

TIMETABLE for the Master ERASMUS MUNDUS in NUCLEAR PHYSICS in Spain

Academic year 2024-2025

The students have to follow the following topics in the first semester, all of them in Seville (except Nuclear Structure):

Quantum Mechanics (60 hours)

Atomic and Plasma Physics (60 hours)

Basic Experimental Nuclear Physics (45 hours = 30 h theory + 15 h lab (5 experiments x 3 h/exp))

Computing and Numerical Methods (45 hours)

Nuclear Structure (30 h intensive during two weeks **January 07-10, (on-line) and January 13-17 (in person), 2024**) in Madrid
(Trip to Caen **January 20-22 January**)

There will be an intensive Spanish course for beginners from ... in the mornings.

Students from paths 1 and 3 are expected to be in Sevilla until **February 21st.**

During last week of February students in path 1 (Experiments) and path 3 (Applications) have to move to Padova and Catania, respectively. They are expected to be there by **February 24th, 2025.**

Second semester (for the **theory path-2**)

Introduction to Nuclear Reactions (30 h intensive during two weeks **February 3-14, 2025**) in Sevilla

Relativistic Quantum Theory: Nuclear Processes (30 h intensive during the weeks February 17-21 (on-line) & February 24-27 (in person), 2025) in Sevilla

Many-Body Theories in Nuclear Physics (30 h intensive during the weeks **March 3-14 (in person), 2024**) in Sevilla

Elective, one of the following

- **Hadron Physics** (30 h intensive during the weeks March 17-21 (on-line) & March 24-28 (in person), 2025) in Barcelona
- **Nuclear Astrophysics** (30 h intensive during the weeks March 31 - April 4 (in person) & April 7-11 (on-line), 2025) in Barcelona

Weak Interactions (30 h intensive during the weeks April 21-25 (on line) & April 28-30 (in-person), 2024) in Sevilla

Acronyms:

QM = Quantum Mechanics

A&P = Atomic and Plasma Physics

BENP = Basic Experimental Nuclear Physics

CNM = Computing and Numerical Methods

NS = Nuclear Structure: properties and models

MBT = Many-Body theories in Nuclear Physics

RQT = Relativistic Quantum Theory: Nuclear Processes

WI = Weak Interactions

HP= Hadron Physics*

NA = Nuclear Astrophysics*

NR = Nuclear Reactions

***Each student has to choose one of these subjects**

WEEKS

40: October 2-4	41: October 7-11	42: October 14-18	43: October 21-26
44: Oct.28-Nov. 1	45: November 4-8	46: November 11-15	47: November 18-22
48: Nov 25-Nov 29	49: December 2-6	50: December 9-13	51: December 16-20

Lectures	Monday	Tuesday	Wednesday	Thursday	Friday
10:00-13:00	BENP laboratory GROUP 1	BENP laboratory GROUP 2	BENP laboratory GROUP 3	BENP laboratory GROUP 4	
Weeks 41, 42, 43, 44, and 45					

Lectures	Monday	Tuesday	Wednesday	Thursday	Friday
15:00-17:00	A&P	QM	A&P	QM	QM
17:00-17:30					
17:30-19:00	CNM	BENP (theory)	BENP (theory)	A&P	CNM
19:00-19:30				A&P	CNM
19:30-20:00	CNM				CNM
Weeks 40-51					

QM and A&P (60 hours)

Starting date: October 2, 2024 (Week number 40) -

Ending date: December 20, 2024 (week: 51) (6 hours/week)

Final Exams:

- QM: January 24th
- A&P: January 27th

BENP (45 hours)

Starting date:

THEORY (30 hours): October 2, 2024 (week number 40) -

Ending date: December 20, 2024 (week: 51) (3 hours/week)

LAB Group 1 (15 hours): weeks 41-45, on Monday

LAB Group 2 (15 hours): weeks 41-45, on Tuesday

LAB Group 3 (15 hours): weeks 41-45, on Wednesday

LAB Group 4 (15 hours): weeks 41-45, on Thursday

Exam:

Final Exam: January 31st

CNM (45 hours)

Starting date:

THEORY (45 hours): October 2, 2024 (week number 40) -

Ending date: December 20, 2024 (week: 51) (4,5 hours/week)

Evaluation (presentation of projects): January 7-10

NS

Teaching period: weeks 2-3, January 7-10 (on-line) + January 13-17 (in person), 2025 in MADRID

Exam: January 31, 2025 in Sevilla

Week 4: January 20-22, 2025 visit to CAEN (France)

SECOND SEMESTER

NR

Teaching period: weeks 6-7, February 3-14 (in person) 2025 in SEVILLA

Exam: May 16, 2025.

RQT

Teaching period: weeks 8-9, February 17-21 (on-line) & 24-27 (in person) 2025 in SEVILLA

Exam: May 12, 2025

MBT

Teaching period: weeks 10-11, March 3-14 (in person) 2025 in SEVILLA

Exam: May 30, 2025

HP*

Teaching period: weeks 12-13, March 17-21 (on-line) & March 24-28 2025 (in person) in BARCELONA
Exam: May 19, 2025

NA*

Teaching period: weeks 14-15, March 31- April 4 (in-person) & April 7-11, 2025 (on-line) in BARCELONA
Exam: May 23, 2025

* each student has to select one of these topics

WI

Teaching period: weeks 17-18, May 21-25 (on-line) & May 28-30 (in-person) 2025, in SEVILLA
Exam: May 26, 2025

Subject	ECTS	Place	Dates	Character	EXAMS
Nuclear Structure: Properties and Models	6	Madrid	7-10 January 2025 (on-line) 13-17 Jan 2025 (in person)	Compulsory	31 January 2025
Introduction to Nuclear Reactions	6	Sevilla	3-14 February (in person) 2025	Compulsory for path2 students	16 May 2025
Relativistic Quantum Mechanics: Nuclear Processes**	6	Sevilla	17-21 February 2025 (on-line) 24-27 February 2025 (in person)	Compulsory for path2 students	12 May 2025
Many-Body Theories in Nuclear Physics**	6	Sevilla	3-14 March 2025 (in person)	Compulsory for path2 students	30 May 2025
Hadron Physics**	6	Barcelona	17-21 March 2025 (on-line) 24-28 March 2025 (in person)	Elective for path2 students	19 May 2025
Nuclear Astrophysics**	6	Barcelona	31 March-4 April 2025 (in person) 7-11 April 2025 (on-line)	Elective for path2 students	23 May 2025
Weak Interactions**	6	Sevilla	21-25 April 2025 (on-line) 28-30 April 2025 (in person)	Compulsory for path2 students	26 May 2025

In case of fail in one or more subjects, the student will have one extra opportunity in the period June 10 to July 17.

In addition, extra curriculum activities will be programmed in June and July, 2024.

For S3, the lectures at Caen (France) start in September 1st, 2023.

End of evaluation for subjects in S1: February 24

End of evaluation for subjects in S2: June 9

End first call for subjects in S1 & S2: June 16

Second call: period for exams for who failed in subjects in S1 and/or S2: June 10 to July 17.

S1 subjects: June 10 to June 21.

S2 subjects: July 8 to July 17.

End second call for subjects in S1 & S2: July 17