Course: **"Design, Development and Delivery of Innovative Biopharmaceuticals"**

Duration: 24 hours

Teacher(s): **Prof. Barbara Gatto, Prof. Gianfranco Pasut**

Curriculum: Pharmaceutical Sciences

Description:

The course will focus on state-of-the-art approaches for the design, development, and delivery of biotech drugs, with the specific aim to stimulate students to cross-contaminate different disciplines in the field of molecular sciences.

The course aims to enable students to develop a sound knowledge relative to the design and development of innovative biopharmaceuticals such as recombinant monoclonal antibodies and protein therapeutics. Aspects of production, characterization, manipulation and regulatory issues for these therapeutic agents will be described. Nucleic acids-based drugs will also be briefly described.

The limitation of biotech drugs will be discussed taking into consideration their instabilities. Common solutions of protein formulation will be explained. Several advanced protein delivery approaches will be presented in detail. Particular emphasis will be dedicated to the field of polymer conjugation to proteins both with chemical or enzymatic methods. Other approaches, such as fusion proteins, hyper-glycosylation, lipidization will be presented.