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21st edition

# Official Master's Degree in Remote Sensing & GIS

*From satellite images to publishing  
cartography on the Internet*

**UAB** Universitat Autònoma  
de Barcelona



145th

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# Official Master's Degree in Remote Sensing & Geographic Information Systems

*Specific training in techniques of observation of the Earth for the study of the territory and management of its resources.*

Nowadays, Remote Sensing and Geographic Information Systems (GIS) techniques are absolutely essential in order to **study the Earth and manage its resources**. They are considered among the most active worldwide in both the academic context and in the business in fields as diverse as:

- The instruments: satellites, drones, GPS systems.
- The geographic information: cartographic institutes, Bing and Google Maps, OpenStreetMap, etc.
- The data and metadata cataloging in spatial data infrastructures.
- The software, as the free availability of MiraMon and other software.

Consequently, there is a growing need for well-trained specialists in these disciplines. Specialists with an in-depth knowledge not only of the basic principles, but also of the latest developments in the field, such as the standardization initiatives promoted by the Open Geospatial Consortium (OGC).

The aim of the Master's degree in Remote Sensing and GIS, which has a **scientific and technical orientation**, is to **provide sound scientific training in techniques for observing the Earth** and for generating and analyzing information in order to be able to **study a given territory and manage its resources** using GIS.

## Designed for

Graduates with honor's and general degrees who are interested in the principles and applications of Remote Sensing and GIS like:

- Geographers, Biologists, Environmental scientists, Physicists, Geologists, Geodesists, Engineers from different disciplines, Topographers
- Statisticians, Mathematicians

## Material

- Lessons take place in a CREAM classroom equipped with computers and the fastest Internet connection via the Scientific Ring. The classroom is also equipped with specialized software which is most commonly used in the academic and professional world (MiraMon, Envi, ArcGIS, Erdas-Hexagon).
- The enrolment fee includes a full license for MiraMon and 1 year campus license ArcGIS so that they can be installed on a personal computer.

## Program and subjects

The Master's Degree in Remote Sensing and GIS (60 ECTS) consists of a total of 7 modules, 4 of them are formed by core subjects, 2 modules are elective and the remaining credits correspond to the Final Project.

Core Subjects	Credits
<b>M.1 Geographic Information Science: Remote Sensing &amp; GIS</b> SIG Fundamental, Composition and printing of cartographic documents, Photogrammetry, Principles of cartography, Synoptic view of remote sensing, Platforms and sensors, Geodesy and positioning systems	15
<b>M.2 Remote sensing imagery processing</b> Geometric correction of aerial and satellite images, Physical principles, Radiometric correction of images	6
<b>M.3 Spatial analysis</b> Analysis in SIG, Digital terrain models, Interferometry	9
<b>M.4 Obtaining geographic information. Methods</b> Statistical methods, Photointerpretation	6
<b>M7. Final Project</b>	15
<b>Elective subjects (students must take 9 credits)</b>	
<b>M.5 Advanced formation in GI</b> Relational databases. SQL, Use cases in GIS implementations, Standard for distributed geoservices, Publishing cartography on the Internet	9
<b>M.6 Advanced formation in remote sensing</b> RS & Meteorology, RS & Oceanography, RS & Geology, RS & Vegetation and land uses Techniques and examples	9

## General information

**Modality:** Classroom based.

**Credits:** 60 ECTS.

**Duration:** 1 year.

**Schedule:** Classes: Monday to Thursday, from 5pm to 9pm. Tutored practical lessons: Friday afternoon.

**Places:** 20.

**Start:** September 25, 2019.

**Languages:** Spanish and Catalan. Read English (B1 o equivalent).

**Fees:** Admission: 30,21 €. Registration fee EU students: 4.620 € (77 €/credit).

Registration fee Non-EU students: 5.820 € (97 €/credit)

**Pre-registration:** visit [www.uab.cat](http://www.uab.cat)

**Coordination:** Xavier Pons and Cristina Cea.

## Professional opportunities

- As a Remote Sensing and GIS technician in companies or in administration, where the use of the GIS is extended and personal with advanced knowledge in geospatial data management is required.
- As a methods and applications in Remote Sensing and GIS researcher in universities and public or private centers.

## Coordination

**Xavier Pons.** Scientific coordination. ICREA Researcher and Full Professor, Dep. of Geography, UAB.

**Cristina Cea.** Coordination. Technician of the Department of Geography, UAB.

## Supported by:

- GRUMETS.
- MiraMon.
- Copernicus Academy.

**“Prize for the best students: 1500 €. Visit the Master’s site at [www.uab.cat](http://www.uab.cat)”**

## Faculty

This Master’s degree consists of a solid team of instructors who are professionally dedicated to Remote Sensing and GIS. They are well-known internationally and come from the following institutions:

- Universitat Autònoma de Barcelona (UAB)
- Center for Ecological Research and Forestry Applications (CREAF)
- Universitat de Barcelona (UB)
- Universitat Politècnica de Catalunya (UPC)
- National Institute for Aerospace Technology (INTA)
- Spanish National Research Council (CSIC)
- County councils, etc.

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### Academic administration: FUABformació

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### Classes are held at:

#### Center for Ecological Research and Forestry Applications CREAF

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