

# Excellence in Analytical Chemistry



UPPSALA  
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Lyon 1



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## Importance of analytical chemistry?

- Critical decisions (economical, social, medical) are based on results chemical analysis
- It has been estimated that measurements and chemical analyses make up ca **4-6% of the GDP** in developed countries
- **25% of the EU directives** involve chemical analysis

**This importance is constantly increasing!**

*National and international needs relating to metrology: International collaborations and the role of the BIPM. A report prepared by the CIPM for the governments of the Member States of the Convention of the Metre, CIPM, 1998*



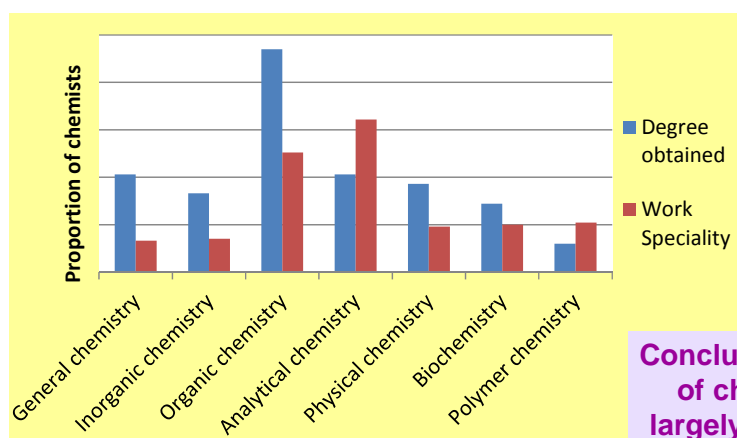
## Jobs/career worldwide

... This reveals a **larger demand** from the job market for analytical chemists **than the supply** by higher education institutions.

R. Salzer *Anal. Bioanal. Chem.* **2014**  
**Education and careers of European analytical chemists**  
 DOI: 10.1007/s00216-014-8191-z



## Jobs/career worldwide



**Conclusion: the jobs of chemists are largely in analytical chemistry**

D. J. Hanson *Chem. Eng. News.* **2011**, 89, 33.  
**ACS Employment and Salary Survey 2011**



## Excellence in Analytical Chemistry

- Full-fledged contemporary analytical master degree programme (120 ECTS)
- Tuned to the job market needs
  - Metrology topics
  - Socio-economic aspects
  - Practical placement



## Excellence in Analytical Chemistry

- Four European universities excelling in different fields:



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Organic and bioorganic analysis,  
advanced separation methods, mass  
spectrometry



Fundamentals of analytical chemistry,  
metrology in chemistry, quality assurance,  
socio-economic aspects

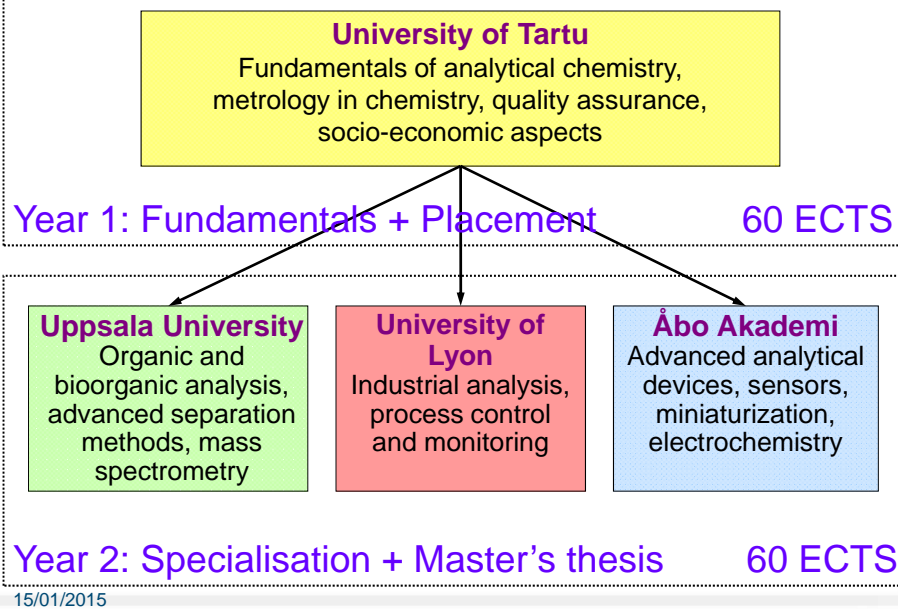


Industrial analysis, process  
control and monitoring



Åbo Akademi  
University

Advanced analytical devices,  
sensors, miniaturization,  
electrochemistry



## Selecting students for study tracks

- You have two possibilities to express your preference:
  - When submitting application (in the motivation letter)
  - During Winter school
    - January 2016\*
    - see <http://www.ut.ee/EACH/each-winter-school/>
- Students are selected taking into account
  - Their preference
  - Grades obtained during the first semester at Tartu
  - Motivation letter
  - Knowledge of local language
  - Possibly interview during Winter school
- Final decisions are made during Winter school in Jan 2016\*



## Applications: the current status

- **28** Submitted applications that are eligible
  - Applications are still coming in every day
  
- Available scholarships:
  - EU scholarships: **13**
    - At least 75% have to be awarded to students not from programme countries
      - i.e. (28 EU countries, Norway, Lichtenstein, FYR Macedonia, Turkey, Iceland)
  - Tuition waiver scholarships: **10**



## Study track preferences: the current status

Study track	Uppsala	Lyon	Abo
First preferences:	18	9	3
Second preferences:	8	11	5



# Autumn 2015 Tentative Timetable

Week 1 starts on Aug 31, 2015

Time	Course code	Course title	Location	Week(s)		Lecturer(s)
<b>Monday</b>						
12.15 - 14.00	LOKT.06.016	Liquid Chromatography and Mass Spectrometry (lecture)	Ravila 14A - 1100	2-11,15-16	E	Ivo Leito, Koit Herodes, Karin Kipper, Anneli Kruve
13.15 - 19.00	LOKT.06.047	Atomic Spectroscopy (lecture)	Ravila 14A - 1100	12-13	E	Teemu Matias Näykki, Ivo Leito
<b>Tuesday</b>						
10.15 - 16.00	LOKT.06.047	Atomic Spectroscopy (lecture)	Ravila 14A - 1051	12-13	E	Teemu Matias Näykki, Ivo Leito
14.15 - 16.00	LOKT.06.016	Liquid Chromatography and Mass Spectrometry (lecture)	Ravila 14A - 1051	1-11,14-16	E	Ivo Leito, Koit Herodes, Karin Kipper, Anneli Kruve
<b>Wednesday</b>						
8.15 - 10.00	LOFY.01.036	Measuring and Instrumentation (lecture)	Ravila 14c - A102	1-16	E	Koit Mauring
10.15 - 12.00	LOKT.06.018	English Terminology in Chemistry (lecture)	Ravila 14A - 1021	1-16	E	Ivo Leito, Koit Herodes
12.15 - 14.00	LOKT.06.032	Practical Chemical Analysis (lecture)	Ravila 14A - 1100	1-16	O	Koit Herodes, Ivo Leito
14.15 - 16.00	LOFY.01.082	Quality Management (lecture)	Ravila 14c - A102	2-16	O	Mart Noorma
16.15 - 18.00	LOKT.06.036	Master Seminar in Measurement Science (seminar)	Ravila 14A - 1100	1-16	O	Ivo Leito

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# Autumn 2015 Tentative Timetable

Week 1 starts on Aug 31, 2015

<b>Thursday</b>						
8.15 - 10.00	LOFY.01.039	Measurement Data Processing (lecture)	Ravila 14c - A102	1-16	O	Erko Jakobson
10.15 - 12.00	LOFY.01.037	Modern Metrology (lecture)	Ravila 14c - A111	2-16	O	Mart Noorma, Martin Vilbaste, Riho Vendt
12.15 - 14.00	LOKT.09.028	Quality Systems (lecture)	Ravila 14A - 1019	3-16	E	Jukka Veli Hiltunen
<b>Friday</b>						
12.15 - 14.00	LOKT.06.032	Practical Chemical Analysis (lecture)	Ravila 14A - 1100	1-16	O	Koit Herodes, Ivo Leito
14.15 - 16.00	LOKT.02.035	Electrochemical Methods for Quantitative Analysis (lecture)	Ravila 14A - 1100	1-16	E	Jaanus Kruusma

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## Other study activities

- **Practical placement** in industry or field laboratory (9 ECTS)
  - Organised usually by the 2nd year university
- **Winter school**
  - See <http://www.ut.ee/EACH/each-winter-school/>
- **Master's thesis** (30 ECTS)
  - Research work in a research group at 2nd year university
    - Possibly with participation of a supervisor from Tartu
  - Must be at least "potentially publishable", preferably published or submitted by defence

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## Academic Coordinator

- **Ivo Leito**, prof, programme director

- ivo.leito@ut.ee, +372 5 184 176,  
Skype: leitoivo,  
Chemicum Ravila 14a - 4034



- Study-program-related questions
  - Choosing courses
  - Finding research group
  - Etc...



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## Programme coordinator assistant

- **Urve Soonets**, programme coordinator assistant

- Urve.soonets@ut.ee,  
Chemicum, Ravila 14c  
(in the secretariat room)

– Study-administrative questions



[www.ut.ee/ams](http://www.ut.ee/ams)

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## Administrative Coordinator

- **Ülle Tensing**, International student coordinator

- Ülle.tensing@ut.ee, +372 7 375 150,  
Ülikooli 18, the „Main building“



– Problems not directly related to the study programme

- Visa, Stipends, Residence permit, Health insurance, Dormitory, ...



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## International student office

- **Kaija Murasov**, International student coordinator

- kaija.murasov@ut.ee, +372 7 375 152, Ülikooli 18, the „Main building“



– Problems not directly related to the study program

- Visa, Stipends, Residence permit, Health insurance, Dormitory, ...



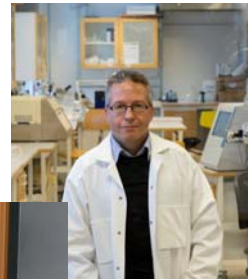
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## Academic leaders at second year universities

- **Prof. Jonas Bergquist (UU)**
  - A worldwide leader in biomedical LC and MS
- **Prof. Jérôme Randon (UCBL)**
  - Founder of the unique industrial analysis programme at Lyon
- **Prof. Johan Bobacka (AAU)**
  - His work on miniature sensors is „probing“ the future of analytical chemistry



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# Truly international programme!



- Estonia
- Greece
- Portugal
- Malawi
- Estonia
- Latvia
- Latvia
- India
- Ukraine
- India
- Cameroon
- Germany
- China
- Sri Lanka
- Estonia
- Nigeria
- Latvia
- Ukraine
- Ghana

On this photo you can see all Applied Measurement Science students as of Dec 14, 2014  
15/01/2015



# I hope to meet many of you in September!

