



SCIENCE, TECHNOLOGY, HEALTH

Master Erasmus Mundus "Environmental Contamination and Toxicology"

Master Sciences and technology for agriculture, food and environment



ECTS
120 credits



Duration
2 years



Component
Collège
Sciences et
Technologies
pour l'Energie et
l'Environnement
(STEE)



Language(s)
English

Presentation



The MSc degree program "Environmental Contamination and Toxicology" is a multidisciplinary and international 2 year course, taught entirely in English. ECT+ provides training in academic excellence in the fields of **ecotoxicology, toxicology and environmental chemistry** (<http://www.ectplus.eu/> | )

This joint program developed by a consortium of six leading European universities in the domains of ecotoxicology and environmental chemistry from 4 different countries, is coordinated by the University of the Basque Country (Spain), in partnership with the Norwegian University of Science and Technology (Norway), the

University of Porto (Portugal), the University of Pau and Pays de l'Adour (France), the University of Liège (Belgium) and the University of Bordeaux, with contributions of a global network of associates.

Objectives

The main goal of the ECT+ EMJMD programme is the formation of post-graduates in the knowledge developed in toxicology, ecotoxicology and chemistry for generating high-level technologists and scientists devoted to the scientifically based protection of the environment.

By addressing emerging One-Health concepts and paradigms, the programme will provide students the scientific basis required for covering the goals of the new European policies. In its entirety, ECT+ EMJMD faces up to key scientific and technological challenges recognised as a priority by the European institutions, and combines a fully innovative scientific approach with the direct application of the results for protecting human health and the environment.

UPPA Program Outline

The students will specialize in:



- * interactions between chemical pollution,
- * the contamination of living organisms and ecosystems disturbances,
- * human and environmental health risk management in relation to the use and disposal of chemicals in a scenario of global change.

- * Critically analyse, synthesise, interpret and summarise complex scientific information.
- * Collect, record, and analyse chemical and biological data of environmental significance (field/lab), using state-of-the-art techniques and equipment.
- * Read, use and reference the published work of others, in an appropriate manner.

Skills

Having completed successfully the ECT+ EMJMD programme, the student will be able to demonstrate knowledge and understanding of a wide range of topics:

- * Fundamentals of pollution and its biological consequences with the viewpoint of core disciplines (e.g. Biogeochemistry, Environ. Analytical Chemistry, Toxicology, Ecotoxicology, Ecology, Risk Assessment).
- * Main processes of chemical pollution and its biological consequences at different temporal and spatial scales.
- * The terminology, nomenclature and classification systems used in environmental sciences.
- * Theory, practice, acquisition, analysis and interpretation of data, across a range of environmental applications.
- * The value and need for multi-disciplinary approaches in advancing knowledge.
- * Application of chemical and biological knowledge to contribute to sustainable environmental management
- * Wide selection of cutting-edge research topics, together with specialised techniques used to investigate them.

Subject specific skills

Having completed successfully the ECT+ EMJMD programme, the student will be able to put into practice the following subject specific skills:

- * Understanding scientific processes.
- * Recognise and use of theories, paradigms, concepts and principles to design and undertake primary research in environmental contamination and toxicology.

General and transferable skills

Having completed successfully the ECT+ EMJMD programme, the student will possess various general and transferable skills:

- * Apply and further develop computing, statistical and mathematical skills.
- * Appreciate statistical issues of sampling and data recording and analysis in the field and in the laboratory.
- * Prepare, process and present data, using appropriate qualitative and quantitative techniques and computer software packages, and solve numerical problems using computer and non-computer-based techniques.
- * Develop, where appropriate, advanced skills in computer programming.
- * Collect and integrate several lines of evidence, to formulate and test hypotheses.
- * Apply knowledge and understanding, to address familiar and unfamiliar problems.
- * Design, implement and report on scientific research projects, including a major research project at the forefront of knowledge in environmental contamination and toxicology.
- * Undertake field and laboratory investigations in a responsible and safe manner, paying due attention to risk assessment, rights of access, relevant health and safety regulations and sensitivity to the impact of investigations on the environment and stakeholders.
- * Critically use the Internet as a mean of communication and data dissemination, and as a source of information.
- * Identify individual and collective goals, take responsibilities and perform in an appropriate manner.
- * Recognise and respect the views of other team members.



- * Evaluate performance as an individual and as a team member.
- * Understand the roles of individuals in teams and how individuals learn in team groups.
- * Continue to develop the skills necessary for self-managed and life-long learning.
- * Identify and work towards targets for personal, academic and career development.
- * Develop an adaptable and flexible approach to study and work.
- * Appreciate ethical issues in science research.

Soft skills

Having completed successfully the ECT+ EMJMD programme, the student will acquire diverse soft skills:

- * Use of English as lingua franca in science but recognise worldwide diversity in the use of English, which will enhance her/his communication skills
- * Be aware that other languages are used in Europe and recognise the value of cultural diversity; as such will be able to enhance language proficiency in some of them: e.g., French, Norwegian, Portuguese, Spanish and Basque language courses (mainly introductory) are offered in parallel to the ECT+ EMJMD programme
- * Be aware of cultural diversity (both at European level, through mobility amongst Partners, and at worldwide level, through being exposed to a multicultural international atmosphere with classmates and visiting scholars)
- * Respect to gender equality by experiencing study and working activities with mates of both sexes and distinct sexual conditions.
- * Identify themselves as open-minded citizens of the world.

Foreign place(s) : Plentzia-Bizkaia (EHU), Porto, Trondheim (NTNU), Liège

International education : Erasmus Mundus

International dimension

Every student will follow a Joint Programme, by combining the different disciplines that can be studied at each of the Partner universities (these are the complementary profiles in which each Partner excels and, as such, recognized internationally):

- * Pollutant Biogeochemistry and Integrative Ecotoxicology in UBx (FRANCE);
- * Water and Wastewater Pollution in UPPA;
- * Marine Ecology and Ecotoxicology in ULiège (BELGIUM);
- * Arctic Contamination and Toxicology in NTNU (NORWAY);
- * Applied and Regulatory Ecotoxicology in UPO (PORTUGAL);
- * Advanced Analytical Chemistry and Translational Ecotoxicology in EHU (BASCO COUNTRY - SPAIN).

Organisation

Organization

Full course organisation

here: <https://www.ectplus.eu/study-programme/catalogue-of-courses/>

Assessment method

Exams

Each university is responsible for the organization of their courses and examinations. The partner university offering the course and hosting the student will organize examination of each course component. The students are bound to the examination regulation and criteria of the university where they follow the courses.



Examinations are run according to local regulations, which have been laid out by the Partner Universities and published in the Catalogue of Courses

To test knowledge and understanding of material presented in the lectures and associated practicals, the student will be assessed via a combination of written examinations, oral presentations, essays, poster presentations, laboratory experiment write-ups, and fieldwork/boatwork reports.

Summative assessment contributes to marks and involves usually a combination of written examinations (at the end of the study module) and coursework (which includes essays, project reports, and computing practicals, etc.).

Assessment of knowledge and understanding is undertaken primarily via these summative assessment methods; in addition, the student will receive feedback on all formally assessed work.

Additional support can be provided for those students who have further or specific needs. The MSc Thesis is judged following the procedure of the Coordinating University (EHU) where the students present the MSc Thesis, unless otherwise agreed. The thesis has to be written up and defended in front of a Thesis Assessment Board, proposed by the JPB.

Admission

Admission requirements

Academic requirements

The Programme is open to holders of a first cycle higher education degree (Bachelor degree (min. 180 ECTS), or equivalent) from Programme Countries' and Partner Countries' universities, in the field of **biosciences, chemical sciences, geosciences, physical sciences and engineering**; as such, the relevance of the BSc degree (or equivalent) of the Applicant will be assessed.

Specific individual requirements may be established for each Applicant, according to his/her qualifications and prior learning, selected courses and expected academic and professional prospects. These specific requirements will be defined individually, by a mentoring system provided to pre-registered Applicants.

Students will be selected based upon the quality of their degree, the level of the marks obtained in previous studies and the relevance of the competences and skill acquired during the BSc studies in relation to the ECT+ EMJMD programme.

The Letter of Statement (where the Applicant explains his/her background, why ECT+ EMJMD has been selected, and his/her prospects for the future) is a relevant criterion.

Relevance of work experience, motivation, and future career objectives, as well as any additional information provided in the mentor's report, will also be taken into consideration in reaching a final decision.

Student mobility is compulsory. Each student must enroll at three of the six partner universities.

Languages

The instruction language for the MSc Degree Programme is English at all of the Partner Universities. Teaching is offered in English, at least to ensure that every student is offered the possibility to follow 120 ECTS in English.

Modules in Spanish and Basque at UPV/EHU and in French at UBx, UPPA and ULiège and in Portuguese in UPO may be selected by students, after approval by the JPB.

Students may take the assessments in other languages with the approval of the JPB. This aspect will be indicated also as recommended action in the mentor's report and the Student Agreement.



The MSc Thesis can be presented in English, French, Portuguese, Spanish, or Basque. In every case, a summary in English must be provided.

English language proficiency

Proof of English language proficiency is a pre-requisite. The minimum requirements for non-native speakers are an IELTS score of 6.5 or TOEFL 570/227, a minimum of Cambridge First Level C or an equivalent approved by the JPB.

Proficiency in French, Spanish and/or Basque is optional.

Nationality

- * Programme countries are the EU countries, the former Yugoslav Republic of Macedonia, Iceland, Liechtenstein, Norway and Turkey. Partner country is any non-Erasmus+ Programme Country.
- * Participation costs are different for Programme and Partner Country Students whose citizenship is one of the Erasmus+ Partner Countries count as Partner Country students.
- * Contribution to subsistence costs cannot be provided to scholarship holders from a Partner Country for the EMJMD periods exceeding 3 months spent in any Partner Country.
- * A number of Erasmus+ Student Scholarships are specifically allocated for students from targeted regions of the world.

Therefore, only applicants who declare and demonstrate their nationality (accredited by their passport) are eligible for Erasmus+ Scholarships, according to the following considerations:

- * Students whose citizenship is one of the Erasmus + Programme Countries count as Programme Country students.
- * Students with a Partner Country citizenship who do not fulfil the 12-months rule count as Programme Country students.
- * Students with a double nationality (of a Partner and of a Programme Country) must specify, and provide

proof of, the nationality under which they submit their scholarship application.

How to apply

Application:

Application is administered online on the main Erasmus Mundus website through an online application procedure:

- * <https://www.ectplus.eu/application-enrolment/application/>

Deadlines:

Erasmus Mundus scholarships: November - March
Self-funded students: April - May

Target

Holders of a first cycle higher education degree (Bachelor degree (min. 180 ECTS), or equivalent) from Programme Countries' and Partner Countries' universities, in the field of **biosciences, chemical sciences, geosciences, physical sciences and engineering**

Tuition Fees and partial exemptions

Overall Cost Estimate

A gross estimate of the budget needed to complete the ECT+ EMJMD course (2 years) is provided together with the potential contribution resulting from common funding opportunities. It is only valuable for orientation purposes.

Students without a Erasmus Mundus Student Scholarship are eligible to be awarded a MCG waiver so that the full registration for the two academic years could be cut to around 7000 €.



The ECT Consortium Secretariat can assist you in getting funding but it cannot be ensured that you will be successful.

The ECT Consortium JPB strongly recommends you to consider the **expected costs of the programme**  (PDF) in a realistic way before you decide to enroll. The ECT Consortium cannot assume any responsibility if a student must leave the ECT+ EMJMD programme before its conclusion due to economical reasons.

Prerequisites

ECT+ EMJMD has been designed as a Research Master, with students expected to continue on into a PhD programme. However, particular attention is paid to providing a sufficiently applied background, such that students can apply directly for employment, having completed the MSc.

In view of the needs analysis and future career prospects (both academic and non-academic), the learning outcomes prepare students to undertake integrated, multidisciplinary research. ECT+EMJMD graduates will be able to integrate into multidisciplinary teams; contributing expertise in a given environmental discipline or at the overlap of distinct disciplines within the field.

Students must be able to communicate with environmental scientists and technologists of diverse expertise, facilitate communication between co-workers (e.g. lawyers, civil engineers and ecotoxicologists) and promote synergies. They must be able to accomplish transverse research (from nm/ μ m scale to km phenomena/data; from sec/min scale to decades).

Useful info

Contacts

Head of Teaching

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Place

📍 Anglet

Know more

ECT+ website

🔗 <https://www.ectplus.eu/>



Program

Semester 7 - Fundamentals in ECT

	Nature	CM	TD	TP	Crédits
Courses offer at UPPA	Block				
Metrology of aquatic systems	Teaching Unit	30h	6h	24h	6
Univariate and multivariate analysis	Teaching Unit	22h	23h		5
Ecotoxicology	Teaching Unit	35h	15h		5
Ecology in aquatic systems	Teaching Unit	20h	20h		6
Hydrology	Teaching Unit	15h	20h		4
Monitoring networks	Teaching Unit	15h		20h	4

Semester 8 - Advanced and applied ECT

	Nature	CM	TD	TP	Crédits
Courses to be followed at: NTNU, EHU or UPO	Block				
Environmental and analytical chemistry	Teaching Unit				
Ecology assessment and ecosystem management	Teaching Unit				
Ecotoxicology	Teaching Unit				
EU case issues	Teaching Unit				

Semester 9 - Careers in ECT

	Nature	CM	TD	TP	Crédits
Courses to be followed at: EHU	Block				
Research in ECT	Teaching Unit				
Environmental pollution risk management	Teaching Unit				
Professional/research internships	Teaching Unit				



Semester 10 - MSC theses research (To be followed at all partners)

	Nature	CM	TD	TP	Crédits
MSC theses research (To be followed at all partners)	Teaching Unit				