

THE COURSE

THE LEARNING OUTCOMES

- Synthesis of magnetic nanoparticles
- Functionalization of magnetic nanoparticles
- Conjugation of antibodies to magnetic nanoparticles
- Use of nanoparticles in proteomics: Simplifying the proteome.
- Mass spectrometry-based proteomics
- Protein identification & quantification

COURSE OUTLINE

Nano-synthesis and characterization

- Synthesis of magnetic nanoparticles
- Antibody functionalization of magnetic nanoparticles
- Characterization of magnetic nanoparticles by DLS and Z-potential

Proteomics

- Proteome extraction, clean-up and total protein quantification
- Nano-immunoaffinity purification and proteome fractionation
- Proteomics sample preparation: in-gel and in-solution.
- Proteomics sample preparation: 1D-gel electrophoresis
- Protein identification by Mass Spectrometry techniques (MALDI-TOF MS and ESI-MS/MS)
- Protein quantification by Mass Spectrometry (ESI-MS/MS)
- Bioinformatics