UAB
Universitat Autònoma de Barcelona

Masters Dissertation

Code: 43385
ECTS Credits: 15

2024/2025

Degree	Type	Year
4314828 Remote Sensing and Geographical Information Systems	OB	0

Contact

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Teaching groups languages

You can view this information at the end of this document.

Prerequisites

Prerequisites are not required

Objectives and Contextualisation

At the end of the course, the student will be able to:

1. Use concepts from various disciplines studied during the master with special emphasis on the choice of geographic data, whether obtained by remote sensors or in-situ, in order to give the optimal answer to the problems raised at work, be it theoretical or methodological or applied.
2. Apply remote sensing and/or GIS techniques in the development of the final master's project.
3. Use multivariate, geostatistical and interpolation techniques to extract the best knowledge from the available geographic data.
4. Properly treat direct and indirect information both in the processing stage and in its preparation for general access through the Internet.
5. Apply optimal solutions that respond to the challenges and questions posed in the final master's degree project, from the combined principle of environmental and social sensitivity and technical feasibility.

Competences

- Analyse and exploit geographic data from different sources to generate new information from pre-existing data.
- Choose the most suitable tools and applications to fulfil the objectives of a project in the field of spatial planning or analysis.
- Continue the learning process, to a large extent autonomously.
- Design and apply a methodology, based on the knowledge acquired, for studying a particular use case.
- Design and apply solutions based on GIS tools for managing and exploiting natural resources or administrative information with a spatial component.
- Handle different data and metadata formats appropriately and take the importance of international standards into account when storing them and publishing them on internet.
- Identify and propose innovative, competitive applications based on the knowledge acquired.

- Integrate knowledge and use it to make judgements in complex situations, with incomplete information, while keeping in mind social and ethical responsibilities.
- Use the different techniques for obtaining information from remote images.
- Write up and publicly present work done individually or in a team in a scientific, professional context.

Learning Outcomes

1. Apply remote sensing techniques in developing the master's dissertation.
2. Continue the learning process, to a large extent autonomously.
3. Deal suitably with direct and indirect information, both at the processing stage and when preparing it for general publication on internet.
4. Design and apply a methodology, based on the knowledge acquired, for studying a particular use case.
5. Find optimal solutions to the challenges and questions posed in the master's degree dissertation, combining environmental sensitivity and technical feasibility from the outset.
6. Identify and propose innovative, competitive applications based on the knowledge acquired.
7. Integrate knowledge and use it to make judgements in complex situations, with incomplete information, while keeping in mind social and ethical responsibilities.
8. Use concepts from various disciplines worked on during the master's programme, especially in choosing the geographic data obtained from remote sensors or in situ, in order to best tackle the problems posed in an assignment, whether this is theoretical, methodological or applied in nature.
9. Use multivariate, geostatistical and interpolation techniques to generate maximum knowledge from the available geographic data.
10. Write up and publicly present work done individually or in a team in a scientific, professional context.

Content

Preparation of an individual or group work (maximum 2 students) on a specific topic raised in the proposals presented by the teaching staff, institutions or companies, taking into account the different sensibilities of the students.

With this work, the specific competencies acquired will be demonstrated, and the basic and general competencies will be developed.

There are no theoretical contents for this course.

Activities and Methodology

Title	Hours	ECTS	Learning Outcomes
Type: Directed			
Informative sessions with the coordination	3	0.12	1, 2, 3, 4, 5, 6, 7, 8, 9, 10
Type: Supervised			
Tutorials with tutors	22	0.88	1, 2, 3, 4, 5, 6, 7, 8, 9, 10
Type: Autonomous			
Master thesis	350	14	1, 2, 4, 5, 6, 7, 8, 9, 10

Principal working language: that of the student, typically in Catalan (cat), Spanish (spa) or English (eng); bibliographic materials may be in any of these languages (mostly in English).

The coordination will organize a prior informational meeting (October) to inform the students of the purpose of the Master dissertation, the procedure to be followed for the assignment of tutor teachers, the preparation of the proposal and the calendar.

Along February and March, work proposals will be made public. These proposals will contain the names of the teaching staff, a summary, the materials, the methodology and some orientation references, and will be made available to the students in the corresponding Moodle classroom.

At the end of March, the coordination will open a form for a period of one week so that each student can choose the 3 proposals that are most interesting to them, scoring them from 1 to 3.

Once the period is over, the coordination will contact each student to agree on the selected work. If possible, it will be ensured that students can work on the proposal ranked as 1. If there is more than one student interested in the same proposal, the following options will be considered:

- Do the work in pairs.
- Duplicate the proposal (two areas of study, essay of different methods...) if, after contacting the tutoring staff, this possibility is authorized.
- If neither of the two previous options is possible, the tutoring staff will assess the student's profile through an interview in order to select one of the interested students. The student who is not chosen will be able to do the work ranked as 2 or 3.

The entire process will be transparent for all students.

The coordination will contact the tutoring staff and the students in order to inform them that the work can effectively start.

During the month of May, students must inform about the call in which they will present the work (July or September).

General guidelines for the delivery of the Master's dissertation

In the Moodle classroom, the following information will be made available to the students:

- A summary guide with key dates and procedures.
- Layout of the Master dissertation. If the work will be submitted to be published in a specific journal, the journal layout can be used.
- Help documents and recommendations for executing the Master dissertation and the oral defense elaborated by the coordination. Instructions for accessing the support materials about preparing research papers from the UAB Library Service.
- Examples of Master dissertation from previous years.

Students must send the final document in Word and PDF format to the corresponding Virtual Campus delivery folder before the deadline for sending. The file must be named with the format "SurnameStudent_NameStudent_TFM.xxx".

The evaluation committee can reject Master dissertations delivered after the deadline.

Annotation: Within the schedule set by the centre or degree programme, 15 minutes of one class will be reserved for students to evaluate their lecturers and their courses or modules through questionnaires.

Assessment

Continous Assessment Activities

Title	Weighting	Hours	ECTS	Learning Outcomes
Elaboration of a research paper	60% - 70%	0	0	1, 2, 3, 4, 5, 6, 8, 9, 10
Oral presentation	30% - 40%	0	0	1, 2, 3, 4, 5, 6, 7, 8, 9, 10

This module does not incorporate single assessment.

The Master Thesis will consist in a written report and an oral defence. The written report will be valued by a court formed by 3 members in public session. Only members of the court are involved in this assessment.

The assessment will take into account the following aspects:

1. Aspects of form to the oral presentation

- Clear speech and structure of the exhibition
- Emphasis on the presentation of the main ideas
- Structure and format for easy understanding

2. Aspects of form in written work

- Clear and structured speech
- Emphasis on the presentation of the main ideas
- Easy comprehension writing and format
- Proper contextualization of work

3. Content of the Master Thesis

4. Membership and viability of the objectives set

5. Correspondence between objectives, methodology and results

6. Proper treatment of the questions and observations of the court

Aspects to take into account.

Students MUST submit to the Master Coordination a verification form for some general and formal aspects about their written report before submitting it to the Tribunal.

It is MANDATORY that the written report be checked by the Tutors before submitting it to the Tribunal. It is important to note that Tutors does NOT have to correct the written report but to make recommendations for its improvement.

It is MANDATORY that Tutors accept to submit the Final Master's Thesis to the Tribunal to be defended in public session within the dates scheduled by the Master Coordination.

Bibliography

The biblography for the master thesis will be suggested to the student by the supervisor in each case.

The student will perform his/her own bibliographic research.

Software

MiraMon, ArcGIS, QGIS, Mission Planner, LAStools, MATLAP, ENVI, R, SNAP, BILKO, MiraBosc, Enterprise Architech, XML Validator, MiraMonMapServer, GeoServer, Office Microsoft

Language list

Name	Group	Language	Semester	Turn
(TE) Theory	1	Catalan/Spanish	second semester	afternoon