

Applied Biochemistry and Enzymology

STRUCTURA

Programul de studii	Biotechnology and Entrepreneurship
<i>Anul de studii</i>	I
<i>Semestrul</i>	I
<i>Regimul disciplinei</i>	DOA
<i>Numărul total de ore pe săptămână</i>	Curs – 1 ore; L – 2 ore
<i>Numărul total de ore conform planului de învățământ</i>	Curs – 14 ore; L – 28 ore
<i>Numărul de credite transferabile</i>	8

OBIECTIVELE DISCIPLINEI

- Assessing the contribution of applied biochemistry and especially enzymology to modern biotechnology. This will provide a specialized knowledge for biotechnological entrepreneurship.
- Designing schemes for obtaining, characterization and the study of the molecules of biological interest
- Applying biochemical compounds and enzymes for realizing valuable products or for solving different technological problems

CONȚINUTUL DISCIPLINEI*

CURS	Nr. ore
Chapter I – Sources and extraction methods for biochemical compounds	2
Chapter II - Secondary metabolites and factors that affect their biosynthesis	4
Chapter III – Alkaloids: biological role and applications in medicine and agriculture	4
Chapter IV – Isoprene based lipids - applications in food, cosmetic, pharmaceutical, agriculture and biotechnology industries	4
Chapter V – Polyphenolic compounds: importance, uses and applications	2
Chapter VI - Enzymes for food industry (baking, dairy, brewing, wine making, fruit and vegetable processing)	2
Chapter VII - Enzymes in bioremediation, biorefinery and bioenergy	2

LUCRĂRI PRACTICE L	Nr. ore
Common planning criteria used to select an extraction source and develop a purification scheme	2
Methods of tracking and analysing the progress of the isolation and purification of a biomolecule	2
Performing a virtual compound purification within a set of specified parameters	2
Obtaining and characterization of a phenolic extract from medicinal plants	4
Microbial carboxylic acids: biosynthesis, analytic determination and usage as food additive	2
Purification scheme for a protein or enzyme	2
Enzymatic browning caused by polyphenol oxidase on different plant materials	2
Determination of diagnostic importance of liver enzymes used for assessing liver function or injury	2
Immobilization of proteases on calcium alginate; evaluation of the process efficiency and prepare characterization	4
Students literature research project	2

BIBLIOGRAFIE

1. Andrews, "Theory, Techniques and Biochemical and Clinical Applications", Clarendon Press, Oxford, 1986
2. Price N.C., Stevens L.S., "Fundamentals of Enzymology", Oxford Science Publ., 1988;
3. Coopland R.A., "Enzymes", Second Edition, Wiley Publications, 2000;
4. Eisenthal R., Danson M.J., "Enzymes Assays", Second Ed., Oxford University Press, 2002.

EVALUARE

Tip de activitate	Criterii de evaluare	Metode de evaluare	Pondere din nota finală %
Curs	Proving the understanding of the course concepts and the capacity of information synthesis and correlation.	Written Examination	50
L	Practical skills for isolation, purification, characterization and use of different biomolecules	<ul style="list-style-type: none">• In-class activities and exercises, review quizzes• Presentation of a literature research project Deliver a short lecture about the subject matter of a selected scientific paper from a journal dealing with applications of biochemistry. Each student will provide a 1 page analysis of a journal article	50
Alte activități	-	-	-

Titularul activităților de curs: prof. univ. Israel-Roming Florentina

Titularul activităților de lucrări practice L: prof. univ. Israel-Roming Florentina