

Biochemical Analysis, I

Scope:

The course is directed to graduate students who specialize or are interested in **analytical, pharmaceutical, or clinical chemistry**, as well as **biochemistry, biotechnology, systems biology**, and related areas. The main focus is on detection, analysis and characterization of biomolecules in cells and biofluids.

Contents:

1. Introduction
2. Classes of biomolecules
 - small molecules, metabolites
 - lipids
 - carbohydrates
 - proteins (incl. enzymes)
 - nucleic acids
3. Classical analytical techniques in biochemistry
4. Colorimetry and spectrophotometry
5. * Mid-term exam
6. Microfluidics in biochemistry
7. Affinity-based techniques in biochemistry
8. * Students' presentations
9. Applications of biochemical analysis methods
10. * Final exam

Evaluation:

* Final mark will be based on the results of the mid-term exam (30%), presentation (30%), and the result of the final exam (40%). Additional points (up to 15%) can be gained for active participation in the class.

Requirements:

Students who have completed the Analytical Chemistry course are encouraged to participate.

Study material:

Handouts will be provided for selected topics.

Useful links: (This section will be expanded.)

[IUPAC Gold Book - Sample](#)

[Adrenoleukodystrophy](#)

[The movie "Lorenzo's Oil"](#)

[Classic Kit: Soxhlet extractor](#)

[Interactive animations](#)

[The Reaction of Naphthoquinone-4-Sulfonate with Imino Acids](#)