MASTERS DEGREE IN

Nanostructured Materials for Nanotechnology Applications (NANOMAT)

Master presentation

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https://ciencias.unizar.es/master-en-materiales-nanoestructurados-para-aplicaciones-nanotecnologicas

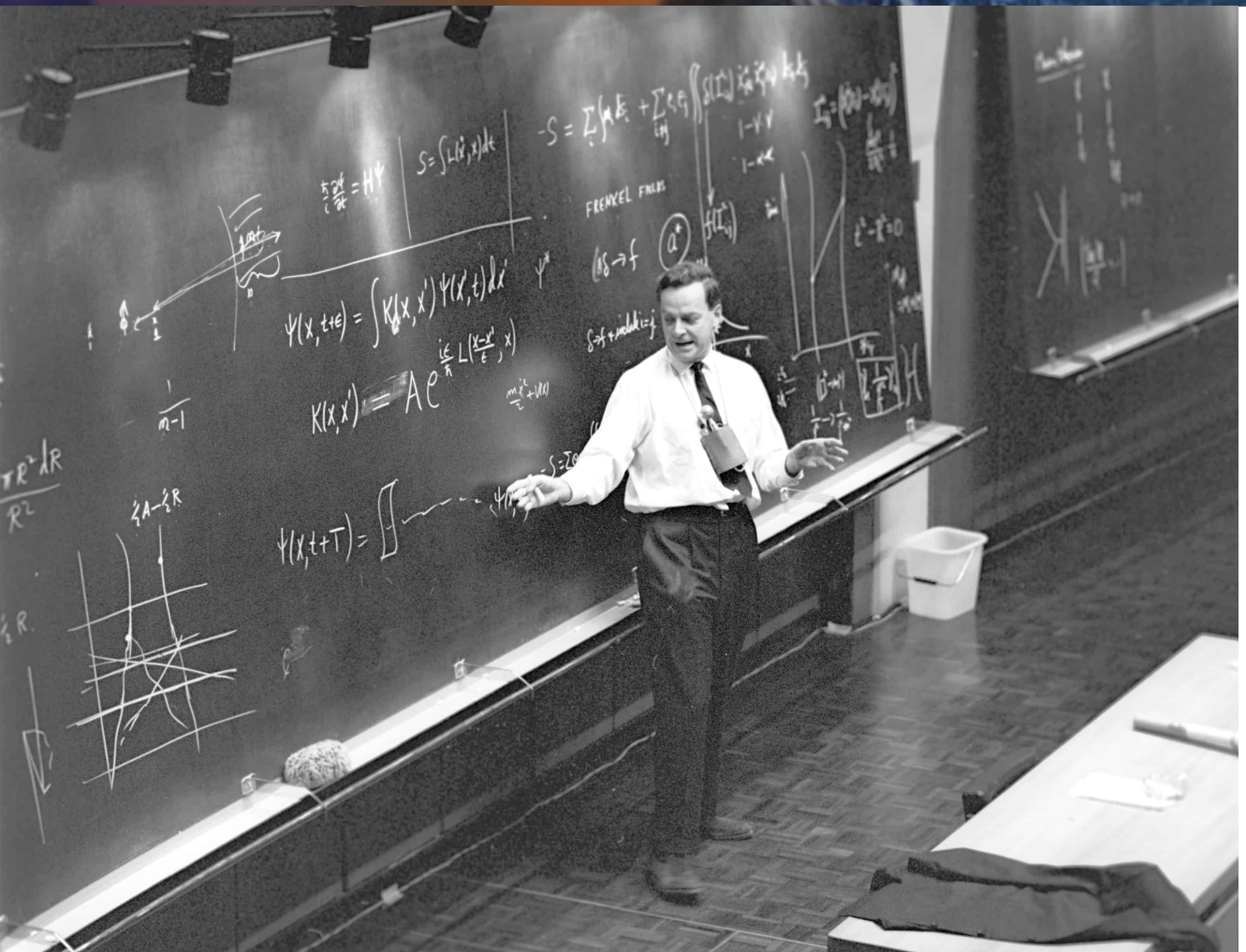
https://estudios.unizar.es/estudio/ver?id=637&anyo_academico=2025

https://inma.unizar-csic.es/formacion/master-nanomat

Universidad Zaragoza 1474 · CIENCIAS ZARAGOZA · INMA INSTITUTO DE NANOCIENCIA Y MATERIALES DE ARAGÓN · EXCELENCIA SEVERO OCHOA · LMA LABORATORIO DE MICROSCOPIAS AVANZADAS

MASTERS DEGREE IN

Nanostructured Materials for Nanotechnology Applications (NANOMAT)



"There's plenty of room at the bottom"

(Richard Feynman, 1959)

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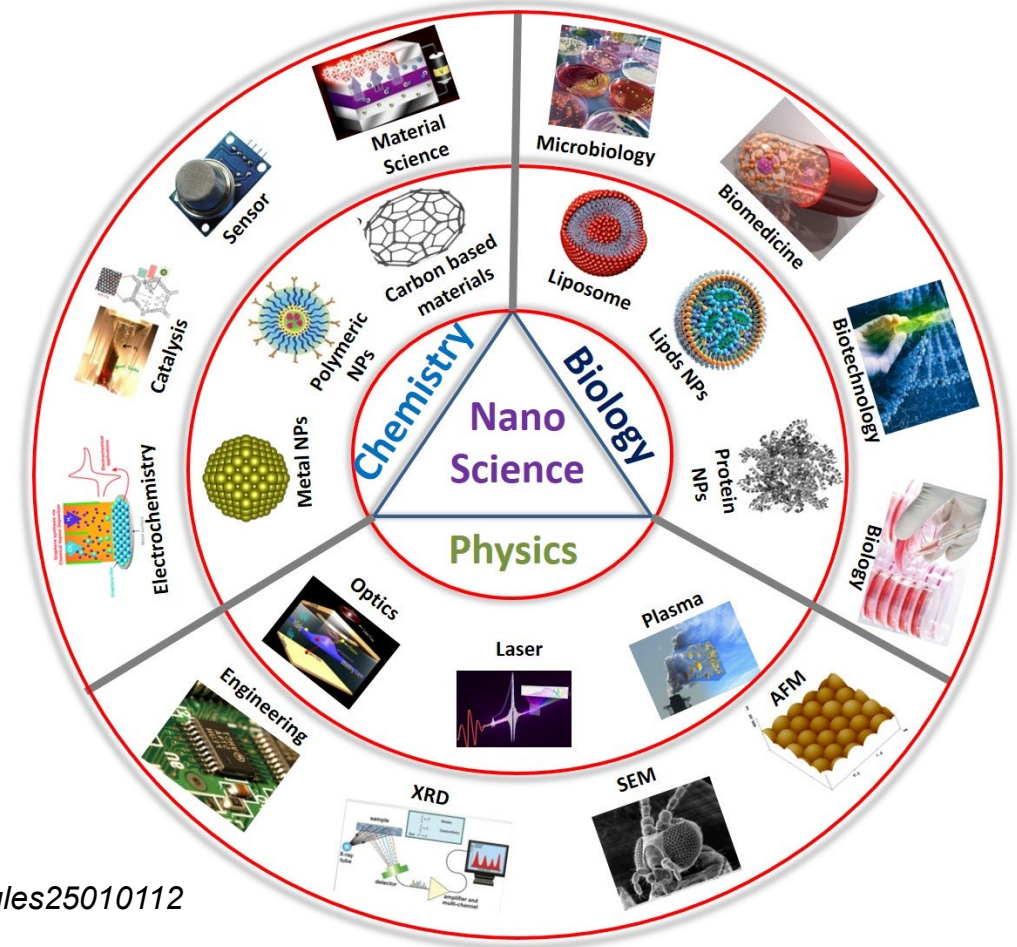
Nowadays, Nanotechnology is a very active scientific and technological field



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MASTERS DEGREE IN

Nanostructured Materials
for Nanotechnology Applications (NANOMAT)

OBJECTIVE OF THE MASTER

The objective of this master is to provide **high-quality University Multidisciplinary Education** in the **synthesis, assembly, fabrication and characterization** of **nanostructured materials** as well as **practical experience and skills** in the fabrication of micro and nanodevices.

MASTERS DEGREE IN

Nanostructured Materials
for Nanotechnology Applications (NANOMAT)

Academic requirements

- ✓ Bachelor Degree in Sciences (Physics, Chemistry, Biotechnology, Biochemistry, Materials Science), or Engineering (Chemical Engineering, Biochemical Engineering, Materials Engineering, and Related).
- ✓ Particular cases: academic contents revision by Unizar Post-Graduate Office and Master Coordinator.
- ✓ English Level B1 (recommended B2).
- ✓ Personal Interview.

MASTERS DEGREE IN

Nanostructured Materials for Nanotechnology Applications

Universidad de Zaragoza

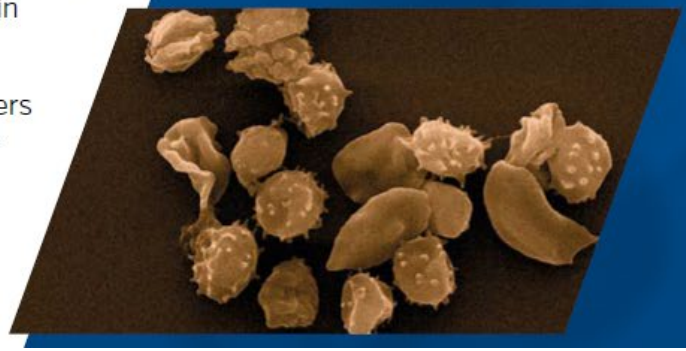
This official Master from Zaragoza University (Spain) has a duration of one academic year and comprises 60 ECTS credits. The course is suitable for graduates with science, engineering, medicine or related degrees keen to develop careers at the forefront of Nanoscience and Nanotechnology.

The course is multidisciplinary and aims to provide students with fundamental knowledge, practical experience, and skills to become a practitioner in Nanotechnology, whether in industry, research or academia.

International, Multidisciplinary, and Postgraduate unique environment.

The University of Zaragoza and the Institutes of Nanoscience and Materials Science of Aragón (INA and ICMA) have exceptional materials preparation and characterization equipment, including some unique instruments in Spain and Europe.

The course is completely taught in English by highly qualified members of research and academic staff within the INA, ICMA, and the Faculty of Science of Zaragoza University as well as by other national and international departments and industrial representatives.



https://ciencias.unizar.es/sites/ciencias/files/users/fmlou/pdf/Asuntos_academicos/diptico_master_nanostructured_materials_lr.pdf

MASTERS DEGREE IN

Nanostructured Materials for Nanotechnology Applications (NANOMAT)

MULTIDISCIPLINARY

PRACTICAL

INTERNATIONAL

Admission: 25 students

1 year long

60 ECTS (1 ECTS = 25 hours student work)

MASTERS DEGREE IN

Nanostructured Materials for Nanotechnology Applications (NANOMAT)

MULTIDISCIPLINARY

Departments involved from Unizar

1. Biochemistry & Molecular Biology
2. Science & Technology of Materials & Fluids
3. Physics of Condensed Matter
4. Chemical & Environmental Engineering
5. Analytical Chemistry
6. Organic Chemistry
7. Physical Chemistry
8. Inorganic Chemistry
9. Marketing Direction & Market Research
10. Documentation Sciences & History of Science

MASTERS DEGREE IN

Nanostructured Materials for Nanotechnology Applications (NANOMAT)

MULTIDISCIPLINARY

Students from different backgrounds: Physics, Chemistry, Biotechnology, Engineering, Materials Science, Industrial Engineering, etc.

Invited lecturers from other Institutions (UCM, ICMAB, IMB-CNM-CSIC, OEP, University of Liverpool…)

Invited speakers from companies (Cátedra SAMCA)

MASTERS DEGREE IN

Nanostructured Materials for Nanotechnology Applications (NANOMAT)

Thursday's NanoSpin-off TALKS

YouTube

Cátedra SAMCA de Nanotecnología
Universidad Zaragoza

SAMCA

INMA
INSTITUTO DE NANOCIENCIA Y MATERIALES DE ARAGÓN

TALKS

Emprendiendo ciencia, aprendiendo innovación.
RUBYnanomed (Portugal)

Carbon Nanomembranes 2D-Materials beyond Graphene
CNM Technologies GmbH (Germany)

Bridging the gap between Academy to Business (A2B)
Nanoenergy, SPin-off of Porto University

NANOVEX BIOTECHNOLOGIES: A GLOBAL BORN COMPANY
NANOVEX BIOTECHNOLOGIES SL (Spain)

VLC Photonics: pioneering services for the development of photonic integrated circuits
VLC Photonics (Spain)

TECNAN: Innovative nanotechnological protectors for industry
TECNOLOGIA NAVARRA DE NANOPRODUCTOS S.L. TECNAN (Spain)

Lessons learned from my experience in nanotech company OXOLUTIA
OXOLUTIA SL (Spain)

Immaterial. Materials discovery and molecular engineering of MOFs
Immaterial (U.K)

BIVO, Centro de Investigación en Tejidos Orgánicos, Bioestructuras y Biomateriales.
BIVO S.COOP (Spain)

Fotoglass where life and light meet
Fotoglass (Spain)

CSIC
Consejo Superior de Investigaciones Científicas

Universidad Zaragoza

MASTERS DEGREE IN

Nanostructured Materials for Nanotechnology Applications (NANOMAT)

PRACTICAL

More than 50 % of the credits are practical

Training in advanced tools for Nanotechnology

Communication and management skills

INTERNSHIPS - UNIVERSA

LMA
LABORATORIO DE MICROSCOPIAS AVANZADAS

INMA
INSTITUTO DE NANOCIENCIA Y MATERIALES DE ARAGÓN

MASTERS DEGREE IN

Nanostructured Materials for Nanotechnology Applications (NANOMAT)

INTERNATIONAL

Completely taught in English

Post-graduate Programme: Fundación Carolina

Collaboration Agreement with Nanjing Tech University

Erasmus Mundus Master on Membrane Engineering: several international students joining in Spring semester

MASTERS DEGREE IN

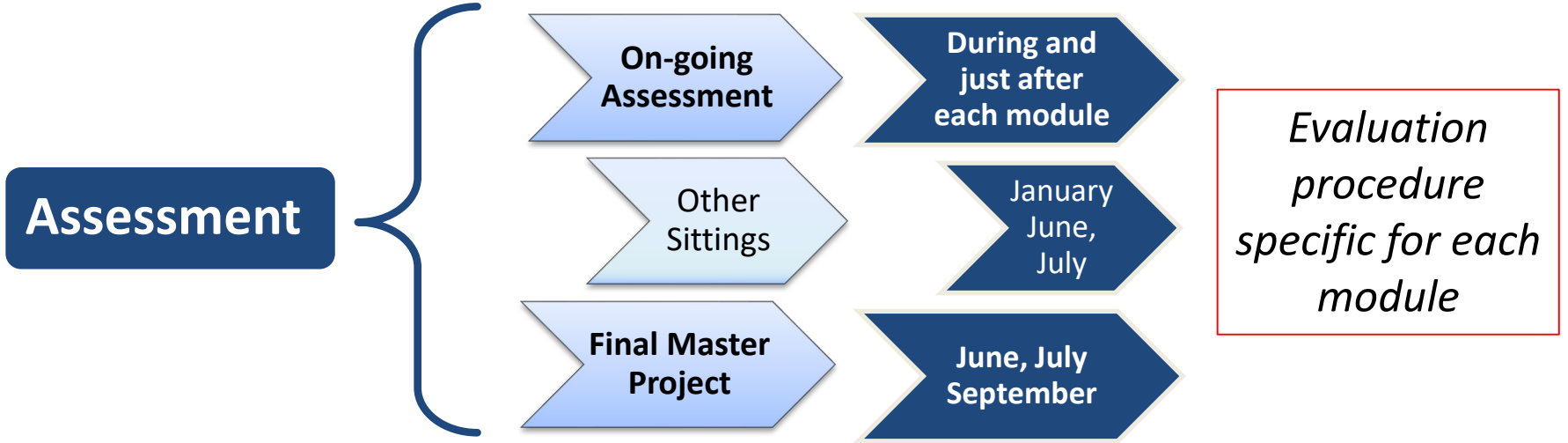
Nanostructured Materials
for Nanotechnology Applications (NANOMAT)

TIMING, SCHEDULE, ASSESMENT

Lectures: from September 2025 to April 2026

Schedule: from Monday to Friday, from 3 pm to 8 pm (50´)

Morning activities: experimental work-FMP, attendance to scientific seminars (mandatory), occasionally lab sessions

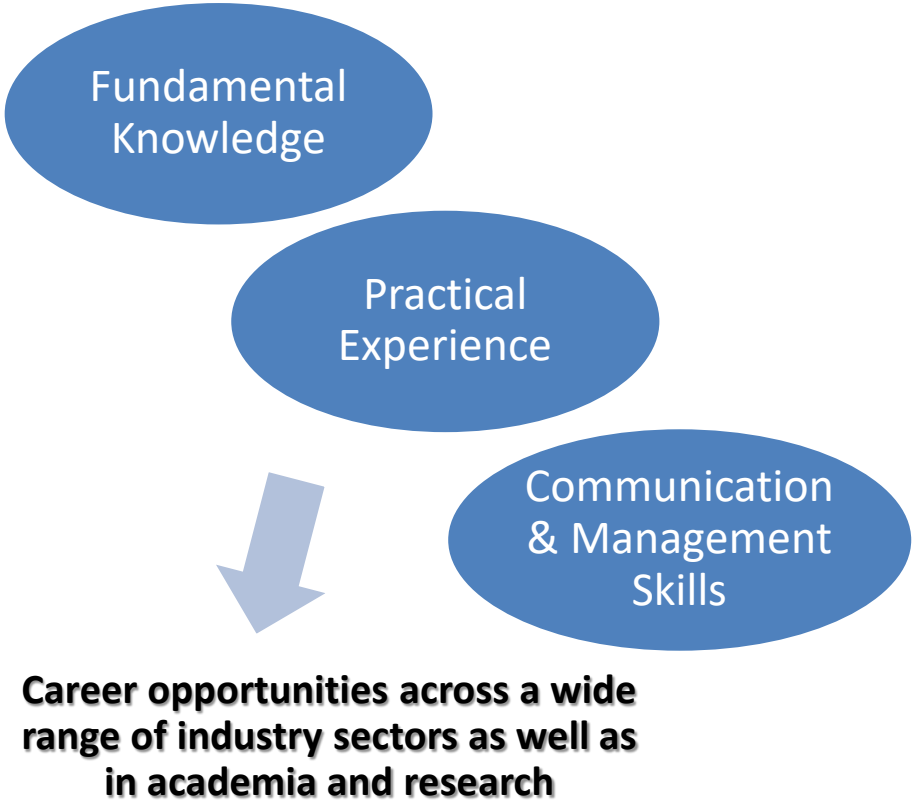


MASTERS DEGREE IN

Nanostructured Materials for Nanotechnology Applications (NANOMAT)

Academic activities…

to achieve



Career opportunities across a wide range of industry sectors as well as in academia and research

The master comprises six core modules (36 ECTS credits) which include lectures, tutorials, practical work in the laboratory, and case studies. In addition, the student will choose two out of the four optional modules offered (10 ECTS credits), depending on his/her professional, academic or research interests. The course also includes an individual research project (14 ECTS credits). The students will select the individual project in consultation with the Course Director. The project will be related to the student background degree and research or professional interests.

THE COURSE MODULES ARE:

CORE MODULES

1. *Fundamental Properties of Nanostructured Materials (6 ECTS credits)*
2. *Preparation of Nanostructured Materials (6 ECTS credits)*
3. *Assembly and fabrication of Nanostructures (6 ECTS credits)*
4. *Characterization I: Physical-chemical techniques (6 ECTS credits)*
5. *Characterization II: Advanced Microscopies (6 ECTS credits)*
6. *Case studies of industrial applications (6 ECTS credits)*

OPTIONAL MODULES

- 7.a *Introduction to Research in Nanoscience and Nanotechnologies (5 ECTS credits)*
- 7.b *Fabrication of Micro and Nanodevices (5 ECTS credits)*
- 7.c *Multidisciplinary Joint Educational Project (5 ECTS credits)*
- 7.d *Practical work in a Nanotechnology-related company (5 ECTS credits)*

MANDATORY INDIVIDUAL RESEARCH PROJECT

8. *Final Master Project (14 ECTS credits)*

https://ciencias.unizar.es/sites/ciencias/files/users/fmlou/pdf/Asuntos_academicos/diptico_master_nanostructured_materials_lr.pdf

MASTERS DEGREE IN

Nanostructured Materials for Nanotechnology Applications (NANOMAT)

Section	Course Module	ECTS / Coordinator	Semester	Mandatory / Optional
Fundamentals	**1. Fundamental Properties of Nanostructured Materials**	**6 Rafael Martín**	**Fall**	**Mandatory**
	7a. Introduction to Research in Nanoscience and Nanotechnology	5 Beatriz Zornoza	Fall	Optional
Fabrication	**2. Preparation of Nanostructured Materials**	**6 (4+2) José Ángel Pardo**	**Fall**	**Mandatory**
	3. Assembly and Fabrication of Nanostructures	**6 (4+2) Francisco Balas**	**Fall**	**Mandatory**
	7b. Fabrication of Micro and Nanodevices	5 Víctor Sebastián	Spring	Optional
Characterization	**4. Characterization I: Physical Chemical Techniques**	**6 (2+4) Clara Marquina**	**Spring**	**Mandatory**
	5. Characterization II: Advanced Microscopies	**6 (3+3) José Ignacio Arnaudas**	**Spring**	**Mandatory**
Applications	**6. Industrial Applications**	**6 Jesús Santamaría**	**Fall**	**Mandatory**
	7c. Multidisciplinary Joint Educational Project	5 José Ángel Pardo	Spring	Optional
	7d. Internships	5 (José Ángel Pardo)	Year-long	Optional
Project	**Final Master Project**	**14 (José Ángel Pardo)**	**Year-long**	**Mandatory**

MASTERS DEGREE IN

Nanostructured Materials for Nanotechnology Applications (NANOMAT)

CHRONOGRAM, Fall semester

Module 1: Fundamental Properties of Nanostructured Materials — September Exam 1st October

Module 2: Preparation of Nanostructured Materials — End-September to End-October

Module 3: Assembly and Fabrication of Nanostructured Materials — Mid-October to End-November

Module 7a: Introduction to Research in Nanoscience and Nanotechnology — Beginning-October to Mid-November

Module 6: Case Studies of Industrial Applications — End-October to Mid-December

MASTERS DEGREE IN

Nanostructured Materials
for Nanotechnology Applications (NANOMAT)

CHRONOGRAM, Spring semester

Module 4:
Characterization I
End-January to End February

Module 5:
Characterization II, Advanced Microscopies
End-Feb to End-March

Module 7b:
Fabrication of Micro & Nano Devices
April

Module 7c:
Multidisciplinary Joint Educational Project
To be presented in June or July

Module 7d:
Internships
To be presented in June or July

MASTERS DEGREE IN

Nanostructured Materials
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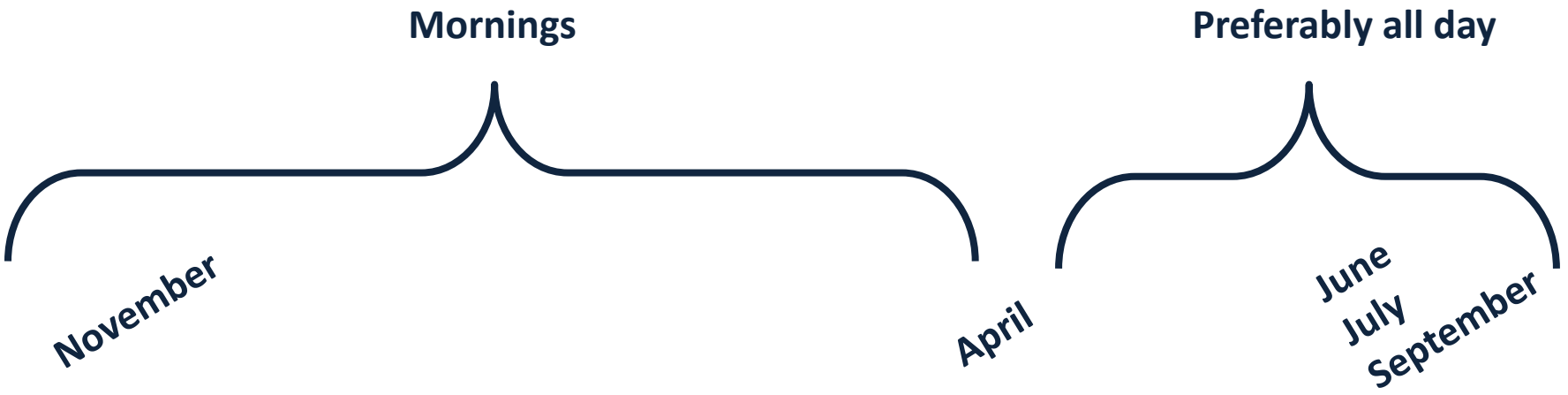
FMP CHRONOGRAM (recommended)



FINAL MASTER PROJECTS LIST

MASTERS DEGREE IN

Nanostructured Materials
for Nanotechnology Applications (NANOMAT)

How to choose your Final Master Project (FMP)

All the official information, forms and list of projects are or will be available at:
https://ciencias.unizar.es/master-en-materiales-nanoestructurados-para-aplicaciones-nanotecnologicas

The list will be also available at:
https://inma.unizar-csic.es/formacion/master-nanomat/

CIENCIAS ZARAGOZA

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Specific sessions of NANOMAT for the presentation of topics: 19 & 26 September

Contact the supervisor/s of the projects you are interested in!

Nanomat grants

https://inma.unizar-csic.es/formacion/becas-y-ayudas/

INSTITUTO DE NANOCIENCIA Y MATERIALES DE ARAGÓN

Prácticas UNIVERSA

Este tipo de prácticas permite a los estudiantes de Grado o Máster poder trabajar en el marco de un grupo de investigación en el INMA

Ver más

Programa PI2

Realización de prácticas universitarias dirigidas a estudiantes con talento para su iniciación a la investigación en el INMA. La financiación del programa PI2 por parte del INMA se circunscribirse a la realización de TFMs en el marco de las prácticas extracurriculares en actividades de investigación PEX.

Ver más

Becas de colaboración

Estas becas de colaboración ofrecidas por el Ministerio de Educación y Formación Profesionales y dirigidas a alumnos de Grado y Máster tienen como objetivo la iniciación en la carrera científica realizando tareas de investigación en departamentos universitarios

Ver más

Becas de la Cátedra SAMCA

Becas para estudiantes del Máster Master Degree in Nanostructured Materials for Nanotechnology Applications - NANOMAT.

Ver más

Deadline: 26th September

Ayudas JAE Intro

Estas ayudas de introducción a la investigación ofrecidas por el Consejo Superior de Investigaciones Científicas están dirigidas a estudiantes de último año de Grado y estudiantes de Máster.

Ver más

Ayudas JAE Intro ICU

Becas de introducción a la investigación ofrecidas por el INMA para estudiantes de Grado y Máster con el objetivo de iniciarse en la carrera científica, dando aconocer en el ámbito universitario las posibilidades profesionales que ofrecen los Institutos del CSIC en las diferentes áreas científicas.

Ver más

MASTERS DEGREE IN

Nanostructured Materials
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Other public grants

Universidad Zaragoza
1474

Ayudas de matrícula para estudiantes extranjeros no residentes para el curso 2025-2026 (deadline: 18 September):
https://academico.unizar.es/becas/ayudas-de-la-universidad-de-zaragoza-para-alumnos-no-residentes-no-comunitarios

Becas de excelencia para el acceso, por primera vez, a estudios universitarios oficiales de Grado y Máster:
https://www.aragon.es/tramitador/-/tramite/becas-de-excelencia-para-el-acceso-por-primera-vez-a-estudios-universitarios-oficiales-de-grado-y-master/convocatoria-2025

GOBIERNO DE ARAGON

MASTERS DEGREE IN

Nanostructured Materials
for Nanotechnology Applications (NANOMAT)

Specific offers from companies

Empresa: ATRIA INNOVATION, S.L.

Localización de las prácticas: Polígono PLAZA, Zaragoza

Duración: 6-9 meses

Comienzo: flexible, durante el curso 25-26

Posibilidad de realizar TFM: sí

Posibilidad de convalidad créditos: sí

Remuneración: 600 €/mes

Horario: adaptable de 9:00 a 17:00 (horas que abre la empresa)

Descripción del puesto: Participación en proyectos reales en un laboratorio de ciencia de materiales. Realización de ensayos, caracterizaciones, microestructuración y desarrollo de coatings. Formación en el uso de equipos de laboratorio.