



BIOPHAM

Bio & Pharmaceutical materials science
EUROPEAN MASTER



UNIVERSITÀ DI PISA



UNIVERSITAT POLITÈCNICA
DE CATALUNYA
BARCELONATECH



UNIWERSYTET ŚLĄSKI
W KATOWICACH



Université
de Lille



BIOPHAM

Bio & Pharmaceutical materials science
EUROPEAN MASTER

**ALL DETAILED INFORMATION
CAN BE FOUND ON THE BIOPHAM WEBSITE:**

<http://master-biopham.eu>

OR BY CONTACTING OUR PROJECT OFFICER (Agathe) :

master-biopham@univ-lille.fr

BIOPHAM IS A NEW MASTER : 1st INTAKE has just arrived (Pisa, Sept 2021)



Omar
(Egypt)

Alex
(Ecuador)

Mohamed
(Egyp)

Fabian
(Ecuador)

Darina
(Russia)

Ruben
(Spain)

Valeria
(Mexico)

Anna
(Italy)



BIOPHAM

Bio & Pharmaceutical materials science
EUROPEAN MASTER

Connected online:

- + Anita (India)
- + Hamza (Nigeria)
- + Seerat (India)
- + Kazeem (Nigeria)
- + Manuela (Colombia)
- + Maulana (Indonesia)
- + Monica (Mexico)



BIOPHAM

Bio & Pharmaceutical materials science
EUROPEAN MASTER

This is the important word !

BIOPHAM is basically a Master in Materials Science

(physics-chemistry of materials)

focusing on Pharmaceutical and Biopharmaceutical materials

**BIOPHAM IS NOT a Master in: Biology, Biochemistry,
Biotechnology, Biomedical sciences, Biomaterials,
Pharmacy or Pharmaceutical sciences
(in which one may have some Materials science courses)**

Why BIOPHAM ?

What is the Initial training of some scientists working in Pharma industries ?

- Associate Principal Scientist AstraZeneca
- Senior scientist AstraZeneca
- Head of Solid State Department Technologie at Servier
- Global Head Technical R&D at Novartis
- R&D scientist at Evotec
- R&D scientist at Johnson & Johnson
- Manager of the Functional Properties Analytical Laboratory R&D at Roquette
- Head of Section at Sanofi Solid State

....

**Master in Physics,
Chemistry or
Material Sciences
Not in Pharmacy !**

**They learn « pharmacy »
on the job !**

Survey of the existing Masters worldwide:

<https://eacea.ec.europa.eu/erasmus-plus/library/>

<https://www.findaMasters.com>

<https://www.Mastersportal.com>

...

**It exists many Masters in Materials Science & Masters in Pharmacy
→ No Master at the interface between Materials Science and
Pharmacy !**

**BIOPHAM → A unique specialized training related to materials
science well-adapted to the vast research-based pharmaceutical
sector**

**It includes : academic centres, big pharma, SME's, spin-offs, start-ups, contract research
organizations or drug manufacturers**

A “simple” mobility scheme

Term 3

(Sept. 2023 to Jan. 2024)



LILLE

?



BARCELONA

Term 2

(Feb. 2023 to July 2023)



PISA

Term 1

(Sept. 2022 to Jan. 2023)



KATOWICE

Term 3

(Sept. 2023 to Jan. 2024)



Term 4 : Master thesis
(Feb. 2024 to July 2024)

Free choice !

2 Tracks

Track 1



UNIVERSITÀ DI PISA



UNIVERSITAT POLITÈCNICA
DE CATALUNYA
BARCELONATECH



UNIwersYTET ŚLĄSKI
W KATOWICACH

The “**soft-matter and biopharmaceuticals track**” (Pisa-Barcelona-Katowice) will provide a training focusing on understanding at the molecular level of the **physico-chemical properties of polymers and biological materials** (macromolecules, lipid membranes, biopharmaceuticals,...).

Track 1 → “Biophysics” & “biopharmaceuticals”

Track 2



UNIVERSITÀ DI PISA



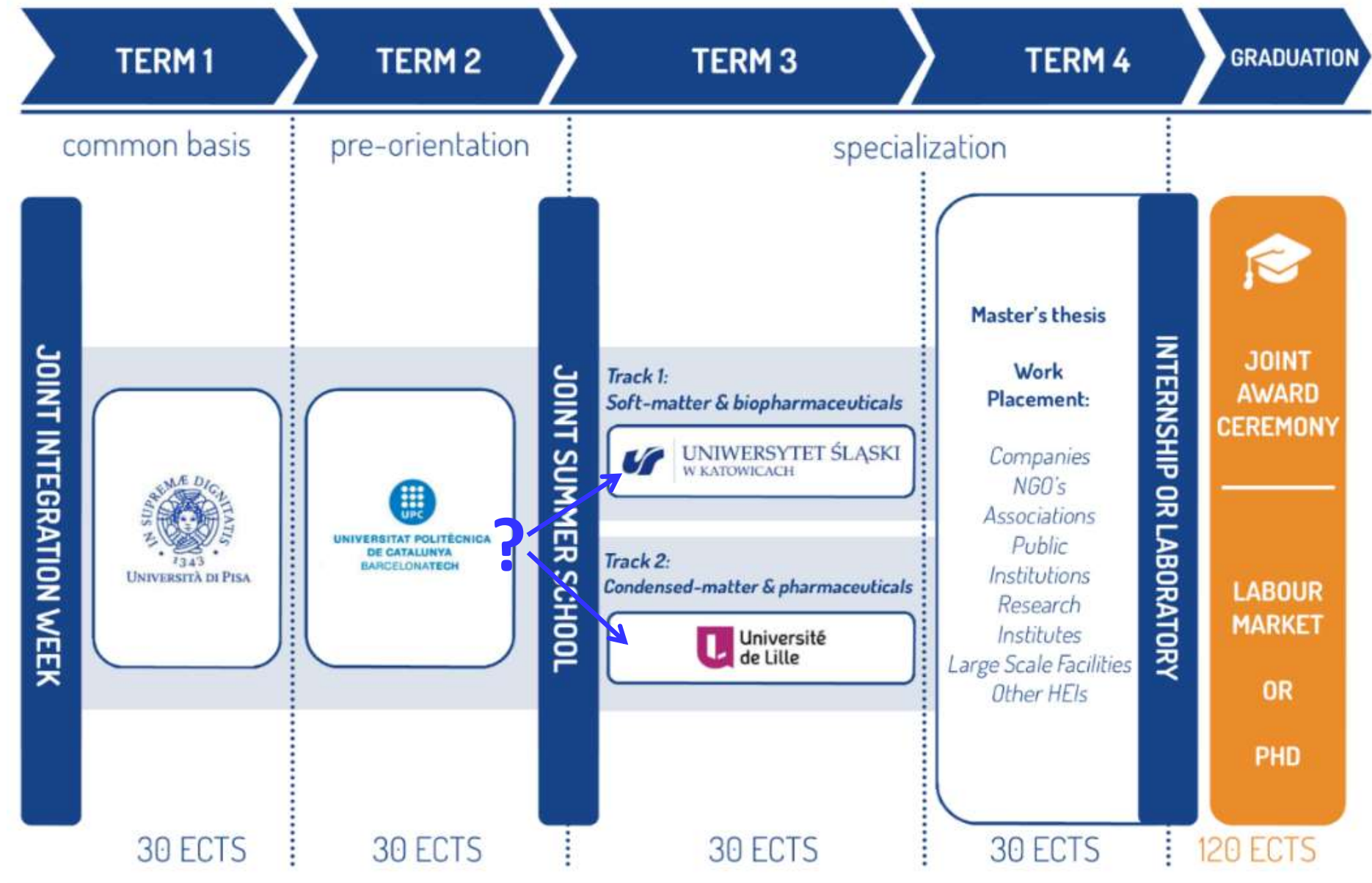
UNIVERSITAT POLITÈCNICA
DE CATALUNYA
BARCELONATECH

The “**condensed-matter and pharmaceuticals**” (Pisa-Barcelona-Lille) will offer a training orientated on the heart of “**materials science**” focusing on the different physical states (crystals, nanocrystals, amorphous states) of **small molecules** as well as their characterization, transformation and preparation.

Track 2 → “Materials science” & “pharmaceuticals”



Mobility scheme



TRAINING PROGRAMME: Mainly PHYSICS/CHEMISTRY courses !

All courses taught in English

Materials science (Physics & Chemistry)

- Quantum matter & condensed matter physics
- Disordered and off-equilibrium systems
- Mechanical behaviour of materials
- Chemistry of soft matter
- Molecular and soft condensed matter
- Polymer science and engineering
- Thermodynamics and phase transformations
- Dynamics in the amorphous materials
- Complexity in biophysics
- Molecular biophysics

Pharmacy

- Pharmaceutical developments
- Drug chemistry and technology of drug forms
- Pharmacology and Pharmacognosy

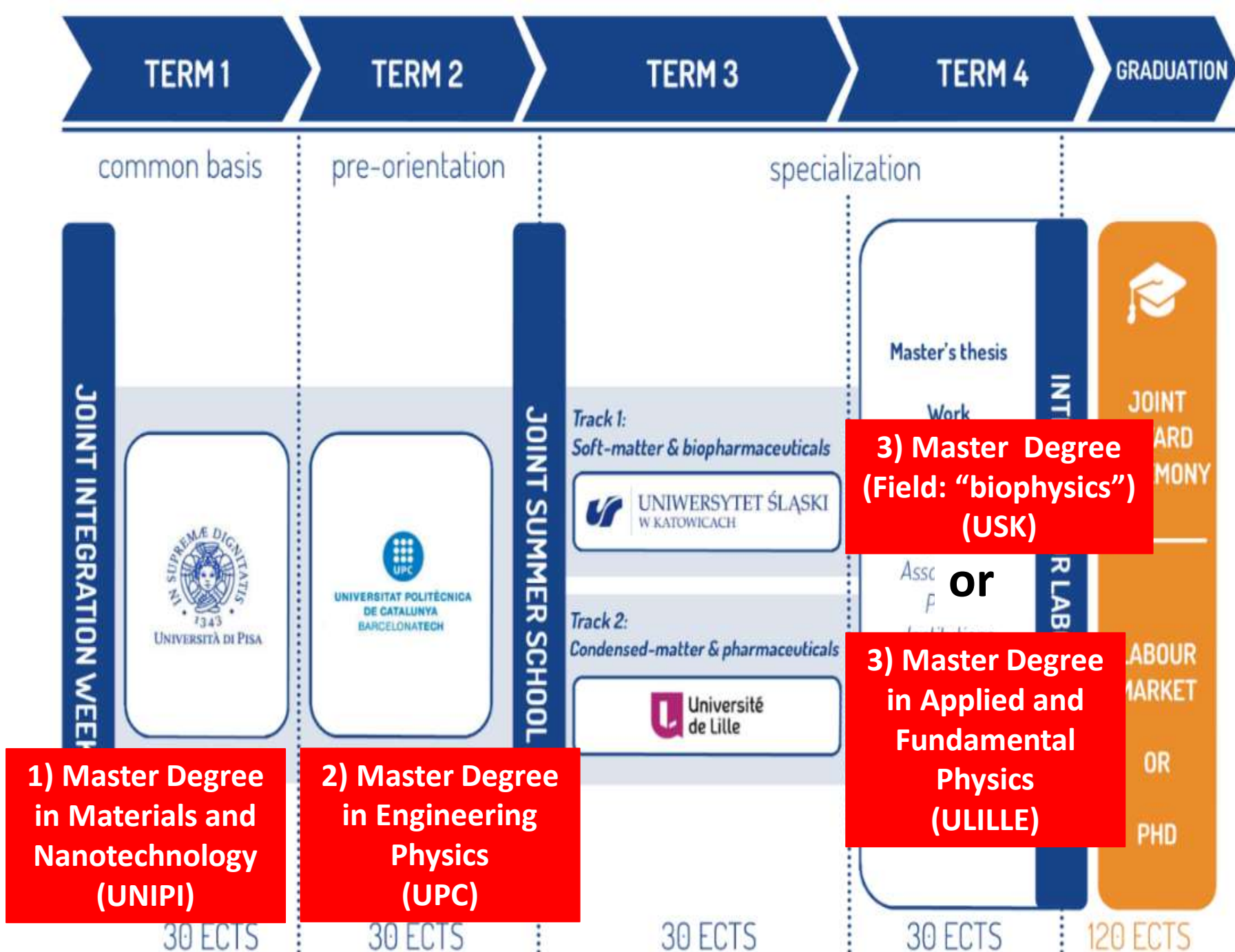
TOOLS & TECHNIQUES (Physics & Chemistry)

Numerical

- Computational material science
- Machine learning with neural networks
- Stochastic methods for optimization/simulation
- Fundamentals of molecular modelling
- Atomistic modelling : from the gas phase to solids

Experimental

- Large facilities: synchrotron and neutron sources
- Physicochemical properties and characterization
- Application of vibrational spectroscopy in therapeutic substance studies
- Advanced experimental characterization methods



**3 Official
DIPLOMA
Granted**

+

**A joint diploma
supplement** presenting
the details of the
BIOPHAM academic
programme and
academic achievement

FINANCIAL SUPPORT

The Erasmus + programme helps you with a full financial support

- Up to 1.000€ per month during 2 years**
- Up to 1.000€ for your installation costs**
- Up to 3.000€ for your travel costs**

**Financial Support is calculated depending on your country of residence
(how far is your country from France ?)**

Specific scholarships for targeted countries

Regions	Countries	Scholarships available
Western Balkans (Region 1)	Albania, Bosnia and Herzegovina, Kosovo, Montenegro	4
Eastern Partnership countries (Region 2)	Armenia, Azerbaijan, Belarus, Georgia, Moldova, Territory of Ukraine as recognised by international law	2
South-Mediterranean countries (Region 3)	Algeria, Egypt, Israel, Jordan, Lebanon, Libya, Morocco, Palestine, Syria, Tunisia	3
Region 6 Asia LDC countries	Afghanistan, Bangladesh, Bhutan, Cambodia, Laos, Myanmar, Nepal	3
Region 6 Asia remaining countries	DPR Korea, Indonesia, , Malaysia, Maldives, Mongolia, Pakistan, Philippines, Sri Lanka, Thailand and Vietnam	2
Region 7 Central Asia L-LMI countries	Kyrgyzstan, Tajikistan, Uzbekistan	1
Region 7 Central Asia remaining countries	Kazakhstan, Turkmenistan	1
Region 8 Latin America LMI countries	Bolivia, El Salvador, Guatemala, Honduras, Nicaragua	2
Region 11 ACP African, Caribbean, Pacific	Angola, Antigua and Barbuda, Bahamas, Barbados, Belize, Benin, Botswana, Burkina Faso, Burundi, Cameroon, Cape Verde, Central African Republic, Chad, Comoros, Congo, Congo -Democratic Republic of the, Cook Islands, Djibouti, Dominica, Dominican Republic, Equatorial Guinea, Eritrea, Ethiopia, Fiji, Gabon, Gambia, Ghana, Grenada, Guinea, Guinea-Bissau, Guyana, Haiti, Republic of Côte d'Ivoire, Jamaica, Kenya, Kiribati, Lesotho, Liberia, Madagascar, Malawi, Mali, Marshall Islands, Mauritania, Mauritius, Micronesia-Federated States of, Mozambique, Namibia, Nauru, Niger, Nigeria, Niue, Palau, Papua New Guinea, Rwanda, Saint Kitts And Nevis, Saint Lucia, Saint Vincent And The Grenadines, Samoa, Sao Tome and Principe, Senegal, Seychelles, Sierra Leone, Solomon Islands, Somalia, South Sudan, Sudan, Suriname, Eswatini, Timor Leste -Democratic Republic of, Tanzania, Togo, Tonga, Trinidad and Tobago, Tuvalu, Uganda, Vanuatu, Zambia, Zimbabwe.	2

BIOPHAM : many associated partners one of the largest partnership in all existing Erasmus Mundus Masters !



What the associated partners may offer ?

- Specialized seminars & lectures
- Work placements – Short & Long internships

1) Companies & Clusters

15 large and small companies

Servier (France), Astrazeneca (Sweden), Roquette (France), Sanofi (France), Eurofins Amatsigroup (Belgium), MJR PharmJet (Germany), Novitom (France), Cubic Pharmaceuticals (UK), ProLabin&Tefarm (Italy), Linari Engineering (Italy), Almirall (Spain), Devicare (Spain), Amorphis Pharma Development (Poland), ONYRIQ (Spain), Lattice Medical (France)

→ **Big pharma, SME's, spin-offs, start-ups, contract research organizations**
→ **Active in basic research, drug discovery and design, early drug development, drug physical/chemical characterizations,...**

3 international clusters academics/industries :

EURASANTE (France): Large network of enterprises and research centers (170) in the North of France → Label Clubster Nutrition Health Longevity (NHL)

POLEPHARMA (France): the 1st Pharma cluster in Europe (300 companies/academic labs.)

CMAC (UK) : world-class international hub for manufacturing research and training including 10 of world's largest pharmaceutical companies (eg AstraZeneca, GSK),

2) Large scale facilities

6 large scale facilities (synchrotron and neutron sources):

ESRF (France), ILL (France), PSI (Switzerland), ELETTRA (Italy), SESAME (Jordan), ALBA (Spain)

ESRF (Grenoble, France)



Synchrotron : Bright X-Ray source provides extraordinary tools to study structure & dynamics of materials including pharmaceuticals !

“Large scale facilities”: part of the training programme (courses + internships)

3) Associated Partner Universities

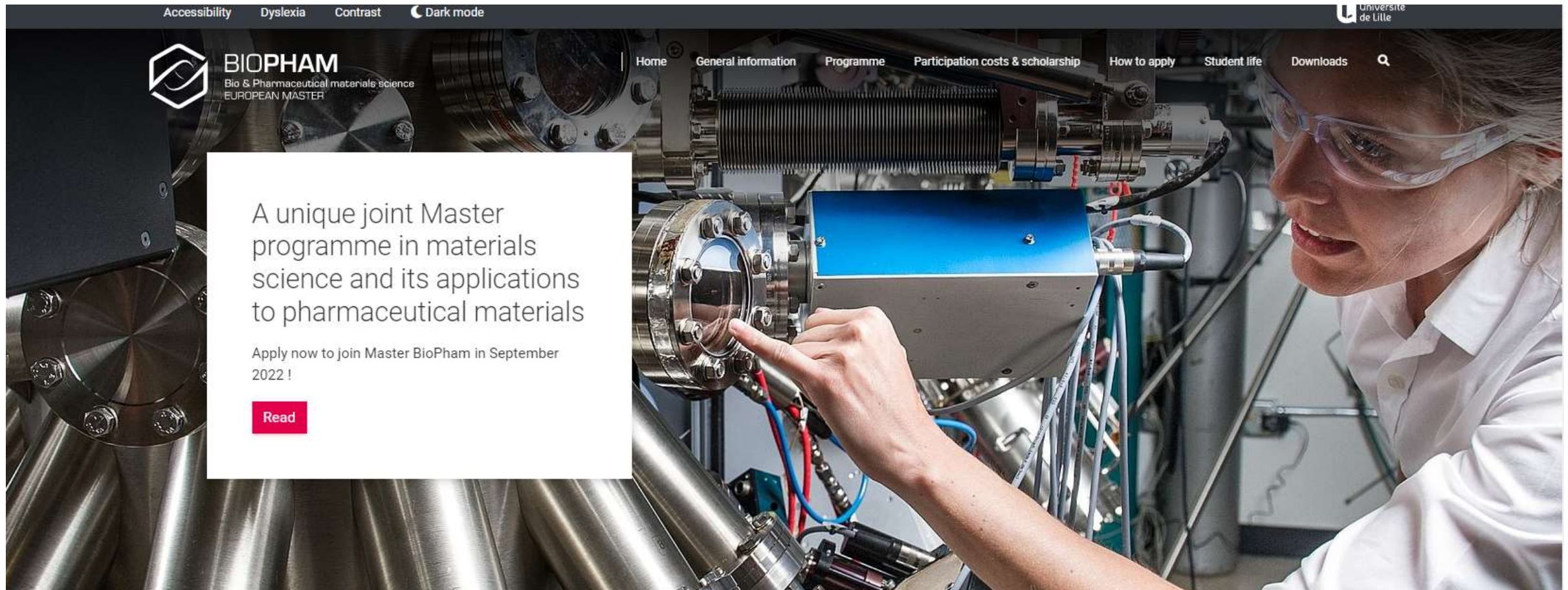
26 European and non-European Universities:



University National of Córdoba (**Argentina**), Universidad Nacional de La Plata (**Argentina**), University of Sao Paulo (**Brazil**), Feral University of Minas Gerais (**Brazil**), São Paulo State University (**Brazil**), University of Minnesota (**USA**), University of Wisconsin (**USA**), Purdue University (**USA**), University of Calicut (**India**), IIT Gandhinagar (**India**), University of Tsukuba (**Japan**), Tokay University (**Japan**), Yanshan University (**China**), UNSW Sydney (**Australia**), Monash University (**Australia**), University of Yaoundé I (**Cameroon**), Institute of solution chemistry of Russian academy of sciences (**Russian Federation**), University of Novosibirsk (**Russian Federation**), the University of Limerick (**Ireland**), the New University of Lisbon (**Portugal**), Ghent University (**Belgium**), University of Louvain (**Belgium**), University College London (**UK**).

HOW TO APPLY TO BIOPHAM ?

<https://www.master-biopham.eu>



The screenshot shows the BIOPHAM website interface. At the top, there is a dark navigation bar with links for Accessibility, Dyslexia, Contrast, and Dark mode on the left, and the Université de Lille logo on the right. Below this is a main header with the BIOPHAM logo and tagline 'Bio & Pharmaceutical materials science EUROPEAN MASTER'. A horizontal menu contains links: Home, General information, Programme, Participation costs & scholarship, How to apply, Student life, and Downloads. A large white text box on the left side of the page contains the following text: 'A unique joint Master programme in materials science and its applications to pharmaceutical materials', 'Apply now to join Master BioPham in September 2022 !', and a red 'Read' button. The background of the website is a photograph of a female scientist wearing safety goggles and a white lab coat, working with complex industrial machinery.

Accessibility Dyslexia Contrast Dark mode

Université de Lille

BIOPHAM
Bio & Pharmaceutical materials science
EUROPEAN MASTER

Home General information Programme Participation costs & scholarship How to apply Student life Downloads

A unique joint Master programme in materials science and its applications to pharmaceutical materials

Apply now to join Master BioPham in September 2022 !

Read

2 CALLS ARE PROPOSED IN 2022 FOR THE 2nd INTAKE

IMPORTANT DATES

FIRST CALL : for admission with scholarships

Opening: **November 8th, 2021**

Deadline for Electronic submission: **February 18th, 2022**

Admission decision : **Mid April 2022**

→ CANDIDATES
AUTOMATICALLY
APPLY FOR A
SCHOLARSHIP

SECOND CALL : for admission without scholarships

Opening: **March 15th, 2022**

Deadline for electronic submission: **May 15th, 2022**

Admission decision : **Mid June 2022**

→ NO SCHOLARSHIPS
ARE OFFERED AT THIS
2nd CALL !

SELECTION PROCEDURE

Step 0: Preliminary step. Administrative checking and validation

All applications are checked in order to remove:

- incomplete applications: missing or misfiled required information or compulsory document(s) not provided (ID, academic records transcripts, 2 recommendations letters,...)
- incorrectly completed applications: documents or information provided not in English, illegible documents, unreadable files,...

All incomplete or incorrectly completed applications are rejected at this initial step

The online application procedure takes some time so make sure you have plenty of time to do it !

Next deadline for electronic submission (Call 1): February 18th, 2022

SELECTION PROCEDURE

Step 1: Evaluation of the “Scientific background of undergraduate studies” criterion

- Evaluates the eligibility of previous studies of the candidate
- Evaluation of the matching between “undergraduate studies of the applicant” and the “training provided by the BIOPHAM Master”.

All submitted applications are independently evaluated by 3 evaluators from 3 different partner Universities and marked on a scale from 1 (very poor) to 5 (outstanding). **Each application is thus independently examined 3 times and thus receives 3 marks** which are automatically averaged.

“Scientific background of undergraduate studies” is a mandatory criterion

A minimum score of 2.5 (on a [0-5] scale) is required

**All applications which do not reach the threshold minimum 2.5 score
are directly rejected at this step 1**

SELECTION PROCEDURE

Important note about step 1 (based on selection of Intake 1 in 2021)

Candidates with a science bachelor degree in physics, chemistry, materials science, nanotechnology, nanoscience,...



Step 1 is usually passed with no problem !

Candidates with a science bachelor degree in pharmacy, pharmaceutical sciences, biology, life sciences, biochemistry... or other related fields



Step 1 is usually not passed !

24 SELECTED CANDIDATES FOR INTAKE 1 IN 2021

Only 1 student selected with
a « pharmacy » profile !



NAME	NATIONALITY	BACKGROUND	DIPLOMA
Ilya	Kazakhstan	Physics - Chemistry	Bachelor
Darina	Russian Federation	Chemistry	Bachelor
Youssef	Egypt	Materials science	Bachelor
Mohamed	Egypt	Nanoscience	Bachelor
Sena	Turkey	Chemistry	Bachelor
Maulana	Indonesia	Chemistry	Bachelor
Monica	Mexico	Nanotechnology engineering	Bachelor
Valeria	Mexico	Engineering in Physics	Bachelor
Siddhant	India	Chemistry	Bachelor
Pawat	Thailand	Physics	Bachelor
Fabian	Ecuador	Physics	Bachelor
Bonaventure	Nigeria	Physics	Master
Gabrielle	Indonesia	Materials science	Bachelor
Ali	Iran	Chemical engineering	Bachelor
Kazeem	Nigeria	Chemistry	Master
Hamza	Nigeria	Industrial chemistry	Bachelor
Manuela	Colombia	Engineering-materials	Master
Florencia	Argentina	Chemical engineering	Bachelor
Seerat	India	Chemistry	Bachelor
Ruben	Spain	Physics	Bachelor
Anita	India	Chemistry	Bachelor
Abdelaziz	Egypt	Nanoscience	Master
Alex	Ecuador	Nanotechnology engineering	Bachelor
Huiyu	China	Pharmacy	Bachelor

SELECTION OF INTAKE 2 IN 2022

Change compared to 2021

A new question has been added !

Previous Higher Education Records

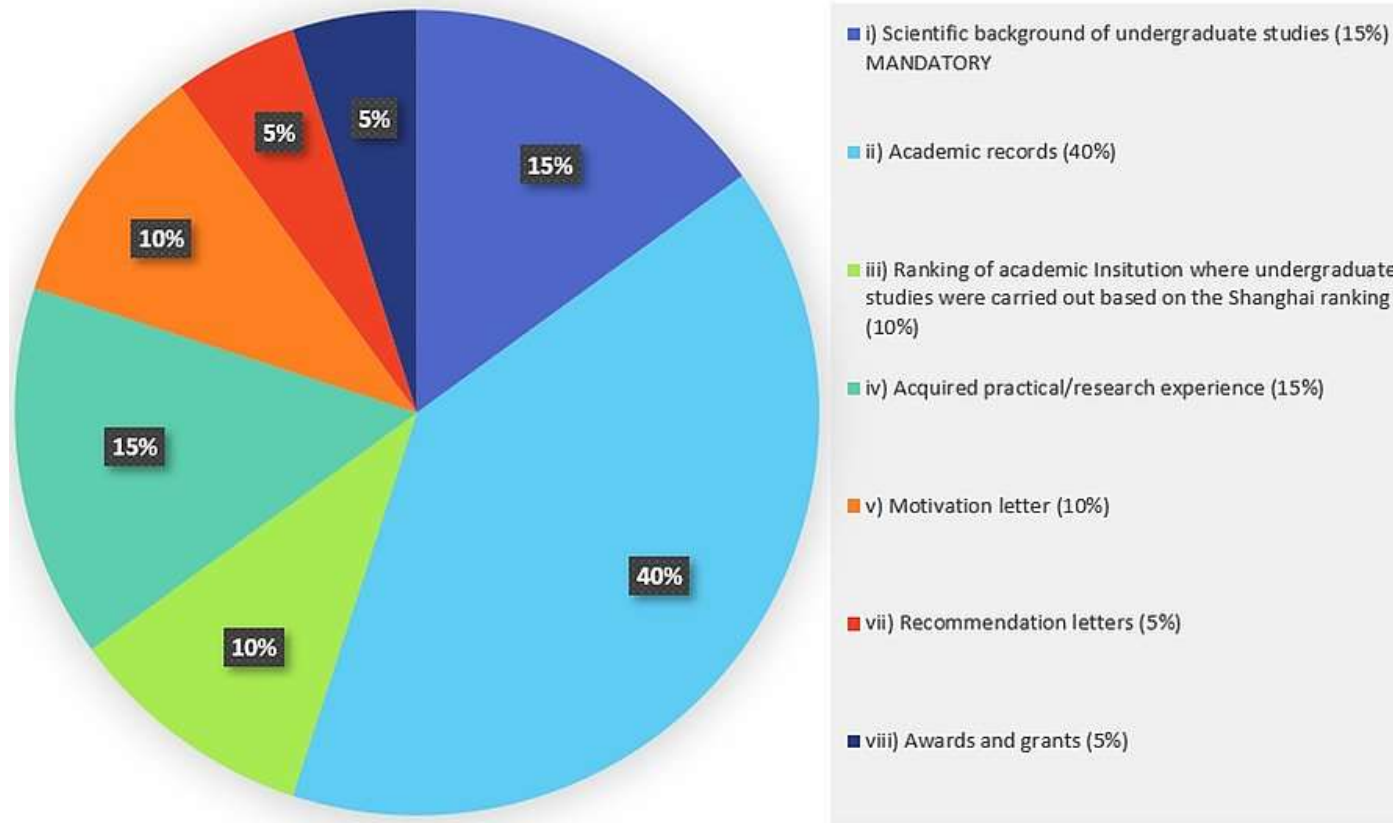
► Interests

Have you been awarded with a Bachelor degree different from physics, chemistry, physics-chemistry, materials science or nanosciences?

Please provide here convincing demonstration that you have a strong background in chemistry and/or physics. For example, you may briefly describe what courses you took in chemistry and/or physics and their contents.

SELECTION PROCEDURE

Step 2 : Evaluation of the other criteria (see all details on the website)



- All marks obtained by the applications are averaged and weighted to get the final mark of the electronic application.
- All applications are ranked and a short list of about 60 applications is made.
- The short-listed candidates are contacted for an interview.

SELECTION PROCEDURE

Step 3 : Interviews and final selection

Interview organized as a videoconference (Zoom) ~ End of March 2022

Duration : 30 minutes

Organization of the interview:

- The candidate introduces himself/herself
- He/she is asked questions about undergraduate courses, motivations, expectations, knowledge of BioPham, etc.
- He/she is asked questions about scientific knowledge. This part is adapted as function of the profile of the candidate and the type of courses he/she took (physics, chemistry, pharmacy, etc.)

The final ranking of applicants is made by averaging the scores from the electronic applications (50%) with the interview performance (50%)

A selection is made and two final lists are established:

- **i) a list of selected students for the award of an Erasmus+ scholarship (about 30 !)**
 - **ii) a reserve list including all the remaining selected students (about 15 !)**

Selected candidates are contacted (~ beginning of April 2022)

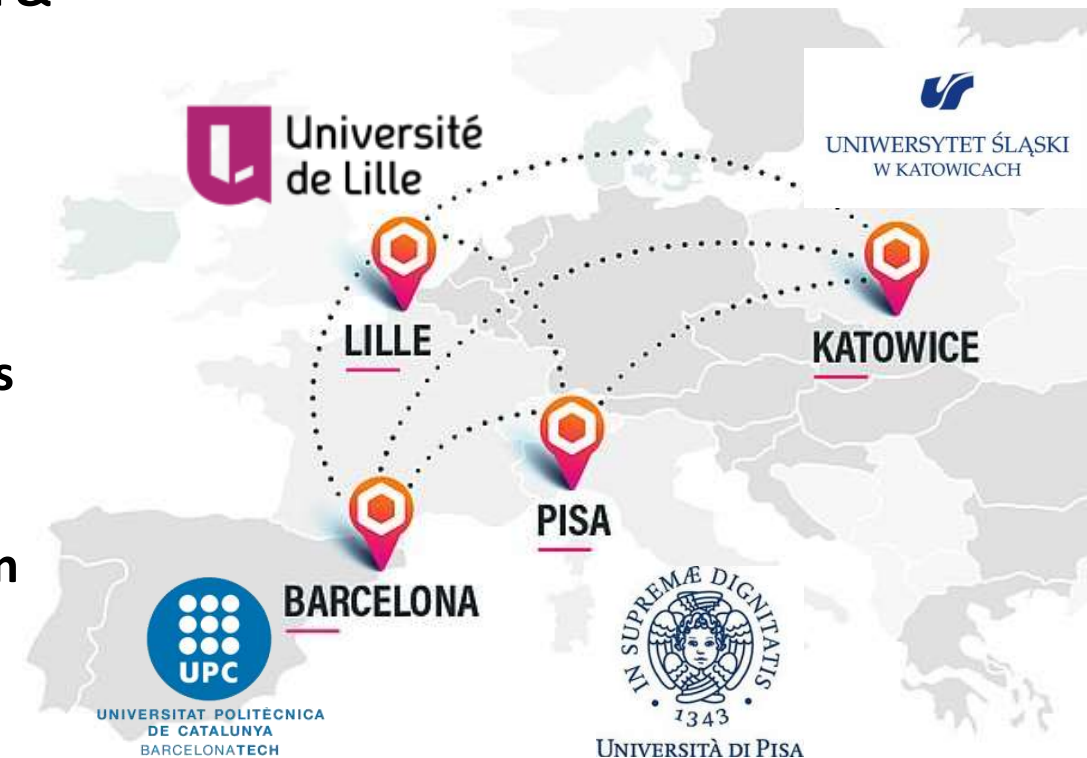
**MORE SCHOLARSHIPS WILL BE OFFERED FOR INTAKE 2 (2022) !
30 INSTEAD OF 20 !**

Take-home message

A unique international Master training in materials science
(→ **physics-chemistry of materials**) focusing on pharmaceutical & biopharmaceutical materials

- 2-year international Master program (120 ECTS)
- All courses taught in English
- 3 Master's degrees granted
- Targeted students: Bachelor in Physics, Chemistry, Materials Science, Nanosciences,...
- Scholarships (1000 euros/month during 2 years)
- Openings to PhD careers and/or highly qualified positions in industry worldwide.

4 PARTNER UNIVERSITIES



**MORE SCHOLARSHIPS WILL BE OFFERED FOR INTAKE 2 (2022) !
DO NOT HESITATE TO APPLY !**