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Welcome to Analytical Methods for Forensic Science

Master programme in Forensic Science

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Department of Medicinal Chemistry

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Agenda

- General information
- Course literature
- Studium and Schedule
- Lectures and Seminars
- Laboratory assessment
- Examination

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Analytical Methods for Forensic Science

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Content of the course

Sample preparation	LLE, SPE, SPME
Separation	LC, GC, TLC, CE
Detection	UV-VIS Fluorometry MS, GC-MS, LC-MS NIR, IR and Raman
Miscellaneous	Sampling The biological sample Immunoassay Metod construction and validation
Communication training	Written Lab report, oral presentation and opposition
Applications	Doping analysis Illegal drugs Chemical/ forensic analysis

The course focuses on deeper understanding of analytical methods and techniques as well as optimizations of these.

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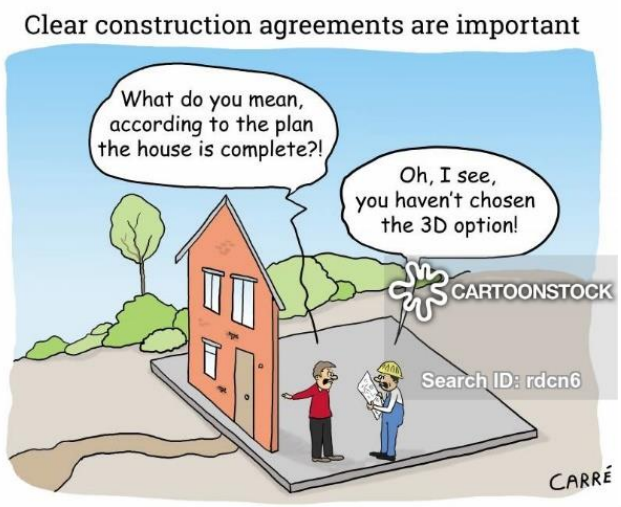
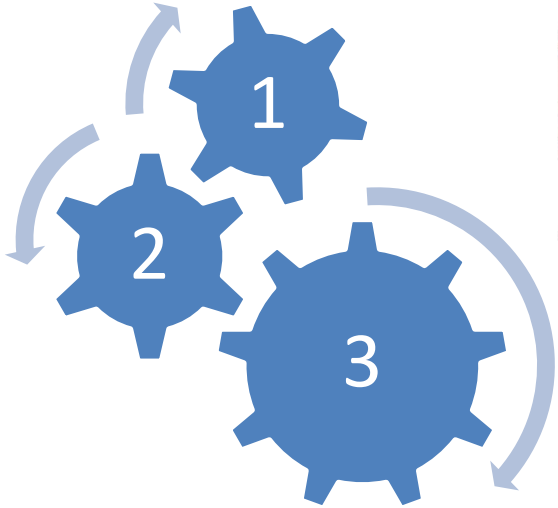
Method development and validation





Method optimisation and validation

- Define problem
- Literature search
- Sampling and storage
- Sample preparation
- Sample separation
- Sample measurement
- Statistical evaluation
- Report of results

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Staff

Course leader: Mikael Engskog

e-mail: mikael.engskog@ilk.uu.se

Course administrator: Sandra and Regina

e-mail: kursadmin@ilk.uu.se

telephone: 018-471 4236

http://www.ilk.uu.se/utbildning/kursadministration/

Micke

Åke

Sandra

Monika

Mikael

Douglas

Regina

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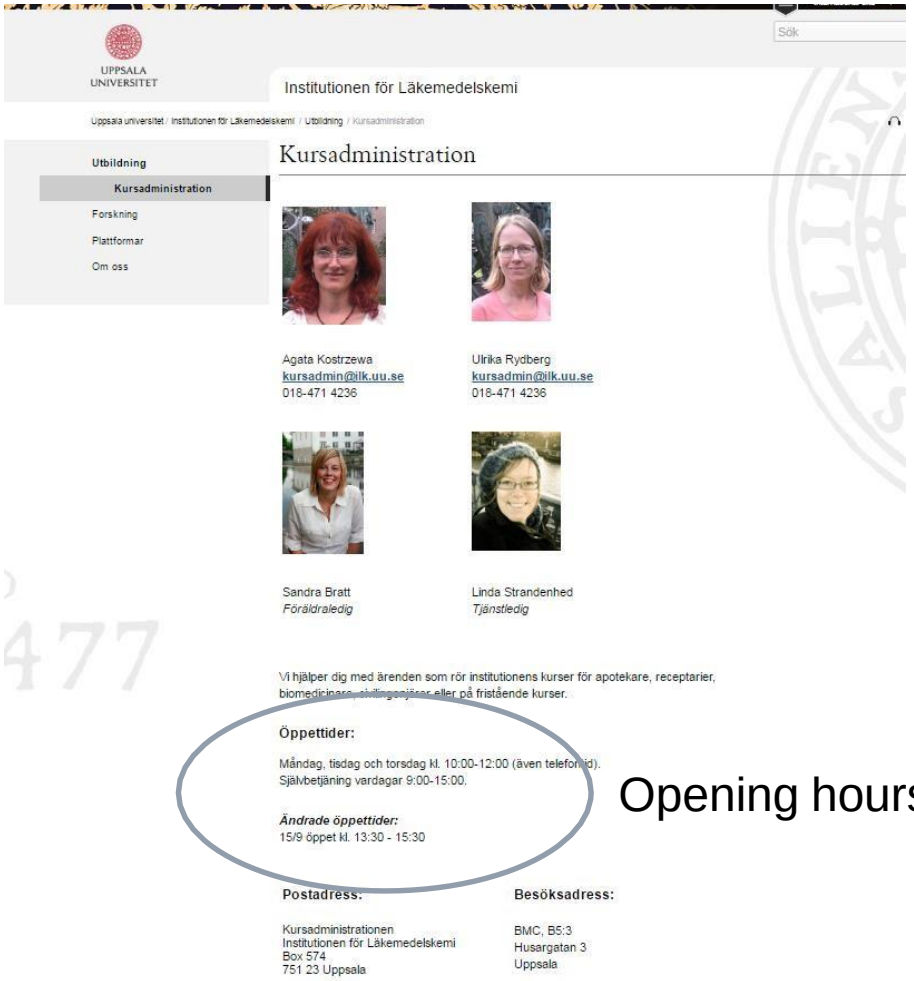
Course administration (in B5:3)



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Institutionen för Läkemedelskemi

Uppsala universitet / Institutionen för Läkemedelskemi / Utbildning / Kursadministration

Utbildning
- Kursadministration
- Forskning
- Plattformar
- Om oss

Kursadministration

Agata Kostrzewa
kursadmin@ilk.uu.se
018-471 4236

Ulrika Rydberg
kursadmin@ilk.uu.se
018-471 4236

Sandra Bratt
Föräldraledig

Linda Strandenhed
Tjänstledig

Vi hjälper dig med ärenden som rör institutionens kurser för apotekare, receptarier, biomedicinare, civilingenjörer eller på fristående kurser.

Öppettider:

Måndag, tisdag och torsdag kl. 10:00-12:00 (även telefontid).
Självbetjäning vardagar 9:00-15:00.

Ändrade öppettider:
15/9 öppet kl. 13:30 - 15:30

Postadress:

Kursadministrationen
Institutionen för Läkemedelskemi
Box 574
751 23 Uppsala

Besöksadress:

BMC, B5:3
Husargatan 3
Uppsala

Opening hours

DOKUMENT OCH BLANKETTER

Här hittar du regler och riktlinjer som rör dina studier. De flesta är gemensamma för hela fakulteten, vetenskapsområdet eller universitetet.

FILER

- Betyg och omprövning
- Laboration och gruppindelning
- Omregistrering och tentamensanmälan
- Pedagogiskt program
- Policy om fusk
- Rättning och utlämning av tentamen

Blanketter:

- Omprövning av betyg
- Registrering av fristående kurs
- Omregistrering på kurs (länk)
- Tillgodoräknande av kurs

FUNKTIONSHINDER

Undervisning och examinationsformer ska anpassas och göras tillgängliga för studenter med funktionshinder. Studenter med funktionshinder kan kontakta Ulrika Rydberg vid frågor rörande stöd i studiesituationen.

SKYDDSOMBUD

Som student kommer du att utföra arbete vid institutionens avdelningar, t.ex. i samband med laborationer. Därför kan det vara bra att känna till vilka som är skyddsombud. Varje avdelning har ett eget skyddsombud, och information om dem hittas på skyddsombudens sida.

Dessutom finns det en särskild skyddsombudsrepresentant för studenterna på institutionen:

Anna Joo
jooanna94@hotmail.com
018-527833 (till kåren)

https://www.ilk.uu.se/admissions/course-administration/

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Equal Opportunities
at the Department of Medicinal Chemistry

The department aims to have an inclusive and attractive environment for all employees and students.

Zero-tolerance in regards to discrimination, victimization and harassment.

All employees and student should be met with respect and given equal possibilities to perform their work and study regardless of:

- gender
- gender identity or gender expression
- ethnicity
- religion or other belief
- disability
- sexual orientation
- age

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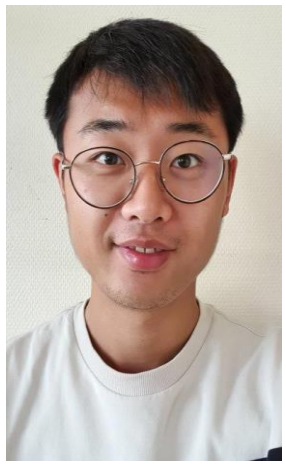
Equal Opportunities

at the Department of Medicinal Chemistry


Lindon Moodie


Mikael Engskog


Sandra Bratt


Pierre Cheung

Contact Mikael Engskog with questions concerning equal opportunities/discrimination
Tel: 018-471 4346 eller email: mikael.engskog@ilk.uu.se

Department's homepage for equal opportunities
https://ilk.uu.se/department/equal-opportunities/

Rules and regulations at Uppsala University:
https://regler.uu.se/?languageId=1

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Course literature

- **Clarke's Analytical Forensic Toxicology** (S Jickels, A Negrusz eds) *2nd Ed*

- **Compendium B** (chapter written especially for this course)
- **Laboratory instruction**
- **Seminars**
- **Handouts from lectures**

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Course materials

Compendium A contains the seminar tasks, the learning outcomes, detailed reading list and tips for oral presentation Available at the course homepage in Studium.

Compendium B contains reprint that complements Clarkes Analytical Forensic Toxicology. Available for free at the course homepage in Studium.

The **Laboratory compendium** will be distributed through Studium later on

PowerPoints will be availble through Studium

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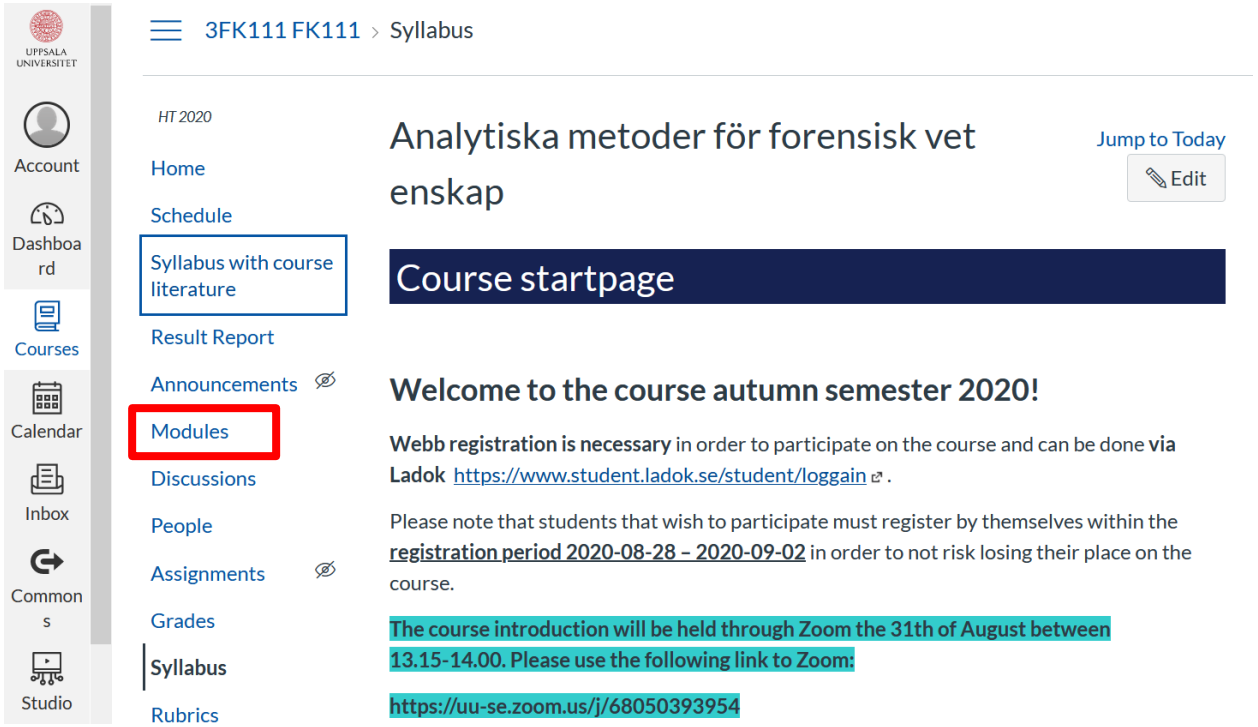
Schedule and primary communication channel



An updated schedule with PowerPoints (and eventual Zoom-link) can be found in Studium. This will be updated every Friday. TimeEdit has the schedule with less details

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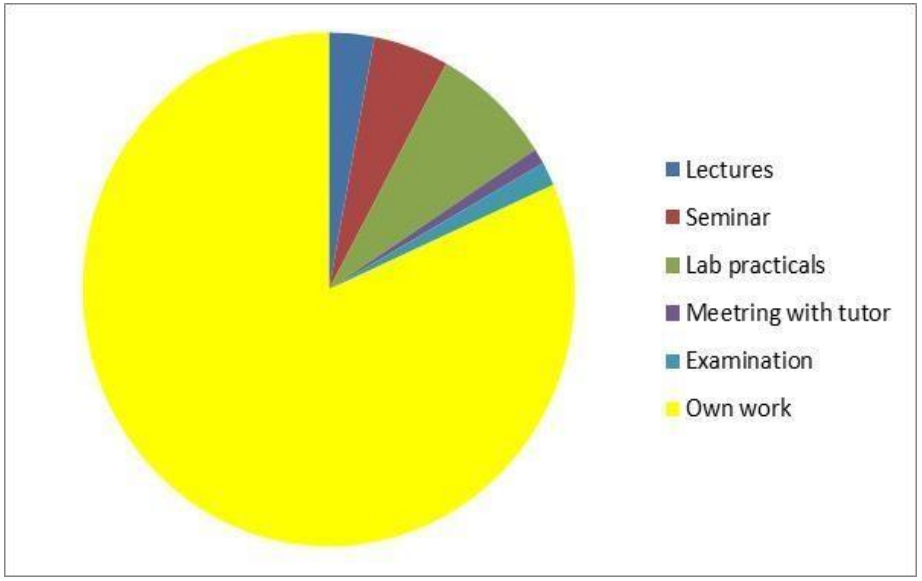
Course in timeframe



Mandatory attendance at all moments related to the laboratory practical

6/9	14:15-15:00 Lab introduction
22/9	10:15-12:00 Supervisor meeting: 30 minutes per group
10/10 - 14/10	08.15-17.00 Laboratory work (at BMC)
19/10	09:15-12:00 Presentations labs

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Seminars

- The aim with the seminar is to discuss the parts of the literature that you find difficult.
- Read through the literature and try to solve the seminar questions for the seminar beforehand.
- If you have an own question that you want to have discussed/explained please send an e-mail to the tutor not later than noon the working day before the seminar.

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Laboratory practical

- Individual meeting with the tutor.
- Laboratory work (5 days).

Method development according to the proposal (and modification of the proposal if necessary)

- Written report
- Oral presentation and opposition

More information regarding Lab will be given at the laboratory introduction

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Written examination 28/10

The exam will be performed on a computer using the program Inspera.

Pass (G) ≥ 60 % correct answer
Pass with distinction (VG) ≥ 80 % correct answer

Permitted aids on the exam:
Clarkes Analytical Forensic Toxicology *without any notes or patches,* formulas (will be distributed electronically on the exam) and calculator.

All answers will be checked for plagiarism through Urkund.

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Reading Tips

General Chemistry

- Chemistry- Raymond Chang (e.g., 8th ed):
  Chapter 11.2 Intermolecular forces

  Chapter 14 Chemical Equilibrium
  Chapter 15 Acids and bases
  Chapter 16 Acid-base equilibria and solubility equilibria.

Analytical Chemstry

- Introduction of Pharmaceutical Chemical Analysis-S.H. Hansen *et al* (2012) *also available as e-book*
- Pharmaceutical Analysis 2nd ed- D.G. Watson (2005)
- Principles and Practice of bioanalysis 2nd ed-R.F. Venn (2008)

All this books are available at the BMC library.

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Do you have any questions