

MASTER'S DEGREE IN BIOCHEMISTRY

(LM-9 Class – Biotechnologies)



SAPIENZA
UNIVERSITÀ DI ROMA

DEPARTMENT OF BIOCHEMISTRY "A. ROSSI FANELLI"

FACULTY OF PHARMACY AND MEDICINE

FACULTY OF MATH., PHYS. AND NAT. SCIENCES

WHAT ARE THE TARGET STUDENTS OF THE MASTER'S DEGREE IN BIOCHEMISTRY?

Italian and foreign students from bachelor courses in:

- *Biological Sciences*
- *Biotechnology (both Sapienza bachelor degrees)*
- *Bioinformatics*
- *Molecular Biology, Medicinal Chemistry...*
- *Chemistry (with some additional exams)*

The only degree of this kind in Italy, the MD in Biochemistry has been available for decades in other northern European countries and in the USA.

THE AIM OF OUR BIOCHEMISTRY MASTER'S PROGRAMME

**TO MAKE THE STUDENTS DEVELOP A
multidisciplinary mindset toward biology and
biotechnology, with a strong emphasis on
biochemical methodologies and a rigorous
scientific approach**

WORK OPPORTUNITIES

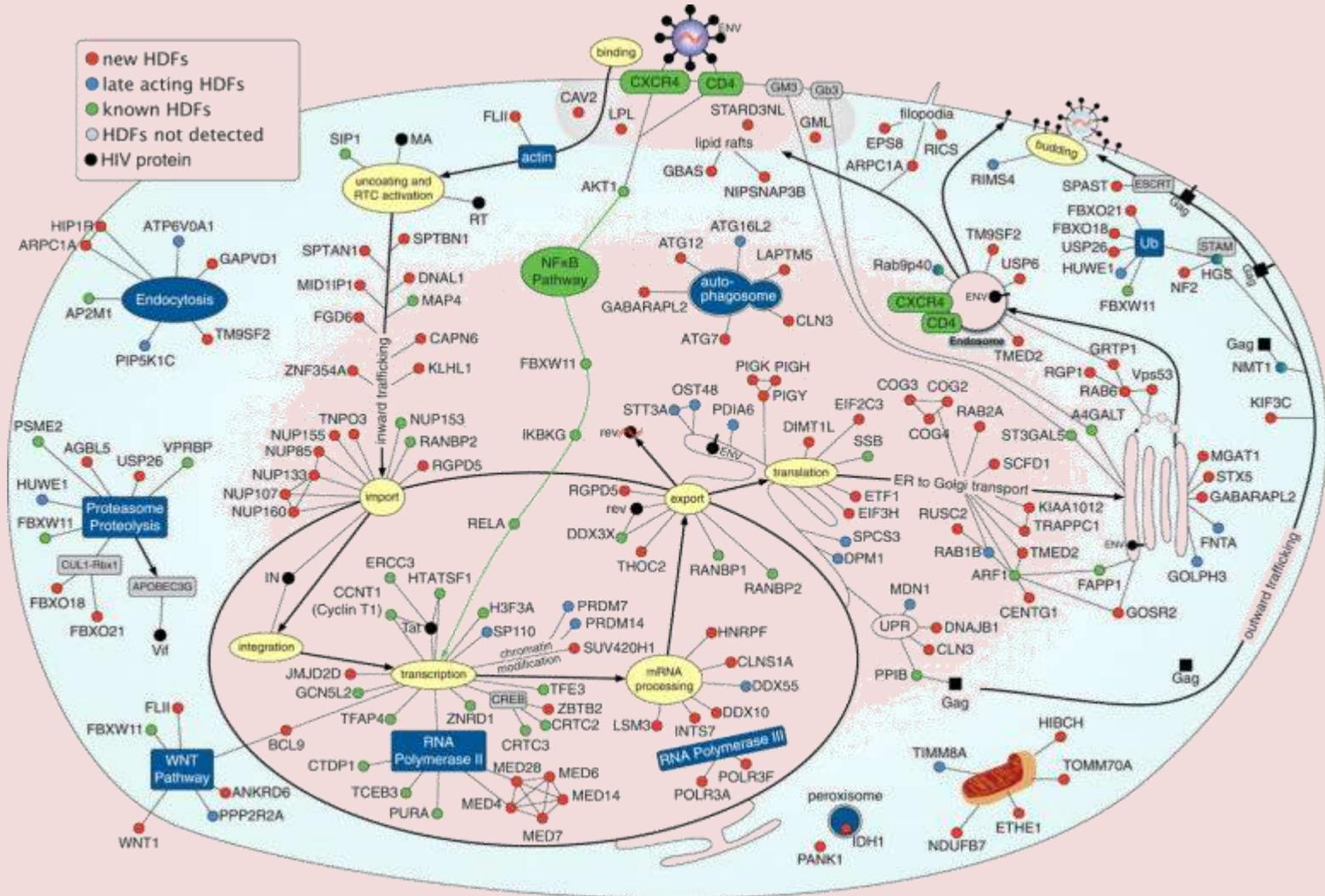
- Scientific research in the Academic world, and in public research Institutions (upon completion of a PhD programs);
- Roles of responsibility in the R&D sector in pharmaceutical, biomedical, agricultural and food industries;
- Scientific consulting, monitoring of clinical studies (following adequate training required by law), intellectual property and technology transfer;
- Employment prospects at an international level, in foreign research laboratories and multinational companies;
- Enroll in the professional National Order of Biologists;
- Public and private health service (public selections)
- Qualification as teacher in the secondary school education system (subjected to the acquisition of sufficient credits in appropriate sector groups, as required by current legislation);

The background features a repeating pattern of blue wireframe cubes. Inside and around these cubes are small, semi-transparent spheres in yellow and pink colors, creating a complex, crystalline or molecular-like structure.

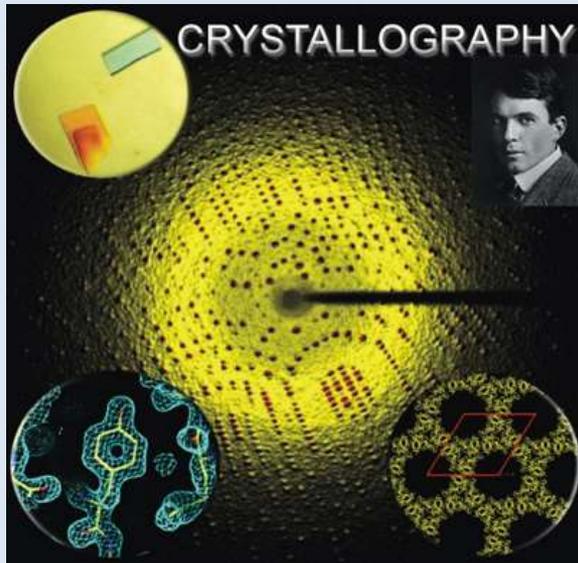
THE EDUCATIONAL PATH

1st YEAR

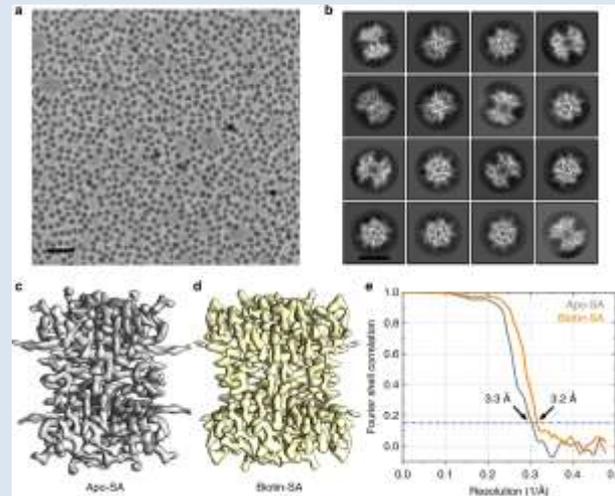
CELL BIOCHEMISTRY AND MOLECULAR BIOLOGY



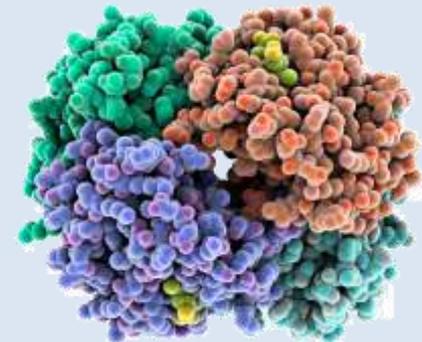
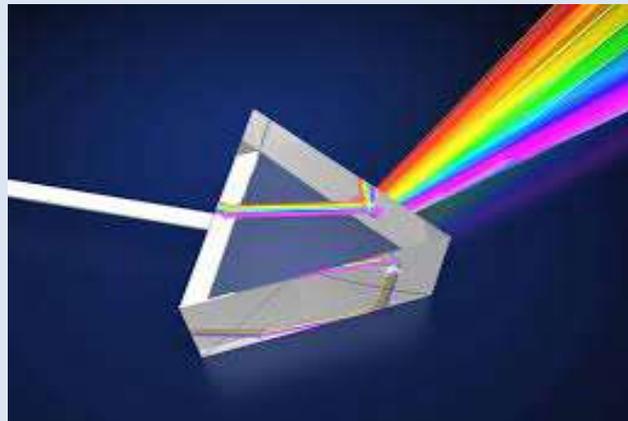
STRUCTURE AND FUNCTION OF MACROMOLECULES



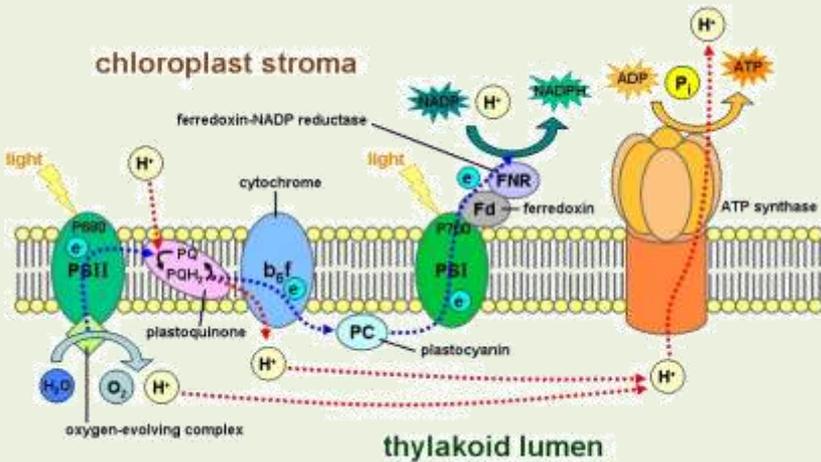
CRYO-Electron Microscopy



SPECTROSCOPY



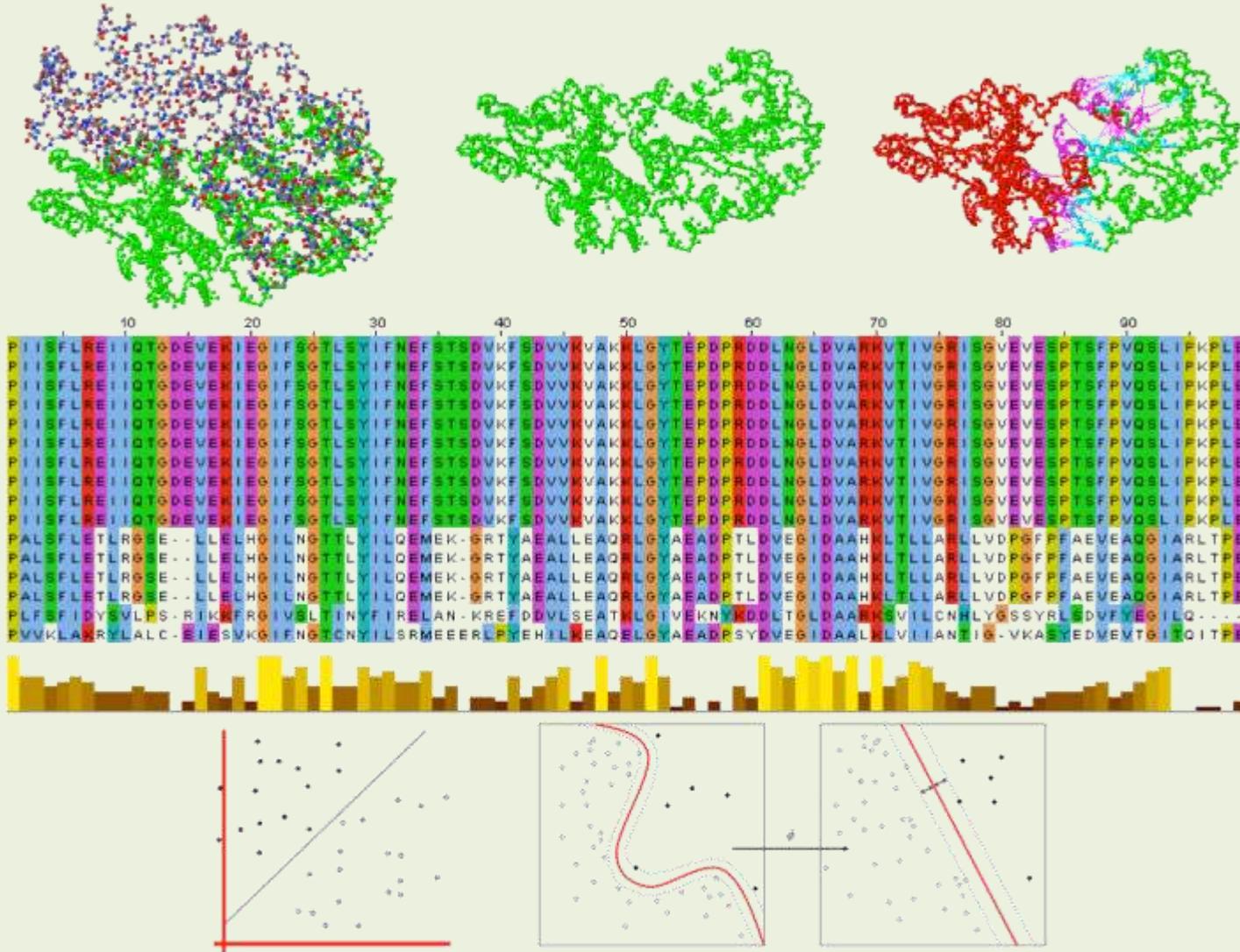
MICROORGANISM AND PLANT BIOCHEMISTRY



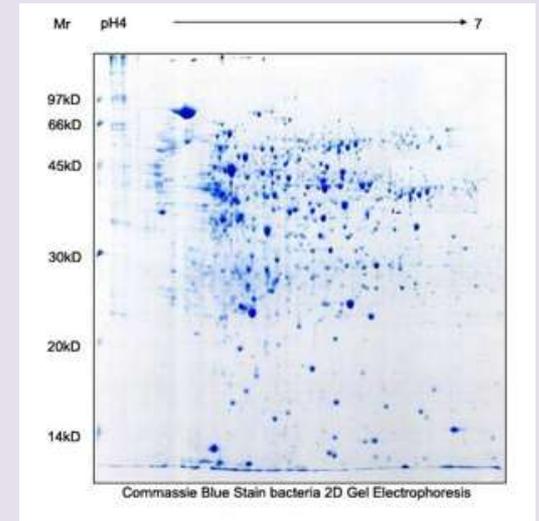
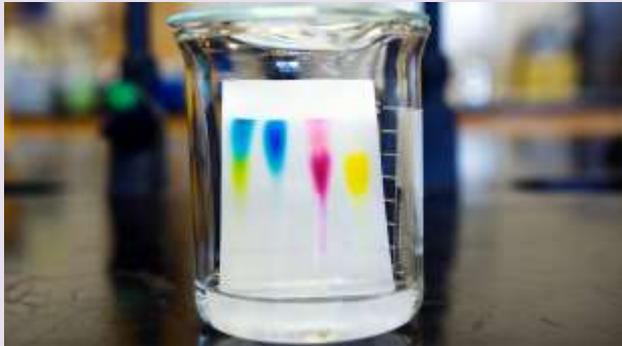
FISIOPATHOLOGY AND PHARMACOLOGY



COMPUTATIONAL BIOCHEMISTRY

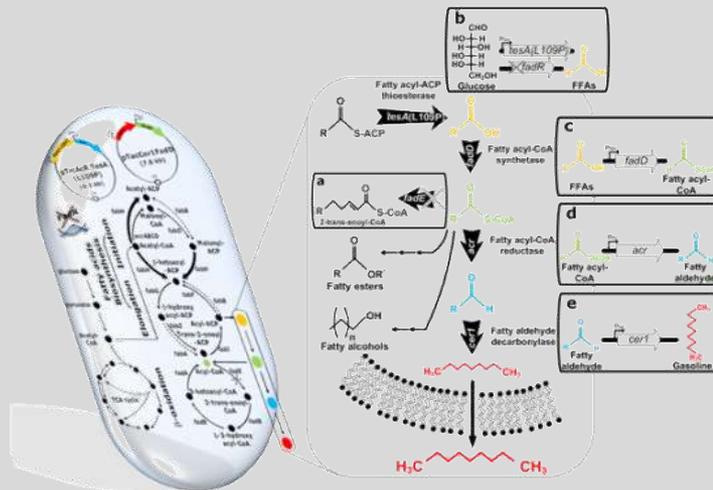


BIOCHEMICAL AND MOLECULAR BIOLOGY TECHNIQUES



BIOCHEMICAL BIOTECHNOLOGIES

METABOLIC ENGINEERING





THE EDUCATIONAL PATH

2nd YEAR

MEDICAL AND PHARMACEUTICAL BIOTECHNOLOGIES



TRANSVERSAL SKILLS USEFUL IN THE WORLD OF WORK

II YEAR

- **Regulatory and Ethical aspects of research (6 CFU)**
- **Communication skills (AAF 3 CFU)**
- **Data analysis and interpretation (AAF 3 CFU)**
- **Experimental thesis (SECOND SEMESTER)**

II YEAR – Three elective courses can be chosen by students among the following ones:

Biochemical Area

- Biophysical Chemistry
- Enzyme Kinetics

Medical-Pharmaceutical Area

- Nanotechnologies
- Medicinal Chemistry
- Biochemical and Molecular Diagnostics
- Nutritional Biochemistry

Computational Area

- Programming and Machine Learning for Biological Data
- Data Analysis

INTERNATIONAL ACTIVITIES

CIVIS (European University Alliance - 10 European universities)

✓ **Very strict collaborations with:**

- **Universität Tübingen (Germany)**
- **Universitet Stockholm (Sweden)**
- **Aix-Marseille Université (France)**
- **University of Bucarest (Romania)**

INTERNATIONAL ACTIVITIES

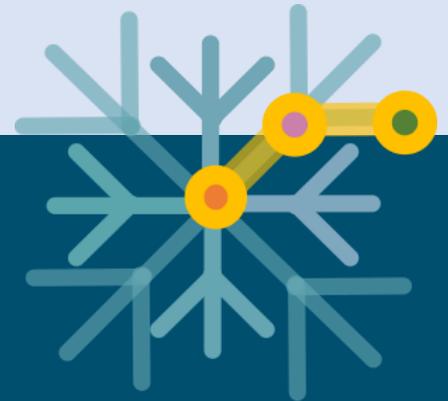
International opportunities:

- ✓ Biochemistry Webinar Series (CIVIS)
- ✓ UE Blended Intensive Programs (BIPs - CIVIS)
- ✓ Experimental thesis abroad (6-9 months Erasmus+) **(we have at least 7 positions reserved for our students)**
- ✓ **NEW!!!: Multiple Degree (AA 2025/26)**

MULTIPLE DEGREE



International Master of Science
in Biochemistry - IMSB



Main Partners



Associated Partners



The vision behind the Master Degree



1st Year

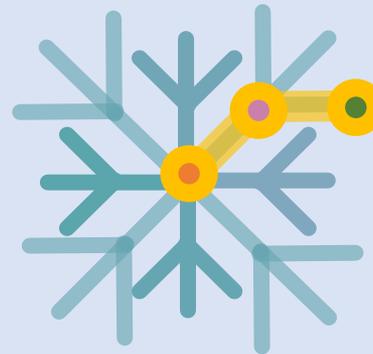
S1 – Basic Biochemistry

S2 – Basic Biochemistry

2nd Year

S3 – Specialized courses

S4 – Lab training



Tailoring **curricula** by choosing among **12** different **Study Plans (LP)**

ADMISSION REQUIREMENTS

“ACCESSO A NUMERO PROGRAMMATO”

Available places: 43 + 7 (extra EU citizens)

**BIOINFORMATICS, BIOTECHNOLOGIES, Molecular Biology
Medicinal Chemistry and Computer Science for
Pharmaceutical Applications, AND BIOLOGICAL SCIENCES
GRADUATES ARE AUTOMATICALLY ADMITTED TO THE
SELECTION PROCEDURE**

ADMISSION REQUIREMENTS

**CHEMISTRY STUDENTS NEED TO INTEGRATE WITH
A 6 CFU BIO, MED or INF EXAM**

**(BIO/1 a BIO/10, BIO/11, BIO/12, BIO/18, BIO/19,
MED/04, MED/07, INF/01)**

ENGLISH LEVEL REQUIREMENTS

Minimum English Language Requirements:

Upper Intermediate (QCER/CEFR Level B2)

UE students and students from English programmes do not need any certificate.

In the absence of an official language certification, candidates will be admitted upon evaluation through interview

EVALUATION PROCEDURE AND RANKING

The evaluation will take into account the educational path previously followed by the candidate.

The score will be calculated according to the following criteria:

1. University Titles:

- **For graduate candidates:** final bachelor's degree grade
- **For students not yet graduated:** average of exam marks

2. Extra-curricular Titles: specialization schools, Masters diplomas, etc...

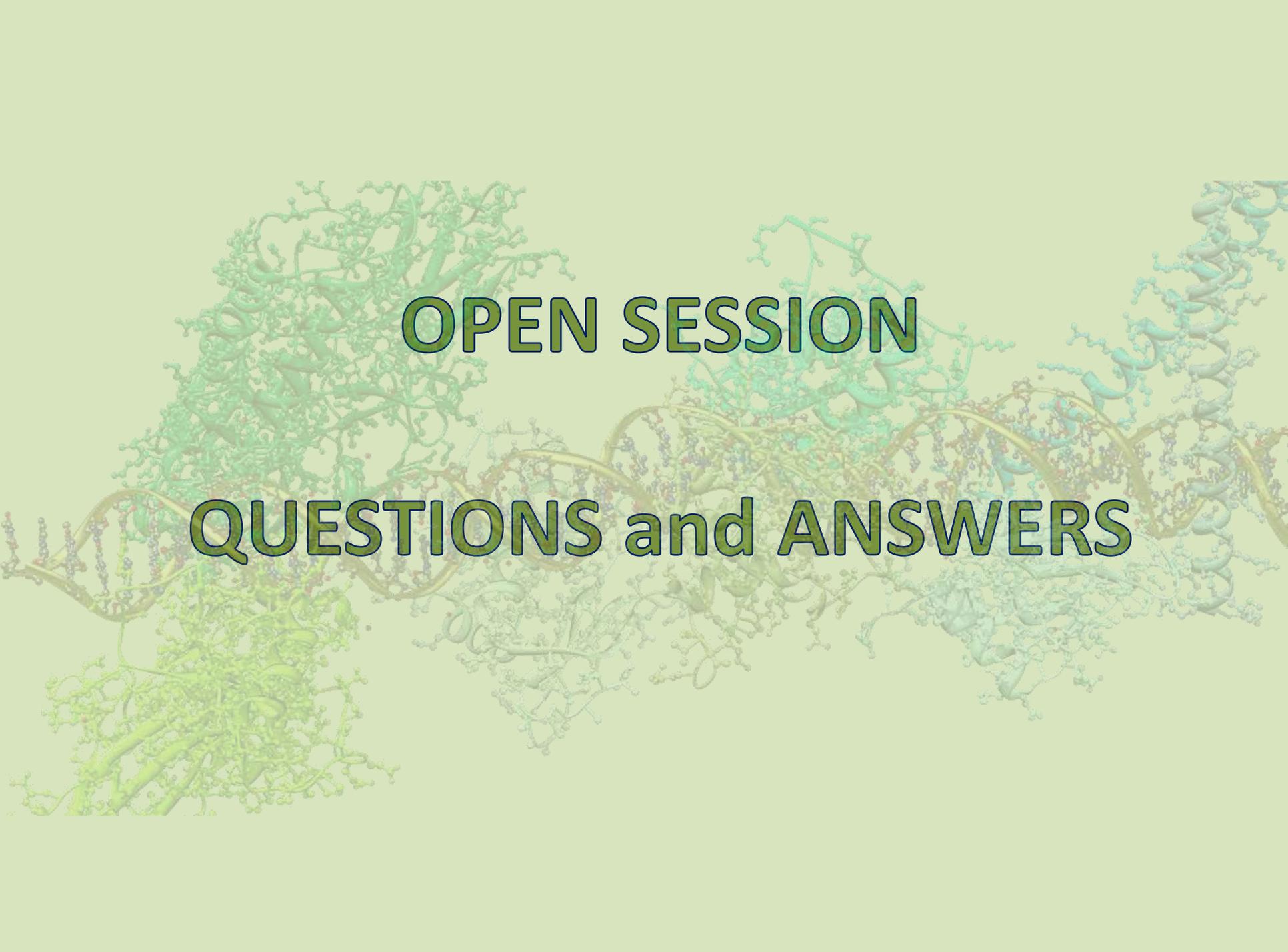
All information about the programme can be found at *Catalogo dei Corsi di Studio* within the *Sapienza website*:

<https://corsidilaurea.uniroma1.it/en/corso/2023/31179/home>

*SECTION “PERCORSO FORMATIVO” (STUDY PLAN) and
“FREQUENTARE” (ATTENDANCE)*

SECTION “ISCRIVERSI” (APPLY)

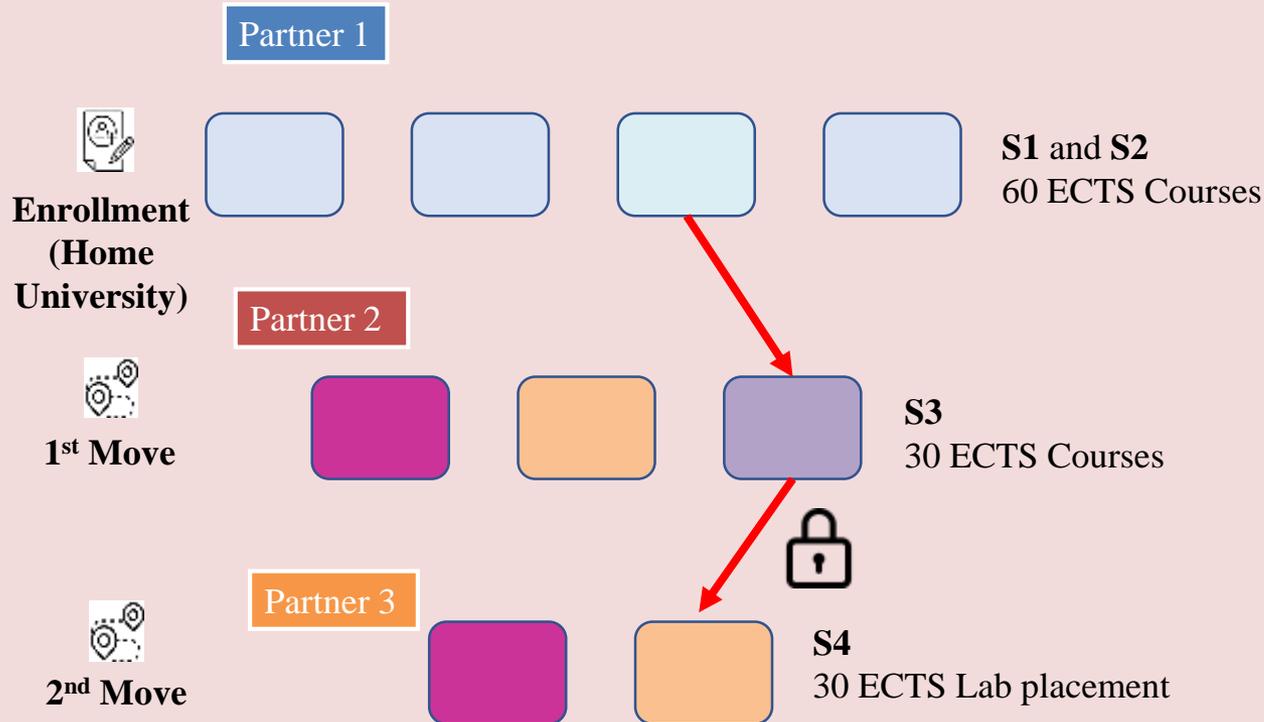
Segreteria didattica: LMBiochemistry.dsb@uniroma1.it



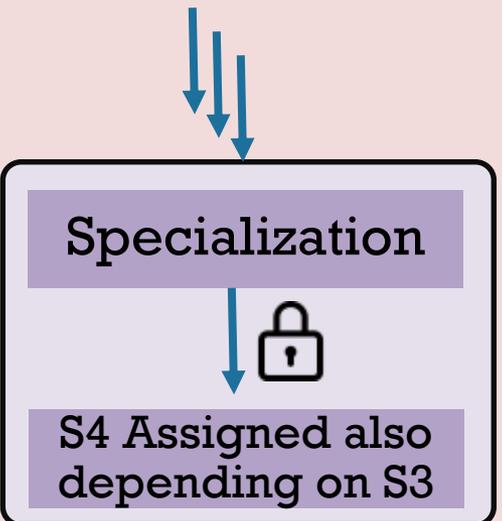
OPEN SESSION

QUESTIONS and ANSWERS

Mobility scheme for the Master



Basic Courses



**THE MASTER'S DEGREE IN BIOCHEMISTRY
PROVIDES ACCESS TO THE “MINOR”
PROGRAMME
IN *ENVIRONMENTAL SUSTAINABILITY*
OF THE FACULTY OF M.F.N. SCIENCES**

**Coordinator Facoltà SMFN
Prof.ssa Cristina Mazzoni**

**Coordinator LM in Biochemistry
Prof.ssa Maria Carmela di Patti Bonaccorsi**

DOES THE WORK MARKET ACTUALLY REQUIRE GRADUATES WITH A MASTER'S DEGREE IN BIOCHEMISTRY?

CONSULTING THE "STAKEHOLDERS":

we were happy to find out that the figure of *graduate in Biochemistry* is of considerable interest for the work market, in private and public research institutions and in the industry

SOME ADVICE WE TOOK FROM CONSULTING

(skills that graduates in Biochemistry must have to be appealing)

- Strong laboratory experience;
- Transversal competence in bioinformatics, legislative and regulatory aspects of science («Good Practices»);
- Intellectual property (patenting) and communication skills (oral and written presentations, funding proposals);
- Ability to interact with different professional figures;
- Access to Ordine Nazionale dei Biologi, possibility to participate in public selections for medical and health institutions;
- Possibility to train outside Sapienza (public and private research institutions) and abroad

WORK OPPORTUNITIES

Class LM-9 – Medical, Pharmaceutical and Veterinary Biotechnologies

- **Roles of responsibility in the R&D sector in pharmaceutical, biomedical, agricultural and food industries;**
- **Scientific consulting, monitoring of clinical studies (following adequate training required by law), intellectual property and technology transfer;**
- **Enroll in the professional National Order of Biologists;**
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- 
- **Scientific research in the Academic world, and in public research Institutions (upon completion of a PhD programs);**
 - **Employment prospects at an international level, in foreign research laboratories and multinational companies;**
 - **Qualification as teacher in the secondary school education system (subjected to the acquisition of sufficient credits in appropriate sector groups, as required by current legislation);**
 - **The employment prospects of graduates in the LM-9 degree class were assessed by consulting the Almalaurea database, which in relation to the survey carried out in 2019 indicates an employment rate ranging from 70.8% one year after graduation, to 83. % five years after graduation**

Ph.D. Schools at SAPIENZA:

- *Biochemistry*
- *Life Sciences*
- *Cellular and Developmental Biology*
- *Genetics and Molecular Biology*