



# UNIVERSITÀ DEGLI STUDI DI MILANO

## FACOLTÀ DI FARMACIA

*Eventuale spazio per nome struttura o altro*

### **Pharmacy education. The Italian academic viewpoint**



# Faculty of Pharmacy

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**Pharmacy**

**Medicinal  
Chemistry and  
Technology**

**Herbal  
Medicine  
Sciences**

**Environmental  
Chemistry and  
Toxicology  
Sciences**

**Pharmaceutical  
Biotechnology and  
Medicinal Biotechnology**



# Total number of Pharmacy higher education institutes in Italy

1. Faculty of Pharmacy, University of Bari	17. Faculty of Pharmacy, University of Pavia
2. Faculty of Pharmacy, University of Bologna	18. Faculty of Pharmacy, University of Perugia
3. Faculty of Pharmacy, University of Cagliari	19. Faculty of Pharmacy, University of Pisa
4. Faculty of Pharmacy, University of Camerino	20. Faculty of Pharmacy, University of Rome La Sapienza
5. Faculty of Pharmacy, University of Catania	21. Faculty of Pharmacy, University of Salerno
6. Faculty of Pharmacy, University of Chieti	22. Faculty of Pharmacy, University of Sassari
7. Faculty of Pharmacy, University of Ferrara	23. Faculty of Pharmacy, University of Siena
8. Faculty of Pharmacy, University of Florence	24. Faculty of Pharmacy, University of Trieste
9. Faculty of Pharmacy, University of Genova	25. Faculty of Pharmacy, University of Turin
10. Faculty of Pharmacy, University of Messina	26. Faculty of Pharmacy, University of Urbino
11. Faculty of Pharmacy, University of Milan	27. Faculty of Pharmacy, University of Calabria
12. Faculty of Pharmacy, University of Modena	28. Faculty of Pharmacy, University of Piemonte Orientale
13. Faculty of Pharmacy, University of Naples Federico II	29. Faculty of Pharmacy, University of Catanzaro
14. Faculty of Pharmacy, University of Padova	30. Faculty of Pharmacy, University of Basilicata
15. Faculty of Pharmacy, University of Palermo	31. Course in Pharmacy, Second University of Naples
16. Faculty of Pharmacy, University of Parma	32. Course in Pharmacy, University of Rome Tor Vergata



# Faculty of Pharmacy

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Number of teaching staff (nationals)	1354	This number corresponds to the equivalent teaching staff. In Italy, a full professor has a value of 1, an associate professor a value of 0.7 and an assistant professor a value of 0.5. The total number of people is actually >1354.
Number of applicants for entry	32889	Data from the Ministry of Universities and Research for 2008 <a href="http://www.miur.it/0002Univer/index_cf2.htm">http://www.miur.it/0002Univer/index_cf2.htm</a>
Graduates that become registered pharmacists.	1507	Data from national FOFI (Board of Pharmacist Italian Federation), 2008
Fees per year	1891 € (average)	The fee varies according to the family income
Length of course	5	Including the mandatory 6-month traineeship.



# Coursework Degrees - Faculty of Pharmacy

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## Unified Bachelor and Specialist Degrees

- **Pharmacy**

**5 years**  
**(300 Credits)**

- **Medicinal Chemistry and Technology**



# Coursework Degrees - Faculty of Pharmacy

## Three year Bachelor's Degree

- Herbal Medicine Sciences
- Environmental Chemical and Toxicological Safety Sciences
- Pharmaceutical Biotechnology

3 years  
(180 Credits)

## Specialist Degree

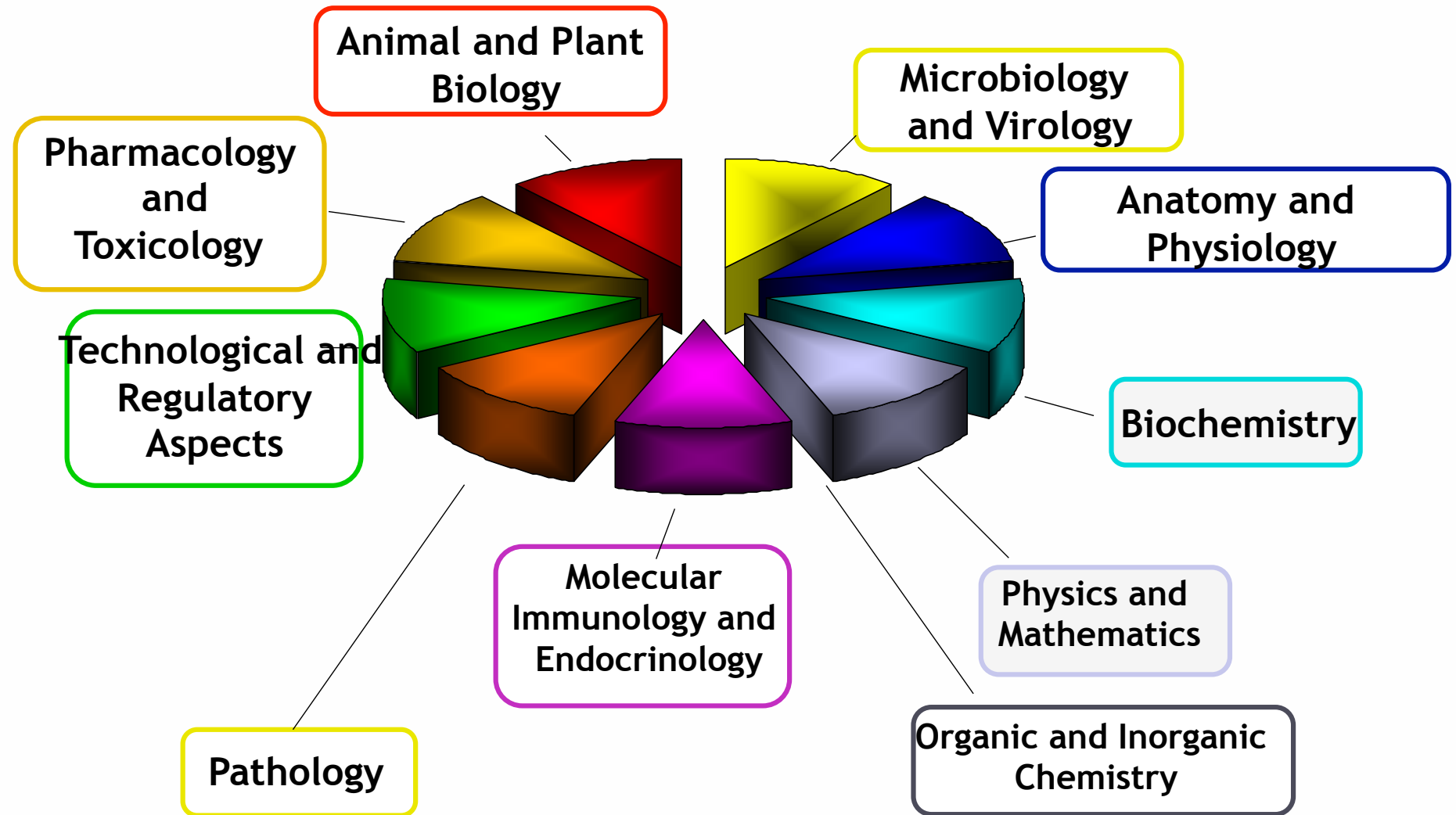


- Medicinal Biotechnology

2 years  
(120 Credits)



# Subjects covered throughout the course



# Course Structure

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- Lectures
- Laboratory Teachings
- Individual Laboratory Work
- Preparation of a final Thesis under the supervision of a tutor
- Pharmacy Practice
- Computer skills and language skills courses

**The degree course is affiliated with Socrates/Erasmus.**





# Professional Practice

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In order to graduate from the Faculty of Pharmacy, students must successfully complete a period of Pharmacy practice.

Spanning for an entire semester, the practice period is conducted under the supervision of a professor from the University as well as a professional supervisor from:

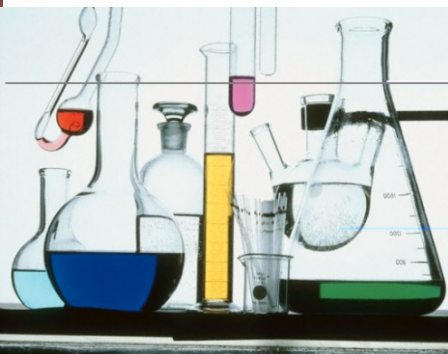
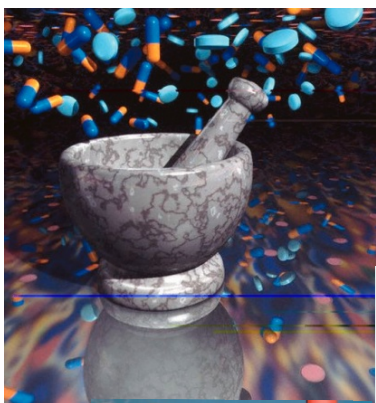
- Community or hospital Pharmacy



# Specialist Degree Course of

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## Pharmacy



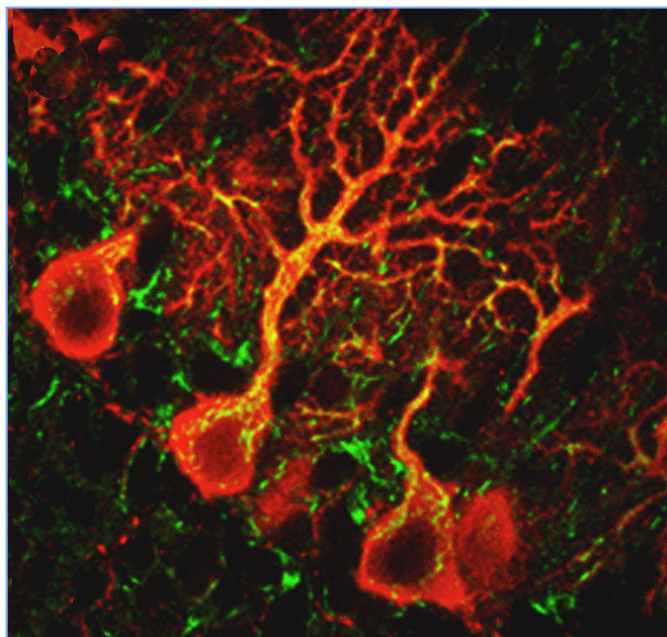
## Medicinal Chemistry and Technology (CTF)



# OBJECTIVES

Offer the training needed for:

Working in the field of research and development of medicinals and health related products



Work as experts in the field of medicinals and health products

Work in a Pharmacy

Work in a Health Store





# Career and Employment



Based on CEE 85/432 a pharmacy graduate registered at the College of Pharmacists is legally entitled to perform the following jobs:

Prepare medicinal products and dosage forms

Perform large scale production and quality control

Perform wholesale of medicinal products to pharmacies or other authorized distributors



# Career and Employment

Based on CEE 85/432 a pharmacy graduate registered at the College of Pharmacists is legally entitled to perform the following jobs:



Preparation, quality control and distribution of medicinal products to pharmacies or health stores

Divulgence of information and advice in the field of medicinal products



# The Degree Course of PHARMACY

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offers

Technical and practical knowledge in the field of  
**biology, pharmacology, chemistry, toxicology, pharmaceutical  
technology and law**

creates

**A professional**  
whose main area of expertise  
is the **Community of Hospital Pharmacy  
practice**



# The Degree Course of MEDICINAL CHEMISTRY AND TECHNOLOGY

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**offers**

technical and practical knowledge in the field of  
**Chemistry, biology, pharmaceuticals, pharmacology, toxicology,  
pharmaceutical technology and regulations**

**creates**

**A professional**  
**Whose main field of expertise**  
**is the pharmaceutical industry...**



# The Degree Course of MEDICINAL CHEMISTRY AND TECHNOLOGY

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**offers**

**Privileged position in**

- pharmaceutical research and development
- production supervisor
- department heads (pharmaceutical production: solids, parenterals, liquids, semi-solids packaging....)
- quality control
- logistics, planning, purchasing, distribution





# The Degree Course of MEDICINAL CHEMISTRY AND TECHNOLOGY

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**offers**

## **Privileged positions in**

- regulatory affairs
- quality assurance, validation of production processes
- staff training, inspections
- scientific information specialist
- clinical research
- marketing
- pharmacovigilance

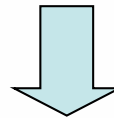


# Both degrees

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**allow**

membership of the professional body



**Board of Pharmacists**

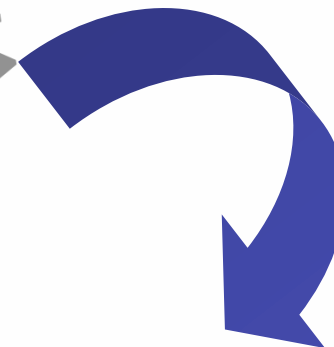
through  
**State examination**



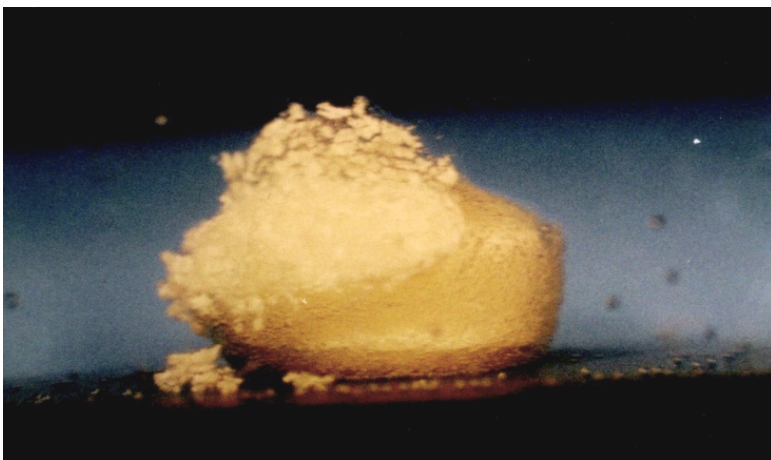
# CTF Course Outline



- ┌ Lectures
- ┌ Laboratory Component
- ┌ Individual Laboratory Work
- ┌ Language and Computer Knowledge Courses

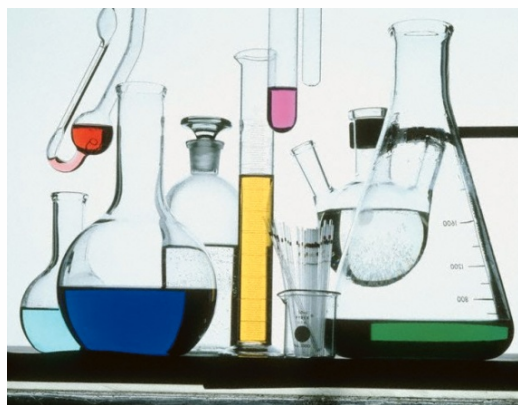


The student must earn a total  
of 300 credit points



# CTF Course Outline

Specific activities, under the supervision of the professor, aimed towards the completion of the final thesis and conducted in university laboratories or those of private institutions



Chemistry, biology, pharmacy,  
pharmacology, toxicology,  
Technology and regulatory

Professional Pharmacy practice



# Fields of expertise

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- a) Medicinal science and development**
- b) Applied Technology**
- c) Experimental Pharmacology.**
- d) Therapeutic Pharmacology.**
- e) Molecular Characterization.**
- f) Chemical methodologies applied to biosystems**
- g) Logistic and regulatory affairs**



# CTF course history

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- Constituted by law in 1967 (DPR 1037/67).
- Admission to the State Examination and membership of the Board of Pharmacists allowed by 1972 (DPR 739/72).
- 1969: first CTF degree course constituted at the University of Pavia.
- 1971/1972: first CTF graduate.
- 1973: CTF degree course at the University of Milano.



# CTF distinctive courses

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- Medicinal products industrial manufacturing with lab.
- Medicinal chemistry (advanced)[choice].
- Advanced pharmaceutical technology [choice].
- Patents legislation and Regulatory issues [choice].
- Clinical pharmacology [choice].
- Cellular and molecular pharmacology [choice].
- Advanced methods in synthesis and analysis [choice].
- Advanced methods in molecular characterization [choice].

