Gdansk University of Technology
May, 2019
Lecture abstract

Title:

Complexity of Biological Samples: An Art of Sample Preparation and Analytics

Unlike in previous courses where the center of lectures were fundamentals and applications of mass spectrometry, this time the center of this course will be complexity of biological samples collected for various projects. After experimental design is set, samples are collected and processed for analysis. Today's chemistry and biochemistry offers a wide variety of methods, yet the success of entire experiment will depend on how samples are collected, processed and analyzed. Therefore, this course is organized to benefit not only chemists, biochemists and microbiologists, but all of those who are performing in vitro, ex vivo and in vivo experiments.

Lecture 1. Types of analytes from cells, tissues and organs and their stability.

Lecture 2. Dynamic studies of biological systems: Functional and structural approaches.

Lecture 3. Challenges associated with measurements of biological activity with other than enzymatic activity.

Lecture 4. Methods of extractions of various types of compounds from variety of biological materials.

Lecture 5. Liquid chromatography: Is it universal solution?

Lecture 6. Standards, calibration, normalization in complex biological samples

Lecture 7. Optimal analytical strategy for given task: Part I: Prokaryotic cells.

Lecture 8. Optimal analytical strategy for given task: Part II: Eukaryotic cells and tissues.

Lecture 9. Uncertainty of measurements. https://physics.nist.gov/cuu/Uncertainty/index.html

Lecture 10. Quality control and validation.

Lecture 11. Single cell analysis.

Lecture 12. Test.

Lecture 13. Laser microdissection: A powerful tool at cell level.

Lecture 14. Biological systems of microorganisms.

Lecture 15. Review of examples of practical applications.

WYKŁADY:

Termin	Dzień tygodnia	Godzina	Miejsce
06.05.2019	poniedziałek	9.15 – 12.00	Minicentrum Konferencyjne (Luwr)
07.05.2019	wtorek	9.15 – 12.00	Minicentrum Konferencyjne (Luwr)
08.05.2019	środa	9.15 – 12.00	Minicentrum Konferencyjne (Luwr)
09.05.2019	czwartek	9.15 – 12.00	Minicentrum Konferencyjne (Luwr)
10.05.2019	piątek	9.15 – 12.00	Minicentrum Konferencyjne (Luwr)

SEMINARIA:

Termin	Dzień tygodnia	Godzina	Miejsce
13.05.2019	poniedziałek	12.15 – 15.00	Minicentrum Konferencyjne (Luwr)
14.05.2019	wtorek	12.15 – 15.00	Minicentrum Konferencyjne (Luwr)
15.05.2019	środa	12.15 – 15.00	Minicentrum Konferencyjne (Luwr)
16.05.2019	czwartek	12.15 – 15.00	Minicentrum Konferencyjne (Luwr)
17.05.2019	piątek	12.15 – 15.00	Minicentrum Konferencyjne (Luwr)