

**UNICAM** – Università degli Studi di Camerino  
**Facoltà di Farmacia** Guida 2008/09  
**Classe 9S** - Corso di laurea in **Biotechnologie Farmaceutiche**

Faculty: Pharmacy  
Course in **Pharmaceutical Biotechnology**  
Second level degree program in  
Pharmaceutical Biotechnology  
9/S - Medical, Veterinarian and Pharmaceutical Biotechnology

#### **President of the Steering Committee**

prof. Gloria Cristalli  
tel. 0737 402848  
e-mail: [gloria.cristalli@unicam.it](mailto:gloria.cristalli@unicam.it)

#### **Introduction**

This degree program represents an effective reply to the demand for highly qualified personnel able to manage planning, experimentation choices, production, development, quality control and licensing of biotechnological pharmaceutical products such as proteins, oligonucleotides, and antibiotics.

The graduate in Pharmaceutical Biotechnology is a professional with broad knowledge of chemistry and biology, and a solid practical ability; in addition, this degree program trains students to use the most highly sophisticated technologies of inquiry, and provides a particularly deep understanding of biological macromolecules, as well as of synthetic and natural molecules of pharmaceutical interest.

To promote the enrolment of students from foreign countries, as well as to familiarise Italian students with the English language (nowadays essential in scientific research) the lessons of the course will be given in English.

#### **Formational objectives**

The graduate with a specialistic degree in Pharmaceutical Biotechnology should:

possess solid knowledge of the structure, functions, and methods of analysis of biological macromolecules and of the cellular processes in which they intervene;

understand and know how to use the principal methodologies of molecular and cellular biotechnologies for the planning and production of bio-pharmaceuticals, diagnostics, vaccines, and health and nutritional products or services.

know the main aspects of the operative processes which follow the industrial planning of biotechnological products, and the formulation of bio-pharmaceuticals;

understand and know how to use techniques and specific technologies in sectors such as molecular modelling and planning of innovative drugs;

recognize interactions between foreign microorganisms and human and animal organisms;

recognize the effects of biotechnological products on the environment and prevent possible harmful effects;

possess skills in analysing bio-pharmaceuticals, diagnostic products, and vaccines in human and animal applications for chemical, biological, biophysical and toxicological aspects.

#### **Employment Prospects**

Graduates with the Specialistic Degree in Pharmaceutical Biotechnology are in a position to manage with responsibility and autonomy various kinds of departments in the pharmaceutical industry, as well as public or private research centers, and biotechnological/pharmaceutical businesses.

To be admitted

The specialistic degree in Pharmaceutical Biotechnology represents the next stage of study for those with the first level degree (laurea magistrale) in Biotechnology. To obtain the specialistic degree in Pharmaceutical Biotechnology, students need a total of 300 credits (CFU).

Thus, students with the first level degree in Biotechnology already begin with 180 CFU, and must complete 120 more CFU to achieve the second level degree.

For graduates with other degrees, the Steering Committee will evaluate the three year program of study that the student has completed, and may indicate certain courses the student must pass in order to bridge gaps in his preparation. Students registered at the University of Camerino may apply for admission to the specialistic degree before the end of the first level degree, on condition that they will have completed 158 formative credits by November 5th, 2008, and that they will have graduated by April 30th, 2009.

### **Schedule of exams**

The two-year specialistic degree in Pharmaceutical Biotechnology requires 120 university formative credits (CFU):

Year I

Semester Didactic Modules ECTS

1° Applied Molecular Biology 10

1° Clinical Biochemistry and Molecular Biology 6

1° Image Elaboration for Biomedical Research 6

2° Molecular methods applied to pharmacological biotechnologies 10

2° Biotechnology driven medicinal chemistry 12

2° Agry-Food Biotechnologies 6

ECTS Total 50

II Year

Semester Didactic Modules ECTS

1° Biotechnological drug analysis 10

1° Design of Biotechnological Drugs with Computational Tools 8

1° Drug Release and Carrying 8

2° Pharmacological Biotechnologies 8

ECTS Total 34

Optional activities 12 ECTS

The number of credits awarded for the academic activities chosen by students is ratified by the Class Council; such activities can include formal university courses and independent study, (attending seminars, as well) properly documented according to class regulations.

Final test 24 ECTS

The candidate must do a thesis based on experimental research, and discuss the content with a degree commission chosen by the Class President. The degree commission will assign a score to the candidate on the basis of the thesis presentation and discussion, and evaluation of the student's curriculum.

### **For further information, please contact:**

Farmacy Faculty segretariat

Tel.0737402456

Student Secretariat

via Le Mosse 69 - 62032 Camerino

tel. 0737 633517

web <http://www.unicam.it>

toll free number 800 054000