

ANALYTICAL CHEMISTRY

1.1. Identification

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|-------------|--|--|-------------|----------------|--------------|------------------------------|------------|----------------|-------------|---|--------------|
| University: | Kungl Tekniska Högskolan (KTH), Stockholm | | | | | | | | | | |
| School: | School of Chemical, Science and Technology | | | | | | | | | | |
| Course: | Analytical Chemistry | | | | | | | | | | |
| ECTS: | 6 | | | | | | | | | | |
| Semester: | <i>Winter</i> | | | | | <i>Summer</i> | | | | X | |
| Category | <i>Fundamental course</i> | | | | | <i>Specialisation course</i> | | | | X | |
| Module | <i>MFI</i> | | <i>MFII</i> | | <i>MFIII</i> | | <i>MSI</i> | X | <i>MSII</i> | | <i>MSIII</i> |
| Teachers: | Åsa Emmer | | | | | | | | | | |
| Language: | <i>English</i> | | X | <i>Italian</i> | | <i>Swedish</i> | X | <i>Spanish</i> | | | |

1.2. Learning-outcomes

- knowledge of the principles and applications of instrumental analysis
- knowledge of which alternative methods are available within each technique
- knowledge of how plan and evaluate a sampling procedure

1.3. Competencies

▪ General

- to have critical understanding of technical and scientific tools
- to work and manage teams
- communication skills (both written and oral)
- to work in an international context

▪ Specific

- to understand analytical techniques used in laboratories and process control; spectroscopy, chromatography, mass spectrometry and electro analysis
- to define alternative methods available within each technique, explain the principles and mention advantages and disadvantages
- to develop the function of the parts of instrumentations for the different methods.

1.4. Contents

Spectroscopy. Chromatography and mass spectrometry. Liquid chromatography. Diode-array spectrometry. Automatic analytical methods and process analytical chemistry. Methods for environmental monitoring. Choice of analytical method. Mass spectrometry. Atomic absorption spectroscopy.

1.5. Teaching Methodology

- Lecture sessions
- Practical sessions: “cooperative work” for solving problems
- laboratory sessions

1.6. Evaluation

- written exams
- oral evaluation of the problems solved by “cooperative work”
- oral evaluation of laboratory work

1.7. Bibliography

- D.C. Harris, Quantitative Chemical Analysis ISBN 0-7167-4464-3