



Master's Programme in Environmental Research, Modelling and Risk Assessment



POLITÉCNICA

OVERVIEW

The Masters Degree in Research, Modelling, and Environmental Risk Assessment (MIMARMA) offers a quality research and professional training in an area with a growing demand of experts. All aspects related to the characterization of contaminated sites, human health risk assessment and simulation of contamination processes of soil, water and the atmosphere are dealt with by experienced and internationally renowned researchers and professionals. All the necessary material resources (field engineering equipment, laboratories, software, etc.) for personalised quality training are available to our students.

The Research, Modelling, and Environmental Risk Assessment programme has the support of the main Spanish companies offering and demanding environmental research services (REPSOL-YPF, CEPESA, CLH, IGME, EMGRISA, TPA, GOLDER, AG Ambiental, IEP Europe, etc.).

CONTENT AND CREDITS

The Masters Degree is awarded after satisfactorily completing 60 ECTS of which 45 correspond to compulsory and optional courses and seminars, and 15 are assigned to the Masters Thesis (see the syllabus on next page). The academic calendar is divided into 4 segments of 9 weeks that begin in September and continue until June of the following

year. The total duration of the program, including the completion and defence of the Masters Thesis, is between 12 and 18 months. There is a range of optional courses worth 4 ECTS each as well as seminars worth 1 ECTS that make up the 60 credits required, either by enrolling in two optional courses or in one optional course and 4 seminars.

Of the 9 compulsory courses, **5 are taught in English** (as is one seminar). **The rest of the courses are delivered in SPANISH.**

ACCESS REQUIREMENTS

Access to the Masters Programme requires that the candidates have completed, as is standard, 240 ECTS in undergraduate studies in Engineering fields related to Earth Sciences (i.e. Mining, Geology, Environment, Agriculture, Forestry or Civil Engineering) or in Environmental Sciences, Geology or Chemistry.

Under exceptional circumstances, students with degrees different from the aforementioned can access the course. The acceptance report from the Academic Commission of the Masters Programme can include the obligation to take one or more undergraduate courses to enable the student to reach the same access level as those candidates with the aforementioned degrees. Also, under exceptional circumstances, the student can access the Masters Degree program with a 210 ECTS undergraduate degree (former technical engineers and general

degree holders) in the same explicit areas stated in the last paragraph. These students must complete 30 additional undergraduate ECTS credits from the range of subjects offered by the UPM which, in the opinion of the Academic Commission of the Masters Programme, will enable them to reach the same level of access as those graduates with 240 ECTS.

Candidates that comply with the previous academic requirements must have a sufficient command of English and Spanish as to follow lectures in both languages. Certificates from recognised institutions endorsing their language proficiency are required. If this certification is not available, the candidates must take an oral and written test provided by the Academic Commission of the Masters Programme.

SCHEDULE AND VENUE

Lectures and laboratory sessions will take place from Monday to Friday, from 16:00 a 20:00, September to June.

The venue of the Masters Programme is the *Escuela de Minas de Madrid*, in *Ríos Rosas 21*, 28003 Madrid (Spain)

MORE INFORMATION

www.gyc.upm.es/mimarma
mimarma@gyc.upm.es

Modules	Courses	SEMESTER 1		SEMESTER 2	
		Segment 1	Segment 2	Segment 3	Segment 4
Module 1: Environmental Research	Sampling design	CORE			
	Contaminated Site Assessment			CORE	
	Chemometrics and instrumental analysis			CORE	
	GIS in environmental applications		OPTIONAL		
	Remote sensing in environmental applications	OPTIONAL			
	Experiment design			OPTIONAL	
Module 2: Environmental Modeling	Data analysis		CORE		
	Hydrodynamics and hydrogeological modelling	CORE			
	Numerical simulation of pollution processes		CORE		
	Modelling of atmospheric pollution processes	OPTIONAL			
	Geostatistics				OPTIONAL
	Multiphase flow in porous media			OPTIONAL	
Module 3: Environmental Risk Assessment and Management	Partition of contaminants in the environment	CORE			
	Environmental risk assessment		CORE		
	Planning and management of environmental projects				OPTIONAL
	Soil and groundwater remediation				OPTIONAL
Module 4: Seminars	Seminars I		OPTIONAL		
	Seminars II				OPTIONAL
Module 5 : Master's Thesis	Preparation of a research paper				CORE
	Masters Thesis				CORE

Seminars I – 2010/2011: Paleoclimate and climate change, Research on urban pollution, Abandoned industrial sites
Seminars II – 2010/2011: International Environmental Law, Geophysical prospecting, Bioremediation, Biomarkers