

# Teacher teams



HEI Teacher Day  
Thomas Sandberg, docent, lecturer in physical chemistry

# When it all began ...



Professor Hupa

- General chemistry with "open lab work" 2014
  - 5 teachers, 4 from Inorganic chemistry lab
  - 120 students per year, almost the whole FNT faculty
    - Study programs: ChemEng, NatSci, Pharmacy, Biology
  - Lab work 5 days a week, 24 students per day
    - Directly connected content between lessons, exercises and lab
- Coordination of the whole activity!

# Background to faculty border -crossing collaboration

- “Kemiundervisningsutvecklingsgrupp”:
  - Thomas Sandberg, quantum chemistry and molecular spectrometry, NatSci
  - Tiina Saloranta, organic chemistry, NatSci
  - Gun Hedström, physical chemistry, NatSci
  - Johan Werkelin, inorganic chemistry, ChemEng
  - Rose-Marie Latonen, analytical chemistry, ChemEng
- Aim of project to:
  - introduce regular teacher meetings for planning and follow-up of chemistry teaching (29 meetings in 18 months, 2013–14)
  - strengthen we-spirit within chemistry teaching and the teaching personnel (at both faculties).



Prorector Hupa



# Administrative consequences (or causes)

- 2015:
  - Broad Bachelor programs
    - **Natural Sciences** instead of Chemistry
  - Four Faculties: “MNF” + “KTF/TkF” = **FNT**
    - **Departments of Natural Sciences, Chem. Eng.** etc. (2010–14)
- 2019:
  - Laboratory of Molecular Science and Engineering (**MVT**)
    - organic chemistry, physical chemistry, inorganic chemistry, analytical chemistry and polymer technology



# Bachelor studies in chemistry

new structure implemented during 2015–2018





# Teacher team in AKE 2022

32 (normally 50+) active students

- Course responsible : Thomas Sandberg
  - Lectures, supervision of computer exercises
- Lab responsible: Maria Zevenhoven
- Lab assistants: Jan-Henrik Smått  
Johan Werkelin  
Farzad Jafarihonar
- Computer exercise assistant: Lisa Asplund
- Lecturer: Prof. Jouko Peltonen



# Teacher team in SoM

Strukturanalys och molekylmodellering (SoM), period 2, 2021  
 Må, To 10.00-11.30, Fre 8.15-9.45 (+ ons 12.15-15.45) AUR-A316 (Chromium)

| Datum  | Dag | Föreläsningar<br>Tema | Metod/ämne   | Föreläsare/<br>övervakare |
|--------|-----|-----------------------|--|---------------------------|
| 1.nov  | Må  | Inledning             | 1) Kursinfo, 2) Inledning till kromatografi  | 1) Patrik, 2) Rose-Marie  |
| 4.nov  | To  | Kromatografi          | Kromatografisk teori   | Rose-Marie                |
| 5.nov  | Fre | Kromatografi          | HPLC och SEC   | Rose-Marie                |
| 8.nov  | Må  | Kromatografi          | Gaskromatografi (GCMS)   | Patrik                    |
| 10.nov | Ons |                       | <i>GC, HPSEC demo, kromatografi</i>  | Patrik/Lucas              |
| 11.nov | To  | Masspektrometri       | Tolkning av masspektra   | Janne                     |
| 12.nov | Fre | Masspektrometri       | Instrumentering och joniseringsmetoder (LC-MS)   | Patrik                    |
| 15.nov | Må  | Masspektrometri       | Analysatorer och detektorer  | Patrik                    |
| 17.nov | Ons |                       | <i>Tentamen i Kromatografi</i>   | Patrik, Rose-Marie        |
| 18.nov | To  | Spektrofotometri      | 1) Begrepp och övergångar, 2) UV-vis   | 1) Thomas, 2) Rose-Marie  |
| 19.nov | Fre | IR-spektroskopi       | Vibrationspektroskopi  | Thomas                    |
| 22.nov | Må  | IR-spektroskopi       | Vibrationer med analys av spektra  | Thomas                    |
| 24.nov | Ons |                       | <i>Labbar i spektroskopi</i>   | Thomas                    |
| 25.nov | To  | IR-spektroskopi       | 1) Raman, 2) Rotationsspektroskopi   | 1) Rose-Marie, 2) Thomas  |
| 26.nov | Fre | NMR-spektroskopi      | Inledning & Teori  | Patrik                    |
| 29.nov | Må  | NMR-spektroskopi      | Teori NMR fenomenet  | Patrik                    |
| 1.dec  | Ons |                       | <i>Tentamen i masspektrometri</i>  | Patrik                    |
| 2.dec  | To  | NMR-spektroskopi      | Teori 1H 13C   | Patrik                    |
| 3.dec  | Fre | NMR-spektroskopi      | Teori + övningar   | Patrik                    |
| 8.dec  | Ons |                       | <i>Tentamen i spektroskopi</i>   | Thomas                    |
| 9.dec  | To  | NMR-spektroskopi      | Teori + övningar   | Patrik                    |
| 10.dec | Fre | NMR-spektroskopi      | Teori + övningar   | Patrik                    |
| 13.dec | Må  | Molekylmodellering    | Begrepp och förkortningar i beräkningskemi   | Thomas                    |
| 15.dec | Ons | Molekylmodellering    | DFT och repetition av Materials studio   | Thomas                    |
| 16.dec | To  | Molekylmodellering    | Datorövningar  | Thomas                    |
| 17.dec | Fre |                       | Konformationsanalys/handledning  | Thomas + Patrik           |
| 20.dec | Må  | Examination           | Presentation av konformationsanalysen<br><i>Tentamen i NMR</i><br><i>Tentamen i mol.mod + omtentamen</i> | Patrik + Thomas           |



# (How) Does a teacher team work?

- Diversity is our strength.
  - The tasks are distributed in such a way that we try to utilize the special knowledge of the team members.
- Every team needs its captain.
  - Some courses have a rotating responsibility, while other have a commonly chosen course responsible person.
- Every one can get sick (also before corona).
  - A flexible work distribution during conference participation, AoF applications etc.





# Important skills in the team (teaching)

- Confidence (as between foreman and worker)
  - Don't mess in each other's responsibility area!
- Active communication (between teachers)
  - Challenges of students with special needs.
- Possi-/ability to choose a (dream) team
- Presence ("didactic balance point")
- Student-oriented working plan
- What's most important for the team leader?
  - Nobody cares about contents – the key factors are: acceptance, appreciation and a kind atmosphere! 😊

