



## Syllabus

**Term:** 2026/27/1      **Subject name:** Instrumental Analysis - lecture      **Subject code:** ENBIOB0901

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**Unit (Unit code)** (KEMIA)

**Lecturer responsible for the course:** Dr. FELINGER Attila

**Requirement:** Exam

**Classes per week :** 2/0/0

**Classes per term:** 26/0/0

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### Purpose of education:

**Objectives:** The lecture intends to introduce students to the basic concepts of instrumental analysis, principles and applications of instrumental analytical methods.

**Learning outcomes:** students completing the course will have knowledge on the basics and applications of instrumental analytical methods used in biological research; they will know the basic technical terms and will be able to understand the scientific literature of this field; they will be able to formulate a quantitative and qualitative analytical task and to select the proper analytical procedure; they will be able to apply instrumental methods of quantitative and qualitative analysis and to evaluate results.

### Contents:

Week 1: Introduction to instrumental analysis

Week 2: Calibration methods

Week 3: Introduction to electroanalytical methods. Potentiometry

Week 4: Conductometry. Amperometry. Sensors and biosensors

Week 5: Introduction to optical methods. Fundamentals of spectroscopy

Week 6: Atomic spectroscopy

Week 7: UV-Visible spectroscopy



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### Contents:

Week 8: Fluorescence spectroscopy

Week 9: Introduction to separation techniques. Basic principles of chromatography

Week 10: Planar chromatography

Week 11: Liquid chromatography

Week 12: Gas chromatography

Week 13: Electrophoresis

Week 14: Mass spectrometry

### System of examining and valuation:

For the acceptance of the semester, the students must attend a minimum of 80% of lecture sessions.

Written examination.

Grades:

100-85%    excellent

84-75%:    good

74-60%:    average



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### System of examining and valuation:

59-50%: acceptable

-49%: fail

### Bibliography:

[1] D. C. Harris: Quantitative chemical analysis

[2] Skoog-Holler-Nieman: Principles of Instrumental Analysis

### Bibliography: