinator | dr. M.H. Siderius |
| Niveau | 600 |

Doel vak

To be able to efficiently retrieve in-depth information about a given scientific topic, logically categorize and describe the information in a thesis, and present the main findings in a colloquium.

Inhoud vak

Completion of an academic MSc degree does not only imply practical experience and knowledge from the scientific specialization, it also implies that one is able to deal with substantial amounts of scientific information in an efficient way and distill this into the main points. During the literature thesis, the student will collect recent in-depth scientific literature about a given research topic, usually a topic of direct interest to the research group. The literature information is described in a coherent form in a thesis, which is also presented orally during a colloquium.

Onderwijsvorm

Self-study, contact hours with supervisor.

Doelgroep

mDDS-DDTF

Overige informatie

Please contact the coordinator in advance for a discussion and planning of the topic.

Colloquium and Literature Thesis DDS Molecular Toxicology, DDSA (C,E,M)

| | |
|--------------------|------------------------------------|
| Vakcode | X_432572 (432572) |
| Periode | Ac. Jaar (september) |
| Credits | 6.0 |
| Voertaal | Engels |
| Faculteit | Faculteit der Exacte Wetenschappen |
| Coördinator | dr. J.N.M. Commandeur |
| Examinator | dr. J.N.M. Commandeur |
| Niveau | 600 |

Doel vak

To demonstrate that the student is able to collect relevant and recent primary scientific literature on a predefined subject in the area of molecular and biochemical toxicology, to organize the information in chapters and to draw conclusions on the perspectives or relevance of the subject.

Inhoud vak

The content of the literature thesis/colloquium depends on the subject which will be selected in consultation with master coordinator dr. JNM Commandeur (j.n.m.commandeur@vu.nl).

Onderwijsvorm

Literature study

Toetsvorm

Written literature thesis and oral presentation (colloquium) for the department of Pharmaceutical Sciences.

Literatuur

Literature study

Aanbevolen voorkennis

The courses ADMET, Drug-induced stress and cellular responses or equivalent courses.

Doelgroep

mDDS-DDSA MCE-variant

Overige informatie

A list of subjects for the literature thesis and colloquium can be obtained from dr. JNM Commandeur (j.n.m.commandeur@vu.nl).

Communication, Organization and Management

| | |
|----------------------|--|
| Vakcode | AM_470572 () |
| Periode | Periode 2 |
| Credits | 6.0 |
| Voertaal | Engels |
| Faculteit | Fac. der Aard- en Levenswetenschappen |
| Coördinator | M.J. Kishna |
| Examinator | M.J. Kishna |
| Docent(en) | dr. H. Wels, prof. dr. F. Scheele, dr. M.B.M. Zweekhorst |
| Lesmethode(n) | Hoorcollege, Werkgroep |
| Niveau | 500 |

Doel vak

- To get acquainted with theories on organisational behaviour
- To obtain a deeper understanding of communication from the perspective of sharing and influencing results
- To acquire knowledge on organisational structures and designs
- To get acquainted with important theories on organisational transitions and change management
- To acquire insight into different management practices in the health and life sciences sector
- To gain insight in leadership and interpersonal behaviour
- To obtain insight in methods for motivation and conflict management
- To improve communication skills
- To practise analytical and advisory skills

Inhoud vak

Organisations in the health and life science sector are changing fast, a phenomenon driven by newly emerging technologies and increasing societal complexity. A growing number of students with a beta degree will hold professional and managerial functions in these organisations. During this course students will learn how to be effective performers within these environments, both individually and in teams. This requires an understanding of the macro aspects of organisational behaviour, including designing organisations, managerial skills and ways of strategic thinking. Several speakers conduct lectures on aspects as motivation, managing interpersonal behaviour, leadership, communication

and developing and changing organisations. The speakers explain theories from literature and relate them to their practical experiences. In addition, the students interview managers in health organisations and analyse these interviews using the newly acquired theoretical concepts. Also, practical cases of health care companies will be analysed and discussed, resulting in advisory reports for management. With the other students you discuss your experiences and a coach helps you relate the experiences to theory.

Onderwijsvorm

Lectures: approximately 22 hours

Response lectures: 4 hours

Training workshops 12 hours

Self-study and writing project assignment: remaining hours.

Toetsvorm

Written exam (60%); and assessment of the interviews, case study analysis, and reports (40%). Grades of both parts must at least be 6 or higher.

Literatuur

To be announced on Blackboard

Doelgroep

Compulsory course within the Master programme Management, Policy Analysis and Entrepreneurship for the Health and Life Sciences (MPA) and the Societal differentiation of Health, Life and Natural Sciences Masters programmes

Overige informatie

Attendance to training, workshops, interviews and discussions is indispensable

Company Training Comp. Med. Chem. & Tox.

| | |
|--------------------|------------------------------------|
| Vakcode | X_432619 (432619) |
| Periode | Ac. Jaar (september) |
| Credits | 18.0 |
| Voertaal | Engels |
| Faculteit | Faculteit der Exacte Wetenschappen |
| Coördinator | dr. D.P. Geerke |
| Examinator | dr. D.P. Geerke |
| Niveau | 500 |

Doel vak

To obtain experience in doing scientific research in an industrial setting.

Inhoud vak

During a traineeship, the student actively participates in a research project within a company.

Toetsvorm

Report, presentation and practical work.

Doelgroep

mDDS

Overige informatie

Please contact the coordinator well in advance to check for possibilities and to discuss the most suitable duration of the traineeship.

Company Training Comp. Med. Chem. & Tox.

| | |
|--------------------|------------------------------------|
| Vakcode | X_432744 () |
| Periode | Ac. Jaar (september) |
| Credits | 24.0 |
| Voertaal | Engels |
| Faculteit | Faculteit der Exacte Wetenschappen |
| Coördinator | dr. D.P. Geerke |
| Examinator | dr. D.P. Geerke |
| Niveau | 500 |

Doel vak

To obtain experience in doing scientific research in an industrial setting.

Inhoud vak

During a traineeship, the student actively participates in a research project within a company.

Toetsvorm

Report, presentation and practical work.

Doelgroep

mDDS

Overige informatie

Please contact the coordinator well in advance to check for possibilities and to discuss the most suitable duration of the traineeship.

Company Training Comp. Med. Chem. & Tox.

| | |
|--------------------|------------------------------------|
| Vakcode | X_432749 () |
| Periode | Ac. Jaar (september) |
| Credits | 30.0 |
| Voertaal | Engels |
| Faculteit | Faculteit der Exacte Wetenschappen |
| Coördinator | dr. D.P. Geerke |
| Examinator | dr. D.P. Geerke |
| Niveau | 500 |

Doel vak

To obtain experience in doing scientific research in an industrial setting.

Inhoud vak

During a traineeship, the student actively participates in a research project within a company.

Toetsvorm

Report, presentation and practical work.

Doelgroep

mDDS

Overige informatie

Please contact the coordinator well in advance to check for possibilities and to discuss the most suitable duration of the traineeship.

Company Training Comp. Med. Chem. & Tox.

| | |
|--------------------|------------------------------------|
| Vakcode | X_432835 () |
| Periode | Ac. Jaar (september) |
| Credits | 36.0 |
| Voertaal | Engels |
| Faculteit | Faculteit der Exacte Wetenschappen |
| Coördinator | dr. D.P. Geerke |
| Examinator | dr. D.P. Geerke |
| Niveau | 500 |

Company Training DDS Biomol. Drug Analysis

| | |
|--------------------|------------------------------------|
| Vakcode | X_432670 (432670) |
| Periode | Ac. Jaar (september) |
| Credits | 18.0 |
| Voertaal | Engels |
| Faculteit | Faculteit der Exacte Wetenschappen |
| Coördinator | dr. J. Kool |
| Examinator | dr. J. Kool |
| Niveau | 500 |

Doel vak

To acquire knowledge and insight into the role and objectives of drug, bio-analytical and clinical development processes.

Inhoud vak

This course aims to provide students with a theoretical and practical understanding of the issues involved in the design, conduct, analysis and interpretation of clinical trials of health interventions.

Doelgroep

mDDS

Overige informatie

For further information please contact Henk Lingeman

Company Training DDS Biomol. Drug Analysis

| | |
|--------------------|------------------------------------|
| Vakcode | X_432743 () |
| Periode | Ac. Jaar (september) |
| Credits | 24.0 |
| Voertaal | Engels |
| Faculteit | Faculteit der Exacte Wetenschappen |
| Coördinator | dr. H. Lingeman |
| Examinator | dr. H. Lingeman |
| Niveau | 500 |

Doel vak

To acquire knowledge and insight into the role and objectives of drug, bio-analytical and clinical development processes.

Inhoud vak

This course aims to provide students with a theoretical and practical understanding of the issues involved in the design, conduct, analysis and interpretation of clinical trials of health interventions.

Doelgroep

mDDS

Overige informatie

For further information please contact Henk Lingeman

Company Training DDS Biomol. Drug Analysis

| | |
|--------------------|------------------------------------|
| Vakcode | X_432748 () |
| Periode | Ac. Jaar (september) |
| Credits | 30.0 |
| Voertaal | Engels |
| Faculteit | Faculteit der Exacte Wetenschappen |
| Coördinator | dr. H. Lingeman |
| Examinator | dr. H. Lingeman |
| Niveau | 500 |

Doel vak

To acquire knowledge and insight into the role and objectives of drug, bio-analytical and clinical development processes.

Inhoud vak

This course aims to provide students with a theoretical and practical understanding of the issues involved in the design, conduct, analysis and interpretation of clinical trials of health interventions.

Doelgroep

mDDS

Overige informatie

For further information please contact Henk Lingeman

Company Training DDS Biomol. Drug Analysis

| | |
|--------------------|------------------------------------|
| Vakcode | X_432832 () |
| Periode | Ac. Jaar (september) |
| Credits | 36.0 |
| Voertaal | Engels |
| Faculteit | Faculteit der Exacte Wetenschappen |
| Coördinator | dr. H. Lingeman |
| Examinator | dr. H. Lingeman |
| Niveau | 500 |

Doel vak

To acquire knowledge and insight into the role and objectives of drug, bio-analytical and clinical development processes.

Inhoud vak

This course aims to provide students with a theoretical and practical understanding of the issues involved in the design, conduct, analysis and interpretation of clinical trials and health intervention.

Doelgroep

mDDS

Company Training DDS Drug Design & Synth.

| | |
|--------------------|------------------------------------|
| Vakcode | X_432671 (432671) |
| Periode | Ac. Jaar (september) |
| Credits | 18.0 |
| Voertaal | Engels |
| Faculteit | Faculteit der Exacte Wetenschappen |
| Coördinator | dr. M. Wijtman |
| Examinator | dr. M. Wijtman |
| Niveau | 500 |

Doel vak

To obtain experience in doing scientific research in a company setting.

Inhoud vak

During a traineeship, the student actively participates in a research project within a company.

Toetsvorm

Report, presentation and practical work.

Doelgroep

mDDS

Intekenprocedure

Please contact the coordinator well in advance to check for possibilities and to discuss the most suitable duration of the traineeship.

Company Training DDS Drug Design & Synth.

| | |
|--------------------|------------------------------------|
| Vakcode | X_432745 () |
| Periode | Ac. Jaar (september) |
| Credits | 24.0 |
| Voertaal | Engels |
| Faculteit | Faculteit der Exacte Wetenschappen |
| Coördinator | dr. M. Wijtmans |
| Examinator | dr. M. Wijtmans |
| Niveau | 500 |

Doel vak

To obtain experience in doing scientific research in a company setting.

Inhoud vak

During a traineeship, the student actively participates in a research project within a company.

Toetsvorm

Report, presentation and practical work.

Doelgroep

mDDS

Intekenprocedure

Please contact the coordinator well in advance to check for possibilities and to discuss the most suitable duration of the traineeship.

Company Training DDS Drug Design & Synth.

| | |
|--------------------|------------------------------------|
| Vakcode | X_432750 () |
| Periode | Ac. Jaar (september) |
| Credits | 30.0 |
| Voertaal | Engels |
| Faculteit | Faculteit der Exacte Wetenschappen |
| Coördinator | dr. M. Wijtmans |
| Examinator | dr. M. Wijtmans |
| Niveau | 500 |

Doel vak

To obtain experience in doing scientific research in a company setting.

Inhoud vak

During a traineeship, the student actively participates in a research project within a company.

Toetsvorm

Report, presentation and practical work.

Doelgroep

mDDS

Intekenprocedure

Please contact the coordinator well in advance to check for possibilities and to discuss the most suitable duration of the traineeship.

Company Training DDS Drug Design & Synth.

| | |
|--------------------|------------------------------------|
| Vakcode | X_432833 () |
| Periode | Ac. Jaar (september) |
| Credits | 36.0 |
| Voertaal | Engels |
| Faculteit | Faculteit der Exacte Wetenschappen |
| Coördinator | dr. M. Wijtmans |
| Examinator | dr. M. Wijtmans |
| Niveau | 500 |

Doel vak

To obtain experience in doing scientific research in a company setting.

Inhoud vak

During a traineeship, the student actively participates in a research project within a company.

Toetsvorm

Report, presentation and practical work.

Doelgroep

mDDS

Intekenprocedure

Please contact the coordinator well in advance to check for possibilities and to discuss the most suitable duration of the traineeship.

Company Training DDS Drug, Disp. and Saf. Assessm.

| | |
|--------------------|------------------------------------|
| Vakcode | X_432672 (432672) |
| Periode | Ac. Jaar (september) |
| Credits | 18.0 |
| Voertaal | Engels |
| Faculteit | Faculteit der Exacte Wetenschappen |
| Coördinator | dr. J.N.M. Commandeur |

| | |
|-------------------|-----------------------|
| Examinator | dr. J.N.M. Commandeur |
| Niveau | 500 |

Doel vak

To perform research in the area of molecular and biochemical toxicology and risk assessment in an industrial context.

Inhoud vak

The content of the research training is dependent on the specific company at which the training will take place.

Onderwijsvorm

Experimental research project.

Toetsvorm

Written report and oral presentation.

Literatuur

Dependent on the project a literature search will have to be performed to be well prepared for the research training.

Aanbevolen voorkennis

Courses ADMET, Drug-induced stress and cellular signalling, Advanced Course on Drug Disposition and Safety Assessment, or equivalent courses.

Doelgroep

mDDS-DDSA

Overige informatie

Students who want to perform a company training should first ask for approval at the exam committee by sending a short description of the research project and a declaration of the master-coordinator (dr JNM Commandeur; j.n.m.commandeur@vu.nl) in which the procedure is described on how the quality and progress of the research project will be monitored and how the final assessment of the project will be organized (usually based on the experimental performance, a written report and final oral presentation). In case (part of) the company training is confidential, on-site inspection of the written report and oral presentation should be arranged in order to evaluate the academic level.

Company Training DDS Drug, Disp. and Saf. Assessm.

| | |
|--------------------|------------------------------------|
| Vakcode | X_432746 () |
| Periode | Ac. Jaar (september) |
| Credits | 24.0 |
| Voertaal | Engels |
| Faculteit | Faculteit der Exacte Wetenschappen |
| Coördinator | dr. J.N.M. Commandeur |
| Examinator | dr. J.N.M. Commandeur |
| Niveau | 500 |

Doel vak

To perform research in the area of molecular and biochemical toxicology and risk assessment in an industrial context.

Inhoud vak

Dependent on the specific company at which the training will take place.

Onderwijsvorm

Experimental research project.

Toetsvorm

Written report and oral presentation.

Literatuur

Dependent on the project a literature search will have to be performed to be well prepared for the research training.

Aanbevolen voorkennis

Courses ADMET, Drug-induced stress and cellular signalling, Advanced Course on Drug Disposition and Safety Assessment, or equivalent courses.

Doelgroep

mDDS-DDSA

Overige informatie

Students who want to perform a company training should first ask for approval at the exam committee by sending a short description of the research project and a declaration of the master-coordinator (dr JNM Commandeur; j.n.m.commandeur@vu.nl) in which the procedure is described on how the quality and progress of the research project will be monitored and how the final assessment of the project will be organized (usually based on the experimental performance, a written report and final oral presentation). In case (part of) the company training is confidential, on-site inspection of the written report and oral presentation should be arranged in order to evaluate the academic level.

Company Training DDS Drug, Disp. and Saf. Assessm.

| | |
|--------------------|------------------------------------|
| Vakcode | X_432751 () |
| Periode | Ac. Jaar (september) |
| Credits | 30.0 |
| Voertaal | Engels |
| Faculteit | Faculteit der Exacte Wetenschappen |
| Coördinator | dr. J.N.M. Commandeur |
| Examinator | dr. J.N.M. Commandeur |
| Niveau | 500 |

Doel vak

To perform research in the area of molecular and biochemical toxicology and risk assessment in an industrial context.

Inhoud vak

The content of the research training is dependent on the specific company at which the training will take place.

Onderwijsvorm

Experimental research project.

Toetsvorm

Written report and oral presentation.

Literatuur

Dependent on the project a literature search will have to be performed to be well prepared for the research training.

Aanbevolen voorkennis

Courses ADMET, Drug-induced stress and cellular signalling, Advanced Course on Drug Disposition and Safety Assessment, or equivalent courses.

Doelgroep

mDDS-DDSA

Overige informatie

Students who want to perform a company training should first ask for approval at the exam committee by sending a short description of the research project and a declaration of the master coordinator (dr JNM Commandeur; j.n.m.commandeur@vu.nl) in which the procedure is described on how the quality and progress of the research project will be monitored and how the final assessment of the project will be organized (usually based on the experimental performance, a written report and final oral presentation). In case (part of) the company training is confidential, on-site inspection of the written report and oral presentation should be arranged in order to evaluate the academic level.

Company Training DDS Drug, Disp. and Saf. Assessm.

| | |
|--------------------|------------------------------------|
| Vakcode | X_432834 () |
| Periode | Ac. Jaar (september) |
| Credits | 36.0 |
| Voertaal | Engels |
| Faculteit | Faculteit der Exacte Wetenschappen |
| Coördinator | dr. J.N.M. Commandeur |
| Examinator | dr. J.N.M. Commandeur |
| Niveau | 500 |

Doel vak

To perform research in the area of molecular and biochemical toxicology and risk assessment in an industrial context.

Inhoud vak

The content of the research training is dependent on the specific company at which the training will take place.

Onderwijsvorm

Experimental research project.

Toetsvorm

Written report and oral presentation.

Literatuur

Dependent on the project a literature search will have to be performed to be well prepared for the research training.

Aanbevolen voorkennis

Courses ADMET, Drug-induced stress and cellular signalling, Advanced Course on Drug Disposition and Safety Assessment, or equivalent courses.

Doelgroep

mDDS-DDSA

Overige informatie

Students who want to perform a company training should first ask for approval at the exam committee by sending a short description of the research project and a declaration of the master-coordinator (dr JNM Commandeur; j.n.m.commandeur@vu.nl) in which the procedure is described on how the quality and progress of the research project will be monitored and how the final assessment of the project will be organized (usually based on the experimental performance, a written report and final oral presentation). In case (part of) the company training is confidential, on-site inspection of the written report and oral presentation should be arranged in order to evaluate the academic level.

Company Training Drug Discovery & Target Finding

| | |
|--------------------|------------------------------------|
| Vakcode | X_432621 (432621) |
| Periode | Ac. Jaar (september) |
| Credits | 18.0 |
| Voertaal | Engels |
| Faculteit | Faculteit der Exacte Wetenschappen |
| Coördinator | dr. D.P. Geerke |
| Examinator | dr. D.P. Geerke |
| Niveau | 500 |

Doel vak

To obtain experience in scientific research in an industrial setting.

Inhoud vak

During a trainee-ship the student actively participates in a research project.

Toetsvorm

Practical work, report and presentation.

Doelgroep

mDDS

Overige informatie

Please contact the coordinator well in advance.

Company Training Drug Discovery & Target Finding

| | |
|--------------------|------------------------------------|
| Vakcode | X_432747 () |
| Periode | Ac. Jaar (september) |
| Credits | 24.0 |
| Voertaal | Engels |
| Faculteit | Faculteit der Exacte Wetenschappen |
| Coördinator | dr. M.H. Siderius |
| Examinator | dr. M.H. Siderius |
| Niveau | 500 |

Doel vak

To obtain experience in scientific research in an industrial setting.

Inhoud vak

During a trainee-ship the student actively participates in a research project.

Toetsvorm

Practical work, report and presentation.

Doelgroep

mDDS

Overige informatie

Please contact the coordinator well in advance.

Company Training Drug Discovery & Target Finding

| | |
|--------------------|------------------------------------|
| Vakcode | X_432752 () |
| Periode | Ac. Jaar (september) |
| Credits | 30.0 |
| Voertaal | Engels |
| Faculteit | Faculteit der Exacte Wetenschappen |
| Coördinator | dr. M.H. Siderius |
| Examinator | dr. M.H. Siderius |
| Niveau | 500 |

Doel vak

To obtain experience in scientific research in an industrial setting.

During a trainee-ship the student actively participates in a research project.

Practical work, report and presentation.

Inhoud vak

During a trainee-ship the student actively participates in a research project.

Toetsvorm

Practical work, report and presentation.

Doelgroep

mDDS

Overige informatie

Please contact the coordinator well in advance.

Company Training Drug Discovery & Target Finding

| | |
|--------------------|------------------------------------|
| Vakcode | X_432836 () |
| Periode | Ac. Jaar (september) |
| Credits | 36.0 |
| Voertaal | Engels |
| Faculteit | Faculteit der Exacte Wetenschappen |
| Coördinator | dr. M.H. Siderius |
| Examinator | dr. M.H. Siderius |
| Niveau | 500 |

Computer-Aided Drug Design and Virtual Screening

| | |
|----------------------|--|
| Vakcode | X_432673 (432673) |
| Periode | Periode 2 |
| Credits | 6.0 |
| Voertaal | Engels |
| Faculteit | Faculteit der Exacte Wetenschappen |
| Coördinator | dr. C. de Graaf |
| Examinator | dr. C. de Graaf |
| Docent(en) | prof. dr. I.J.P. de Esch, dr. C. de Graaf, dr. D.P. Geerke |
| Lesmethode(n) | Hoorcollege |
| Niveau | 400 |

Doel vak

Providing theoretical background on computer-aided drug design and virtual screening, and giving an overview of recent developments, applications and trends.

Inhoud vak

Introduction into most important concepts of computer-aided drug discovery and design.

- Protein homology modeling: sequence alignment methods, modeling constraints, protein-ligand interaction model refinement and validation.

- Chemoinformatics and chemogenomics and their application in drug and drug target identification: annotated ligand and protein databases, similarity searches, molecular fingerprints, machine learning, QSAR, focused library design, molecular field analysis, sequence- and structure-based comparison of binding sites.

- Structure-based virtual screening and design: molecular alignment, pharmacophore modeling, molecular docking and scoring, post-processing filters, protein-ligand interaction fingerprints, de novo design.

Students will learn to recognize the strengths and challenges of different in computer-aided drug design approaches and will learn how in silico methods can be complemented with experimental studies in concrete ligand discovery and design projects.

Onderwijsvorm

Lectures, case study sessions, and self-study.

Toetsvorm

Written (or oral) examination (60%) and case study (report: 20%, presentation: 15%; participation in case study sessions: 5%)

Literatuur

Computer-Assisted Drug Design (Mason (Ed.) (references to relevant paragraphs from Mason will be included in lecture handouts and will be available as "E-book" via UBVU).

Background information: Chapters from Leach, A.R., Molecular Modelling: Principles and Applications. (ISBN 0-582-38210-6).

Literature that will be made available via Blackboard.

Doelgroep

mDDS-CMCT, mDDS-DD&S, mDDS-DDSA, mDDS-DDTF, mDDS-C-var, mDDS-E-var, mDDS-M-var, mCh

Density Functional Theory for Chemists

| | |
|--------------------|------------------------------------|
| Vakcode | X_435111 (435111) |
| Periode | Ac. Jaar (september) |
| Credits | 6.0 |
| Voertaal | Engels |
| Faculteit | Faculteit der Exacte Wetenschappen |
| Coördinator | prof. dr. F.M. Bickelhaupt |
| Examinator | prof. dr. F.M. Bickelhaupt |
| Niveau | 500 |

Doel vak

Understanding basic concepts of Density Functional Theory (DFT), in particular, Kohn-Sham DFT, and its application to understanding and predicting chemical bonding, molecular structure, and reactivity.

Inhoud vak

Electron density, Hole functions, Electron density as basic variable instead of the wavefunction, Hohenberg-Kohn theorems, Kohn-Sham approach, Approximate exchange-correlation functionals, Basic machinery of DFT computer programs.

Onderwijsvorm

Independent study

Toetsvorm

Oral exam

Literatuur

Parts of: (a) W. Koch en M. C. Holthausen, A Chemist's Guide to Density Functional Theory; Sec. Ed.; Wiley-VCH Verlag: Weinheim, 2000.; (b) F.M. Bickelhaupt, E.J. Baerends, Kohn-Sham Density Functional Theory: Predicting and Understanding Chemistry, in: Rev. Comput. Chem.; K.B. Lipkowitz, D.B. Boyd, Eds.; Wiley-VCH: New York, Vol. 15.

Overige informatie

Period: in consultation with the lecturer

Density Functional Theory for Chemists

| | |
|--------------------|------------------------------------|
| Vakcode | X_435112 (435112) |
| Periode | Ac. Jaar (september) |
| Credits | 12.0 |
| Voertaal | Engels |
| Faculteit | Faculteit der Exacte Wetenschappen |
| Coördinator | prof. dr. F.M. Bickelhaupt |
| Examinator | prof. dr. F.M. Bickelhaupt |
| Niveau | 500 |

Doel vak

Understanding basic concepts of Density Functional Theory (DFT), in particular, Kohn-Sham DFT, and its application to understanding and predicting chemical bonding, molecular structure, and reactivity.

Inhoud vak

Part I (6 ECTS): Electron density, Hole functions, Electron density as basic variable instead of the wavefunction, Hohenberg-Kohn theorems, Kohn-Sham approach, Approximate exchange-correlation functionals, Basic machinery of DFT computer programs. Part II (6 ECTS): Molecular structure, Vibrational frequencies, Thermochemistry, Hydrogen bonds, Kohn-Sham molecular orbital (MO) model of the electronic structure and chemical bond, Chemical reactivity.

Onderwijsvorm

zelfstudie

Toetsvorm

Oral examination.

Literatuur

Parts of: (a) W. Koch en M. C. Holthausen, A Chemist's Guide to Density Functional Theory; Sec. Ed.; Wiley-VCH Verlag: Weinheim, 2000.; (b) F.M. Bickelhaupt, E.J. Baerends, Kohn-Sham Density Functional Theory: Predicting and Understanding Chemistry, in: Rev. Comput. Chem.; K.B. Lipkowitz, D.B. Boyd, Eds.; Wiley-VCH: New York, Vol. 15; (c) Other selected tutorial reviews (in consultation).

Doelgroep

mCh, mPhar

Overige informatie

Didactiek 1

| | |
|----------------------|--|
| Vakcode | O_MLDIDAC_1 () |
| Periode | Periode 1, Periode 4 |
| Credits | 6.0 |
| Voertaal | Nederlands |
| Faculteit | Fac. der Gedrags- en Bewegingswetensch. |
| Coördinator | C.L. Geraedts |
| Examinator | dr. A. Handelzalts |
| Docent(en) | drs. J.K.W. Riksen, drs. H.R. Goudsmit, drs. Y.G. Meindersma, ir. E.J.F. Scheringa, drs. W.S. Hoekstra, drs. C.D.P. van Oeveren, drs. S. Donszelmann, drs. B. Klein, drs. W. Jongejan, drs. L.J. van Well-van Grootheest, dr. H.B. Westbroek, dr. E. van den Berg, C.L. Geraedts, drs. A. Krijgsman, dr. A.A. Kaal, dr. A. Handelzalts, drs. K.L. Schaap, drs. J.A.M. van den Brand, W. Maas, drs. G.D. van Hummel, F.L. de Vries MSc, drs. H. Stouthart, drs. I. Pauw |
| Lesmethode(n) | Hoorcollege, Werkgroep |
| Niveau | 400 |

Doel vak

De cursus Didactiek 1 is onderdeel van de eerste fase (fase I) van de Universitaire Lerarenopleiding (ULO) van de VU, en loopt parallel aan de cursus Praktijk 1. De cursus is breed van opzet en omvat verschillende onderdelen die in samenhang worden aangeboden: algemene didactiek (AD), vakdidactiek (VD) en peergroup (PG).

Aan het eind van de cursus heeft de student de nodige basale algemeen didactische en vakdidactische bagage aan te reiken die nodig is voor het handelen als docent in simpele en overzichtelijke situaties op niveau van één les. Hierbij wordt nadrukkelijk aangesloten bij de ontwikkelingsfase waarin de docent-in-opleiding (dio) zich bevindt (zie inhoud).

Inhoud vak

De cursus is geordend rondom zogeheten kernpraktijken die fundamenteel zijn voor het beroep van docent. Bij Didactiek 1 staan de volgende kernpraktijken centraal: (1) contact maken, (2) de les starten en aandacht richten, (3) krediet opbouwen en uitgeven, (4) de les voorbereiden, (5) sturen en corrigeren en (6) volledige instructie geven en de les afsluiten. De reikwijdte van het didactisch denken en handelen is in deze eerste fase meestal nog beperkt tot één les.

De genoemde kernpraktijken komen expliciet aan de orde bij AD. Bij VD wordt aangesloten bij deze kernpraktijken en wordt de vertaalslag gemaakt naar het eigen (school)vak. Daarnaast worden bij VD belangrijke vakdidactische concepten en werkwijzen geïntroduceerd

Bij PG staat de eigen onderwijspraktijk van de docent-in-opleiding (dio) centraal. Concrete vragen en situaties uit de praktijk vormen aanleiding tot analyse en reflectie. Waar bij AD en VD de nadruk ligt op de rollen van de uitvoerende en ontwerpende docent en pedagoog, wordt bij PG nadrukkelijk vorm gegeven aan de rol van onderzoekende professional.

De ervaring leert dat de kernpraktijken die bij Didactiek 1 centraal staan bij de meeste dio's uitgebreid aan de orde komen tijdens het eerste deel van de praktijkstage (Praktijk 1). Alle inhoudscomponenten uit deze cursus worden tijdens de bijeenkomsten en in verwerking verbonden met de werkplekpraktijk van de student. De dio en de werkplekbegeleider krijgen ook suggesties voor (observatie)opdrachten die kunnen bijdragen aan de ontwikkeling van de competenties die bij deze kernpraktijken horen.

Onderwijsvorm

Alle onderwijs vindt plaats op de instituutsdag (maandag). Studenten zijn de hele dag aanwezig. In de ochtend is er een hoor/werkcollege AD, waarbij dio's van verschillende vakken samen zitten. De colleges AD worden steeds verzorgd door een tweetal docenten. In de middag is er een werkcollege VD onder begeleiding van de vakdidacticus. Deze colleges worden samen met dio's van hetzelfde vak in verschillende samenstellingen (homogeen en heterogeen) gevolgd.

Tenslotte zijn er, verspreid over de periode, drie PG bijeenkomsten, waarbij dio's van verschillende vakken in kleine groepen en onder begeleiding de eigen onderwijspraktijk onder de loep nemen en eventuele concerns daarbij bespreken.

Bij alle onderdelen (AD, VD en PG) wordt een actieve houding van de student gevraagd, zowel tijdens de bijeenkomsten als daarbuiten. Regelmatig worden er verwerkingsopdrachten gegeven, waar individueel of in groepsverband aan wordt gewerkt. Deze opdrachten worden formatief geëvalueerd, onder andere door middel van (peer)feedback.

Toetsvorm

Didactiek 1 wordt afgesloten met een geschreven mini-proef waarin de studenten demonstreren dat zij één les kunnen ontwerpen en uitvoeren en kunnen reflecteren op de manier waarop voorbereiding, uitvoer en afronding hebben plaatsgevonden. De proef bestaat uit een lesontwerp (incl. verantwoording op basis van praktijk en theorie, en eigen leerdoelen bij deze les), een videocompilatie (15 min.) van de gegeven les en een terugblik op de les. Bij het ontwerpen en uitvoeren van de les staan de kernpraktijken behandeld in de colleges algemene didactiek en vakdidactiek centraal (met een focus op de les en de leerling). De terugblik op ontwerp en uitvoering vindt plaats aan de hand van de reflectiecirkel van Korthagen, de perspectieven van een docent als professional, ontwerper, uitvoerder, pedagoog en teamlid en de daarbij behorende relevante theorie. De proef wordt beoordeeld aan de hand van een beoordelingsmodel gerelateerd aan de rubrics die voor elk van de docentperspectieven zijn geformuleerd voor fase 1.

Literatuur

Bij deze cursus worden de volgende algemeen didactische handboeken gebruikt:

- Ebbens, S. & Ettekoen, S. (2012). Effectief leren – basisboek. Groningen: Noordhoff Uitgevers B.V.
- Korthagen, F. & Lagerwerf, B. (2014). Een leraar van klasse. Den Haag: Boom Lemma Uitgevers
- Teitler, P. (2013). Lessen in orde. Bussum: Coutinho.
- Kohnstamm, R. (2014). Kleine ontwikkelingspsychologie: III de puberjaren. Houten: Bohn Stafleu van Loghum.

Behalve van bovenstaande literatuur wordt veelvuldig gebruik gemaakt van

relevante en actuele wetenschappelijke literatuur. Deze artikelen worden tijdens de cursus ter beschikking gesteld. De literatuur die bij VD gebruikt wordt is afhankelijk van het schoolvak waarvoor wordt opgeleid.

Overige informatie

Beheersing van de inhoud van het desbetreffende schoolvak wordt als voorkennis verondersteld.

Didactiek 2

| | |
|----------------------|--|
| Vakcode | O_MLDIDAC_2 () |
| Periode | Periode 2+3, Periode 5+6 |
| Credits | 6.0 |
| Voertaal | Nederlands |
| Faculteit | Fac. der Gedrags- en Bewegingswetensch. |
| Coördinator | drs. B. Klein |
| Examinator | dr. A. Handelzalts |
| Docent(en) | drs. J.K.W. Riksen, drs. H.R. Goudsmit, drs. Y.G. Meindersma, ir. E.J.F. Scheringa, drs. W.S. Hoekstra, drs. C.D.P. van Oeveren, drs. S. Donszelmann, drs. B. Klein, drs. W. Jongejan, drs. L.J. van Well-van Grootheest, dr. H.B. Westbroek, dr. E. van den Berg, C.L. Geraedts, drs. A. Krijgsman, dr. A.A. Kaal, dr. A. Handelzalts, drs. K.L. Schaap, drs. J.A.M. van den Brand, W. Maas, drs. G.D. van Hummel, F.L. de Vries MSc, drs. H. Stouthart, drs. I. Pauw |
| Lesmethode(n) | Werkgroep, Hoorcollege |
| Niveau | 400 |

Doel vak

De cursus Didactiek 2 is onderdeel van de tweede fase (fase II) van de Universitaire Lerarenopleiding (ULO) van de VU, en loopt parallel aan de cursus Praktijk 2. De cursus omvat verschillende onderdelen die in samenhang worden aangeboden: algemene didactiek (AD), vakdidactiek (VD) en peergroup (PG).

Aan het eind van de cursus heeft de student de nodige algemeen didactische en vakdidactische bagage aan te reiken die nodig is voor het handelen als docent op het niveau van een afgebakende onderwijs leerproces waarbij op basis van bestaande lesmaterialen wordt gewerkt. Hierbij wordt nadrukkelijk aangesloten bij de ontwikkelingsfase waarin de docent-in-opleiding (dio) zich bevindt (zie inhoud).

Inhoud vak

Didactiek 2 is geordend rondom een aantal voor het beroep van docent fundamentele kernpraktijken. Bij Didactiek 2 staan de volgende kernpraktijken centraal: (1) leerprocessen zichtbaar maken, (2) leerprocessen bevorderen, (3) leerprocessen toetsen, (4) communiceren en leiding geven, (5) leerlingen verantwoordelijkheid geven (van docentgestuurd naar leerlinggestuurd) en (6) aandacht geven aan verschillen. Ten opzichte van de cursus Didactiek 1 wordt de focus verlegd van de (individuele) les naar het leerproces van de leerling. De reikwijdte van het didactisch denken en handelen wordt daarmee ook groter: er wordt een begin gemaakt met het ontwerpen en uitvoeren van reeksen van lessen.

De genoemde kernpraktijken komen expliciet aan de orde bij AD. Bij VD wordt aangesloten bij deze kernpraktijken en wordt de vertaalslag gemaakt naar het eigen (school)vak. Daarnaast worden bij VD belangrijke vakdidactische concepten en werkwijzen geïntroduceerd.

Bij PG staat wederom de eigen onderwijspraktijk van de dio centraal. Waar bij AD en VD de nadruk ligt op de rollen van de uitvoerende en ontwerpende docent en pedagoog, wordt bij PG nadrukkelijk vorm gegeven aan de rol van reflectieve onderzoekende professional. De samenhang tussen Didactiek 2 en Praktijk 2 komt onder andere tot stand doordat de dio en de werkplekbegeleider op school suggesties krijgen voor (observatie)opdrachten die kunnen bijdragen aan de ontwikkeling van de competenties die bij deze kernpraktijken horen. Alle inhoudscomponenten uit deze cursus worden tijdens de bijeenkomsten en in verwerking verbonden met de werkplekpraktijk van de student

In de laatste weken van de cursus is nadrukkelijker ruimte voor de eigen leervragen en behoefte van de student. Er worden keuzeworkshops aangeboden rondom uiteenlopende (vak)didactische thema's. Ook zijn er bijeenkomsten waarin dio's die veel moeite hebben met (o.a.) klassenmanagement extra coaching kunnen krijgen of extra aandacht verdienen op het gebied van bijvoorbeeld lesontwerp.

Onderwijsvorm

Alle onderwijs vindt plaats op de instituutsdag (maandag). Studenten zijn de hele dag aanwezig. In de ochtend is er een hoor/werkcollege AD, waarbij dio's van verschillende vakken samen zitten. De colleges AD worden steeds verzorgd door een tweetal docenten. In de middag is er een werkcollege VD onder begeleiding van de vakdidacticus. Deze colleges worden samen met dio's van hetzelfde vak in verschillende samenstellingen (homogeen en heterogeen) gevolgd.

Tenslotte zijn er, verspreid over de periode, drie PG bijeenkomsten, waarbij dio's van verschillende vakken in kleine groepen en onder begeleiding de eigen onderwijspraktijk onder de loep nemen en eventuele concerns daarbij bespreken.

Bij alle onderdelen (AD, VD en PG) wordt een actieve houding van de student gevraagd, zowel tijdens de bijeenkomsten daarbuiten. Regelmatig worden er verwerkingsopdrachten gegeven, waar individueel of in groepsverband aan wordt gewerkt. Deze opdrachten worden formatief geëvalueerd, onder andere door middel van (peer)feedback.

Toetsvorm

Didactiek 2 wordt afgesloten met een geschreven midi-proef waarin de studenten demonstreren dat zij een korte lessenreeks kunnen ontwerpen en (deels) uitvoeren en kunnen reflecteren op de manier waarop voorbereiding, uitvoer en afronding hebben plaatsgevonden. De proef bestaat uit een docentenhandleiding bij bestaand lesmateriaal, (incl. een globale planning, twee uitgewerkte lesontwerpen, verantwoording op basis van praktijk en theorie, en eigen leerdoelen bij deze les), een videocompilatie (15 min.) van de gegeven lessen en een terugblik op ontwerp en uitvoering. Bij het ontwerpen en uitvoeren van de les staan de kernpraktijken behandeld in de colleges algemene didactiek en vakdidactiek centraal (met een focus op de leerling en het leerproces). De terugblik op ontwerp en uitvoering vindt plaats aan de hand van de reflectiecirkel van Korthagen, de perspectieven van een docent als professional, ontwerper, uitvoerder, pedagoog en teamlid en de daarbij behorende relevante theorie. De proef wordt beoordeeld aan de hand van

een beoordelingsmodel gerelateerd aan de rubrics die voor elk van de docentperspectieven zijn geformuleerd voor fase 2.

Literatuur

Bij deze cursus worden de volgende algemeen didactische handboeken gebruikt:

- Ebbens, S. & Ettekoen, S. (2012). Effectief leren – basisboek. Groningen: Noordhoff Uitgevers B.V.
- Korthagen, F. & Lagerwerf, B. (2014). Een leraar van klasse. Den Haag: Boom Lemma Uitgevers
- Teitler, P. (2013). Lessen in orde. Bussum: Coutinho.
- Kohnstamm, R. (2014). Kleine ontwikkelingspsychologie: III de puberjaren. Houten: Bohn Stafleu van Loghum.

Daarnaast wordt veelvuldig gebruik gemaakt van relevante en actuele wetenschappelijke literatuur. Deze artikelen worden tijdens de cursus ter beschikking gesteld. De literatuur die bij VD gebruikt wordt is afhankelijk van het schoolvak waarvoor wordt opgeleid.

Overige informatie

Beheersing van de inhoud van het desbetreffende schoolvak wordt als voorkennis verondersteld.

Voorwaardelijk voor afronding van Didactiek 2: een voldoende beoordeling van Didactiek 1.

Didactiek 3

| | |
|----------------------|--|
| Vakcode | O_MLDIDAC_3 () |
| Periode | Periode 4+5+6 |
| Credits | 9.0 |
| Voertaal | Nederlands |
| Faculteit | Fac. der Gedrags- en Bewegingswetensch. |
| Coördinator | drs. K.L. Schaap |
| Examinator | drs. K.L. Schaap |
| Docent(en) | drs. J.K.W. Riksen, drs. H.R. Goudsmit, drs. Y.G. Meindersma, ir. E.J.F. Scheringa, drs. W.S. Hoekstra, drs. C.D.P. van Oeveren, drs. S. Donszelmann, drs. B. Klein, drs. W. Jongejan, drs. L.J. van Well-van Grootheest, dr. H.B. Westbroek, dr. E. van den Berg, C.L. Geraedts, drs. A. Krijgsman, dr. A.A. Kaal, dr. A. Handelzalts, drs. K.L. Schaap, drs. J.A.M. van den Brand, W. Maas, drs. G.D. van Hummel, F.L. de Vries MSc, drs. H. Stouthart, drs. I. Pauw |
| Lesmethode(n) | Hoorcollege, Werkgroep |
| Niveau | 400 |

Doel vak

De cursus Didactiek 3 is onderdeel van de derde en laatste fase (fase III) van de Universitaire Lerarenopleiding (ULO) van de VU, en loopt parallel aan de cursussen Praktijk 3 en POO 2. De omvang van de cursus is een heel semester.

Aan het eind van de cursus heeft de student de verdiepende pedagogische, didactische en vakdidactische bagage aan te reiken die nodig is voor het handelen als docent in complexe situaties. Hierbij wordt nadrukkelijk

aangesloten bij de ontwikkelingsfase waarin de docent-in-opleiding (dio) zich bevindt (zie inhoud).

Inhoud vak

Het eerste blok van de cursus Didactiek 3 is weer geordend rondom een aantal voor het beroep van docent fundamentele kernpraktijken, namelijk: (1) differentiëren, (2) toetsen, (3) gedrags- en leerproblemen herkennen, (4) omgaan met gedrags- en leerproblemen, (5) mentor zijn en (6) een plek in de schoolorganisatie innemen.

De cursussen Didactiek 1 en 2 vormen samen het basisdeel van de Universitaire Lerarenopleiding (ULO); de cursus Didactiek 3 moet gezien worden als het verdiepingsdeel. In Didactiek 3 komen meer complexe thema's en kernpraktijken aan de orde. Het (vak)didactisch denken en handelen strekt zich nu ook uit over de lange termijn: er is bijvoorbeeld uitgebreid aandacht voor het vorm geven aan leerlijnen en het omgaan met gedrags- en leerproblemen. Ook wordt de dio nadrukkelijker uitgedaagd om een eigen visie op onderwijs vorm te geven en uit te dragen. Zo is de lesmethode niet langer leidend, maar wordt van dio's in toenemende mate verwacht zelf invulling te geven aan de inhoud en didactiek van de lessen (waarbij natuurlijk zowel bestaand als eigen materiaal kan worden gebruikt). Tenslotte zullen de (vak) didactische overwegingen die ten grondslag liggen aan de eigen visie onderbouwd moeten worden met behulp van relevante literatuur en eigen praktijkervaringen.

In het tweede blok van de cursus is er bij AD nadrukkelijk ruimte voordifferentiatie en de eigen leerbehoefte van de student. Er worden verschillende keuzemodules aangeboden rondom uiteenlopende algemeen didactische thema's, zoals de multiculturele school, zorg op school, omgaan met ordeproblemen en internationalisering. Studenten worden uitgenodigd om (voor een deel) zelf invulling te geven aan deze keuzeruimte.

Onderwijsvorm

Alle onderwijs vindt plaats op de instituutsdag (maandag). Studenten zijn de hele dag aanwezig. In de ochtend is er een hoor/werkcollege AD, waarbij dio's van verschillende vakken samen zitten. De colleges AD worden steeds verzorgd door een tweetal docenten. In de middag is er een werkcollege VD onder begeleiding van de vakdidacticus. Deze colleges worden samen met dio's van hetzelfde vak in verschillende samenstellingen (homogeen en heterogeen) gevolgd.

Tenslotte zijn er, verspreid over de periode, drie PG bijeenkomsten, waarbij dio's van verschillende vakken in kleine groepen en onder begeleiding de eigen onderwijspraktijk onder de loep nemen en eventuele concerns daarbij bespreken.

Bij alle onderdelen (AD, VD en PG) wordt een actieve houding van de student gevraagd, zowel tijdens de bijeenkomsten daarbuiten. Regelmatig worden er verwerkingsopdrachten gegeven, waar individueel of in groepsverband aan wordt gewerkt. Deze opdrachten worden formatief geëvalueerd, onder andere door middel van (peer)feedback.

Toetsvorm

Didactiek 3 wordt afgesloten met een geschreven meesterproef waarin de studenten demonstreren dat zij een volle lessenreeks kunnen ontwerpen en uitvoeren en kunnen reflecteren op de manier waarop voorbereiding, uitvoer en afronding hebben plaatsgevonden. De proef bestaat uit een lessenreeks met een coherente leerlijn en expliciet gemaakte inhoudelijke en didactische keuzes. Het materiaal bevat: een lessenserie

met een toets, een koppeling aan en neerslag van de (pedagogische) onderwijsvisie en visie op het vak van de student en de school, docentenhandleiding, leerlingmateriaal, evaluatie met collega's en leerlingen, een videocompilatie (15 min.) van de gegeven lessen en een terugblik op ontwerp en uitvoering. Bij het ontwerpen en uitvoeren van de les maakt de student een relevante selectie uit de kernpraktijken die tijdens de opleiding centraal hebben gestaan. De terugblik op ontwerp en uitvoering vindt plaats aan de hand van de reflectiecirkel van Korthagen, de perspectieven van een docent als professional, ontwerper, uitvoerder, pedagoog en teamlid en de daarbij behorende relevante theorie. Hierbij staat de student stil bij zijn/haar ontwikkeling op het gebied van deze rollen. De proef wordt beoordeeld aan de hand van een beoordelingsmodel gerelateerd aan de rubrics die voor elk van de docentperspectieven zijn geformuleerd voor fase 3 (een startbekwame docent).

Literatuur

Bij deze cursus worden de volgende algemeen didactische handboeken gebruikt:

- Ebbens, S. & Ettekoen, S. (2012). Effectief leren – basisboek. Groningen: Noordhoff Uitgevers B.V.
- Korthagen, F. & Lagerwerf, B. (2014). Een leraar van klasse. Den Haag: Boom Lemma Uitgevers
- Teitler, P. (2013). Lessen in orde. Bussum: Coutinho.
- Kohnstamm, R. (2014). Kleine ontwikkelingspsychologie: III de puberjaren. Houten: Bohn Stafleu van Loghum.

Daarnaast wordt veelvuldig gebruik gemaakt van relevante en actuele wetenschappelijke literatuur. Deze artikelen worden tijdens de cursus ter beschikking gesteld. De literatuur die bij VD gebruikt wordt is afhankelijk van het schoolvak waarvoor wordt opgeleid.

Overige informatie

Beheersing van de inhoud van het desbetreffende schoolvak wordt als voorkennis verondersteld.

Voorwaardelijk voor afronding van Didactiek 3: een voldoende beoordeling van Didactiek 2.

Drug Action

| | |
|----------------------|------------------------------------|
| Vakcode | X_432724 () |
| Periode | Periode 3 |
| Credits | 6.0 |
| Voertaal | Engels |
| Faculteit | Faculteit der Exacte Wetenschappen |
| Coördinator | dr. H.F. Vischer |
| Examinator | dr. H.F. Vischer |
| Docent(en) | dr. H.F. Vischer |
| Lesmethode(n) | Hoorcollege |
| Niveau | 400 |

Doel vak

To obtain a general introduction into and deepening of knowledge of fundamental principles and molecular aspects of drug action within the field of molecular pharmacology and receptor biochemistry.

Inhoud vak

Most drugs display their pharmacological actions following the interactions with receptor proteins. As for the molecular pharmacological aspects the mechanisms by which these drugs act with respect to their therapeutic application will be studied. Novel concepts of pharmacology, including constitutive receptor activity, allosteric modulation, receptor dimerization and ligand-biased signaling will be addressed. Important cellular and animal model systems used to investigate (pathological and pharmacological) aspects of cell biology in relation to drug discovery will be discussed.

Onderwijsvorm

Lectures, exercises, case-studies

Toetsvorm

Written examination(s) and assignments.

Literatuur

Pharmacology in Drug Discovery - T.P. Kenakin
ISBN 978-0-12-384856-7

Scientific papers (primary and review) provided during the course

Aanbevolen voorkennis

Knowledge of basic principles of drug action and mathematics (i.e. re-arranging formulas and understanding of (non)linear equations).

Doelgroep

mDDS

Drug-induced Stress and Cellular Responses

| | |
|----------------------|------------------------------------|
| Vakcode | X_432536 (432536) |
| Periode | Periode 2 |
| Credits | 6.0 |
| Voertaal | Engels |
| Faculteit | Faculteit der Exacte Wetenschappen |
| Coördinator | dr. J.N.M. Commandeur |
| Examinator | dr. J.N.M. Commandeur |
| Docent(en) | dr. J.N.M. Commandeur |
| Lesmethode(n) | Hoorcollege |
| Niveau | 500 |

Doel vak

At the end of this theoretical course, the students are aware of the latest insights of cellular stress responses which can occur after exposure of cells to reactive drugs and/or reactive drug metabolites.

Inhoud vak

Exposure of tissues to high levels of drugs and/or drug metabolites in some cases can trigger various biochemical responses. Interaction with sensor proteins can lead to adaptative stress responses which will protect the cell against further damage. If these adaptative stress responses are insufficient, interaction with critical proteins may lead

to cell death or exaggerated, fatal pharmacological responses.
The following aspects will be studied in the course drug-induced stress and cellular signaling:

- (types of) adverse drug reactions
- role of biotransformation and drug transport in adverse drug reactions,
- reversible and irreversible interactions of toxic drugs with biological macromolecules,
- cellular adaptation to exposure to reactive intermediates and reactive oxygen species;
- cellular and molecular mechanisms leading to toxic effects,
- genetic toxicology and chemical carcinogenesis,
- role of mitochondria in necrosis and apoptosis,
- impairment of cell proliferation and tissue repair,
- immune-mediated toxicity.

Onderwijsvorm

Lectures and self study.

Toetsvorm

Written exam

Literatuur

Boelsterli, Mechanistic Toxicology: The Molecular Basis of How Chemicals Disrupt Biological Targets 2nd ed, CRC Press, 2007 (ISBN 0849372720).

Vereiste voorkennis

Bachelor Physics, Chemistry, Mathematics, Biology, Medical Biology
Pharmaceutical Sciences, Medical Natural Science Biomolecular Science
portal course, or equivalent

Doelgroep

mDDS, mBMS

Entrepreneurship in Health and Life Sc.

| | |
|----------------------|---------------------------------------|
| Vakcode | AM_470575 () |
| Periode | Periode 2 |
| Credits | 6.0 |
| Voertaal | Engels |
| Faculteit | Fac. der Aard- en Levenswetenschappen |
| Coördinator | prof. dr. E. Masurel |
| Examinator | prof. dr. E. Masurel |
| Docent(en) | prof. dr. E. Masurel |
| Lesmethode(n) | Hoorcollege, Werkgroep |
| Niveau | 500 |

Doel vak

Students obtain knowledge about and insight in the relevance of entrepreneurship and innovation for their own discipline. Students learn about the processes which are involved in the recognition and exploitation of opportunities, about creating economic and social value and about the nature and role of networks. In addition students gain knowledge of different entrepreneurial processes and the importance of

valorisation of (bio)medical findings and business ideas for a knowledge-based economy.

Learning objectives

- Become familiar with an innovation outlook on entrepreneurship.
- Become aware that value-adding opportunities not only contain financial aspects but also social and ecological aspects (sustainable entrepreneurship).
- Gain the ability to write a feasibility plan on how to bring an innovation to the market.
- Obtain knowledge about and insight in the relevance of entrepreneurship and innovation for science disciplines.
- Learn about the processes which are involved in the recognition and exploitation of opportunities, about creating economic and social value and about the nature and role of networks.
- Gain knowledge of different entrepreneurial processes and the importance of valorisation of (bio)medical findings and business ideas for a knowledge-based economy.

Inhoud vak

This course consists of two tracks: a theoretical track and a practical track. These two tracks run simultaneously. In the first track you learn about entrepreneurship. Answers are found on questions such as: What is entrepreneurship? What defines an entrepreneur? What are entrepreneurial opportunities? What is the role of innovation in entrepreneurship? What is corporate social responsibility (CSR)? How can we judge the feasibility of entrepreneurial ambitions? Simultaneously you work on an assignment (second track). In the first week of this course you search for an innovation in your own discipline (product, service, process etc). Your choice must be approved by the lecturers. The first part of the assignment consists of a description of the innovation which you have chosen. Subsequently, you make a SWOT-analysis and a network analysis of the innovation. Also a paragraph on CSR aspect should be added. The final part of the assignment is your own feasibility study: how would you valorize the innovation to the market?

Onderwijsvorm

Lectures, personal meetings. Each week scientific lectures are given (on entrepreneurship, SWOT-analysis, innovation, CSR etc). These lectures are both the basis for the exam and for the assignment. Each week the student has a short meeting with his / her supervisor, in order to discuss the progress of his/her assignment.

Schedule and study time

The total study time is 160 hours.

Tuition methods include lectures, consultancies and self-study.

The different elements have the following study time:

- lectures 18 hours
- consultancies 8 hours
- writing feasibility plan 65 hours
- examination 4 hours
- self study remaining hours

Toetsvorm

You conduct a written exam and an assignment. Both the exam and the assignment determine 50% of the grade. The exam and the assignment must be of sufficient quality.

Literatuur

To be announced on Blackboard

Doelgroep

Optional course for Master students Management, Policy Analysis and Entrepreneurship in Health and Life sciences (MPA), M-differentiation of the Health, Life & Natural Sciences, Biology, Biomedical Sciences.

Overige informatie

Attendance is compulsory. Prior knowledge: Business Management in Health and Life sciences.

Epidemiology

| | |
|----------------------|---|
| Vakcode | AM_1179 () |
| Periode | Periode 3 |
| Credits | 3.0 |
| Voertaal | Engels |
| Faculteit | Fac. der Aard- en Levenswetenschappen |
| Coördinator | dr. R.M.H. Peters |
| Examinator | dr. R.M.H. Peters |
| Lesmethode(n) | Hoorcollege, Werkgroep, Computerpracticum |
| Niveau | 500 |

Doel vak

- To gain an understanding of the principles of different study designs
- To gain an understanding of issues concerning measures of disease and association
- To gain an understanding of principles of bias and confounding
- To gain an understanding of the principles of screening and critically appraise its use in public health
- To learn how to calculate and interpret sensitivity, specificity, positive and negative predictive values
- To acquire skills to perform statistical analyses using a database (during the computer-based sessions) and interpret, describe and present the results critically

Inhoud vak

This two week course will help you to obtain an understanding of the principles of study designs (cross-sectional, longitudinal, case-control, clinical trails). Issues concerning exposure and disease measurement and exposure-disease relationships will be discussed in detail, and examples will be provided. Together with your colleagues, you will learn how to apply this knowledge first by hand (during the lectures), then to an epidemiologic database (during the computer-based sessions) and how to interpret the results critically.

Onderwijsvorm

- Lectures (12 hours)
- Work groups (12 hours)
- Computer practicum (12 hours)
- Self-study (remaining time)

Toetsvorm

- Exam
- Assignment

Both elements need to be passed.

Literatuur

To be announced

Doelgroep

Students without a background in epidemiology

Intekenprocedure

n/a

Overige informatie

Maximum 25 students

For more information contact Ruth Peters (r.m.h.peters@vu.nl)

Ethics and Academic skills

| | |
|--------------------|------------------------------------|
| Vakcode | X_432725 () |
| Periode | Ac. Jaar (september) |
| Credits | 1.0 |
| Voertaal | Engels |
| Faculteit | Faculteit der Exacte Wetenschappen |
| Coördinator | dr. J.E. van Muijlwijk-Koezen |
| Examinator | dr. J.E. van Muijlwijk-Koezen |
| Niveau | 400 |

Doel vak

In order to plan this course please contact your mastercoordinator for details

Ethics and Academic skills

| | |
|--------------------|------------------------------------|
| Vakcode | X_432726 () |
| Periode | Ac. Jaar (september) |
| Credits | 2.0 |
| Voertaal | Engels |
| Faculteit | Faculteit der Exacte Wetenschappen |
| Coördinator | dr. J.E. van Muijlwijk-Koezen |
| Examinator | dr. J.E. van Muijlwijk-Koezen |
| Niveau | 400 |

Doel vak

In order to plan this course please contact your mastercoordinator for details

Ethics and Academic Skills

| | |
|----------------|-------------------|
| Vakcode | X_437556 (437556) |
|----------------|-------------------|

| | |
|--------------------|------------------------------------|
| Periode | Ac. Jaar (september) |
| Credits | 6.0 |
| Voertaal | Engels |
| Faculteit | Faculteit der Exacte Wetenschappen |
| Coördinator | dr. J.E. van Muijlwijk-Koezen |
| Examinator | dr. J.E. van Muijlwijk-Koezen |
| Niveau | 400 |

Doel vak

In order to plan this course please contact your mastercoordinator for details

Ethics and Academic Skills

| | |
|--------------------|------------------------------------|
| Vakcode | X_432517 (432517) |
| Periode | Ac. Jaar (september) |
| Credits | 3.0 |
| Voertaal | Engels |
| Faculteit | Faculteit der Exacte Wetenschappen |
| Coördinator | dr. J.E. van Muijlwijk-Koezen |
| Examinator | dr. J.E. van Muijlwijk-Koezen |
| Niveau | 400 |

Doel vak

In order to plan this course please contact your mastercoordinator for details

Inhoud vak

Period: Variable

Ethics in Life Sciences

| | |
|----------------------|--|
| Vakcode | AM_470707 () |
| Periode | Periode 3 |
| Credits | 3.0 |
| Voertaal | Engels |
| Faculteit | Fac. der Aard- en Levenswetenschappen |
| Coördinator | prof. dr. J.T. de Cock Buning |
| Examinator | prof. dr. J.T. de Cock Buning |
| Docent(en) | prof. dr. J.T. de Cock Buning, dr. J.F.H. Kupper |
| Lesmethode(n) | Hoorcollege, Werkgroep |
| Niveau | 400 |

Doel vak

To provide a toolbox of ethical instruments to analyze properly moral problems related (to one's own) research in the life sciences

- To acquire conceptual knowledge of the central concepts in applied philosophy and professional ethics
- To challenge an ethical reflection on one owns life science

specialization and to open it for an impartial and constructive discussion

- To exercise a team based project to enter prepare and execute a moral dialogue
- To acquire the necessary skills to handle ethical issues in an accountable manner, as a professional academic beyond one's own inclinations and prejudgments

Inhoud vak

Researchers in life sciences generate the knowledge that builds the future of our society. Therefore, professional academics should be accountable for their decisions, experimental designs and presentation of results. In this short course, the principles of justification will be illustrated with cases of technology ethics and medical ethics. The way an ethical review committee on animal research works, is simulated by a role play exercise on an actual research protocol. Finally, as a small group training project, an ethical dialogue is prepared and executed together with another team.

Onderwijsvorm

Ethics in the Life Sciences is a fulltime course of four weeks (3 ECTS).

The total study time is 80 hours.

The different elements have the following study time:

- Lectures: 13 hours
- Work groups: 17 hours
- Group assignment: 24 hours
- Exam: 2 hour
- Presentation : 4 hours
- Self working (reading in the first week): 20 hours

Please note that attendance to the work group meetings is compulsory.

Attendance to the lectures is highly recommended. In our experience, relying on self-study alone is insufficient to apply the theory of the lectures in the assignments of the workgroups, and to pass the exam.

Toetsvorm

- Degree of intellectual participation in the workgroups (10%)
- exam (50%) has to be passed
- written and verbal execution of the ethical dialogue (40%)

Literatuur

Available on Blackboard

Vereiste voorkennis

Bsc Biology, Biomedical Sciences, Psychology with profile Biological Psychology or Neuropsychology

Doelgroep

Compulsory course in all FALW Master programmes, except Health Sciences and Neuro Sciences

Overige informatie

Lectures in English, part of the workgroups are in Dutch. All presentations and plenary discussions in English.

In order to maximize the experience of differences in values and preferences, and this increase meaningful ethical inquiry we will place you randomly in the workgroups. Placement will be communicated after the introduction lecture.

High-Throughput Screening

| | |
|----------------------|------------------------------------|
| Vakcode | X_435047 (435047) |
| Periode | Periode 2 |
| Credits | 6.0 |
| Voertaal | Engels |
| Faculteit | Faculteit der Exacte Wetenschappen |
| Coördinator | dr. J. Kool |
| Examinator | dr. J. Kool |
| Docent(en) | dr. J. Kool |
| Lesmethode(n) | Hoorcollege |
| Niveau | 500 |

Doel vak

In depth study on the bio-analytical and screening aspects related to target and lead discovery of drugs.

Inhoud vak

During this course the potential of modern analytical and biological screening techniques used in target, hit and lead discovery will be discussed. The emphasis will be on the treatment of advanced sample preparation techniques (i.e. automation, high-throughput / combinatorial chemistry, miniaturization), biological and immunological high throughput screening assays and advanced separation methods. Also, the so called "Omics" will be discussed (e.g. proteomics and metabolomics). These techniques will be discussed in relation with pharmacokinetic studies and the applicability of the various techniques within the various stages of target discovery, hit screening, ADME(tox), and early lead discovery. Finally, miniaturization approaches will be dealt with.

Onderwijsvorm

The course starts with a thorough explanation on all subjects that will be discussed, and during which lecture. During the lectures, relevant literature per lecture will be mentioned. This literature is mainly from e-books (chapters) and from academic papers/reviews. All literature that will be mentioned can be found in the course documents on BlackBoard. All this literature has to be studied for the oral examination. All students will work on an assignment related to a topic in high throughput screening. This assignment results in a document and a PowerPoint presentation of 8 minutes.

Toetsvorm

Examination is in the form of an oral or written examination accounting for 50% of the final mark (depending on the number of students entering the course). All lectures and all literature provided are included in the examination. All material to be studied and learned for the examination can be accessed during the examination. Students can take all printed material and/or a computer with them during the examination. De presentation of 8 minutes followed by questions and replies to these questions constitutes 25% of the final mark. The Document's topic and the presentation's topic are related to each other. The document is between 6 and 8 pages (Times New Roman type 12; line spacing 1) including title page and with a maximum of 4 Figures/Tables. The assignment document constitutes the other 25% of the final mark. The marks of the examination, the presentation and discussion afterwards, and the assignment document all have to be sufficient (6.0). (If more than 12 students join this course, students will form groups of

two students. In that case, the presentations will be given by both students per group and each presentation has a duration of 12 minutes. The document is then between 10 and 14 pages (Times New Roman type 12; line spacing 1) including title page and with a maximum of 6 Figures/Tables. The oral examination will then still be on individual basis).

Literatuur

Please see the Course Documents on BlackBoard. The PowerPoint presentation named "HTS Course Overview" gives a detailed explanation/overview of the lectures, tutorials and course structure. All PowerPoint lectures will be placed on BlackBoard at least one day before each lecture. All PDF e-book chapters and other literature (e.g. academic research papers and reviews) can already be found on BlackBoard. It will be announced when each PDF literature is/are to be read in order to prepare for a respective lecture.

Aanbevolen voorkennis

Basic knowledge of biochemistry, separation sciences, spectroscopy and mass spectrometry.

Doelgroep

mCh-AS, mCh-MDSC, mDDS-BCCA, mDDS-DDTF

Internship abroad DDS Biomol. Drug Analysis

| | |
|--------------------|------------------------------------|
| Vakcode | X_432674 (432674) |
| Periode | Ac. Jaar (september) |
| Credits | 18.0 |
| Voertaal | Engels |
| Faculteit | Faculteit der Exacte Wetenschappen |
| Coördinator | dr. H. Lingeman |
| Examinator | dr. H. Lingeman |
| Niveau | 500 |

Doel vak

To acquire knowledge and insight into the role and objective of drug, bio-analytical and clinical development processes in industry and research institutes.

Inhoud vak

This project aims to provide students with a theoretical and practical understanding of the issues involved in the design, conduct, analyses and interpretation of analytical studies.

Doelgroep

mDDS

Overige informatie

For further information please contact Henk Lingeman.

Internship abroad DDS Biomol. Drug Analysis

| | |
|----------------|-------------|
| Vakcode | X_432753 () |
|----------------|-------------|

| | |
|--------------------|------------------------------------|
| Periode | Ac. Jaar (september) |
| Credits | 24.0 |
| Voertaal | Engels |
| Faculteit | Faculteit der Exacte Wetenschappen |
| Coördinator | dr. H. Lingeman |
| Examinator | dr. H. Lingeman |
| Niveau | 500 |

Doel vak

To acquire knowledge and insight into the role and objective of drug, bio-analytical and clinical development processes in industry, and research institutes.

Inhoud vak

This project aims to provide student with a theoretical and practical understanding of the issues involved in the design, conduct, analyses and interpretation of analytical studies.

Doelgroep

mDDS

Overige informatie

For further information please contact Henk Lingeman.

Internship abroad DDS Biomol. Drug Analysis

| | |
|--------------------|------------------------------------|
| Vakcode | X_432758 () |
| Periode | Ac. Jaar (september) |
| Credits | 30.0 |
| Voertaal | Engels |
| Faculteit | Faculteit der Exacte Wetenschappen |
| Coördinator | dr. H. Lingeman |
| Examinator | dr. H. Lingeman |
| Niveau | 500 |

Doel vak

To acquire knowledge and insight into the role and objective of drug, bio-analytical and clinical development processes in industry and research institutes.

Inhoud vak

This project aims to provide students with a theoretical and practical understanding of the issues involved in the design, conduct, analyses and interpretation of analytical studies.

Doelgroep

mDDS

Overige informatie

For further information please contact Henk Lingeman.

Internship abroad DDS Biomol. Drug Analysis

| | |
|--------------------|------------------------------------|
| Vakcode | X_432837 () |
| Periode | Ac. Jaar (september) |
| Credits | 36.0 |
| Voertaal | Engels |
| Faculteit | Faculteit der Exacte Wetenschappen |
| Coördinator | dr. H. Lingeman |
| Examinator | dr. H. Lingeman |
| Niveau | 500 |

Doel vak

To acquire knowledge and insight into the role and objective of drug, bioanalytical and clinical development processes.

Inhoud vak

This project aims to provide student with a theoretical and practical understanding of the issues involved in the design, conduct, analysis and interpretation of analytical studies.

Doelgroep

mDDS

Internship abroad DDS Comp. Med. Chem. & Tox.

| | |
|--------------------|------------------------------------|
| Vakcode | X_432675 (432675) |
| Periode | Ac. Jaar (september) |
| Credits | 18.0 |
| Voertaal | Engels |
| Faculteit | Faculteit der Exacte Wetenschappen |
| Coördinator | dr. D.P. Geerke |
| Examinator | dr. D.P. Geerke |
| Niveau | 500 |

Doel vak

To obtain experience in doing scientific research in another country.

Inhoud vak

During a traineeship, the student actively participates in a research project within a university or company in another country.

Toetsvorm

Report, presentation and practical work.

Doelgroep

mDDS

Overige informatie

Please contact the coordinator well in advance to check for possibilities and to discuss the most suitable duration of the traineeship.

Internship abroad DDS Comp. Med. Chem. & Tox.

| | |
|--------------------|------------------------------------|
| Vakcode | X_432754 () |
| Periode | Ac. Jaar (september) |
| Credits | 24.0 |
| Voertaal | Engels |
| Faculteit | Faculteit der Exacte Wetenschappen |
| Coördinator | dr. D.P. Geerke |
| Examinator | dr. D.P. Geerke |
| Niveau | 500 |

Doel vak

To obtain experience in doing scientific research in another country.

Inhoud vak

During a traineeship, the student actively participates in a research project within a university or company in another country.

Toetsvorm

Report, presentation and practical work.

Doelgroep

mDDS

Overige informatie

Please contact the coordinator well in advance to check for possibilities and to discuss the most suitable duration of the traineeship.

Internship abroad DDS Comp. Med. Chem. & Tox.

| | |
|--------------------|------------------------------------|
| Vakcode | X_432759 () |
| Periode | Ac. Jaar (september) |
| Credits | 30.0 |
| Voertaal | Engels |
| Faculteit | Faculteit der Exacte Wetenschappen |
| Coördinator | dr. D.P. Geerke |
| Examinator | dr. D.P. Geerke |
| Niveau | 500 |

Doel vak

To obtain experience in doing scientific research in another country.

Inhoud vak

During a traineeship, the student actively participates in a research project within a university or company in another country.

Toetsvorm

Report, presentation and practical work.

Doelgroep

mDDS

Overige informatie

Please contact the coordinator well in advance to check for possibilities and to discuss the most suitable duration of the traineeship.

Internship abroad DDS Comp. Med. Chem. & Tox.

| | |
|--------------------|------------------------------------|
| Vakcode | X_432838 () |
| Periode | Ac. Jaar (september) |
| Credits | 36.0 |
| Voertaal | Engels |
| Faculteit | Faculteit der Exacte Wetenschappen |
| Coördinator | dr. D.P. Geerke |
| Examinator | dr. D.P. Geerke |
| Niveau | 500 |

Internship abroad DDS Drug Design & Synth.

| | |
|--------------------|------------------------------------|
| Vakcode | X_432676 (432676) |
| Periode | Ac. Jaar (september) |
| Credits | 18.0 |
| Voertaal | Engels |
| Faculteit | Faculteit der Exacte Wetenschappen |
| Coördinator | dr. M. Wijtmans |
| Examinator | dr. M. Wijtmans |
| Niveau | 500 |

Doel vak

To obtain experience in doing scientific research in another country.

Inhoud vak

During a traineeship, the student actively participates in a research project within a university or company in another country.

Toetsvorm

Report, presentation and practical work.

Doelgroep

mDDS

Intekenprocedure

Please contact the coordinator well in advance to check for possibilities and to discuss the most suitable duration of the traineeship.

Internship abroad DDS Drug Design & Synth.

| | |
|-----------------|----------------------|
| Vakcode | X_432755 () |
| Periode | Ac. Jaar (september) |
| Credits | 24.0 |
| Voertaal | Engels |

| | |
|--------------------|------------------------------------|
| Faculteit | Faculteit der Exacte Wetenschappen |
| Coördinator | dr. M. Wijtmans |
| Examinator | dr. M. Wijtmans |
| Niveau | 500 |

Doel vak

To obtain experience in doing scientific research in another country.

Inhoud vak

During a traineeship, the student actively participates in a research project within a university or company in another country.

Toetsvorm

Report, presentation and practical work.

Doelgroep

mDDS

Intekenprocedure

Please contact the coordinator well in advance to check for possibilities and to discuss the most suitable duration of the traineeship.

Internship abroad DDS Drug Design & Synth.

| | |
|--------------------|------------------------------------|
| Vakcode | X_432760 () |
| Periode | Ac. Jaar (september) |
| Credits | 30.0 |
| Voertaal | Engels |
| Faculteit | Faculteit der Exacte Wetenschappen |
| Coördinator | dr. M. Wijtmans |
| Examinator | dr. M. Wijtmans |
| Niveau | 500 |

Doel vak

To obtain experience in doing scientific research in another country.

Inhoud vak

During a traineeship, the student actively participates in a research project within a university or company in another country.

Toetsvorm

Report, presentation and practical work.

Doelgroep

mDDS

Intekenprocedure

Please contact the coordinator well in advance to check for possibilities and to discuss the most suitable duration of the traineeship.

Internship abroad DDS Drug Design & Synth.

| | |
|--------------------|------------------------------------|
| Vakcode | X_432839 () |
| Periode | Ac. Jaar (september) |
| Credits | 36.0 |
| Voertaal | Engels |
| Faculteit | Faculteit der Exacte Wetenschappen |
| Coördinator | dr. M. Wijtman |
| Examinator | dr. M. Wijtman |
| Niveau | 500 |

Doel vak

To obtain experience in doing scientific research in another country.

Inhoud vak

During a traineeship, the student actively participates in a research project within a university or company in another country.

Toetsvorm

Report, presentation and practical work.

Doelgroep

mDDS

Intekenprocedure

Please contact the coordinator well in advance to check for possibilities and to discuss the most suitable duration of the traineeship.

Internship abroad DDS Drug Disc. & Target Find.

| | |
|--------------------|------------------------------------|
| Vakcode | X_432678 (432678) |
| Periode | Ac. Jaar (september) |
| Credits | 18.0 |
| Voertaal | Engels |
| Faculteit | Faculteit der Exacte Wetenschappen |
| Coördinator | dr. M.H. Siderius |
| Examinator | dr. M.H. Siderius |
| Niveau | 500 |

Doel vak

To obtain experience in scientific research abroad.

Inhoud vak

During an internship the student actively participates in a research project within an institute or a company abroad.

Toetsvorm

Practical work, report and presentation.

Doelgroep

mDDS

Overige informatie

Please contact the coordinator well in advance.

Internship abroad DDS Drug Disc. & Target Find.

| | |
|--------------------|------------------------------------|
| Vakcode | X_432840 () |
| Periode | Ac. Jaar (september) |
| Credits | 36.0 |
| Voertaal | Engels |
| Faculteit | Faculteit der Exacte Wetenschappen |
| Coördinator | dr. M.H. Siderius |
| Examinator | dr. M.H. Siderius |
| Niveau | 500 |

Internship abroad DDS Drug Disc. & Target Finding

| | |
|--------------------|------------------------------------|
| Vakcode | X_432757 () |
| Periode | Ac. Jaar (september) |
| Credits | 24.0 |
| Voertaal | Engels |
| Faculteit | Faculteit der Exacte Wetenschappen |
| Coördinator | dr. M.H. Siderius |
| Examinator | dr. M.H. Siderius |
| Niveau | 500 |

Doel vak

To obtain experience in scientific research abroad.

Inhoud vak

During an internship the student actively participates in a research project within an institute or a company abroad.

Toetsvorm

Practical work, report and presentation.

Doelgroep

mDDS

Overige informatie

Please contact the coordinator well in advance.

Internship abroad DDS Drug Disc. & Target Finding

| | |
|--------------------|------------------------------------|
| Vakcode | X_432762 () |
| Periode | Ac. Jaar (september) |
| Credits | 30.0 |
| Voertaal | Engels |
| Faculteit | Faculteit der Exacte Wetenschappen |
| Coördinator | dr. M.H. Siderius |
| Examinator | dr. M.H. Siderius |

| | |
|---------------|-----|
| Niveau | 500 |
|---------------|-----|

Doel vak

To obtain experience in scientific research abroad.

Inhoud vak

During an internship the student actively participates in a research project within an institute or a company abroad.

Toetsvorm

Practical work, report and presentation.

Doelgroep

mDDS

Overige informatie

Please contact the coordinator well in advance.

Internship abroad DDS Drug, Disp. and Saf. Assessm.

| | |
|--------------------|------------------------------------|
| Vakcode | X_432677 (432677) |
| Periode | Ac. Jaar (september) |
| Credits | 18.0 |
| Voertaal | Engels |
| Faculteit | Faculteit der Exacte Wetenschappen |
| Coördinator | dr. J.N.M. Commandeur |
| Examinator | dr. J.N.M. Commandeur |
| Niveau | 500 |

Doel vak

To perform research in the area of molecular and biochemical toxicology and to get familiar with experimental approaches used in this field.
To define a hypothesis based on previous observations or publications, and to design, execute and critically interpret the experiments performed to test specific hypotheses.

Inhoud vak

The research project will be carried out in a research group which is active in the area of molecular and biochemical toxicology.
Generally, research can focussed on the role of drug transporters and drug metabolising enzymes in the bioactivation and bioinactivation of toxic drugs and other chemicals, identification of genetically determined enzymes, drug-drug interactions, the identification of reactive intermediates and cellular targets of reactive intermediates, cellular responses related to cytotoxicity or adaptation reactions, mechanisms of genotoxicity (mutagenicity, carcinogenicity), idiosyncratic drug reactions, identification of biomarkers for early and late toxic effects, etc.

Onderwijsvorm

Experimental research project, starting with a brief literature survey on the topic to be investigated.

Toetsvorm

Written report, (participation to) work discussions, and oral presentation in the section of Molecular Toxicology.

Literatuur

Relevant reviews will be provided at the start of the project.

Aanbevolen voorkennis

Courses ADMET, Drug-induced stress and cellular signalling or equivalent courses.

Doelgroep

mDDS-DDSA

Overige informatie

Students who want to perform an internship abroad should first ask for approval at the exam committee by sending a short description of the research project and a declaration of the mastercoordinator (dr JNM Commandeur; j.n.m.commandeur@vu.nl) in which the procedure on how the quality and progress of the research project will be monitored and how the final assessment of the project will be organized (usually based on the experimental performance, a written report and final oral presentation).

Internship abroad DDS Drug, Disp. and Saf. Assessm.

| | |
|--------------------|------------------------------------|
| Vakcode | X_432756 () |
| Periode | Ac. Jaar (september) |
| Credits | 24.0 |
| Voertaal | Engels |
| Faculteit | Faculteit der Exacte Wetenschappen |
| Coördinator | dr. J.N.M. Commandeur |
| Examinator | dr. J.N.M. Commandeur |
| Niveau | 500 |

Doel vak

To perform research in the area of molecular and biochemical toxicology and to get familiar with experimental approaches used in this field.

To define a hypothesis based on previous observations or publications, and to design, execute and critically interpret the experiments performed to test specific hypotheses.

Inhoud vak

The research project will be carried out in a research group which is active in the area of molecular and biochemical toxicology.

Generally, research can be focused on the role of drug transporters and drug metabolising enzymes in the bioactivation and bioinactivation of toxic drugs and other chemicals, identification of genetically determined enzymes, drug-drug interactions, the identification of reactive intermediates and cellular targets of reactive intermediates, cellular responses related to cytotoxicity or adaptation reactions, mechanisms of genotoxicity (mutagenicity, carcinogenicity), idiosyncratic drug reactions, identification of biomarkers for early and late toxic effects, etc.

Onderwijsvorm

Experimental research project, starting with a brief literature survey on the topic to be investigated.

Toetsvorm

Written report, (participation to) work discussions, and oral presentation.

Literatuur

Relevant reviews will be provided at the start of the project.

Aanbevolen voorkennis

Courses ADMET, Drug-induced stress and cellular signalling, Advanced Course on Drug Disposition and Safety Assessment, or equivalent courses.

Doelgroep

mDDS-DDSA

Overige informatie

Students who want to perform an internship abroad should first ask for approval at the exam committee by sending a short description of the research project and a declaration of the mastercoordinator (dr JNM Commandeur; j.n.m.commandeur@vu.nl) in which the procedure is described on how the quality and progress of the research project will be monitored and how the final assessment of the project will be organized (usually based on the experimental performance, a written report and final oral presentation).

Internship abroad DDS Drug, Disp. and Saf. Assessm.

| | |
|--------------------|------------------------------------|
| Vakcode | X_432761 () |
| Periode | Ac. Jaar (september) |
| Credits | 30.0 |
| Voertaal | Engels |
| Faculteit | Faculteit der Exacte Wetenschappen |
| Coördinator | dr. J.N.M. Commandeur |
| Examinator | dr. J.N.M. Commandeur |
| Niveau | 500 |

Doel vak

To perform research in the area of molecular and biochemical toxicology and to get familiar with experimental approaches used in this field.

To define a hypothesis based on previous observations or publications, and to design, execute and critically interpret the experiments performed to test specific hypotheses.

Inhoud vak

The research project will be carried out in a research group which is active in the area of molecular and biochemical toxicology.

Generally, research can focussed on the role of drug transporters and drug metabolising enzymes in the bioactivation and bioinactivation of toxic drugs and other chemicals, identification of genetically determined enzymes, drug-drug interactions, the identification of reactive intermediates and cellular targets of reactive intermediates,

cellular responses related to cytotoxicity or adaptation reactions, mechanisms of genotoxicity (mutagenicity, carcinogenicity), idiosyncratic drug reactions, identification of biomarkers for early and late toxic effects, etc.

Onderwijsvorm

Experimental research project, starting with a brief literature survey on the topic to be investigated.

Toetsvorm

Written report, (participation to) work discussions, and oral presentation.

Literatuur

Relevant reviews will be provided at the start of the project.

Aanbevolen voorkennis

Courses ADMET, Drug-induced stress and cellular signalling, Advanced Course on Drug Disposition and Safety Assessment, or equivalent courses.

Doelgroep

mDDS-DDSA

Overige informatie

Students who want to perform an internship abroad should first ask for approval at the exam committee by sending a short description of the research project and a declaration of the mastercoordinator (dr JNM Commandeur; j.n.m.commandeur@vu.nl) in which the procedure is described on how the quality and progress of the research project will be monitored and how the final assessment of the project will be organized (usually based on the experimental performance, a written report and final oral presentation).

Internship abroad DDS Drug, Disp. and Saf. Assessm.

| | |
|--------------------|------------------------------------|
| Vakcode | X_432841 () |
| Periode | Ac. Jaar (september) |
| Credits | 36.0 |
| Voertaal | Engels |
| Faculteit | Faculteit der Exacte Wetenschappen |
| Coördinator | dr. J.N.M. Commandeur |
| Examinator | dr. J.N.M. Commandeur |
| Niveau | 500 |

Doel vak

To perform research in the area of molecular and biochemical toxicology and to get familiar with experimental approaches used in this field. To define a hypothesis based on previous observations or publications, and to design, execute and critically interpret the experiments performed to test specific hypotheses.

Inhoud vak

The research project will be carried out in a research group which is active in the area of molecular and biochemical toxicology.

Generally, research can be focussed on the role of drug transporters and drug metabolising enzymes in the bioactivation and bioinactivation of toxic drugs and other chemicals, identification of genetically determined enzymes, drug-drug interactions, the identification of reactive intermediates and cellular targets of reactive intermediates, cellular responses related to cytotoxicity or adaptation reactions, mechanisms of genotoxicity (mutagenicity, carcinogenicity), idiosyncratic drug reactions, identification of biomarkers for early and late toxic effects, etc.

Onderwijsvorm

Experimental research project, starting with a brief literature survey on the topic to be investigated.

Toetsvorm

Written report, (participation to) work discussions, and oral presentation.

Literatuur

Relevant reviews will be provided at the start of the project.

Aanbevolen voorkennis

Courses ADMET, Drug-induced stress and cellular signalling, Advanced Course on Drug Disposition and Safety Assessment, or equivalent courses.

Doelgroep

mDDS-DDSA

Overige informatie

Students who want to perform an internship abroad should first ask for approval at the exam committee by sending a short description of the research project and a declaration of the mastercoordinator (dr JNM Commandeur; j.n.m.commandeur@vu.nl) in which the procedure is described on how the quality and progress of the research project will be monitored and how the final assessment of the project will be organized (usually based on the experimental performance, a written report and final oral presentation).

Internship Societal Specialisation

| | |
|--------------------|---------------------------------------|
| Vakcode | AM_471147 () |
| Periode | Ac. Jaar (september) |
| Credits | 30.0 |
| Voertaal | Engels |
| Faculteit | Fac. der Aard- en Levenswetenschappen |
| Coördinator | dr. R.J. van Belle-van den Berg |
| Examinator | dr. R.J. van Belle-van den Berg |
| Niveau | 600 |

Literature thesis and Colloquium

| | |
|----------------|----------------------|
| Vakcode | X_432577 (432577) |
| Periode | Ac. Jaar (september) |

| | |
|--------------------|------------------------------------|
| Credits | 12.0 |
| Voertaal | Engels |
| Faculteit | Faculteit der Exacte Wetenschappen |
| Coördinator | dr. H. Lingeman |
| Examinator | dr. H. Lingeman |
| Niveau | 600 |

Doel vak

Literature study on a topic related to biomolecular analysis.

Inhoud vak

The topic will be chosen in close cooperation and with approval of the master coordinator.

Onderwijsvorm

Selfstudy and discussion sessions.

Toetsvorm

Report and presentation.

Doelgroep

mDDS

Overige informatie

Please contact the coördinator.

Literature thesis and Colloquium DDS Medical Chemistry, DD&S

| | |
|--------------------|------------------------------------|
| Vakcode | X_432573 (432573) |
| Periode | Ac. Jaar (september) |
| Credits | 12.0 |
| Voertaal | Engels |
| Faculteit | Faculteit der Exacte Wetenschappen |
| Coördinator | dr. M. Wijtmans |
| Examinator | dr. M. Wijtmans |
| Niveau | 600 |

Doel vak

To be able to efficiently retrieve in-depth information about a given scientific topic, logically categorize and describe the information in a thesis, and present the main findings in a colloquium.

Inhoud vak

Completion of an academic MSc degree does not only imply practical experience and knowledge from the scientific specialisation, it also implies that one is able to deal with substantial amounts of scientific information in an efficient way and distill this into the main points.

During the literature thesis, the student will collect recent in-depth scientific literature about a given Medicinal Chemistry research topic, usually a topic of direct interest to the research group. The literature information is described in a coherent form in a thesis, which is also presented orally during a colloquium.

Onderwijsvorm

Self-study, contact hours with supervisor.

Toetsvorm

Thesis, colloquium.

Literatuur

A guide with general hints and tips on writing a thesis will be provided.

Doelgroep

mDDS-DD&S

Intekenprocedure

Please contact the coordinator in advance for a discussion and planning of the topic.

Literature thesis and Colloquium DDS Molecular Toxicology, DDSA

| | |
|--------------------|------------------------------------|
| Vakcode | X_432575 (432575) |
| Periode | Ac. Jaar (september) |
| Credits | 12.0 |
| Voertaal | Engels |
| Faculteit | Faculteit der Exacte Wetenschappen |
| Coördinator | dr. J.N.M. Commandeur |
| Examinator | dr. J.N.M. Commandeur |
| Niveau | 600 |

Doel vak

To demonstrate that the student is able to collect relevant and recent primary scientific literature on a predefined subject in the area of molecular and biochemical toxicology, to organize the information in chapters and to draw conclusions on the perspectives or relevance of the subject.

Inhoud vak

The content of the literature thesis/colloquium depends on the subject which will be selected in consultation with master coordinator dr. JNM Commandeur (j.n.m.commandeur@vu.nl).

Onderwijsvorm

Literature study

Toetsvorm

Written literature thesis and oral presentation (colloquium) for the department of Pharmaceutical Sciences.

Aanbevolen voorkennis

The courses ADMET and Drug-induced stress and cellular responses or equivalent courses.

Doelgroep

mDDS-DDSA

Overige informatie

A list of subjects for the literature thesis and colloquium can be obtained from dr. JNM Commandeur (j.n.m.commandeur@vu.nl).

Major Research Project Biomol. Drug Analysis

| | |
|--------------------|------------------------------------|
| Vakcode | X_432564 (432564) |
| Periode | Ac. Jaar (september) |
| Credits | 42.0 |
| Voertaal | Engels |
| Faculteit | Faculteit der Exacte Wetenschappen |
| Coördinator | dr. H. Lingeman |
| Examinator | dr. H. Lingeman |
| Niveau | 600 |

Doel vak

To acquire knowledge and insight into the role and objective of drug, bioanalytical and clinical development processes in complex samples using LC-MS and bio-assay-MS based approaches.

Inhoud vak

This project aims to provide the student with a theoretical and practical understanding of the issues involved in the design, conduct, analyses and interpretation of complex analytical studies.

Doelgroep

mDDS-BDA

Overige informatie

For further information please contact Henk Lingeman.

Major Research Project Biomol. Drug Analysis

| | |
|--------------------|------------------------------------|
| Vakcode | X_432567 (432567) |
| Periode | Ac. Jaar (september) |
| Credits | 48.0 |
| Voertaal | Engels |
| Faculteit | Faculteit der Exacte Wetenschappen |
| Coördinator | dr. H. Lingeman |
| Examinator | dr. H. Lingeman |
| Niveau | 600 |

Doel vak

To acquire knowledge and insight into the role and objective of drug, bio-analytical and clinical development processes in complex samples using LC-MS and bio-assay-MS based approaches.

Inhoud vak

This project aims to provide the student with a theoretical and practical understanding of the issues involved in the design, conduct, analyses and interpretation of complex analytical studies.

Doelgroep
mDDS-BDA

Overige informatie

For further information please contact Henk Lingeman.

Major Research Project Biomol. Drug Analysis

| | |
|--------------------|------------------------------------|
| Vakcode | X_432568 (432568) |
| Periode | Ac. Jaar (september) |
| Credits | 54.0 |
| Voertaal | Engels |
| Faculteit | Faculteit der Exacte Wetenschappen |
| Coördinator | dr. H. Lingeman |
| Examinator | dr. H. Lingeman |
| Niveau | 600 |

Doel vak

To acquire knowledge and insight into the role and objective of drug, bio-analytical and clinical development processes in complex samples using LC-MS and bio-assay-MS based approaches.

Inhoud vak

This project aims to provide the student with a theoretical and practical understanding of the issues involved in the design, conduct, analyses and interpretation of complex analytical studies.

Doelgroep
mDDS-BDA

Overige informatie

For further information please contact Henk Lingeman.

Major Research Project Biomol. Drug Analysis

| | |
|--------------------|------------------------------------|
| Vakcode | X_432569 (432569) |
| Periode | Ac. Jaar (september) |
| Credits | 60.0 |
| Voertaal | Engels |
| Faculteit | Faculteit der Exacte Wetenschappen |
| Coördinator | dr. H. Lingeman |
| Examinator | dr. H. Lingeman |
| Niveau | 600 |

Doel vak

To acquire knowledge and insight into the role and objective of drug, bio-analytical and clinical development processes in complex samples using LC-MS and bio-assay-MS based approaches.

Inhoud vak

This project aims to provide the student with a theoretical and practical understanding of the issues involved in the design, conduct, analyses and interpretation of complex analytical studies.

Doelgroep

mDDS-BDA

Overige informatie

For further information please contact Henk Lingeman.

Major Research Project DDS Biomolecular Drug Analysis (C,E,M)

| | |
|--------------------|------------------------------------|
| Vakcode | X_432727 () |
| Periode | Ac. Jaar (september) |
| Credits | 24.0 |
| Voertaal | Engels |
| Faculteit | Faculteit der Exacte Wetenschappen |
| Coördinator | dr. H. Lingeman |
| Examinator | dr. H. Lingeman |
| Niveau | 600 |

Doel vak

To acquire knowledge and insight into the role and objective of drug, bio-analytical and clinical development processes in complex samples using LC-MS and bio-assay-MS based approaches.

Inhoud vak

This project aims to provide the student with a theoretical and practical understanding of the issues involved in the design, conduct, analyses and interpretation of complex analytical studies.

Doelgroep

mDDS-BDA

Overige informatie

For further information please contact Henk Lingeman.

Major Research Project DDS Medicinal Chemistry, DD&S

| | |
|--------------------|------------------------------------|
| Vakcode | X_432728 () |
| Periode | Ac. Jaar (september) |
| Credits | 24.0 |
| Voertaal | Engels |
| Faculteit | Faculteit der Exacte Wetenschappen |
| Coördinator | dr. M. Wijtmans |
| Examinator | dr. M. Wijtmans |
| Niveau | 600 |

Doel vak

To obtain experience in design and/or synthesis techniques and in doing scientific research.

Inhoud vak

Within medicinal chemistry research, computational chemistry and organic synthesis play a major role in designing and preparing small organic ligands as e.g. protein modulators. During the traineeship, the student actively participates in a research project at e.g. the VU Drug Design and Synthesis laboratories and as such contributes to new scientific results. The focus can be on organic synthesis, on drug design, or on both. Attention will be paid to setting up research experiments, using state-of-the-art experimental techniques, analyzing experimental results and keeping adequate documentation. In all, the student will get exposed to the joys of doing research as well as to exciting contemporary synthetic and/or design techniques.

The student will twice report on the research progress in an oral presentation. The traineeship is completed with a written report.

Toetsvorm

Presentation, report, practical work.

Literatuur

Will be provided by the supervisor. The first 1-2 weeks of the traineeship will be spent on literature reading.

Vereiste voorkennis

Entry requirements with respect to courses likely apply. Ask the coordinator well in advance.

A traineeship cannot take place if the student has less than 18 EC of passed courses.

Doelgroep

mDDS-DD&S

Intekenprocedure

Please contact the coordinator well in advance.

Major Research Project DDS Medicinal Chemistry, DD&S

| | |
|--------------------|------------------------------------|
| Vakcode | X_432509 (432509) |
| Periode | Ac. Jaar (september) |
| Credits | 42.0 |
| Voertaal | Engels |
| Faculteit | Faculteit der Exacte Wetenschappen |
| Coördinator | dr. M. Wijtmans |
| Examinator | dr. M. Wijtmans |
| Niveau | 600 |

Doel vak

To obtain experience in design and/or synthesis techniques and in doing scientific research.

Inhoud vak

Within medicinal chemistry research, computational chemistry and organic synthesis play a major role in designing and preparing small organic ligands as e.g. protein modulators. During the traineeship, the student

actively participates in a research project at e.g. the VU Drug Design and Synthesis laboratories and as such contributes to new scientific results. The focus can be on organic synthesis, on drug design, or on both. Attention will be paid to setting up research experiments, using state-of-the-art experimental techniques, analyzing experimental results and keeping adequate documentation. In all, the student will get exposed to the joys of doing research as well as to exciting contemporary synthetic and/or design techniques.

The student will twice report on the research progress in an oral presentation. The traineeship is completed with a written report.

Toetsvorm

Presentation, report, practical work.

Literatuur

Will be provided by the supervisor. The first 1-2 weeks of the traineeship will be spent on literature reading.

Vereiste voorkennis

Entry requirements with respect to courses likely apply. Ask the coordinator well in advance.

A traineeship cannot take place if the student has less than 18 EC of passed courses.

Doelgroep

mDDS-DD&S

Intekenprocedure

Please contact the coordinator well in advance.

Overige informatie

There are four variants of this traineeship. Extension of the traineeship up to 60 ECTS can be incorporated as part of the optional part of the MSc program.

X_432509: 42 ECTS

X_432544: 48 ECTS

X_432545: 54 ECTS

X_432546: 60 ECTS

Major Research Project DDS Medicinal Chemistry, DD&S

| | |
|--------------------|------------------------------------|
| Vakcode | X_432544 (432544) |
| Periode | Ac. Jaar (september) |
| Credits | 48.0 |
| Voertaal | Engels |
| Faculteit | Faculteit der Exacte Wetenschappen |
| Coördinator | dr. M. Wijtmans |
| Examinator | dr. M. Wijtmans |
| Niveau | 600 |

Doel vak

To obtain experience in design and/or synthesis techniques and in doing scientific research.

Inhoud vak

Within medicinal chemistry research, computational chemistry and organic synthesis play a major role in designing and preparing small organic ligands as e.g. protein modulators. During the traineeship, the student actively participates in a research project at e.g. the VU Drug Design and Synthesis laboratories and as such contributes to new scientific results. The focus can be on organic synthesis, on drug design, or on both. Attention will be paid to setting up research experiments, using state-of-the-art experimental techniques, analyzing experimental results and keeping adequate documentation. In all, the student will get exposed to the joys of doing research as well as to exciting contemporary synthetic and/or design techniques.

The student will twice report on the research progress in an oral presentation. The traineeship is completed with a written report.

Toetsvorm

Presentation, report, practical work.

Literatuur

Will be provided by the supervisor. The first 1-2 weeks of the traineeship will be spent on literature reading.

Vereiste voorkennis

Entry requirements with respect to courses likely apply. Ask the coordinator well in advance.

A traineeship cannot take place if the student has less than 18 EC of passed courses.

Doelgroep

mDDS-DD&S

Intekenprocedure

Please contact the coordinator well in advance.

Overige informatie

There are four variants of this traineeship. Extension of the traineeship up to 60 ECTS can be incorporated as part of the optional part of the MSc program.

X_432509: 42 ECTS

X_432544: 48 ECTS

X_432545: 54 ECTS

X_432546: 60 ECTS

Major Research Project DDS Medicinal Chemistry, DD&S

| | |
|--------------------|------------------------------------|
| Vakcode | X_432545 (432545) |
| Periode | Ac. Jaar (september) |
| Credits | 54.0 |
| Voertaal | Engels |
| Faculteit | Faculteit der Exacte Wetenschappen |
| Coördinator | dr. M. Wijtmans |
| Examinator | dr. M. Wijtmans |
| Niveau | 600 |

Doel vak

To obtain experience in design and/or synthesis techniques and in doing scientific research.

Inhoud vak

Within medicinal chemistry research, computational chemistry and organic synthesis play a major role in designing and preparing small organic ligands as e.g. protein modulators. During the traineeship, the student actively participates in a research project at e.g. the VU Drug Design and Synthesis laboratories and as such contributes to new scientific results. The focus can be on organic synthesis, on drug design, or on both. Attention will be paid to setting up research experiments, using state-of-the-art experimental techniques, analyzing experimental results and keeping adequate documentation. In all, the student will get exposed to the joys of doing research as well as to exciting contemporary synthetic and/or design techniques.

The student will twice report on the research progress in an oral presentation. The traineeship is completed with a written report.

Toetsvorm

Presentation, report, practical work.

Literatuur

Will be provided by the supervisor. The first 1-2 weeks of the traineeship will be spent on literature reading.

Vereiste voorkennis

Entry requirements with respect to courses likely apply. Ask the coordinator well in advance.

A traineeship cannot take place if the student has less than 18 EC of passed courses.

Doelgroep

mDDS-DD&S

Intekenprocedure

Please contact the coordinator well in advance.

Overige informatie

There are four variants of this traineeship. Extension of the traineeship up to 60 ECTS can be incorporated as part of the optional part of the MSc program.

X_432509: 42 ECTS

X_432544: 48 ECTS

X_432545: 54 ECTS

X_432546: 60 ECTS

Major Research Project DDS Medicinal Chemistry, DD&S

| | |
|------------------|------------------------------------|
| Vakcode | X_432546 (432546) |
| Periode | Ac. Jaar (september) |
| Credits | 60.0 |
| Voertaal | Engels |
| Faculteit | Faculteit der Exacte Wetenschappen |

| | |
|--------------------|-----------------|
| Coördinator | dr. M. Wijtmans |
| Examinator | dr. M. Wijtmans |
| Niveau | 600 |

Doel vak

To obtain experience in design and/or synthesis techniques and in doing scientific research.

Inhoud vak

Within medicinal chemistry research, computational chemistry and organic synthesis play a major role in designing and preparing small organic ligands as e.g. protein modulators. During the traineeship, the student actively participates in a research project at e.g. the VU Drug Design and Synthesis laboratories and as such contributes to new scientific results. The focus can be on organic synthesis, on drug design, or on both. Attention will be paid to setting up research experiments, using state-of-the-art experimental techniques, analyzing experimental results and keeping adequate documentation. In all, the student will get exposed to the joys of doing research as well as to exciting contemporary synthetic and/or design techniques.

The student will twice report on the research progress in an oral presentation. The traineeship is completed with a written report.

Toetsvorm

Presentation, report, practical work.

Literatuur

Will be provided by the supervisor. The first 1-2 weeks of the traineeship will be spent on literature reading.

Vereiste voorkennis

Entry requirements with respect to courses likely apply. Ask the coordinator well in advance.

A traineeship cannot take place if the student has less than 18 EC of passed courses.

Doelgroep

mDDS-DD&S

Intekenprocedure

Please contact the coordinator well in advance.

Overige informatie

There are four variants of this traineeship. Extension of the traineeship up to 60 ECTS can be incorporated as part of the optional part of the MSc program.

X_432509: 42 ECTS

X_432544: 48 ECTS

X_432545: 54 ECTS

X_432546: 60 ECTS

Major Research Project DDS Medicinal Chemistry, DDTF

| | |
|----------------|----------------------|
| Vakcode | X_432729 () |
| Periode | Ac. Jaar (september) |

| | |
|--------------------|------------------------------------|
| Credits | 24.0 |
| Voertaal | Engels |
| Faculteit | Faculteit der Exacte Wetenschappen |
| Coördinator | dr. M.H. Siderius |
| Examinator | dr. M.H. Siderius |
| Niveau | 600 |

Major Research Project DDS Molecular Toxicology, CMCT

| | |
|--------------------|------------------------------------|
| Vakcode | X_432730 () |
| Periode | Ac. Jaar (september) |
| Credits | 24.0 |
| Voertaal | Engels |
| Faculteit | Faculteit der Exacte Wetenschappen |
| Coördinator | dr. D.P. Geerke |
| Examinator | dr. D.P. Geerke |
| Niveau | 600 |

Major Research Project DDS Molecular Toxicology, DDSA

| | |
|--------------------|------------------------------------|
| Vakcode | X_432559 (432559) |
| Periode | Ac. Jaar (september) |
| Credits | 42.0 |
| Voertaal | Engels |
| Faculteit | Faculteit der Exacte Wetenschappen |
| Coördinator | dr. J.N.M. Commandeur |
| Examinator | dr. J.N.M. Commandeur |
| Niveau | 600 |

Doel vak

To perform research in the area of molecular and biochemical toxicology and to get familiar with experimental approaches used in this field.

To define a hypothesis based on previous observations or publications, and to design, execute and critically interpret the experiments performed to test specific hypotheses.

Inhoud vak

The research project will be carried out in the context in one of the PhD- or postdoc-projects which are carried out in the section Molecular Toxicology.

Generally, the research is focussed on the role of drug metabolising enzymes, such as cytochromes P450, glutathione transferases, sulfotransferases, etc. in the bioactivation and bioinactivation of toxic drugs and other chemicals, identification of genetically determined enzymes, drug-drug interactions, the identification of reactive intermediates and cellular targets of reactive intermediates and cellular responses related to cytotoxicity or adaptation reactions.

Onderwijsvorm

Experimental research project, starting with a brief literature survey on the topic to be investigated.

Toetsvorm

Written report, (participation to) work discussions, and oral presentation in the section of Molecular Toxicology.

Literatuur

Relevant reviews will be provided at the start of the project.

Aanbevolen voorkennis

Courses ADMET, Drug-induced stress and cellular signalling or equivalent courses.

Doelgroep

mDDS-DDSA

Overige informatie

Registration for a research project should be ultimately 4 weeks in advance. General information on projects to which the student can participate will be provided by master coordinator dr JNM Commandeur (j.n.m.commandeur@vu.nl) and, more specifically, by PhD-students and postdocs of the section Molecular Toxicology.

Major Research Project DDS Molecular Toxicology, DDSA

| | |
|--------------------|------------------------------------|
| Vakcode | X_432561 (432561) |
| Periode | Ac. Jaar (september) |
| Credits | 48.0 |
| Voertaal | Engels |
| Faculteit | Faculteit der Exacte Wetenschappen |
| Coördinator | dr. J.N.M. Commandeur |
| Examinator | dr. J.N.M. Commandeur |
| Niveau | 600 |

Doel vak

To perform research in the area of molecular and biochemical toxicology and to get familiar with experimental approaches used in this field. To define a hypothesis based on previous observations or publications, and to design, execute and critically interpret the experiments performed to test specific hypotheses.

Inhoud vak

The research project will be carried out in the context in one of the PhD- or postdoc-projects which are carried out in the section Molecular Toxicology.

Generally, the research is focussed on the role of drug metabolising enzymes, such as cytochromes P450, glutathione transferases, sulfotransferases, etc. in the bioactivation and bioinactivation of toxic drugs and other chemicals, identification of genetically determined enzymes, drug-drug interactions, the identification of reactive intermediates and cellular targets of reactive intermediates and cellular responses related to cytotoxicity or adaptation reactions.

Onderwijsvorm

Experimental research project, starting with a brief literature survey on the topic to be investigated.

Toetsvorm

Written report, (participation to) work discussions, and oral presentation in the section of Molecular Toxicology.

Literatuur

Relevant reviews will be provided at the start of the project.

Aanbevolen voorkennis

Courses ADMET, Drug-induced stress and cellular signalling or equivalent courses.

Doelgroep

mDDS-DDSA

Overige informatie

Registration for a research project should be ultimately 4 weeks in advance. General information on projects to which the student can participate will be provided by master coordinator dr JNM Commandeur (j.n.m.commandeur@vu.nl) and, more specifically, by PhD-students and postdocs of the section Molecular Toxicology.

Major Research Project DDS Molecular Toxicology, DDSA

| | |
|--------------------|------------------------------------|
| Vakcode | X_432562 (432562) |
| Periode | Ac. Jaar (september) |
| Credits | 54.0 |
| Voertaal | Engels |
| Faculteit | Faculteit der Exacte Wetenschappen |
| Coördinator | dr. J.N.M. Commandeur |
| Examinator | dr. J.N.M. Commandeur |
| Niveau | 600 |

Doel vak

To perform research in the area of molecular and biochemical toxicology and to get familiar with experimental approaches used in this field. To define a hypothesis based on previous observations or publications, and to design, execute and critically interpret the experiments performed to test specific hypotheses.

Inhoud vak

The research project will be carried out in the context in one of the PhD- or postdoc-projects which are carried out in the section Molecular Toxicology.

Generally, the research is focussed on the role of drug metabolising enzymes, such as cytochromes P450, glutathione transferases, sulfotransferases, etc. in the bioactivation and bioinactivation of toxic drugs and other chemicals, identification of genetically determined enzymes, drug-drug interactions, the identification of reactive intermediates and cellular targets of reactive intermediates and cellular responses related to cytotoxicity or adaptation reactions.

Onderwijsvorm

Experimental research project, starting with a brief literature survey on the topic to be investigated.

Toetsvorm

Written report, (participation to) work discussions, and oral presentation in the section of Molecular Toxicology.

Literatuur

Relevant reviews will be provided at the start of the project.

Aanbevolen voorkennis

Courses ADMET, Drug-induced stress and cellular signalling or equivalent courses.

Doelgroep

mDDS-DDSA

Overige informatie

Registration for a research project should be ultimately 4 weeks in advance. General information on projects to which the student can participate will be provided by master coordinator dr JNM Commandeur (j.n.m.commandeur@vu.nl) and, more specifically, by PhD-students and postdocs of the section Molecular Toxicology.

Major Research Project DDS Molecular Toxicology, DDSA

| | |
|--------------------|------------------------------------|
| Vakcode | X_432563 (432563) |
| Periode | Ac. Jaar (september) |
| Credits | 60.0 |
| Voertaal | Engels |
| Faculteit | Faculteit der Exacte Wetenschappen |
| Coördinator | dr. J.N.M. Commandeur |
| Examinator | dr. J.N.M. Commandeur |
| Niveau | 600 |

Doel vak

To perform research in the area of molecular and biochemical toxicology and to get familiar with experimental approaches used in this field. To define a hypothesis based on previous observations or publications, and to design, execute and critically interpret the experiments performed to test specific hypotheses.

Inhoud vak

The research project will be carried out in the context in one of the PhD- or postdoc-projects which are carried out in the section Molecular Toxicology.

Generally, the research is focussed on the role of drug metabolising enzymes, such as cytochromes P450, glutathione transferases, sulfotransferases, etc. in the bioactivation and bioinactivation of toxic drugs and other chemicals, identification of genetically determined enzymes, drug-drug interactions, the identification of reactive intermediates and cellular targets of reactive intermediates and cellular responses related to cytotoxicity or adaptation reactions.

Onderwijsvorm

Experimental research project, starting with a brief literature survey on the topic to be investigated.

Toetsvorm

Written report, (participation to) work discussions, and oral presentation in the section of Molecular Toxicology.

Literatuur

Relevant reviews will be provided at the start of the project.

Aanbevolen voorkennis

Courses ADMET, Drug-induced stress and cellular signalling or equivalent courses.

Doelgroep

mDDS-DDSA

Overige informatie

Registration for a research project should be ultimately 4 weeks in advance. General information on projects to which the student can participate will be provided by master coordinator dr JNM Commandeur (j.n.m.commandeur@vu.nl) and, more specifically, by PhD-students and postdocs of the section Molecular Toxicology

Major Research Project DDS Molecular Toxicology, DDSA (C,E,M)

| | |
|--------------------|------------------------------------|
| Vakcode | X_432731 () |
| Periode | Ac. Jaar (september) |
| Credits | 24.0 |
| Voertaal | Engels |
| Faculteit | Faculteit der Exacte Wetenschappen |
| Coördinator | dr. J.N.M. Commandeur |
| Examinator | dr. J.N.M. Commandeur |
| Niveau | 600 |

Doel vak

To perform research in the area of molecular and biochemical toxicology and to get familiar with experimental approaches used in this field. To define a hypothesis based on previous observations or publications, and to design, execute and critically interpret the experiments performed to test specific hypotheses.

Inhoud vak

The research project will be carried out in the context in one of the PhD- or postdoc-projects which are carried out in the section Molecular Toxicology.

Generally, the research is focussed on the role of drug metabolising enzymes, such as cytochromes P450, glutathione transferases, sulfotransferases, etc. in the bioactivation and bioinactivation of toxic drugs and other chemicals, identification of genetically determined enzymes, drug-drug interactions, the identification of reactive intermediates and cellular targets of reactive intermediates and cellular responses related to cytotoxicity or adaptation reactions.

Onderwijsvorm

Experimental research project, starting with a brief literature survey on the topic to be investigated.

Toetsvorm

Written report, (participation to) work discussions, and oral presentation in the section of MOlecular Toxicology.

Literatuur

Relevant reviews will be provided at the start of the project.

Aanbevolen voorkennis

Courses ADMET, Drug-induced stress and cellular signalling or equivalent courses,

Doelgroep

mDDS-DDSA

Overige informatie

Registration for a research project should be ultimately 4 weeks in advance. General information on projects to which the student can participate will be provided by master coordinator dr JNM Commandeur (j.n.m.commandeur@vu.nl) and, more specifically, by PhD-students and postdocs of the section Moleculair Toxicology

Major Research Project Med. Chem., Drug Disc. & Target Find.

| | |
|--------------------|------------------------------------|
| Vakcode | X_432550 (432550) |
| Periode | Ac. Jaar (september) |
| Credits | 48.0 |
| Voertaal | Engels |
| Faculteit | Faculteit der Exacte Wetenschappen |
| Coördinator | dr. M.H. Siderius |
| Examinator | dr. M.H. Siderius |
| Niveau | 600 |

Major Research Project Med. Chem., Drug Disc. & Target Find.

| | |
|--------------------|------------------------------------|
| Vakcode | X_432551 (432551) |
| Periode | Ac. Jaar (september) |
| Credits | 54.0 |
| Voertaal | Engels |
| Faculteit | Faculteit der Exacte Wetenschappen |
| Coördinator | dr. M.H. Siderius |
| Examinator | dr. M.H. Siderius |
| Niveau | 600 |

Major Research Project Med. Chem., Drug Disc. & Target Find.

| | |
|----------------|-------------------|
| Vakcode | X_432552 (432552) |
|----------------|-------------------|

| | |
|--------------------|------------------------------------|
| Periode | Ac. Jaar (september) |
| Credits | 60.0 |
| Voertaal | Engels |
| Faculteit | Faculteit der Exacte Wetenschappen |
| Coördinator | dr. M.H. Siderius |
| Examinator | dr. M.H. Siderius |
| Niveau | 600 |

Major Research Project Med. Chem., Drug Disc. & Target.Find.

| | |
|--------------------|------------------------------------|
| Vakcode | X_432547 (432547) |
| Periode | Ac. Jaar (september) |
| Credits | 42.0 |
| Voertaal | Engels |
| Faculteit | Faculteit der Exacte Wetenschappen |
| Coördinator | dr. M.H. Siderius |
| Examinator | dr. M.H. Siderius |
| Niveau | 600 |

Overige informatie

Period: variable

Major Research Project Mol. Tox., Comp. Med. Chem. & Tox.

| | |
|--------------------|------------------------------------|
| Vakcode | X_432553 (432553) |
| Periode | Ac. Jaar (september) |
| Credits | 42.0 |
| Voertaal | Engels |
| Faculteit | Faculteit der Exacte Wetenschappen |
| Coördinator | dr. D.P. Geerke |
| Examinator | dr. D.P. Geerke |
| Niveau | 600 |

Major Research Project Mol. Tox., Comp. Med. Chem. & Tox.

| | |
|--------------------|------------------------------------|
| Vakcode | X_432556 (432556) |
| Periode | Ac. Jaar (september) |
| Credits | 48.0 |
| Voertaal | Engels |
| Faculteit | Faculteit der Exacte Wetenschappen |
| Coördinator | dr. D.P. Geerke |
| Examinator | dr. D.P. Geerke |
| Niveau | 600 |

Major Research Project Mol. Tox., Comp. Med. Chem. & Tox.

| | |
|--------------------|------------------------------------|
| Vakcode | X_432557 (432557) |
| Periode | Ac. Jaar (september) |
| Credits | 54.0 |
| Voertaal | Engels |
| Faculteit | Faculteit der Exacte Wetenschappen |
| Coördinator | dr. D.P. Geerke |
| Examinator | dr. D.P. Geerke |
| Niveau | 600 |

Major Research Project Mol. Tox., Comp. Med. Chem. & Tox.

| | |
|--------------------|------------------------------------|
| Vakcode | X_432558 (432558) |
| Periode | Ac. Jaar (september) |
| Credits | 60.0 |
| Voertaal | Engels |
| Faculteit | Faculteit der Exacte Wetenschappen |
| Coördinator | dr. D.P. Geerke |
| Examinator | dr. D.P. Geerke |
| Niveau | 600 |

Managing Science and Technology in Society

| | |
|----------------------|--|
| Vakcode | AM_470586 () |
| Periode | Periode 1 |
| Credits | 6.0 |
| Voertaal | Engels |
| Faculteit | Fac. der Aard- en Levenswetenschappen |
| Coördinator | dr. T.J. Schuitmaker-Warnaar |
| Examinator | dr. T.J. Schuitmaker-Warnaar |
| Docent(en) | dr. B.J. Regeer, dr. J.F.H. Kupper, dr. C.W.M. Dedding, dr. T.J. Schuitmaker-Warnaar, prof. dr. J.E.W. Broerse |
| Lesmethode(n) | Hoorcollege, Werkgroep |
| Niveau | 600 |

Doel vak

In this course, students:

- acquire knowledge and understanding of philosophical and social science theories on science and technology development.
- gain insight into the mutual shaping of science & technology and society.
- acquire knowledge and understanding of the basic concepts and issues in the field of science and technology studies.
- acquire knowledge and understanding of technological development through Responsible Research and Innovation
- acquire knowledge and understanding of interactive methods for directing and guiding developments in science and technology.
- gain insight into the need for democratization of science and technology.

- learn to recognize and operate the central STS concepts in their own life worlds.
- learn to communicate verbally and in scientific writing about their knowledge and understanding and to critically reflect on that.

Inhoud vak

The 'Managing Science and Technology in Society' course offers an advanced introduction into the academic field of 'Science Technology & Society Studies'.

As an MPA student you are trained to operate at the interface of your natural science discipline and society, thereby making a contribution to answering the complex social problems arising in these areas. At the dawn of the 21st century, technology and science have an enormous potential for transforming life on earth. At the same time, the dimensions of our human culture shape the directions in which science and technology develop. The production of scientific knowledge and technological artefacts can solve some of our problems, but at the same time they give rise to new problems. During this course you will study the interactions of science and technology with society, and the various ways in which they mutually shape one another. These interactions invoke a lot of questions. Should we embrace genetically modified food? How do new human reproductive technologies interfere with the way we deal with sexuality and social responsibilities?

In this course you will get acquainted with a conceptual framework to critically assess these kinds of questions. It aims at understanding the intertwinement of science, technology and society, and the importance of a broad concern with these interactions, in order to shape our future in the way that we want it.

Onderwijsvorm

'Managing Science and Technology in Society' is a fulltime course of four weeks (6 ECTS). The course schedule is available on blackboard.

Tuition methods include lectures, work groups, a group project and self-study.

The different elements have the following study time:

- lectures: 22 hours
- work groups: 12 hours
- group project: 32 hours
- examination (take-home): 14 hours
- self study (including mini-essays): remaining hours

Toetsvorm

The examination consists of:

- Mini-essay 1 (20%)
- Mini-essay 2 (20%)
- Final essay (take-home essay exam) (40%)
- SCOB-project (20%)

All parts need to be passed.

Literatuur

The literature of this course consists of selected chapters from the book *An introduction to science and technology studies*, Sergio Sismondo 2010, which can be purchased at the VU book shop. Complementary articles are provided for via blackboard, august 2015.

Doelgroep

Compulsory course within the second year of the Master Management, Policy Analysis and Entrepreneurship for the Health and Life Sciences (MPA)

Overige informatie

Guest Lecturers:

- Wouter Mensink (SCP, UvA)
- Harro van Lente (UU)
- Steven Flipse (TU Delft, De Proeffabriek)

and others

More information: T.J.Schuitmaker@vu.nl

Mass Spectrometry

| | |
|------------------|------------------------------------|
| Vakcode | X_435604 (435604) |
| Periode | Periode 2 |
| Credits | 6.0 |
| Voertaal | Engels |
| Faculteit | Faculteit der Exacte Wetenschappen |
| Niveau | 400 |

Inhoud vak

<http://studiegids.uva.nl/xmlpages/page/2014-2015/zoek-vak/vak/229>

Overige informatie

Registration via <https://www.sis.uva.nl> is mandatory 4 weeks before the start of the Semester.

Minor Research Project Biomol. Drug Analysis

| | |
|--------------------|------------------------------------|
| Vakcode | X_432658 (432658) |
| Periode | Ac. Jaar (september) |
| Credits | 24.0 |
| Voertaal | Engels |
| Faculteit | Faculteit der Exacte Wetenschappen |
| Coördinator | dr. H. Lingeman |
| Examinator | dr. H. Lingeman |
| Niveau | 500 |

Doel vak

To acquire knowledge and insight into the role and objective of drug, bio-analytical and clinical development processes in complex samples using LC-MS and bio-assay-MS based approaches.

Inhoud vak

This project aims to provide the student with a theoretical and practical understanding of the issues involved in the design, conduct, analyses and interpretation of complex analytical studies.

Doelgroep

mDDS

Overige informatie

For further information please contact Henk Lingeman.

Minor Research Project Biomol. Drug Analysis

| | |
|--------------------|------------------------------------|
| Vakcode | X_432689 (432689) |
| Periode | Ac. Jaar (september) |
| Credits | 18.0 |
| Voertaal | Engels |
| Faculteit | Faculteit der Exacte Wetenschappen |
| Coördinator | dr. H. Lingeman |
| Examinator | dr. H. Lingeman |
| Niveau | 500 |

Doel vak

To acquire knowledge and insight into the role and objective of drug, bio-analytical and clinical development processes in complex samples using LC-MS and bio-assay-MS based approaches.

Inhoud vak

This project aims to provide the student with a theoretical and practical understanding of the issues involved in the design, conduct, analyses and interpretation of complex analytical procedures.

Doelgroep

mDDS

Overige informatie

For further information please contact Henk Lingeman.

Minor Research Project Biomol. Drug Analysis

| | |
|--------------------|------------------------------------|
| Vakcode | X_432704 () |
| Periode | Ac. Jaar (september) |
| Credits | 30.0 |
| Voertaal | Engels |
| Faculteit | Faculteit der Exacte Wetenschappen |
| Coördinator | dr. H. Lingeman |
| Examinator | dr. H. Lingeman |
| Niveau | 500 |

Doel vak

To acquire knowledge and insight into the role and objective of drug, bio-analytical and clinical development processes in complex samples using LC-MS and bio-assay-MS based approaches.

Inhoud vak

This project aims to provide the student with a theoretical and practical understanding of the issues involved in the design, conduct, analyses and interpretation of complex analytical studies.

Doelgroep

mDDS

Overige informatie

For further information please contact Henk Lingeman.

Minor Research Project DDS Medicinal Chemistry, DD&S

| | |
|--------------------|------------------------------------|
| Vakcode | X_432692 (432692) |
| Periode | Ac. Jaar (september) |
| Credits | 18.0 |
| Voertaal | Engels |
| Faculteit | Faculteit der Exacte Wetenschappen |
| Coördinator | dr. M. Wijtmans |
| Examinator | dr. M. Wijtmans |
| Niveau | 500 |

Doel vak

To obtain experience in design and/or synthesis techniques and in doing scientific research.

Inhoud vak

Within medicinal chemistry research, computational chemistry and organic synthesis play a major role in designing and preparing small organic ligands as e.g. protein modulators. During the traineeship, a student from another background can actively participate in a medicinal chemistry research project. The focus can be on organic synthesis, or on drug design. Attention will be paid to setting up research experiments, using state-of-the-art experimental techniques, analyzing experimental results and keeping adequate documentation.

Toetsvorm

Presentation, report, practical work.

Literatuur

Will be provided by the supervisor. The first 1-2 weeks of the traineeship will be spent on literature reading.

Vereiste voorkennis

Entry requirements may apply. Contact the coordinator well in advance.

Aanbevolen voorkennis

Thorough knowledge of organic chemistry.

Doelgroep

mDDS, mCh

Intekenprocedure

Please contact the coordinator well in advance.

Minor Research Project DDS Medicinal Chemistry, DD&S

| | |
|----------------|-------------------|
| Vakcode | X_432693 (432693) |
|----------------|-------------------|

| | |
|--------------------|------------------------------------|
| Periode | Ac. Jaar (september) |
| Credits | 24.0 |
| Voertaal | Engels |
| Faculteit | Faculteit der Exacte Wetenschappen |
| Coördinator | dr. M. Wijtmans |
| Examinator | dr. M. Wijtmans |
| Niveau | 500 |

Doel vak

To obtain experience in design and/or synthesis techniques and in doing scientific research.

Inhoud vak

Within medicinal chemistry research, computational chemistry and organic synthesis play a major role in designing and preparing small organic ligands as e.g. protein modulators. During the traineeship, a student from another background can actively participate in a medicinal chemistry research project. The focus can be on organic synthesis, or on drug design. Attention will be paid to setting up research experiments, using state-of-the-art experimental techniques, analyzing experimental results and keeping adequate documentation.

Toetsvorm

Presentation, report, practical work.

Literatuur

Will be provided by the supervisor. The first 1-2 weeks of the traineeship will be spent on literature reading.

Vereiste voorkennis

Entry requirements may apply. Contact the coordinator well in advance.

Aanbevolen voorkennis

Thorough knowledge of organic chemistry.

Doelgroep

mDDS, mCh

Intekenprocedure

Please contact the coordinator well in advance.

Minor Research Project DDS Medicinal Chemistry, DD&S

| | |
|--------------------|------------------------------------|
| Vakcode | X_432705 (432705) |
| Periode | Ac. Jaar (september) |
| Credits | 30.0 |
| Voertaal | Engels |
| Faculteit | Faculteit der Exacte Wetenschappen |
| Coördinator | dr. M. Wijtmans |
| Examinator | dr. M. Wijtmans |
| Niveau | 500 |

Doel vak

To obtain experience in design and/or synthesis techniques and in doing scientific research.

Inhoud vak

Within medicinal chemistry research, computational chemistry and organic synthesis play a major role in designing and preparing small organic ligands as e.g. protein modulators. During the traineeship, a student from another background can actively participate in a medicinal chemistry research project. The focus can be on organic synthesis, or on drug design. Attention will be paid to setting up research experiments, using state-of-the-art experimental techniques, analyzing experimental results and keeping adequate documentation.

Toetsvorm

Presentation, report, practical work.

Literatuur

Will be provided by the supervisor. The first 1-2 weeks of the traineeship will be spent on literature reading.

Vereiste voorkennis

Entry requirements may apply. Contact the coordinator well in advance.

Aanbevolen voorkennis

Thorough knowledge of organic chemistry.

Doelgroep

mDDS, mCh

Intekenprocedure

Please contact the coordinator well in advance.

Minor Research Project DDS Molecular Toxicology, CMCT

| | |
|--------------------|------------------------------------|
| Vakcode | X_432632 (432632) |
| Periode | Ac. Jaar (september) |
| Credits | 24.0 |
| Voertaal | Engels |
| Faculteit | Faculteit der Exacte Wetenschappen |
| Coördinator | dr. D.P. Geerke |
| Examinator | dr. D.P. Geerke |
| Niveau | 500 |

Minor Research Project DDS Molecular Toxicology, DDSA

| | |
|--------------------|------------------------------------|
| Vakcode | X_432591 (432591) |
| Periode | Ac. Jaar (september) |
| Credits | 24.0 |
| Voertaal | Engels |
| Faculteit | Faculteit der Exacte Wetenschappen |
| Coördinator | dr. J.N.M. Commandeur |
| Examinator | dr. J.N.M. Commandeur |

| | |
|---------------|-----|
| Niveau | 500 |
|---------------|-----|

Doel vak

To perform research in the area of molecular and biochemical toxicology and to get familiar with experimental approaches used in this field.

To define a hypothesis based on previous observations or publications, and to design, execute and critically interpret the experiments performed to test specific hypotheses.

Inhoud vak

The research project will be carried out in the context in one of the PhD- or postdoc-projects which are carried out in the section Molecular Toxicology.

Generally, the research is focussed on the role of drug metabolising enzymes, such as cytochromes P450, glutathione transferases, sulfotransferases, etc. in the bioactivation and bioinactivation of toxic drugs and other chemicals, identification of genetically determined enzymes, drug-drug interactions, the identification of reactive intermediates and cellular targets of reactive intermediates and cellular responses related to cytotoxicity or adaptation reactions.

Onderwijsvorm

Experimental research project, starting with a brief literature survey on the topic to be investigated.

Toetsvorm

Written report, (participation to) work discussions, and oral presentation in the section of Molecular Toxicology.

Literatuur

Relevant reviews will be provided at the start of the project.

Aanbevolen voorkennis

Courses ADMET, Drug-induced stress and cellular signalling or equivalent courses.

Doelgroep

mDDS-DDTF, mDDS-CMCT, mDDS-DD&S, mDDS-BCCA

Overige informatie

Registration for a research project should be ultimately 4 weeks in advance. General information on projects to which the student can participate will be provided by master coordinator dr JNM Commandeur (j.n.m.commandeur@vu.nl) and, more specifically, by PhD-students and postdocs of the section Molecular Toxicology.

Minor Research Project DDS Molecular Toxicology, DDSA

| | |
|--------------------|------------------------------------|
| Vakcode | X_432592 (432592) |
| Periode | Ac. Jaar (september) |
| Credits | 30.0 |
| Voertaal | Engels |
| Faculteit | Faculteit der Exacte Wetenschappen |
| Coördinator | dr. J.N.M. Commandeur |
| Examinator | dr. J.N.M. Commandeur |

| | |
|---------------|-----|
| Niveau | 500 |
|---------------|-----|

Doel vak

To perform research in the area of molecular and biochemical toxicology and to get familiar with experimental approaches used in this field.

To define a hypothesis based on previous observations or publications, and to design, execute and critically interpret the experiments performed to test specific hypotheses.

Inhoud vak

The research project will be carried out in the context in one of the PhD- or postdoc-projects which are carried out in the section Molecular Toxicology.

Generally, the research is focussed on the role of drug metabolising enzymes, such as cytochromes P450, glutathione transferases, sulfotransferases, etc. in the bioactivation and bioinactivation of toxic drugs and other chemicals, identification of genetically determined enzymes, drug-drug interactions, the identification of reactive intermediates and cellular targets of reactive intermediates and cellular responses related to cytotoxicity or adaptation reactions.

Onderwijsvorm

Experimental research project, starting with a brief literature survey on the topic to be investigated.

Toetsvorm

Written report, (participation to) work discussions, and oral presentation in the section of Molecular Toxicology.

Literatuur

Relevant reviews will be provided at the start of the project.

Aanbevolen voorkennis

Courses ADMET, Drug-induced stress and cellular signalling or equivalent courses.

Doelgroep

mDDS-DDTF, mDDS-CMCT, mDDS-DD&S, mDDS-BCCA

Overige informatie

Registration for a research project should be ultimately 4 weeks in advance. General information on projects to which the student can participate will be provided by master coordinator dr JNM Commandeur (j.n.m.commandeur@vu.nl) and, more specifically, by PhD-students and postdocs of the section Molecular Toxicology.

Minor Research Project DDS Molecular Toxicology, DDSA

| | |
|--------------------|------------------------------------|
| Vakcode | X_432620 (432620) |
| Periode | Ac. Jaar (september) |
| Credits | 18.0 |
| Voertaal | Engels |
| Faculteit | Faculteit der Exacte Wetenschappen |
| Coördinator | dr. J.N.M. Commandeur |
| Examinator | dr. J.N.M. Commandeur |

| | |
|---------------|-----|
| Niveau | 500 |
|---------------|-----|

Doel vak

To perform research in the area of molecular and biochemical toxicology and to get familiar with experimental approaches used in this field.

To define a hypothesis based on previous observations or publications, and to design, execute and critically interpret the experiments performed to test specific hypotheses.

Inhoud vak

The research project will be carried out in the context in one of the PhD- or postdoc-projects which are carried out in the section Molecular Toxicology.

Generally, the research is focussed on the role of drug metabolising enzymes, such as cytochromes P450, glutathione transferases, sulfotransferases, etc. in the bioactivation and bioinactivation of toxic drugs and other chemicals, identification of genetically determined enzymes, drug-drug interactions, the identification of reactive intermediates and cellular targets of reactive intermediates and cellular responses related to cytotoxicity or adaptation reactions.

Onderwijsvorm

Experimental research project, starting with a brief literature survey on the topic to be investigated.

Toetsvorm

Written report, (participation to) work discussions, and oral presentation in the section of Molecular Toxicology.

Literatuur

Relevant reviews will be provided at the start of the project.

Aanbevolen voorkennis

Courses ADMET, Drug-induced stress and cellular signalling or equivalent courses.

Doelgroep

mDDS-DDTF, mDDS-CMCT, mDDS-DD&S, mDDS-BCCA

Overige informatie

Registration for a research project should be ultimately 4 weeks in advance. General information on projects to which the student can participate will be provided by master coordinator dr JNM Commandeur (j.n.m.commandeur@vu.nl) and, more specifically, by PhD-students and postdocs of the section Molecular Toxicology.

Minor Research Project DDS, CMCT

| | |
|--------------------|------------------------------------|
| Vakcode | X_432507 (432507) |
| Periode | Ac. Jaar (september) |
| Credits | 18.0 |
| Voertaal | Engels |
| Faculteit | Faculteit der Exacte Wetenschappen |
| Coördinator | dr. D.P. Geerke |
| Examinator | dr. D.P. Geerke |

| | |
|---------------|-----|
| Niveau | 500 |
|---------------|-----|

Inhoud vak

Period: Variable

Minor Research Project DDS, CMCT

| | |
|--------------------|------------------------------------|
| Vakcode | X_432707 () |
| Periode | Ac. Jaar (september) |
| Credits | 30.0 |
| Voertaal | Engels |
| Faculteit | Faculteit der Exacte Wetenschappen |
| Coördinator | dr. D.P. Geerke |
| Examinator | dr. D.P. Geerke |
| Niveau | 500 |

Minor Research Project Med. Chem., Drug Disc. & Target Find.

| | |
|--------------------|------------------------------------|
| Vakcode | X_432696 (432696) |
| Periode | Ac. Jaar (september) |
| Credits | 18.0 |
| Voertaal | Engels |
| Faculteit | Faculteit der Exacte Wetenschappen |
| Coördinator | dr. M.H. Siderius |
| Examinator | dr. M.H. Siderius |
| Niveau | 500 |

Overige informatie

Period: variable

Minor Research Project Med. Chem., Drug Disc. & Target Find.

| | |
|--------------------|------------------------------------|
| Vakcode | X_432706 (432706) |
| Periode | Ac. Jaar (september) |
| Credits | 30.0 |
| Voertaal | Engels |
| Faculteit | Faculteit der Exacte Wetenschappen |
| Coördinator | dr. M.H. Siderius |
| Examinator | dr. M.H. Siderius |
| Niveau | 500 |

Minor Research Project Med. Chem., Drug Disc. & Target Find.

| | |
|----------------|----------------------|
| Vakcode | X_432635 (432635) |
| Periode | Ac. Jaar (september) |
| Credits | 24.0 |

| | |
|--------------------|------------------------------------|
| Voertaal | Engels |
| Faculteit | Faculteit der Exacte Wetenschappen |
| Coördinator | dr. M.H. Siderius |
| Examinator | dr. M.H. Siderius |
| Niveau | 500 |

Omics-procedures in molecular clinical Diagnostics

| | |
|----------------------|------------------------------------|
| Vakcode | X_432766 () |
| Periode | Periode 5 |
| Credits | 6.0 |
| Voertaal | Engels |
| Faculteit | Faculteit der Exacte Wetenschappen |
| Coördinator | dr. H. Lingeman |
| Examinator | dr. H. Lingeman |
| Docent(en) | dr. H. Lingeman |
| Lesmethode(n) | Hoorcollege |
| Niveau | 400 |

Doel vak

The primary objective of this course is highlighting the various omics-approaches that are used in drug- and biomarker discovery.

Inhoud vak

Omic-approaches involve the comparison of metabolomes, proteomes and genomes between control and test groups to find differences in their profiles. Those differences may be correlated to the disease being studied in clinical biomarker discovery or changes in the metabolic output in toxicology studies. During the course the fundamentals and applications of omic-based techniques will be discussed. The focus will be on the separation (e.g. chromatography, electrophoresis), detection/identification (e.g. MS, NMR, Spectroscopic) and chemometric procedures to unravel complex biological and clinical samples

Onderwijsvorm

Lectures and projects

Literatuur

Hands-outs (electronically available)

Doelgroep

mCH-AS, mDDS, mMNS

Overige informatie

X_432733 vervalst en is vervangen door X_432766

Peergroup fase 1

| | |
|----------------|------------------------------|
| Vakcode | O_MLPEERGR_1 () |
| Periode | Periode 1+2+3, Periode 4+5+6 |
| Credits | 0.0 |

| | |
|----------------------|---|
| Voertaal | Nederlands |
| Faculteit | Fac. der Gedrags- en Bewegingswetensch. |
| Coördinator | dr. A. Handelzalts |
| Examinator | dr. A. Handelzalts |
| Lesmethode(n) | Werkgroep |
| Niveau | 400 |

Doel vak

In de peergroup staat de rol als 'professional' centraal. Studenten leren de regie te nemen over hun eigen leerproces en hun visie op onderwijs te beschrijven. Ze ontwikkelen een professionele identiteit, waarin ze de eisen die het beroep van docent aan ze stelt verbinden met eigen waarden en motieven. In peergroups reflecteren studenten op hun handelen in de praktijk, leiden daaruit ontwikkelpunten af, formuleren acties en evalueren deze. Verschillende instrumenten en methodes worden gebruikt (logboek, reflectiecirkel, intervisie, videoreflectie, etc.) om de student in staat te stellen de complexiteit van de onderwijspraktijk te doorgronden en hiervan te leren.

Peergroup Fase 2

| | |
|----------------------|---|
| Vakcode | O_MLPEERGR_2 () |
| Periode | Periode 3+4+5 |
| Credits | 0.0 |
| Voertaal | Nederlands |
| Faculteit | Fac. der Gedrags- en Bewegingswetensch. |
| Coördinator | dr. A. Handelzalts |
| Examinator | dr. A. Handelzalts |
| Lesmethode(n) | Werkgroep |

Doel vak

In de peergroup staat de rol als 'professional' centraal. Studenten leren de regie te nemen over hun eigen leerproces en hun visie op onderwijs te beschrijven. Ze ontwikkelen een professionele identiteit, waarin ze de eisen die het beroep van docent aan ze stelt verbinden met eigen waarden en motieven. In peergroups reflecteren studenten op hun handelen in de praktijk, leiden daaruit ontwikkelpunten af, formuleren acties en evalueren deze. Verschillende instrumenten en methodes worden gebruikt (logboek, reflectiecirkel, intervisie, videoreflectie, etc.) om de student in staat te stellen de complexiteit van de onderwijspraktijk te doorgronden en hiervan te leren.

Physical-Organic Chemistry

| | |
|--------------------|------------------------------------|
| Vakcode | X_435663 (435663) |
| Periode | Periode 1 |
| Credits | 6.0 |
| Voertaal | Engels |
| Faculteit | Faculteit der Exacte Wetenschappen |
| Coördinator | prof. dr. K. Lammertsma |
| Examinator | prof. dr. K. Lammertsma |

| | |
|----------------------|--------------------------|
| Lesmethode(n) | Hoorcollege, Werkcollege |
| Niveau | 400 |

Doel vak

Survey of structural features, reaction mechanisms, and physical organic concepts needed in organic chemistry.

Inhoud vak

Advanced organic chemistry course centered around chemical bonding, stereochemical principles, conformational and stereo-electronic effects, isotope effects, reaction mechanisms, nucleophilic substitutions, eliminations, aromaticity, carbocations, carbanions, radicals, pericyclic reactions, and acid-base catalysis. These structural and mechanistic concepts are essential in organic synthesis.

Onderwijsvorm

Lectures and tutorials with homework

Toetsvorm

Written or oral examination and assignments.

Literatuur

Anslyn, E.V., and Duggerty, D.A., Modern Physical Organic Chemistry. University Science Books, 2006.

Vereiste voorkennis

BSc

Aanbevolen voorkennis

BSc S, BSc F

Doelgroep

mCh, mF

Policy, Politics and Participation

| | |
|----------------------|--|
| Vakcode | AM_470589 () |
| Periode | Periode 2 |
| Credits | 6.0 |
| Voertaal | Engels |
| Faculteit | Fac. der Aard- en Levenswetenschappen |
| Coördinator | dr. R.M. Edelenbosch MSc |
| Examinator | dr. R.M. Edelenbosch MSc |
| Docent(en) | dr. B.J. Regeer, dr. J.F.H. Kupper, prof. dr. J.E.W. Broerse |
| Lesmethode(n) | Hoorcollege, Werkgroep |
| Niveau | 500 |

Doel vak

To further deepen your analytic skills with respect to the assessment of a specific societal problem;

To acquire further insight into the practice of interactive research;

To acquire further insights into specific methods and techniques of interactive research;

To strengthen the skills to design an interactive research project
To practice skills in data collection and analysis;
To learn to set up valid lines of argumentation;
To improve your communication skills;
To improve your skills in working effectively in a project team,
through team building, team analysis and feedback.

Inhoud vak

In this course you get the chance to gain experience in the practical implementation of methodologies for interactive research. In a four week policy project you will both improve your focus group research skills and deepen your understanding of the relevant theoretical concepts in the areas of policy studies, science and technology studies and democracy theory. In a group of about ten students you will participate in a real interactive research project which is executed at the Athena institute. In this project you will be trained in and practice various skills for data collection (such as focus group design and facilitation) and data analysis (such as qualitative content analysis). Specific attention is paid to your personal interactive research skills. At the end of the course, you prepare a policy report to present your findings. In an oral presentation your team will highlight the main results of your analysis and defend the recommendations you propose.

Onderwijsvorm

Lectures: 14 hours
Training workshops: 4 hours
Project assignment: 102 hours
focus group execution: 6 hours
Final presentations project results: 4 hours
Self study: remaining hours

Toetsvorm

The course does not have an oral or written exam. You will be assessed on the basis of the group assignment, a group presentation and on your individual performance during the course (in the work groups, your facilitation skills in the 'real' focus groups). For all parts a pass grade (> 5.5) needs to be obtained in order to receive a final mark.

Your final mark will be based on: the group report (40%): oral presentation per group(40%): individual performance (20%).

Literatuur

To be announced on Blackboard

Vereiste voorkennis

Basic knowledge of (interactive) policy processes, policy analysis and relevant research skills are required.

Doelgroep

Optional course for Master students Management, Policy Analysis and Entrepreneurship in Health and Life sciences (MPA), Societal differentiation of the Health, Life & Natural Sciences.

Intekenprocedure

Registration deadline by VUnet is 4 weeks before the start of the course.

Overige informatie

As the project depends on team work, attendance is compulsory.

Praktijk 1

| | |
|----------------------|--|
| Vakcode | O_MLPRAK_1 () |
| Periode | Periode 1, Periode 4 |
| Credits | 6.0 |
| Voertaal | Nederlands |
| Faculteit | Fac. der Gedrags- en Bewegingswetensch. |
| Coördinator | dr. A. Handelzalts |
| Examinator | dr. A. Handelzalts |
| Docent(en) | drs. J.K.W. Riksen, drs. H.R. Goudsmit, drs. Y.G. Meindersma, ir. E.J.F. Scheringa, drs. W.S. Hoekstra, drs. C.D.P. van Oeveren, drs. S. Donszelmann, drs. L.J. van Well-van Grootheest, dr. H.B. Westbroek, dr. E. van den Berg, C.L. Geraedts, drs. A. Krijgsman, dr. A.A. Kaal, dr. A. Handelzalts, drs. K.L. Schaap, W. Maas, drs. G.D. van Hummel, F.L. de Vries MSc, drs. H. Stouthart, drs. I. Pauw |
| Lesmethode(n) | Werkgroep |
| Niveau | 400 |

Inhoud vak

Op de school wordt de aandacht op dezelfde kernpraktijken gericht als gedurende de instituutsopleiding. De werkplekbegeleider is op de hoogte van de onderwerpen die op de instituutdag gebruikt worden en gebruikt dezelfde rubric als de instituutsopleiders en vakdidactici om de vorderingen van de studenten te beoordelen.

Onderwijsvorm

Onder begeleiding van de werkplekbegeleider nemen de studenten steeds een groter en actiever aandeel in het lesgeven en werken in de school. Studenten met een baan (zij-instromers, onderwijstrainees etc) geven in dit stadium al zelfstandig les. Bij deze studenten is de nadruk bij de begeleiding vanuit de werkplekbegeleider op het niveau van didactische handelen in de les.

Toetsvorm

Op de school geven de studenten een presentatie over hun prestaties in de eerste acht weken. Dat doen ze aan de hand van de relevante rollen (vier van de vijf waarbij uitvoerder, ontwerper en pedagoog de meeste aandacht krijgen bij de reflectie op het lesgeven). De werkplekbegeleider gebruikt de rubric om het functioneren van de studenten in de klas te evalueren.

Praktijk 2

| | |
|--------------------|---|
| Vakcode | O_MLPRAK_2 () |
| Periode | Periode 2+3, Periode 5+6 |
| Credits | 9.0 |
| Voertaal | Nederlands |
| Faculteit | Fac. der Gedrags- en Bewegingswetensch. |
| Coördinator | dr. A. Handelzalts |

| | |
|----------------------|---|
| Examinator | dr. A. Handelzalts |
| Docent(en) | drs. J.K.W. Riksen, drs. H.R. Goudsmit, drs. Y.G. Meindersma, ir. E.J.F. Scheringa, drs. W.S. Hoekstra, drs. C.D.P. van Oeveren, drs. S. Donszelmann, dr. H.B. Westbroek, dr. E. van den Berg, C.L. Geraedts, drs. A. Krijgsman, dr. A.A. Kaal, dr. A. Handelzalts, drs. K.L. Schaap, W. Maas, drs. G.D. van Hummel, F.L. de Vries MSc, drs. H. Stouthart, drs. I. Pauw |
| Lesmethode(n) | Werkgroep |
| Niveau | 400 |

Inhoud vak

Tijdens de praktijkstage werken studenten aan het verder ontwikkelen van de kernpraktijken die in het instituutsdeel aan de orde zijn gekomen. Net als in fase 1 komt de verbinding tussen theorie en praktijk aan de orde. Op de werkplek wordt de aandacht op dezelfde vaardigheden gericht als tijdens de instituutsopleiding. Dit betekent dat studenten, samen met hun werkplekbegeleider, gericht werken aan de verschillende thema's besproken in de (vak)didactiekcolleges van Didactiek 1 en 2.

Onderwijsvorm

Onder begeleiding van de werkplekbegeleider nemen de studenten steeds een groter en actiever aandeel in het lesgeven en werken in de school.

Toetsvorm

De praktijkbeoordeling wordt uitgevoerd door de vakdidacticus/instituutsopleider en de werkplekbegeleider aan de hand van het eerste lesbezoek en de ingevulde rubric.

Overige informatie

Voorwaardelijk voor afronding van Praktijk 2: een voldoende beoordeling van Praktijk 1 en Didactiek 1.

Praktijk 3

| | |
|--------------------|--|
| Vakcode | O_MLPRAK_3 () |
| Periode | Periode 4+5+6 |
| Credits | 15.0 |
| Voertaal | Nederlands |
| Faculteit | Fac. der Gedrags- en Bewegingswetensch. |
| Coördinator | dr. A. Handelzalts |
| Examinator | dr. A. Handelzalts |
| Docent(en) | drs. J.K.W. Riksen, drs. H.R. Goudsmit, drs. Y.G. Meindersma, ir. E.J.F. Scheringa, drs. W.S. Hoekstra, drs. C.D.P. van Oeveren, drs. S. Donszelmann, dr. H.B. Westbroek, dr. E. van den Berg, C.L. Geraedts, drs. A. Krijgsman, dr. A.A. Kaal, dr. A. Handelzalts, drs. K.L. Schaap, drs. J.A.M. van den Brand, W. Maas, drs. G.D. van Hummel, F.L. de Vries MSc, drs. H. Stouthart, drs. I. Pauw |
| Niveau | 400 |

Inhoud vak

In het verdiepingsdeel gaat de student meer en meer zelf(standig) lesgeven. De voorbereiding en evaluatie wordt samen met de werkplekbegeleider gedaan. Op de werkplek komen dezelfde onderwerpen aan de orde als in het instituut: vakdidactische verdieping van onderwijsconcepten en –strategieën, aandacht voor het afstemmen van onderwijs op de behoeften van individuele leerlingen, diversiteit en excellentie.

Op de werkplek wordt de aandacht op dezelfde vaardigheden gericht als tijdens de instituutsopleiding. Dit betekent dat studenten, samen met hun werkplekbegeleider, gericht werken aan de verschillende thema's besproken in de vakdidactiekdidactiek en de keuze modules. Het instituut biedt hiervoor concrete handreikingen aan in de vorm van een stageplan (gekoppeld aan de rubric).

Onderwijsvorm

Onder begeleiding van de werkplekbegeleider nemen de studenten steeds een groter en actiever aandeel in het lesgeven en werken in de school.

Toetsvorm

Voor de beoordeling van Praktijk 3 maakt de student in blok 6 een afspraak met zijn WPB en SO voor een afrondend lesbezoek. In overleg met de WPB en SO bepaalt de student welke klas hiervoor het meest geschikt is.

Na afloop van het lesbezoek blikken WPB en SO met de student terug op de les. WPB en SO beoordelen de les aan de hand van de checklist (rubric). Gecombineerd met het oordeel van vakdidacticus aan de hand van de tweede lesbezoek wordt een cijfer vastgesteld.

Overige informatie

Voorwaarden voor afronding van Praktijk 3: een voldoende beoordeling van Praktijk 2 en Didactiek 2.

Praktijk I

| | |
|--------------------|---|
| Vakcode | O_MLPRAKI () |
| Periode | Periode 1+2+3 |
| Credits | 15.0 |
| Faculteit | Fac. der Gedrags- en Bewegingswetensch. |
| Coördinator | ir. E.J.F. Scheringa |
| Examinator | ir. E.J.F. Scheringa |
| Niveau | 500 |

Doel vak

De student maakt kennis met het onderwijs in de praktijk, verzorgt lessen en is betrokken bij andere leerlinggerichte activiteiten. Hij kan binnen de context van de school theoretische inzichten praktisch vormgeven en weet de praktijkomgeving te benutten om aan eigen ontwikkelpunten te werken.

De student werkt samen met anderen binnen en buiten de school en kan zijn functioneren als teamlid beschrijven en toelichten.

Inhoud vak

Het totale aantal klassencontacturen dat een student moet maken tijdens Praktijk 1 en 2, bedraagt tenminste 250. Tijdens deze uren observeert

of verzorgt de student lessen en neemt deel aan andere leerlinggerichte activiteiten. Hij/zij geeft tenminste 120 lessen, waarvan minimaal 40 lessuren in de bovenbouw havo/vwo.

De verdeling en fasering van dit aantal uren over Praktijk 1 en 2 wordt in overleg met de begeleider op school bepaald. In Praktijk 1 ligt de nadruk op het observeren en het onder begeleiding voorbereiden, uitvoeren en evalueren van lessen.

Dit opleidingsonderdeel loopt parallel aan vakdidactiek 1 en algemene didactiek en pedagogiek 1, waardoor een goede wisselwerking mogelijk is tussen theorie en praktijk.

Toetsvorm

Praktijk 1 wordt door de schoolbegeleider beoordeeld aan de hand van een checklist. De schoolbegeleider doet daarbij een voorstel dat door de instituutsbegeleider moet worden onderschreven.

Vereiste voorkennis

Dit vak is alleen te volgen als onderdeel van de universitaire lerarenopleiding

Praktijk II

| | |
|--------------------|---|
| Vakcode | O_MLPRAKII () |
| Periode | Periode 1+2+3 |
| Credits | 15.0 |
| Faculteit | Fac. der Gedrags- en Bewegingswetensch. |
| Coördinator | ir. E.J.F. Scheringa |
| Examinator | ir. E.J.F. Scheringa |
| Niveau | 500 |

Doel vak

De student kan, als docent-in-opleiding, verantwoordelijkheid dragen voor het zelfstandig voorbereiden, uitvoeren en evalueren van lessen in de onder- en bovenbouw van het Havo/VWO. Hij kan tevens een bijdrage leveren aan schoolbrede activiteiten. Hij kan binnen de context van de school theoretische inzichten praktisch vormgeven en weet de praktijkomgeving te benutten om aan eigen ontwikkelpunten te werken. Hij kan reflecteren op opgedane ervaringen en verworven inzichten en deze op dusdanige manier beschrijven dat zij inzichtelijk worden voor anderen. De student toont zich professioneel in de samenwerking met anderen binnen en buiten de school en kan zijn functioneren als teamlid beschrijven en toelichten.

Inhoud vak

Het totale aantal klassencontacturen dat een student moet maken tijdens Praktijk 1 en 2, bedraagt tenminste 250. Tijdens deze uren observeert of verzorgt de student lessen en neemt deel aan andere leerlinggerichte activiteiten. Hij/zij geeft tenminste 120 lessen, waarvan minimaal 40 lessuren in de bovenbouw havo/vwo.

De verdeling en fasering van dit aantal uren over Praktijk 1 en 2 wordt in overleg met de begeleider op school bepaald. Tijdens Praktijk 2 draagt de student verantwoordelijkheid voor een of meer klassen. Hij

bereidt het onderwijs voor, voert het uit en evalueert het. Hij werkt hierbij nadrukkelijk samen met sectiegenoten en andere collega's binnen de school en is zich bewust van de context waarin zijn lessen plaatsvinden. In het portfolio doet hij verslag van zijn functioneren als teamlid en collega in de school.

Dit opleidingsonderdeel loopt parallel aan vakdidactiek 2 en algemene didactiek en pedagogiek 2, waardoor een goede wisselwerking mogelijk is tussen theorie en praktijk.

Toetsvorm

Praktijk 2 wordt door de schoolbegeleider beoordeeld aan de hand van een checklist waarop het eindcijfer voor de praktijk wordt gebaseerd. De schoolbegeleider doet daarbij een voorstel dat door de instituutsbegeleider moet worden onderschreven.

Tevens beoordeelt schoolbegeleider het functioneren van de student als teamlid en collega op basis van de door de student uitgevoerde portfolio-opdrachten.

Vereiste voorkennis

Dit vak is alleen te volgen als onderdeel van de universitaire lerarenopleiding.

Praktijk onderzoek 2

| | |
|----------------------|--|
| Vakcode | O_MLPROZ_2 () |
| Periode | Periode 4+5+6 |
| Credits | 6.0 |
| Voertaal | Nederlands |
| Faculteit | Fac. der Gedrags- en Bewegingswetensch. |
| Coördinator | dr. H.B. Westbroek |
| Examinator | dr. A. Handelzalts |
| Docent(en) | drs. J.K.W. Riksen, drs. H.R. Goudsmit, drs. Y.G. Meindersma, ir. E.J.F. Scheringa, dr. M. Meeter, drs. W.S. Hoekstra, drs. C.D.P. van Oeveren, drs. S. Donszelmann, drs. B. Klein, drs. W. Jongejan, drs. L.J. van Well-van Grootheest, dr. T. Bosma, dr. H.B. Westbroek, dr. E. van den Berg, C.L. Geraedts, dr. J.M.H. Swennen, dr. A.A. Kaal, dr. A. Handelzalts, drs. K.L. Schaap, drs. J.A.M. van den Brand, W. Maas, drs. G.D. van Hummel, F.L. de Vries MSc, drs. H. Stouthart, drs. I. Pauw |
| Lesmethode(n) | Hoorcollege, Werkcollege |
| Niveau | 400 |

Doel vak

Tijdens het praktijkonderzoek vullen studenten de tijdens hun master opgedane onderzoeksvaardigheden aan met onderzoeksvaardigheden voor de eigen onderwijspraktijk.

Inhoud vak

In Praktijkonderzoek 2 worden onderzoeksvragen uit de onderwijspraktijk vertaald in empirisch onderzoek. De student analyseert data uit de

onderwijspraktijk om een antwoord te vinden op de onderzoeksvraag en rapporteert de bevindingen in een onderzoeksverslag en een presentatie aan de collega's in de school en aan mede-studenten op het instituut. Er wordt met name aandacht besteed aan de aard en doelen van praktijkonderzoek, en consequenties die dit heeft voor kwaliteitseisen en de betekenis van praktijkonderzoek voor de beroepspraktijk.

Onderwijsvorm

De begeleiding vindt plaats op school (academische opleidingsschool) en op het instituut en bestaat uit de volgende vormen: colleges, werkcolleges, duo-begeleiding (VO docent/ULO docent).

Toetsvorm

Praktijkonderzoek 2 wordt afgesloten met een verslag en een posterpresentatie over hun bevindingen en ze delen hun bevindingen zowel op het instituut als op school.

Literatuur

- Van der Donk, C., & Van Lanen, B. (2012). Praktijkonderzoek in de school. 2de druk. Coutinho, Bussum. ISBN 9789046903001
- Relevante en actuele artikelen over het onderzoeksonderwerp (via blackboard en zelf verzamelen).

Vereiste voorkennis

Vereiste voorkennis: Praktijkonderzoek 1 en onderzoekservaring op masterniveau in het eigen domeinvak.

Praktijkonderzoek 1

| | |
|----------------------|---|
| Vakcode | O_MLPROZ_1 () |
| Periode | Periode 3, Periode 6 |
| Credits | 3.0 |
| Voertaal | Nederlands |
| Faculteit | Fac. der Gedrags- en Bewegingswetensch. |
| Coördinator | dr. H.B. Westbroek |
| Examinator | dr. H.B. Westbroek |
| Docent(en) | drs. J.K.W. Riksen, drs. H.R. Goudsmit, drs. Y.G. Meindersma, ir. E.J.F. Scheringa, dr. M. Meeter, drs. W.S. Hoekstra, drs. C.D.P. van Oeveren, drs. S. Donszelmann, drs. B. Klein, drs. W. Jongejan, drs. L.J. van Well-van Grootheest, dr. T. Bosma, dr. H.B. Westbroek, dr. E. van den Berg, C.L. Geraedts, drs. A. Krijgsman, dr. J.M.H. Swennen, dr. A.A. Kaal, dr. A. Handelzalts, drs. K.L. Schaap, drs. J.A.M. van den Brand, W. Maas, drs. G.D. van Hummel, F.L. de Vries MSc, drs. H. Stouthart, drs. I. Pauw |
| Lesmethode(n) | Werkgroep, Hoorcollege |
| Niveau | 400 |

Doel vak

Tijdens het praktijkonderzoek vullen studenten de tijdens hun master opgedane onderzoeksvaardigheden aan met onderzoeksvaardigheden voor de eigen onderwijspraktijk.

Inhoud vak

In praktijkonderzoek 1 richt de opdracht zich primair op het leren herkennen, waarderen en gebruiken van verschillen type bronnen (praktijkbronnen, vakliteratuur en wetenschappelijke literatuur) om praktijkproblemen te analyseren en te duiden. Studenten verdiepen zich samen met hun collega's en begeleiders op school op een probleem uit de praktijk. Ze krijgen handvatten aangereikt om bronnen te zoeken en te beoordelen op relevantie en bruikbaarheid. Studenten werken op grond hiervan de praktische en theoretische context van het probleem uit.

Onderwijsvorm

De begeleiding vindt plaats op school (academische opleidingsschool) en op het instituut en bestaat uit de volgende vormen: colleges, werkcolleges, duo-begeleiding (VO docent/ULO docent).

Toetsvorm

Praktijkonderzoek 1 wordt afgesloten met een uitgewerkt praktijkprobleem. Onderzoeksvragen worden geformuleerd op basis van een probleemanalyse, en een verkenning van de praktische en theoretische context van het praktijkprobleem.

Literatuur

- Van der Donk, C., & Van Lanen, B. (2012). Praktijkonderzoek in de school. 2de druk. Coutinho, Bussum. ISBN 9789046903001
- Relevante en actuele artikelen over het onderzoeksonderwerp (via blackboard en zelf verzamelen).

Overige informatie

Binnen Didactiek 1 en 2 hebben de studenten kennisgemaakt met het toepassen van relevante bronnen, waaronder onderzoeksartikelen, om praktijksituaties te duiden.

Principles of Pharmaceutical Sciences / Pharmacochemistry

| | |
|----------------------|------------------------------------|
| Vakcode | X_435675 (435675) |
| Periode | Periode 1 |
| Credits | 6.0 |
| Voertaal | Engels |
| Faculteit | Faculteit der Exacte Wetenschappen |
| Coördinator | prof. dr. I.J.P. de Esch |
| Examinator | prof. dr. I.J.P. de Esch |
| Docent(en) | prof. dr. I.J.P. de Esch |
| Lesmethode(n) | Hoorcollege |
| Niveau | 400 |

Doel vak

General introduction into and deepening of knowledge of concepts, mechanisms and recent developments in pharmaceutical sciences and the pharmaceutical and biotech industry.

Inhoud vak

This course is designed for students with an interest in life sciences and the biotech/pharmaceutical industry but without prior education in this field. A general introduction will be given to the process of drug discovery, drug design and synthesis, drug development and drug safety

assessment. Subsequently, potential drug targets, mechanisms of drug actions (including drug-receptor/enzyme Using various drug classes, relationships between chemical structures and biological activities will be derived and illustrated. Finally, various modern developments and tools will be illustrated by recent applications in the field of drug research, medicinal chemistry and toxicology.

Onderwijsvorm

Lectures and tutorials.

Toetsvorm

Written examination

Literatuur

Patrick, G., An Introduction to Medicinal Chemistry 5th ed.
Oxford: Oxford University Press. 2009, ISBN: 978-0-19-969739-7

Doelgroep

3S, 3MNW, mCh, mPhys.

The course is optional for mDDS students that did not follow the VU University BSc Pharmaceutical sciences and these mDDS students should contact the mDDS coordinator before enrolling.

The course is recommended for SBI (life) mastertrack students, except for students with an bachelor in SBI or pharmaceutical sciences.

Professionele ontwikkeling en onderzoek I

| | |
|----------------------|--|
| Vakcode | O_MLVPOOI () |
| Periode | Periode 1+2+3 |
| Credits | 3.0 |
| Voertaal | Nederlands |
| Faculteit | Fac. der Gedrags- en Bewegingswetensch. |
| Coördinator | dr. A. Handelzalts |
| Examinator | dr. A. Handelzalts |
| Docent(en) | drs. J.K.W. Riksen, drs. H.R. Goudsmit, drs. Y.G. Meindersma, drs. I. Pauw, drs. W.S. Hoekstra, drs. C.D.P. van Oeveren, drs. S. Donszelmann, drs. W. Jongejan, dr. H.B. Westbroek, dr. E. van den Berg, C.L. Geraedts, drs. A. Krijgsman, prof. dr. J.J. Beishuizen, dr. A.A. Kaal, drs. K.L. Schaap, W. Maas, drs. G.D. van Hummel, F.L. de Vries MSc, drs. H. Stouthart |
| Lesmethode(n) | Hoorcollege, Werkcollege |
| Niveau | 500 |

Doel vak

De student kan systematische reflecteren op het eigen handelen in de onderwijspraktijk en daardoor richting geven aan de eigen professionele ontwikkeling.

De student kan een onderzoeksvraag formuleren voor een onderzoek aan zijn/haar eigen onderwijspraktijk, deze vraag inbedden in een theoretisch kader en een opzet maken voor de uitvoering van het onderzoek.

Inhoud vak

Dit vak bestaat uit twee delen: een reflectiedeel en een onderzoeksdeel. Het reflectiedeel krijgt vorm en inhoud in zogenaamde peergroepbijeenkomsten. Hierin reflecteert de studenten samen met anderen op zijn/haar handelen in de praktijk en leert daaruit ontwikkelpunten af te leiden, acties te formuleren en deze te evalueren. Verschillende instrumenten en methodes worden gebruikt (logboek, reflectiekring, intervisie,...) om de student in staat te stellen de complexiteit van de onderwijspraktijk te doorgronden en hiervan te leren. Daarnaast wordt een start gemaakt met het formuleren van de eigen visie op onderwijs en leren.

In het onderzoeksdeel wordt een opzet gemaakt van een praktijkonderzoek. In dit onderzoek diept de student één of meer vraagstukken uit de (eigen) onderwijspraktijk uit, waarbij een onderzoeksvraag ingebed wordt in een theoretisch kader en op één of enkele scholen empirisch materiaal wordt verzameld. In plenaire bijeenkomsten komen onderwerpen aan de orde als het formuleren van de probleemstelling en de onderzoeksvraag, het verkennen van de literatuur en het verzamelen van de data. Daarnaast kan de student beroep doen op individuele begeleiding rondom zijn/haar onderzoek. Dit alles mondt uit in een eerste onderzoeksformat voor het praktijkonderzoek dat vervolgens in het vak Professionele Ontwikkeling en Onderzoek 2 uitgevoerd, gepresenteerd en geëvalueerd wordt.

Onderwijsvorm

colleges, werkgroepbijeenkomsten en individuele begeleiding van het onderzoek door instituutbegeleiders.

Toetsvorm

Uitvoeren van opdrachten.

Literatuur

Een literatuurlijst wordt verstrekt aan het begin van de opleiding.

Vereiste voorkennis

Dit vak is alleen te volgen als onderdeel van de universitaire lerarenopleiding.

Overige informatie

Overgangseeling met ingang van 31 augustus 2015:

Studenten die in september 2015 nog niet klaar zijn met het volgen van onderwijs van de eerste fase van het oude curriculum moeten voor het concrete onderwijs aanschuiven bij (een deel van) de colleges van het nieuwe curriculum. Dit wordt per geval besproken met de mentor.

Professionele ontwikkeling en onderzoek II

| | |
|----------------------|---|
| Vakcode | O_MLVPOOII () |
| Periode | Periode 1+2+3 |
| Credits | 6.0 |
| Faculteit | Fac. der Gedrags- en Bewegingswetensch. |
| Coördinator | dr. H.B. Westbroek |
| Examinator | dr. H.B. Westbroek |
| Docent(en) | drs. W. Jongejan, dr. T. Bosma, dr. H.B. Westbroek, dr. E. van den Berg, dr. A.A. Kaal, dr. A. Handelzalts, W. Maas |
| Lesmethode(n) | Hoorcollege, Werkcollege |

Doel vak

De student kan een praktijkonderzoek opzetten, uitvoeren en hierover rapporteren.

Inhoud vak

Dit vak bestaat uit twee delen: een reflectiedeel en een onderzoeksdeel. Het reflectiedeel krijgt vorm en inhoud in begeleide en zelfstandige intervisiegroepen waarin studenten reflecteren op hun praktijk aan de hand van cases en eigen videobeelden. Daarnaast formuleren de studenten in dit deel hun visie op onderwijs en leren.

In het praktijkonderzoeksdeel diept de student in samenwerking met een medestudent één of meer vraagstukken uit de (eigen) onderwijspraktijk uit. Hij of zij doet dat door het samen opzetten, uitvoeren en evalueren van een op de eigen onderwijspraktijk gericht onderzoek waarbij op één of enkele scholen empirisch materiaal wordt verzameld. Aan de hand van de opzet die deels gemaakt is tijdens de module Professionele Ontwikkeling en Onderzoek 1 en deels in POO 2 ontwerpen studenten onderzoeksinstrumenten om empirisch gegevens te verzamelen voor het beantwoorden van de onderzoeksvraag en voeren zij het onderzoek uit.

Voordat het onderzoeksplan mag worden uitgevoerd, moet het worden goedgekeurd door de eerste en tweede beoordelaar.

In een artikel voor collega docenten rapporteren studenten over het onderzoek waarin aan de orde komen vraagstelling, relevantie, verankering in bestaande theorie, gebruikte instrumenten, data, conclusie en discussie. De studenten presenteren ook hun onderzoek tijdens de Onderwijsresearchdag.

Onderwijsvorm

Onderzoek, verplichte deelname aan hoorcolleges praktijkonderzoek en werkcollege, intervisiebijeenkomsten, individuele begeleiding door instituutsbegeleiders.

Toetsvorm

De rapportage van het praktijkonderzoek vindt plaats in de vorm van een posterpresentatie en een artikel voor een vaktijdschrift voor leraren.

Het artikel wordt gezamenlijk beoordeeld door de eerste begeleider en tweede lezer, die wordt aangezocht door de eerste begeleider. De presentatie van het onderzoek op de Onderwijsresearchdag wordt meegenomen in de eindbeoordeling. Ook de mate van zelfstandigheid in het opzetten, uitvoeren en rapporteren van het onderzoek wordt beoordeeld

Literatuur

Een literatuurlijst wordt verstrekt aan het begin van de opleiding.

Vereiste voorkennis

Dit vak is alleen te volgen als onderdeel van de universitaire lerarenopleiding.

Om dit vak te volgen moet het vak Professionele Ontwikkeling en Onderzoek 1 met goed gevolg zijn afgelegd.

Overige informatie

Voordat het onderzoeksplan mag worden uitgevoerd, moet het worden goedgekeurd door de eerste en tweede beoordelaar.

Voor alle onderdelen geldt een aanwezigheidsplicht.

Project Computational Design and Synthesis of Drugs

| | |
|----------------------|---|
| Vakcode | X_432734 () |
| Periode | Periode 4 |
| Credits | 6.0 |
| Voertaal | Engels |
| Faculteit | Faculteit der Exacte Wetenschappen |
| Coördinator | dr. C. de Graaf |
| Examinator | dr. C. de Graaf |
| Docent(en) | dr. M. Wijtmans, dr. C. de Graaf, dr. D.P. Geerke |
| Lesmethode(n) | Hoorcollege, Practicum |
| Niveau | 400 |

Doel vak

To gain insight and experience in the molecular modeling tools that enable (rational) drug design and to examine and plan efficient routes to synthesize conceived ligands.

Inhoud vak

In the post-genome era, an overwhelming amount of data describing the molecular characteristics of the targets is becoming available. For example, the structure of many proteins is being determined using X-Ray analysis and NMR techniques. Furthermore, high-throughput screening results in massive amounts of data that reveal the molecular properties of the ligands that are able to have interaction with the drug targets. In this project, several techniques that can help to translate this data into novel ligands will be discussed and applied. Specific topics include crystal structure analysis, the building of homology models, docking of ligands, calculating binding free energy and affinity of ligands for the protein, de novo structure generation, and pharmacophore modeling. These techniques generate ideas for novel compounds. Because a design that cannot be synthesized is by definition a useless design, the synthetic feasibility is a key and integral part of the design process. Therefore, it is important to be able to define a synthetic pathway for the preparation of the designed compounds. In this project, this aspect will be covered by lectures on the concept of retrosynthesis and on the incorporation of some biologically relevant moieties, such as heteroaromatic scaffolds and known affinity-increasers. An online retrosynthetic demonstration with a search engine sets the stage for a case study. For a specific design, a versatile and robust synthesis route has to be defined. A thorough literature search, in combination with detailed study of the reactions involved will result in a report that describes the suggested chemistry in detail.

Onderwijsvorm

Project basis: including lectures, tutorials, self study, assignments and group-work on a case-study.

Teachers: Dr. C. de Graaf, Dr. M. Wijtmans, Dr. D.P. Geerke, Prof. Dr. De Esch.

Toetsvorm

Written exam (50%), case study report (50%). Both the exam and the case study report should be passed.

Literatuur

Two eBooks contain several chapters of literature. These two books are:

Mason: Volume 4 of Comprehensive Medicinal Chemistry II:

Computer-Assisted Drug Design (Mason (Ed.).

<http://www.sciencedirect.com/science/referenceworks/9780080450445>

Hoffmann: Elements of Synthesis Planning (Hoffmann (Ed))

<http://www.springerlink.com/content/j81646>

These books are accessible through UBvU at all VU computers. The same holds true for articles and the Reaxys search engine (vide infra). When at home, turn on the VU-proxy

(<http://www.ub.vu.nl/nl/faciliteiten/thuis-werken/index.asp>) and

accessibility to all these items is maintained.

The following book (Clayden) is not an eBook accessible through UBvU, but it contains useful background literature on organic chemistry. All students that received their FAR BSc degree at the VU possess this book. It is suggested by us that such students could consider lending this book to others if necessary.

Clayden: Clayden, Organic Chemistry, Oxford University Press, 2001.

In the remainder of the guide, a distinction is made between integral literature and background literature.

Integral literature represents literature that is considered integral to the topic and hence is exam material.

Background literature either constitutes material for certain assignments or offers a wider or alternative discussion of the topic that an interested student can read at his/her own leisure. Background literature is not exam material.

Vereiste voorkennis

Knowledge of basic organic chemistry.

Doelgroep

mDDS-BCCA, mDDS-CMCT, mDDS-DD&S, mDDS-DDSA, mDDS-DDTF, mDDS-C-var, mDDS-E-var, mDDS-M-var

Protein Analysis

| | |
|----------------------|------------------------------------|
| Vakcode | X_435045 (435045) |
| Periode | Periode 5 |
| Credits | 6.0 |
| Voertaal | Engels |
| Faculteit | Faculteit der Exacte Wetenschappen |
| Coördinator | dr. H. Lingeman |
| Examinator | dr. H. Lingeman |
| Docent(en) | dr. H. Lingeman |
| Lesmethode(n) | Hoorcollege |

| | |
|---------------|-----|
| Niveau | 500 |
|---------------|-----|

Doel vak

Providing a clear overview on the principles and techniques that can be used for the qualitative and quantitative determination of protein-type of compounds.

Inhoud vak

The qualitative and quantitative determination of protein frequently is performed by a combination of chromatographic /electrophoretic and mass spectrometric techniques. The principles of these techniques will be discussed as well as their applications. Special attention will be given to sample treatment procedures and affinity-based separation techniques. With respect to the identification of unknown biological macromolecules, the power of hyphenated techniques in combination with the various modes of mass spectrometry will be highlighted.

Onderwijsvorm

Lectures and tutorials

Toetsvorm

Oral examination.

Literatuur

Hand-outs (electronically available).

Vereiste voorkennis

Basic knowledge of biochemistry, separation sciences, spectroscopy and mass spectrometry.

Doelgroep

mCh, mDDS

Reflective Practice Internship Science Communication

| | |
|--------------------|---------------------------------------|
| Vakcode | AM_1163 () |
| Periode | Ac. Jaar (september) |
| Credits | 30.0 |
| Voertaal | Engels |
| Faculteit | Fac. der Aard- en Levenswetenschappen |
| Coördinator | dr. J.F.H. Kupper |
| Niveau | 600 |

Doel vak

The internship is a compulsory part of the Master's programme. The aims of the internship are:

- Learn to independently apply and expand your practical science communication skills in one particular area of the field (writing, multi-media, facilitation, policy and strategy development, content design, etc.).
- Critical self-assessment and reflection on acquired science communication competencies in the field.
- Conduct scientific research independently: assess scientific information, design a research project, apply scientific methods, collect data, report and discuss findings.

- Present and discuss about internship and research outcomes.
- Learn to cooperate with researchers and practitioners of various disciplines.
- Gain an impression of a potential future field of career.

Inhoud vak

When you are enrolled in the VU Science Communication specialization or the UvA Major Science Communication you need to conduct one internship (30 ECTS, 5 months). One of the two possible formats is the Reflective Practice Internship (RPI). The complete and up-to-date information about the internship can be found in the SC internship guide line on blackboard (science communication community).

Onderwijsvorm

Work-based placement

Toetsvorm

Written report and oral presentation.

Within six weeks after the start of the master internship, an interim evaluation will take place to assess whether there is a reasonable chance of the placement being brought to a successful completion.

The internship is supervised and assessed by two lecturers. Both lecturers are members of the academic staff at VU University Amsterdam.

The day-to-day supervision can be carried out by a trainee research assistant (AIO), postdoc or researcher.

Doelgroep

Students MSc Earth science year 2

Overige informatie

Participation in this compulsory component is only permitted if the student meets the relevant requirements for admission. These requirements are detailed in the Internship guidelines of Earth science (on

Blackboard) and in the Academic and Examination Regulations.

The work-based placement is subject to the FALW document: "Student placement (internship) and literature regulations". These regulations require detailed written agreements between supervisors and student that specify the conditions for the Master research project. This agreement should be sent for approval by the science communication co-ordinator at least two weeks before the planned start of the work-based placement.

If the proposal is of sufficient quality, you can start your internship.

If not, you'll need to adapt your proposal and send it for approval again. You can only start your internship after your research design has been approved.

The placement may be extended by 6 EC, subject to conditions that can be found in the FALW document "Student placement (internship) and literature regulations". The student must send a request for extension to the Earth science Examination Board.

Information on Master internships is made available on Blackboard.

Research Internship Science Communication

| | |
|-----------------|----------------------|
| Vakcode | AM_1162 () |
| Periode | Ac. Jaar (september) |
| Credits | 30.0 |
| Voertaal | Engels |

| | |
|--------------------|---------------------------------------|
| Faculteit | Fac. der Aard- en Levenswetenschappen |
| Coördinator | dr. J.F.H. Kupper |
| Niveau | 600 |

Doel vak

The internship is a compulsory part of the Master's programme. The aims of the internship are:

- Learn to independently apply and expand your practical science communication skills in one particular area of the field (writing, multi-media, facilitation, policy and strategy development, content design, etc.).
- Critical self-assessment and reflection on acquired science communication competencies in the field.
- Conduct scientific research independently: assess scientific information, design a research project, apply scientific methods, collect data, report and discuss findings.
- Present and discuss about internship and research outcomes.
- Learn to cooperate with researchers and practitioners of various disciplines.
- Gain an impression of a potential future field of career.

Inhoud vak

When you are enrolled in the VU Science Communication specialization or the UvA Major Science Communication you need to conduct one internship (30 ECTS, 5 months). One of the two possible formats is the full Research Internship. The complete and up-to-date information about the internship can be found in the SC internship guide line on blackboard (science communication community).

Onderwijsvorm

Work-based placement

Toetsvorm

Written report and oral presentation.

Within six weeks after the start of the master internship, an interim evaluation will take place to assess whether there is a reasonable chance of the placement being brought to a successful completion. The internship is supervised and assessed by two lecturers. Both lecturers are members of the academic staff at VU University Amsterdam. The day-to-day supervision can be carried out by a trainee research assistant (AIO), postdoc or researcher.

Doelgroep

Students Earth science year 2

Overige informatie

Participation in this compulsory component is only permitted if the student meets the relevant requirements for admission. These requirements are detailed in the Internship guideline of science communication (on Blackboard) and in the Academic and Examination Regulations. The work-based placement is subject to the FALW document: "Student placement (internship) and literature regulations". These regulations require detailed written agreements between supervisors and student that specify the conditions for the Master research project. This agreement should be sent for approval by the science communication internship or master co-ordinator

at least two weeks before the planned start of the work-based placement. If the proposal is of sufficient quality, you can start your internship. If not, you'll need to adapt your proposal and send it for approval again. You can only start your internship after your research design has been approved.

The placement may be extended by 6 EC, subject to conditions that can be found in the FALW document "Student placement (internship) and literature regulations". The student must send a request for extension to the earth science Examination Board.

Information on Master internships is made available on Blackboard.

Research methods for analyzing complex problems

| | |
|----------------------|---|
| Vakcode | AM_1182 () |
| Periode | Periode 1 |
| Credits | 6.0 |
| Voertaal | Engels |
| Faculteit | Fac. der Aard- en Levenswetenschappen |
| Coördinator | dr. M.E. Arentshorst MSc |
| Examinator | dr. M.E. Arentshorst MSc |
| Docent(en) | dr. M.E. Arentshorst MSc |
| Lesmethode(n) | Hoorcollege, Werkcollege, Computerpracticum |
| Niveau | 400 |

Doel vak

The objectives of this course are:

- To understand the differences between beta- and gamma research;
- To acquire insight in and understanding of a real world research process, including knowledge of the character of complex societal issues and the needs, advantages and disadvantages of real world research;
- To acquire insight into various quantitative and qualitative research methods, their underlying theoretical concepts and their relative strengths and weaknesses;
- Being able to apply these various quantitative and qualitative research methods in a specific societal context;
- To interpret quantitative and qualitative findings;
- Being able to create an adequate research design for the investigation of a specific complex societal problem.

Inhoud vak

Contemporary societies increasingly face complex social problems, such as climate change, HIV/ AIDS or ethnic and religious diversity. These complex problems involve a variety of social actors: policy-makers, professionals, NGOs, industries, science and, of course, the public at large. Addressing these complex issues demands an approach that investigates, analyzes and integrates the positions and knowledge of different actors.

This course offers an (advanced) introduction to various research methods used in real world research, including questionnaires, systematic observations, surveys and statistics, semi-structured interviews, and focus groups. These methods are commonly used in research into complex problem contexts, communication and opportunities

for intervention. Strengths and weaknesses of each research method and technique will be discussed, as well as its possibility to be applied in different societal contexts.

Onderwijsvorm

Research Methods for Analyzing Complex Problems is a fulltime course of four weeks (6 ECTS). The total study time is 160 hours. Tuition methods include lectures, workgroups, workshops, group project work and self-study.

The different elements have the following study time:

- lectures 20 hours
- workgroups and training 36 hours
- examination 3 hours
- project work & reading (self-study) Remaining hours

Please note that attendance to the workgroup sessions is compulsory. If you miss one workgroup, with a good reason, you will receive an additional assignment. If you miss more than one workgroup session it is no longer possible to pass the project part of the course.

Attendance to the lectures is highly recommended. In our experience, relying on self-study alone is insufficient to apply the theory of the lectures in the assignments of the workgroups, and to pass the exam.

Toetsvorm

The course grade is based on the group assignment 'study design' and the exam. Both aspects need to be graded 6.0 or higher.

Exam 50% of total grade

Group assignment 'study Design' 50% of total grade

Literatuur

The literature of this course consists of selected scientific articles that are provided on blackboard, and the books:

- Verschuren, D.E. and Doorewaard, H. (2010). Designing a Research Project (2nd edition) Eleven International Publishing, the Hague. ISBN 978-90-5931-572-3.

- Gray, D.E. (2014) Doing Research in the Real World (3rd edition) Sage Publications Ltd, United Kingdom. ISBN 978-1-4462-6019-7

An overview of the literature per lecture will be provided on blackboard.

Doelgroep

The course 'Research Methods for Analyzing Complex Problems' is a compulsory course for first year master students 'Management, Policy Analysis and Entrepreneurship in Health and Life Sciences'. This course is also a compulsory course within the Science communication- and Societal differentiations of Health, Life and Natural Sciences Master programmes. It is an optional course for other Life Sciences Master program students at the VU University.

Intekenprocedure

VUnet

Overige informatie

Lectures are in English, part of the workgroups are in Dutch. The assignments are written in English.

Please note that attendance to the workgroup sessions is compulsory. If you miss one workgroup, with a good reason, you will receive an additional assignment. If you miss more than one workgroup session it is no longer possible to pass the project part of the course.

Attendance to the lectures is highly recommended. In our experience, relying on self-study alone is insufficient to apply the theory of the lectures in the assignments of the workgroups, and to pass the exam.

course coordinator: Marlous Arentshorst - m.e.arentshorst@vu.nl

Science and Communication

| | |
|----------------------|--|
| Vakcode | AM_470587 () |
| Periode | Periode 1 |
| Credits | 6.0 |
| Voertaal | Engels |
| Faculteit | Fac. der Aard- en Levenswetenschappen |
| Coördinator | P. Klaassen MA |
| Examinator | P. Klaassen MA |
| Docent(en) | dr. B.J. Regeer, dr. J.F.H. Kupper, P. Klaassen MA |
| Lesmethode(n) | Hoorcollege, Werkgroep |
| Niveau | 500 |

Doel vak

- Gain theoretical insight in the relationship between science and society,
- Gain insight in the role of science communication in this relationship,
- Acquire knowledge of different theories and models of science communication,
- Acquire knowledge of different strategies, media and activities for science communication,
- Learn how to apply theoretical concepts to real-life examples,
- Development of practical skills for science communication (e.g. writing, discussing).

Inhoud vak

Science is all around us and shapes our lives in many different ways. From the vaccines you need for travelling abroad, to the technological devices you use on a daily basis. At the same time, society shapes the development of science and technology. Science and society influence each other continuously; they communicate. Students of Science Communication are expected to become experts in understanding and designing interaction between science and society. In order for this interaction to be fruitful and valuable for both science and society, it is important to gain in-depth knowledge about the theoretical basis of the field of science communication and understand communication processes at the core of several interfaces; e.g. the communication between scientists from different disciplines, between different sciences and their stakeholders, and between science and the public. This course provides a broad basis in the field of science communication

by addressing the main areas of science communication and by discussing and challenging several core concepts within this field. Students are invited to explore some issues in greater depth and active participation in lectures and workgroups is required.

Onderwijsvorm

Lectures (22 h)

Workgroups (18 h)

Home-study for group assignments (8 h)

Home-study for individual assignments/exam (90h)

Toetsvorm

Individual assignments (30%), group assignment (10%), examination (60%).

For all parts a pass grade needs to be obtained.

Literatuur

Academic articles. Direct links to articles will be provided on BlackBoard one month before the beginning of the course.

Doelgroep

The course Science and Communication is a compulsory course for students of the Master specialisation Science Communication

(Wetenschapscommunicatie) and is a prerequisite for the internship.

Science and Communication is an optional course for students from other master programs in the health and life sciences.

Science in Dialogue

| | |
|----------------------|---------------------------------------|
| Vakcode | AM_1002 () |
| Periode | Periode 2 |
| Credits | 6.0 |
| Voertaal | Engels |
| Faculteit | Fac. der Aard- en Levenswetenschappen |
| Coördinator | dr. J.F.H. Kupper |
| Examinator | dr. J.F.H. Kupper |
| Docent(en) | dr. J.F.H. Kupper |
| Lesmethode(n) | Werkgroep, Hoorcollege, Werkcollege |
| Niveau | 500 |

Doel vak

To gain knowledge of and insight into:

- the basic concepts and issues in the understanding of science-society interactions, both from a science and technology studies and communication science perspective
- the nature and course of interpersonal and group communication processes relevant to the formal and informal dialogue between science and society
- the nature and form of dialogical science communication, aimed at reflective learning and mutual understanding

To acquire or improve:

- individual skills for effective interpersonal communication
- individual skills for the design and facilitation of the science-society dialogue

Inhoud vak

This course examines the public character of scientific controversy and focuses on the communicative aspects of a fruitful science-society dialogue. At the dawn of the 21st century, science, and particularly fields that combine science and engineering such as nanotechnology and synthetic biology, holds a great promise for the progress of our societies. At the same time, these developments are controversial. They lead to a variety of concerns related to risks, benefits and wider moral issues. Nanotechnology creates materials with novel characteristics that help us, but may also contain risks for health and environment.

Synthetic biology develops new biological systems that may be very useful, but radically change the nature and meaning of life. Clearly, advances in science do not always match the needs, desires and expectations of society. On the other hand, parts of society might not always appreciate the nature and scope of scientific findings. For a fruitful relationship between science and society, a constructive science-society dialogue is necessary.

This course offers advanced lectures on the basic concepts and issues of dialogical science communication: communication, learning, dialogue, understanding, controversy, democracy. A series of workshops and small group assignments presents communicative tools and spaces such as discussion games, science theatre and multimedia platforms that can be used to design and facilitate science-society interactions. Training workshops will focus on improving the students' individual communication and facilitation skills. The students' individual learning curve as a science communicator and facilitator is self-evaluated by means of a reflection report.

Every course week is completed with a mini-exam.

Onderwijsvorm

Lectures (14h), Workgroups (28h), Training workshops (24h), Dialogue presentations (12h), Selfstudy (remaining hours)

Toetsvorm

Group assignment (50%), Take home exam (30%), Reflection report (20%). All assignments must be passed (grade > 6).

Literatuur

Is announced on blackboard one month before start of the course

Doelgroep

Optional course in the MSc specialization Science Communication

Overige informatie

Independence and a cooperative attitude is expected. Attendance to training workshops is mandatory.

Science Journalism

| | |
|------------------|---------------------------------------|
| Vakcode | AM_471014 () |
| Periode | Periode 2 |
| Credits | 6.0 |
| Voertaal | Engels |
| Faculteit | Fac. der Aard- en Levenswetenschappen |

| | |
|----------------------|---|
| Coördinator | dr. J.F.H. Kupper |
| Examinator | dr. J.F.H. Kupper |
| Docent(en) | dr. J.F.H. Kupper |
| Lesmethode(n) | Hoorcollege, Werkgroep, Computerpracticum |
| Niveau | 500 |

Doel vak

To acquire knowledge of and insight into:

- the concepts, models and issues of science journalism according to contemporary scientific literature
- the criteria for effective science journalism with respect to diverse media
- the representation of science in the media
- the role of science journalism in the use of scientific knowledge in society

To acquire skills in:

- writing popular scientific texts for different genres such as news, background and interview
- science reporting using videos
- designing science communication for different media such as newspaper, radio and internet

Orientation to the professional practice of science journalism

Inhoud vak

This course teaches the basic principles of science journalism. A series of interactive lectures reviews both the practical as well as the theoretical aspects of science journalism. Topics that are discussed are the translation of science to a language that is both compelling and understandable, the role of journalism in the interaction between science and society, images of science in the media and the ethics of science journalism. The interactive lectures invite you to take your own defensible position with regard to these issues.

Guest lectures provide insight into the professional practice of science journalists. The guest speakers work as freelancer, editor or producer at diverse science media, such as newspapers (NRC, Volkskrant), magazines (NWT), internet (Noorderlicht) and radio (Labyrint).

Finally, the course trains specific skills that you need as a science journalist, such as popular writing, popular science videos, interviewing, conceptual analysis and program design.

Onderwijsvorm

Lectures and seminars on theory and practice of science journalism and writing skill training (36h). Considerable time is set aside for performing science journalism in assignments (108h). The assignments are assessed by lecturers and fellow students (peer-review process). Self study (remaining hours).

Toetsvorm

Several individual assignments (60%), several small group assignments (40%). All assignments must be passed (grade > 6).

Literatuur

Announced on Blackboard one month before start of the course

Doelgroep

All Master students with a Beta-Bachelor degree. Students taking this course as part of their C-specialisation within FALW or FEW will have precedence over other students. Students from other faculties and or universities need to get formal consent from the course coördinator (Frank Kupper) before enrolment.

Overige informatie

Course is taught in Dutch. More information: f.kupper@vu.nl.

Science Museology

| | |
|----------------------|---|
| Vakcode | AM_470590 () |
| Periode | Periode 3 |
| Credits | 6.0 |
| Voertaal | Engels |
| Faculteit | Fac. der Aard- en Levenswetenschappen |
| Coördinator | dr. B.J. Regeer |
| Examinator | dr. B.J. Regeer |
| Docent(en) | dr. B.J. Regeer, drs. ir. M.G. van der Meij |
| Lesmethode(n) | Hoorcollege, Werkgroep, Werkcollege, Veldwerk |
| Niveau | 500 |

Doel vak

- Gain insight in the role of museum exhibits in the field of science communication.
- Gain insight in the role of science communication concepts in the context of science museums.
- Apply qualitative research methods to design, conduct, and report on a user research project in museum settings.
- Apply theoretical notions of science communication and exhibit design to advise development of exhibit experience and content design.
- Gain experience in working for an external commissioner.

Inhoud vak

This course is about the role of science museums/centers, zoos and natural history museums in science communication. You will get familiar with theories of science communication in museum settings, and will be introduced to different styles of communication, different approaches to exhibit design & development, and different methods of research and evaluation of exhibitions.

Guest speakers and lecturers give insight into their profession (1) as science communicators in museums and science centers, (2) as researchers in the field of museology, and/or (3) as professionals in informal science & technology learning environments.

Through individual and group assignments you are encouraged to combine theory and practice, working step-by-step towards (part of) an exhibition (re-)design. The group assignments are commissioned by museums and science centers, such as NEMO, Museon, Naturalis, Delft Science Centre, and Artis.

Onderwijsvorm

Lectures

Workgroups

Workshops
Home-study for group assignments
Home-study for individual assignments
Field work

Toetsvorm

Group assignment (50%), presentation (poster and oral) (10%), and individual exam(s) (40%). For the assignments, presentations and all exams a pass-grade must be obtained.

Literatuur

Academic articles. Direct links to articles will be provided on Blackboard one month before the beginning of the course.

Vereiste voorkennis

It is possible to follow the course as an elective course outside of one of the science communication master specialisations of FALW/FEW. In that case additional reading may be required depending on the student's background.

Doelgroep

Optional course in the Science Communication master specialisation of most of the two-year master programs of the FALW and FEW faculties. Master students from other universities in any scientific field are welcome as well. Additional reading may be required.

Overige informatie

Guest lectures from and excursions to for instance Artis, NEMO, Naturalis, NorthernLight, Museon, etc.

Scientific Writing in English

| | |
|----------------------|------------------------------------|
| Vakcode | X_400592 (400592) |
| Periode | Periode 2, Periode 6 |
| Credits | 3.0 |
| Voertaal | Engels |
| Faculteit | Faculteit der Exacte Wetenschappen |
| Coördinator | M. van den Hoorn |
| Examinator | M. van den Hoorn |
| Lesmethode(n) | Hoorcollege, Werkcollege |
| Niveau | 400 |

Doel vak

The aim of this course is to provide Master's students with the essential linguistic know-how for writing a scientific article in English that is well organized, idiomatically and stylistically appropriate and grammatically correct.

At the end of the course students

- know how to structure a scientific article;
- know what the information elements are in parts of their scientific article;
- know how to produce clear and well-structured texts on complex subjects;
- know how to cite sources effectively;

- know how to write well-structured and coherent paragraphs;
- know how to construct effective sentences;
- know what collocations are and how to use them appropriately;
- know how to adopt the right style (formal style, cohesive style, conciseness, hedging)
- know how to avoid the pitfalls of English grammar;
- know how to use punctuation marks correctly;
- know what their own strengths and weaknesses are in writing;
- know how to give effective peer feedback.

Final texts may contain occasional spelling, grammatical or word choice errors, but these will not distract from the general effectiveness of the text.

Inhoud vak

The course will start with a general introduction to scientific writing in English. Taking a top-down approach, we will then analyse the structure of a scientific article in more detail. As we examine each section of an article, we will peel back the layers and discover how paragraphs are structured, what tools are available to ensure coherence within and among paragraphs, how to write effective and grammatically correct sentences and how to choose words carefully and use them effectively.

Topics addressed during the course include the following:

- Structuring a scientific article
- Considering reading strategies: who is your readership? How do they read your text? What do they expect? How does that affect your writing?
- Writing well-structured and coherent paragraphs
- Composing effective sentences (sophisticated word order, information distribution).
- Arguing convincingly – avoiding logical fallacies
- Academic tone and style: hedging – why, how, where?
- Using the passive effectively
- Understanding grammar (tenses, word order, etc.)
- Understanding punctuation
- Referring to sources: summarising, paraphrasing, quoting (how and when?)
- Avoiding plagiarism
- Vocabulary development: using appropriate vocabulary and collocations

Onderwijsvorm

Scientific Writing in English is an eight-week course and consists of 2 contact hours a week. Students are required to spend at least 6 to 8 hours of homework per week. They will work through a phased series of exercises that conclude with the requirement to write several text parts (Introduction, Methods, Discussion and Abstract). Feedback on the writing assignments is given by the course teacher and by peers.

Toetsvorm

Students will receive the three course credits when they meet the following requirements:

- Students hand in three writing assignments (Introduction, Methods, Discussion)
- Students get a pass mark for all writing assignments;
- Students provide elaborate peer feedback (Introduction, Methods, Discussion, Abstract);
- Students attend at least 7 out of 8 sessions;
- Students are well prepared for each session (i.e. do all homework

assignments);

- Students participate actively in class;
- Students do not plagiarise or self-plagiarise.

Writing assignments:

1. If students have a BSc thesis in a traditional thesis form (e.g., 20+ pages) and written in English, they may use this for the writing assignments.
2. If students have a BSc thesis in a traditional form (e.g., 20+ pages) written in another language than English, they may use this for the writing assignments.
3. If students have written a paper or report in English that's not already in article form, they may use this for the writing assignment.
4. If students are working on their MSc thesis or internship report when taking Scientific Writing in English, they may use this for the writing assignments. They will have to notify their supervisor to make sure that they won't be accused of self-plagiarism.
5. If students cannot or do not wish to use any of the above-mentioned texts for the writing assignments (1-4), they are expected to do a limited Literature Review on a topic in their field of research, using at least 5 articles.

Students are not allowed to use the following texts for the writing assignments:

1. A BSc thesis written in English that's already in article form.
2. A MSc thesis written in English that's already in article form (and that has already been marked).
3. An internship report written in English that's already in article form (and that has already been marked).
4. A paper or report written in English that's already in article form.

Literatuur

Effective Scientific Writing: An Advanced Learner's guide to Better English, 3rd edition (June 2013) (A. Bolt & W. Bruins, ISBN 978 90 8659 617 1). VU bookstore: €27.95.

Doelgroep

This course is only open to students of the two-year Master's programmes Drug Discovery & Safety and Physics of the Faculty of Sciences. These students are only eligible to the course if they have already conducted scientific research (e.g. for their Bachelor's thesis) or if they will be working on a research project when taking Scientific Writing in English.

Overige informatie

- To do well, students are expected to attend all lessons. Group schedules are to be found at VUnet and on Blackboard.
- A VUnet registration for this course automatically gives access to the corresponding Blackboard site. Group registration only takes place via Blackboard (general groups: registration by students following FEW programmes offering this course; groups assigned to specific studies: registration through programme and course coordinator).
- Make sure Scientific Writing in English does not overlap with another course.
- If you have registered for a group in Blackboard, you are expected to attend all sessions. If you decide to withdraw from the course, do so in time in VUnet. This all will avoid a 'fail' on your grade list for not taking part in this course and allows other students to fill in a

possible very wanted group spot.

- For specific Blackboard matters concerning this course, please contact

onderwijsbureau.beta@vu.nl.

Signal Transduction in Health and Disease

| | |
|----------------------|------------------------------------|
| Vakcode | X_432535 (432535) |
| Periode | Periode 2 |
| Credits | 6.0 |
| Voertaal | Engels |
| Faculteit | Faculteit der Exacte Wetenschappen |
| Coördinator | prof. dr. M.J. Smit |
| Examinator | prof. dr. M.J. Smit |
| Docent(en) | dr. M.J. Smit |
| Lesmethode(n) | Hoorcollege |
| Niveau | 600 |

Doel vak

At the end of this theoretical course, the students are aware of the latest insights of cellular signal transduction in both healthy and pathological conditions.

Inhoud vak

This course will link human genetic variation (somatic and inherited mutations) to the development of disease and will focus on pathological signaling, mutant signaling proteins in disease and possible treatment of resulting disease (small compounds, biologicals, gene therapy). Modern pharmacological concepts, including constitutive receptor activity, receptor regulation, allosteric modulation and dimerization will be addressed in light of signal transduction in health and disease. A special focus will be on signal transduction resulting in pathologies such as Alzheimer, Parkinson's disease, inflammatory diseases and cancer.

Onderwijsvorm

Lectures, self-study.

Students will do a case study in groups on a receptor/protein family linked to disease. Molecular mechanisms underlying pathology will be addressed and presented.

Toetsvorm

Assignment and presentation, written exam.

Literatuur

'Cell signaling', Authors: Wendell Lim, Bruce Mayer, Tony Pawson

ISBN: 9780815342441

Format: Paperback

Publication Date: June 15, 2014

Papers available on Blackboard

Aanbevolen voorkennis

Bachelor Biology, Medical Biology, Pharmaceutical Sciences, Medical Natural Sciences, Biomolecular Science portal course or equivalent

Doelgroep

mBMS-BC, mDDS-BCCA, mDDS-CMCT, mDDS-DD&S, mDDS-DDSA, mDDS-DDTF, mDDS-C-var, mDDS-E-var, mDDS-M-var, mMNS-MCD, mMNS-MPy

Supramolecular Chemistry and Nanomaterials

| | |
|----------------------|------------------------------------|
| Vakcode | X_435653 (435653) |
| Periode | Periode 1 |
| Credits | 6.0 |
| Voertaal | Engels |
| Faculteit | Faculteit der Exacte Wetenschappen |
| Lesmethode(n) | Hoorcollege |
| Niveau | 400 |

Inhoud vak

<http://studiegids.uva.nl/xmlpages/page/2015-2016/zoek-vak/vak/15036>

Overige informatie

This course is offered at the UvA. For more information contact: FNWI Education Service Centre, Science Park 904, servicedesk-esc-science@uva.nl, +31 (0)20 525 7100. Enrolment via <https://m.sis.uva.nl/vakaanmelden> is required.

Synthetic Approaches in Medicinal Chemistry

| | |
|----------------------|---|
| Vakcode | X_435685 (435685) |
| Periode | Periode 2 |
| Credits | 6.0 |
| Voertaal | Engels |
| Faculteit | Faculteit der Exacte Wetenschappen |
| Coördinator | dr. M. Wijtmans |
| Examinator | dr. M. Wijtmans |
| Docent(en) | prof. dr. I.J.P. de Esch, dr. M. Wijtmans |
| Lesmethode(n) | Hoorcollege |
| Niveau | 500 |

Doel vak

To obtain detailed knowledge of vital organic reactions and synthetic strategies.

Inhoud vak

Within a medicinal chemistry context, organic synthesis continues to play a vital role because it allows perceived organic molecules to actually be prepared. A medicinal chemist with thorough knowledge of the synthetic toolbox will be able to efficiently find his/her way to a target molecule.

First, a brief recap of some synthesis principles is offered. Then, the course will focus on the most important and generally used synthetic reactions. These include reactions of nucleophilic carbon intermediates, nucleophilic substitutions, electrophilic additions to carbon-carbon multiple bonds, reductions, oxidations, cycloadditions, aromatic

substitution reactions, rearrangements, and reactions of transition metals as well as of Group I and II metals. Collectively, this course delivers the synthetic knowledge necessary for efficient synthesis of organic molecules. The dynamic character of the synthetic toolbox is

Onderwijsvorm

The "Flipped classroom method" is used.

This means that all lectures have been recorded (slides + audio) and need to be independently studied by the students (there are no regular classes). Rather, all contact hours are used for intensive problem solving sessions.

Toetsvorm

Written examination(s).

Literatuur

Carey, F.A., Sundberg, R.J., Advanced Organic Chemistry, Part B, 5th edition.

Vereiste voorkennis

Basic knowledge of organic chemistry.

Aanbevolen voorkennis

Knowledge of basic organic chemistry.

Doelgroep

mDDS-DD&S

Intekenprocedure

VUNet

Teaching Assistant

| | |
|--------------------|------------------------------------|
| Vakcode | X_432741 () |
| Periode | Ac. Jaar (september) |
| Credits | 3.0 |
| Voertaal | Engels |
| Faculteit | Faculteit der Exacte Wetenschappen |
| Coördinator | dr. J.E. van Muijlwijk-Koezen |
| Examinator | prof. dr. ir. R.V.A. Orru |
| Niveau | 400 |

Teaching Assistant

| | |
|--------------------|------------------------------------|
| Vakcode | X_432742 () |
| Periode | Ac. Jaar (september) |
| Credits | 6.0 |
| Voertaal | Engels |
| Faculteit | Faculteit der Exacte Wetenschappen |
| Coördinator | dr. J.E. van Muijlwijk-Koezen |
| Examinator | prof. dr. ir. R.V.A. Orru |

| | |
|---------------|-----|
| Niveau | 400 |
|---------------|-----|

Tutoring Students

| | |
|----------------------|------------------------------------|
| Vakcode | X_432625 (432625) |
| Periode | Periode 2 |
| Credits | 3.0 |
| Voertaal | Engels |
| Faculteit | Faculteit der Exacte Wetenschappen |
| Coördinator | dr. M. Wijtman |
| Examinator | dr. M. Wijtman |
| Docent(en) | dr. M. Wijtman, dr. H.B. Westbroek |
| Lesmethode(n) | Hoorcollege |
| Niveau | 400 |

Doel vak

This course aims to prepare students for coaching tasks in tutorials and practical courses. Students will encounter aspects of teacher-student interaction, including several models that are involved in the coaching process.

Inhoud vak

The course contains various topics and activities. Students make an analysis of various learning aims as well as prepare, conduct and reflect on a presentation of a pre and post discussion regarding tutorials and practical courses. They will observe and interpret the application of problem solving and coaching models in tutorials and practical courses. Attention will be paid to strengths and weaknesses in models of teacher-student interaction. An important constituent is the student's analysis of his/her own pattern of communication. Topics on safety and lab journal procedures in practical courses as well as on the grading of lab reports are also included.

Onderwijsvorm

4 consecutive hours per week (seven weeks long):

- Lectures
- Simulations
- Self-study
- Group work

Toetsvorm

- An essay on the strengths and weaknesses in a model of teacher-student interaction.
- A learning report on presentations concerning predict, observe, explain in practical work.
- A written analysis on grading lab reports.
- A written feedback on the planning of and enactment in tutorials.

Literatuur

Will be provided.

Doelgroep

mCh-AS, mCh-MDSC, mCh-MSP, mCh-SES, mDDS-BCCA, mDDS-CMCT, mDDS-DD&S, mDDS-DDSA, mDDS-DDTF

Intekenprocedure

VUnet

Overige informatie

This course is compulsory for MSc students who become assistants in practical courses and tutorials in the department of Chemistry and Pharmaceutical Sciences. Moreover, the course is recommendable for any MSc student who has a general interest in educational coaching strategies and models.

Number of participants is limited to 24 (first-come, first-serve basis).

Priority is given to MSc students. If any of the 24 seats are left, the course may also be accessible to 3rd year BSc students FAR en SK with a strong interest in educational aspects (first-come, first-serve basis).

Interested BSc students should first contact Maikel Wijtmans (m.wijtmans@vu.nl).

Vakdidactiek Scheikunde I

| | |
|----------------------|---|
| Vakcode | O_MLVDSKI () |
| Periode | Periode 1+2 |
| Credits | 3.0 |
| Voertaal | Nederlands |
| Faculteit | Fac. der Gedrags- en Bewegingswetensch. |
| Coördinator | dr. H.B. Westbroek |
| Examinator | dr. H.B. Westbroek |
| Docent(en) | dr. H.B. Westbroek, dr. E. van den Berg, F.L. de Vries MSc |
| Lesmethode(n) | Werkcollege |
| Niveau | 500 |

Doel vak

De student maakt kennis met de inhoud en didactiek van het schoolvak en leert deze inzichten in de praktijk vorm te geven.

Inhoud vak

De colleges van vakdidactiek I bieden een inleiding in het schoolvak en de lesmethoden, met aandacht voor lesplan en toetsing. Er is ook aandacht voor vakspecifieke kennis en vaardigheden en de voor het schoolvak relevante ICT-toepassingen. In het vakdidactiekprogramma vindt eveneens een vertaling plaats van algemeen didactische thema's naar het vak. De leservaringen op school spelen hierbij een belangrijke rol.

Onderwijsvorm

Interactieve hoor- en werkcolleges

Toetsvorm

Beoordeling op basis van ingeleverde portfolio-opdrachten

Literatuur

Een syllabus wordt op het eerste college uitgereikt

Vereiste voorkennis

Dit vak is alleen te volgen als onderdeel van de universitaire lerarenopleiding

Overige informatie

Overgangsregeling met ingang van 31 augustus 2015:

Studenten die in september 2015 nog niet klaar zijn met het volgen van onderwijs van de eerste fase van het oude curriculum moeten voor het concrete onderwijs aanschuiven bij (een deel van) de colleges van het nieuwe curriculum. Dit wordt per geval besproken met de mentor.

Vakdidactiek Scheikunde II

| | |
|----------------------|---|
| Vakcode | O_MLVDSKII () |
| Periode | Periode 1+2 |
| Credits | 6.0 |
| Faculteit | Fac. der Gedrags- en Bewegingswetensch. |
| Coördinator | dr. H.B. Westbroek |
| Examinator | dr. H.B. Westbroek |
| Docent(en) | dr. H.B. Westbroek, dr. E. van den Berg, F.L. de Vries MSc |
| Lesmethode(n) | Werkcollege |
| Niveau | 500 |

Doel vak

De student kan vakinhoudelijke en vakdidactische kennis, vaardigheden en inzichten vertalen naar de eigen vaklessen.

Inhoud vak

De colleges van vakdidactiek II bieden een voortzetting van de schoolvakspecifieke vakdidactiek. De belangrijkste opdracht is het ontwerp en de uitvoering van een lessenserie van 3 lessen, die inhoudelijk en vakdidactisch verantwoord moet worden.

Onderwijsvorm

Interactieve hoor- en werkcolleges

Toetsvorm

Beoordeling op basis van ingeleverde portfolio-opdrachten

Literatuur

Een syllabus wordt op het eerste college uitgereikt

Vereiste voorkennis

Vakdidactiek I, Algemene didactiek en pedagogiek I, Praktijk I

Overige informatie

Er geldt een aanwezigheidsplicht

Verdieping

| | |
|----------------|-------------|
| Vakcode | O_MLVERD () |
| Periode | Periode 2+3 |

| | |
|----------------------|--|
| Credits | 3.0 |
| Faculteit | Fac. der Gedrags- en Bewegingswetensch. |
| Coördinator | dr. A. Handelzalts |
| Examinator | dr. A. Handelzalts |
| Docent(en) | drs. J.K.W. Riksen, drs. H.R. Goudsmit, drs. Y.G. Meindersma, drs. W.S. Hoekstra, drs. S. Donszelmann, dr. H.B. Westbroek, dr. E. van den Berg, C.L. Geraedts, drs. A. Krijgsman, drs. K.L. Schaap, W. Maas, drs. G.D. van Hummel, F.L. de Vries MSc, drs. H. Stouthart, drs. I. Pauw, drs. C.D.P. van Oeveren |
| Lesmethode(n) | Werkcollege, |
| Niveau | 500 |

Doel vak

1. De student verdiept zich in een onderdeel binnen zijn of haar schoolvak of cluster.
2. De student is zich bewust van zijn of haar rol als docent in een pluriforme samenleving.
3. De student kan verschillende aspecten van diversiteit in het onderwijs benoemen en aangeven in hoeverre deze aspecten in zijn of haar eigen schoolvak een rol spelen.

Inhoud vak

Binnen de clusters en vakken worden (verplichte) verdiepingsmodulen aangeboden. Daarnaast volgt elke student het onderdeel diversiteit, waarin een aantal aspecten van onderwijs in een pluriforme samenleving aan bod komen:

1. Wat betekent identiteitsontwikkeling in een door diversiteit gekenmerkte samenleving?
2. Wat is de zin en onzin van diversiteitsgevoelig onderwijs?
3. Wat zijn de verschillende thematieken van diversiteit in de klas?
4. Wat is er bekend uit onderzoek over diversiteit in de onderwijspraktijk?

Onderwijsvorm

Hoorcollege, werkcollege.

Toetsvorm

Analyse van een casus.

Literatuur

Syllabus met artikelen wordt verstrekt.