LOGO DELLA STRUTTURA PRIMARIA

COURSE: **ORGANIC CHEMISTRY APPLIED TO BIOLOGICAL PROCESSES**			
ACADEMIC YEAR: **2016-2017**			
TYPE OF EDUCATIONAL ACTIVITY: **Free choice**			
TEACHER: **Brigida Bochicchio (Associate Professor)**			
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Language: **Italian**			
ECTS: **6**	n. of hours: **48**	Campus: **Potenza** Dept.:**Science** Program:**FARMACIA (LM-13)**	Semester: **II**

EDUCATIONAL GOALS AND EXPECTED LEARNING OUTCOMES

The main object of the course is to interpret the main biological and biochemical processes in terms of organic chemistry. The course is mainly focused on the comprehension of the mechanism of action of enzymes.

PRE-REQUIREMENTS

Organic Chemistry I and II

SYLLABUS

Introduction to Bioorganic chemistry
Basic Considerations
Proximity Effects in Organic Chemistry
Molecular Adaptation
Molecular Recognition and the Supramolecular Level
Bioorganic Chemistry of amino acids and polypeptides
Chemistry of the living cells
Analogy between Organic Reactions and Biochemical Transformations
Chemistry of the Peptide Bond
SPPS Synthesis
Nonribosomal Peptide bond formation
Asymmetric Synthesis of alpha-aminoacids
Transition State Analogs
Molecular Recognition and Drug Design
Primary, Secondary, Tertiary structure of Polypeptides and Proteins
Spectroscopic techniques and secondary structure of Polipeptides and Proteins
The molecular Dynamics Simulations as useful tool to investigate the conformational space of polypeptides.
Bioorganic Chemistry of Phosphate groups and Polynucleotides
Basic Considerations
Energy Storage
Hydrolytic Pathways and Pseudorotation: mechanism of action of ribonuclease A enzyme.
Enzyme Chemistry
Introduction to Catalysis
Introduction to Enzymes
Multifunctional Catalysis and Simple Models
alpha-chymotrypsin
Other Hydrolitic Enzymes: lysozyme
Metal Ions
Metal Ions in Proteins and Biological Molecules
Carboxypeptidase A and the role of Zinc

TEACHING METHODS

Theoretical lessons, Classroom tutorials, Laboratory tutorials, Technical visits

Se utile, riportare ulteriori dettagli, come specificato nell'esempio riportato nella scheda in lingua in italiana.
EVALUATION METHODS Oral examination
TEXTBOOKS AND ON-LINE EDUCATIONAL MATERIAL Hermann Dugas, Bioorganic Chemistry, Springer. A. Liljas, L. Liljas, J. Piskur, G. Lindblom, P. Nissen, M. Kieldgaard. Textbook on structural biology. World Scientific. Original Scientific Papers Teacher's Notes
INTERACTION WITH STUDENTS *Hours Reception (2 hour each Friday of the week), e-mail, sharing of materials by Dropbox.*
EXAMINATION SESSIONS (FORECAST)[1] 16/06/2017 30/06/2017 21/07/2017 15/09/2017 29/09/2017 13/10/2017
SEMINARS BY EXTERNAL EXPERTS YES X NO □
FURTHER INFORMATION

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[1]Subject to possible changes: check the web site of the Teacher or the Department/School for updates.