



Universidad Complutense de Madrid
Universidad Politécnica de Madrid



Programa de Doctorado en Ingeniería Matemática,
Estadística e Investigación Operativa (IMEIO)
*PhD Programme in Mathematical Engineering,
Statistics and Operation Research*



Centro Excelencia
Internacional
Campus Moncloa

Teresa Ortuño (Coordinator UCM)
Salvador Jiménez (Coordinator UPM)
Academic Year 2023-2024

Algunos aspectos generales

- Interuniversity PhD programme (UCM-UPM), regulated by the decree RD99/2011.
<http://www.mat.ucm.es/imeio/>
- Tutor is assigned on admission.
- PhD advisor(s) assigned before 3 months since admission (January).
- Full-time studies (3+1+1 years) and part-time (5+2+1 years). Temporary leaves can be granted.
- Formation complements versus formation activities (IMEIO has no formation complements).

Secuenciación de actividades (1^{er} año)

Sep./Oct.: admission, tutor assignation and registration



First semester: initial research courses
~ 3 month since starting: assignation of the PhD
Advisor



Second semester: preparation of the Research Plan



June: presentation of the Research Plan

Actividades formativas-1: cursos

- 90h of research courses: [hours = (4/3)(class hours)]
 - 60+20+10h (full-time). (yellow = initial)
 - 40+20+10+10+10h (part-time).
- List of courses in: <http://www.mat.ucm.es/imeio/cursosdoct/>
Complete list and schedules since 21/10/2023 (DD/MM/YYYY).
- Courses chosen with the approval of the Tutor.
- Inscription in Doodle, not after 31/10/2023
Try for the approximate number of hours required.
- Communication of the admission: 02/11/2023.
Courses start from 2/11/2023*.
If a course is cancelled you may chose another one.
- Queries to Coordinator of courses: leonardo.fernandez@upm.es
(minimize the number of messages).

* Some may start exceptionally before. 4

Actividades formativas-2: otros

- **Attending research talks (45h; 3h per 1 hour talk):**
 - 15+15+15h (full-time).
 - 9+9+9+9+9h (part-time).
- **Participation in seminars (talks given by you) (60h):**
 - 10+20+30h (full-time). (we consider that 1h talk requires 9h of preparation)
 - 0+10+10+20+20h (part-time).
- **Attending conferences and workshops: 120h (12h/day conference).**
- **Attending modeling week and group study with enterprises: 30h.**
- **Collaboration in management of research activities: 60h.**
- **Other: visits to research centres abroad, etc.**

Actividades formativas-3: Alumnos que acceden desde otros programas

- **Students with “*Suficiencia Investigadora*” (RD185/1985), or “*DEA*” (RD778/1998) or having passed the formation period in a PhD programme (RD1393/2007):**
 - If they come from a related field (to be judged by the Academic Commission of the Doctorate Programme, CAPD), it will count as all the activities of the first year of a full-time student. **THEY WILL NOT BE EXEMPTED OF PRESENTING THE RESEARCH PLAN FOR THE FIRST YEAR.**
 - If they come from unrelated fields the CAPD will decide which formation activities to recognize.
- **In the case of students without Sufic. Invest./DEA/formation period completed, but with some previous PhD activities or courses achieved, the CAPD will decide which formation activities to recognize.**
- **The minimum period before defending the PhD will be one Academic Year, in all cases.**

Anex

Initial Research Courses

Course (h)	Responsible	Dates	Title	e-mail
CAGD(15)	L. Fernandez	Feb-Mar-Apr	Computer-aided Geometric Design	leonardo.fernandez@upm.es
DeMu(12.5)	B. Vitoriano	November	Multicriteria Decision	bvitoriano@mat.ucm.es
IPKC(20)	J. Jimenez	June	Introduction to Cryptography	jorge.urroz@upm.es
OEnt(20)	B. Vitoriano	October November	Entire Optimization	bvitoriano@mat.ucm.es
MACRMD(3)	J. Mira	February	Monte Carlo Methods in Stochastic Simulation with R (and Matlab)	josemanuel.mira@upm.es
GPRG(6)	F. Navarro	January March	Georadar techniques in glaciology / Ground-penetrating radar	francisco.navarro@upm.es
MEFPFM(12)	P. Galan	January	Finite Element Method in Fluid Mechanics problems. Practical implementation with FreeFem++	pedro.galan@upm.es
FA(12)	J. Otero	January	Frontal ablation processes in glaciers	jaime.otero@upm.es
West(10)	B. Vitoriano	March	Stochastic Optimization	bvitoriano@mat.ucm.es
MNLIM(18)	L. Tello	January	Nonlinear Models in Mathematical Engineering	l.tello@upm.es

Anex

Cursos de investigación iniciales

Course (h)	Responsible	Dates	Title	e-mail
RCED(6)	R. Hernandez		Solvability by Quadratures of Differential Equations: Some Effective Algorithms	rafael.hernandez.heredero@upm.es
GTaA(15)	J. Tejada	January	Game Theory and Applications	jtejada@mat.ucm.es
SNFF(15)	A. Hidalgo	March	Numerical Simulation of Physical and Technological Phenomena	arturo.hidalgo@upm.es
FNBL(10)	Tinguaro Rodríguez	January February	Models based on fuzzy logic and soft computing for system control and other applications	jtrodrig@mat.ucm.es
SASE(15)	M. Carmen Pardo	January February	Survival Analysis. Statistical evaluation of diagnostic tests	mcapardo@mat.ucm.es
MCyA(12)	MA Martin	March and April 2023	Fractal Geometry: from Besicovich Theory to Systems of Iterated Functions and the modeling of Self-organized Systems	miguelangel.martin@upm.es

www.mat.ucm.es/imeio/cursosdoct

Resources for formation activities

www.mat.ucm.es/imeio

Instituto de Matemática Interdisciplinar (IMI)

(At the Facultad de Matemáticas, UCM) Courses, seminars, workshops... <http://www.mat.ucm.es/imi/>, IMI Data Science Club

Distribution list, write to: secreadm.imi@mat.ucm.es.

“Seminario de doctorandos” (PhD candidates seminar)

(At Facultad de Matemáticas, UCM) Giving or attending talks <http://www.mat.ucm.es/doctorandosmat/>.

Contact: doctorandos.mat@ucm.es

ICMAT: Instituto de Ciencias Matemáticas (CSIC-UCM-UAM-UC3M)

Instituto Severo Ochoa, organizes activities on a regular basis.

Weekly programme: <https://www.icmat.es/events/week>