

University Master's Degree in Research in Dentistry

University Master's Degree in Research in Dentistry 2021-2022



Introduction

The University Master's Degree in Research in Dentistry at UIC Barcelona (Spain) offers a blended learning approach to structured training for research in academic, industrial and clinical settings.

The UIC Barcelona Faculty of Dentistry is continuously making progress in the field of basic and applied research, seeking results through clinical responses to improve the efficiency of materials and techniques.

This master's programme aims to enhance participants' research knowledge and prepare them for doctoral studies through a series of advanced training topics in the different dental specialisations.

UIC Barcelona provides the ideal setting for this kind of advanced training in Research in Dentistry due to several factors: the numerous lines of research explored by the different departments in the UIC Barcelona Faculty of Dentistry, the close relationship with the dental and pharmaceutical industry as regards project implementation and our fully equipped research laboratories.

Organising Department

Department of Research
Faculty of Dentistry

Chairman

Dr Marta Satorres Nieto

Programme Director

Dr Marta Satorres Nieto

Coordinator

Dr Lissethe Peñate

Academic Board

Dr Jordi Cano, Dr Rut Fadó, Dra Natalia Felipe, Dr Estel Gil, Dr Adrián González, Dr Josep María Huguet, Dr Mark Anthony Lodge, Dr María José Martínez, Dr Jordi Mas, Dr. Lluís Giner, Dr. Ignacio McPherson, Dr Pau Marc Muñoz, Dr Carla Mura, Dr Antoni Parada, Dr Lissethe Peñate, Dr Mariana Ponte, Dr Luis Antonio Ruiz.

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Objectives

The main aim of the University Master's Degree in Research in Dentistry is to provide the knowledge and tools needed to pursue a doctoral programme in the field of oral health, following a methodology based on ethics and scientific evidence.

To achieve this, the course will:

- Provide students with the knowledge and skills necessary to produce effective clinical and research materials in the field of dentistry.
- Promote the acquisition of skills, attitudes and behaviours that facilitate scientific interaction with the environment to adequately solve research problems.
- Promote research in dentistry and continuing education for the study of new techniques and improvements in the dental profession.
- Provide the necessary tools to work together and coordinate multidisciplinary projects.

Other complementary objectives:

- To train students to be experts in scientific method, capable of planning, executing and interpreting the results of research projects, taking into account economic, regulatory, legal, ethical and humanitarian aspects.
- To train students to be experts in the molecular basis of diagnosis and the treatment of the most common diseases in the field of dentistry.
- To enable students to develop a solid foundation in the use of methodological and instrumental research techniques, facilitating contributions to research in both public and private laboratories.
- To give the option of complementing clinical training with a solid background in research.

Skills

The general and specific skills that students should acquire while completing the University Master's Degree in Research in Dentistry at UIC Barcelona encompass the principles contained in Article 3.5 of Royal Decree 1393/2007, of 29 October, on respect for basic rights, equal opportunities and universal access for men, women and people with disabilities, while promoting a culture of peace and democratic values.

Basic skills

- Knowledge and understanding that provide a foundation or opportunity for originality in developing and/or applying ideas in a research context.
- Applying the knowledge acquired, and developing problem-solving abilities in new or unfamiliar environments within broader (or multidisciplinary) contexts related to the field of study.
- Integrating knowledge and handling complexity, in addition to formulating ideas based on scientific evidence, using information that may be incomplete or limited, while considering the social and ethical responsibilities linked to the application of their knowledge and judgements.

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- Being able to communicate conclusions to specialists and non-specialists alike in a clear and unambiguous manner, with supporting knowledge and rationale.
- To acquire learning skills that enable ongoing independent study.

General skills

- Ability to integrate new knowledge through research and study, and deal with complexity.
- Capacity for critical analysis and discussion of experimental results and ability to draw the corresponding conclusions.
- Self-learning capability in the development of analytical techniques for the acquisition of new scientific concepts, and in the search for new scientific information.
- Ability to argue and defend own scientific ideas and to listen, analyse, evaluate and respond to the ideas of others.

Specific skills

- Ability to apply scientific method, experimental design and biostatistics to solve a question or hypothesis.
- Knowing how to use and apply the most common laboratory techniques in the fields of molecular, genomic and proteomic biology, biomaterials, cell and tissue cultures, immunology and microscopy in the field of dentistry.
- Knowing how to apply bioinformatics tools used in basic research.
- Applying experimental animal models as well as the methodology of animal handling and ethical research concepts in dentistry.
- To communicate research results in a scientific article, poster or oral presentation, both in scientific and academic format.
- Learning to manage the financial and human resources of a research project and knowing the strategic framework for transferring knowledge to a company or industry.
- Knowing how to interpret images obtained through the latest technology applicable to research in dentistry.
- Being able to apply the appropriate diagnostic tests and interpret the results.
- Applying the latest dental research technology, considering its properties, indications, biocompatibility, toxicity and environmental impact.
- Knowing how to execute epistemological, ethical, humane and compliant activities in research and the dissemination of results.

Course Programme

Theoretical Programme

We will analyse and critically discuss classic and modern literature through seminars on the following topics:

The University Master's Degree in Research in Dentistry at UIC Barcelona is structured into 60 ECTS over one academic year, during which time students will acquire the skills required for

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clinical and basic research applied to Dentistry and other Health Sciences. In addition, students will take an in-depth look at concepts related to their Final Master's Degree Project (TFM) (Protocol, TFM I and TFM II), to achieve greater specialisation in applied basic and clinical research.

As this is a blended learning course, students will may follow the theory classes and take part in various activities via the online platform. Lectures that have a practical element and the final oral presentation of the TFM will be condensed into two weeks (second and third week of July). This is when students will be required to present their research projects. The main language of communication will be English (80% English, 20% Spanish): all lectures will be in English, and the 20% in Spanish corresponds to e-mail communication between mentors and students while developing the Protocol and TFM, if the mentor prefers to use this language.

The Master's programme is divided into three modules:

Module 1: Evidence-based methodology

This module consists of obligatory subjects with scientific content and methodologies. Students will acquire a statistical basis for appropriate experiment design, learn to systematically search for scientific information, learn about the phases of research and about the presentation and communication of scientific results. This module will prepare students to deal with issues related to human research, the animal testing laboratory and ethical practices, while ensuring regulatory compliance. In addition, students will learn how to manage human and material resources for research and the transfer of knowledge to industry.

Module 2: Research tools in dentistry

This module consists of two obligatory subjects. It will provide the basis for the Final Master's Project in a line of work established by the Faculty of Dentistry. Students will take a more in-depth look at clinical concepts of molecular biology, regenerative medicine or materials relating to this area of knowledge.

In addition to receiving comprehensive training in the area of research, it is important that the students attend and actively participate in scientific conferences in their field of interest to encourage the transfer of knowledge to the rest of the scientific community.

Module 3: Final Master's Degree Project

This module integrates and evaluates most of the skills and competencies necessary to develop research and continue onto a doctoral programme.

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Students will, under the guidance of a tutor, design a research project leading to a final project, through which they will develop methodological skills that will enable them to carry out the practical part of the research, draw up the research report and present the results of the final project.

In addition, the tutor will ensure the student carries out the research in accordance with the guidelines of the Scientific Commission and the Ethics Committee for Clinical Research, with methodological rigour, a critical analysis of the findings and conclusions.

Curriculum

Scientific methodology

Research methodology

Basic biostatistics

Bibliographic research

Advanced biostatistics

Scientific communication

Scientific communication I

Scientific communication II

Advanced scientific communication

Research ethics

Principles of bioethics

Animal and human bioethics

Research management

Industry-university knowledge transfer

Resources for research

Legislation and biobanks

Advanced research techniques applied to dentistry

Basic microbiology

Animal experimentation

Scientific contributions I

Scientific contributions II

Basic pharmacology

Basic molecular biology

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Clinical, laboratory and experimental research

Experimental techniques

Epidemiology, public health and qualitative methodology

Molecular and cellular pathology

Clinical studies and trials design

Pre-clinical and clinical pharmacology

Bioinformatics

Final Master's Degree Research Project I

Research project

Final Master's Degree Research Project II

Methodology and evaluation

The evaluation of this Master will be based on continuous assessment in all subjects, resolution of cases and the final exam. In all subjects, students must present the exercises, cases and work carried out to the tutor to make this evaluation.

Students will work independently for approximately 300 hours/semester.

Lectures will be given online using the Moodle platform, version 3.4. This platform, which is used at a large number of national, European and international universities, provides the necessary tools to make the most of online learning. Some of the most relevant tools and services of the Moodle 3.4 platform are:

- Tutors may post subject content so that students can watch and listen to it as many times as necessary in a given period, and according to the characteristics of each subject (difficulty, number of ECTS credits, etc.).
- Notes and documents may be posted for students with a password, which will be linked to the academic access codes once the student has completed the enrolment process.
- Student participation may be tracked and objectively assessed for each subject under evaluation. This represents 10% of the final evaluation.
- Participants may engage in debate and discussion on issues raised by the tutor through discussion forums.
- Students may communicate via chat, and information will be updated in real time.

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- Videos may be streamed on the platform to give students a channel for audio-visual and dynamic learning.
- The language of communication between teachers and students may be pre-established, in which case the student cannot choose the language based on their preferences. In this case, the language of the platform is English.

Faculty of Dentistry Research Lines

The official research lines of the UIC Barcelona Faculty of Dentistry are indicative of the importance of training dentists who have research skills and know how to use scientific methodology. The master's students will acquire the knowledge and methodology necessary to take part in any research project.

Each student will be asked to state their research areas of interest, and a topic and mentor will be assigned by the master's programme management and coordination team.

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Admissions process

To be admitted to this official Master you must hold a bachelor's degree, an undergraduate degree, a diploma or a qualification as an engineer or architect, in accordance with Article 16 of Royal Decree 1393/2007, amended by Royal Decree 861/2010, of 2 July, in the specific area of knowledge.

Recommended profile

All applicants who meet the general requirements may undertake the programme.

However, we recommend that applicants have the following profile:

- Degree in Dentistry, Medicine, Biology, Biochemistry, Biotechnology, Pharmacy, Chemistry, Biochemistry or Veterinary Science or any other discipline in the field of Health Sciences.
- A level of English equivalent to B2.
- A vocation for science and research.
- Quick decision-making skills.
- Discipline, good memory and work ethic.
- Sense of responsibility and integrity.
- Sensitivity and empathy with other people's pain.
- Observant.
- Ability to work as a team.

In addition to the entrance exams and the required documents, the following aspects will be taken into account during the application process:

1. The average mark from the applicant's academic record.
2. Assessment of the applicant's curriculum vitae. Professional experience and previous research, participation in conferences and participation in research projects will be taken into account.
3. An oral and written academic English level test. Applicants from English-speaking countries or who have an official certificate are not required to take this test. The English level test will be evaluated by the Institute for Multilingualism at UIC Barcelona. This oral and written test will be based on knowledge at a First Certificate level and focused on the description and/or analysis of scientific knowledge in the field of Health Sciences.
4. Applicants must undergo a personal interview (or via skype), in which their interest and motivation will be assessed.

Applicants will be informed of the admissions requirements and the required documentation by the secretary of the Faculty of Dentistry and on the UIC Barcelona website.

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Facilities

UIC Barcelona believes that clinical practice on patients is crucial for training high-level professionals. Last academic year, the Clinic received around 82,000 visits.

The UIC Barcelona University Dental Clinic has 88 dentistry booths, all of which are equipped with cutting-edge technology.

- 88 general booths, including
- 4 booths for special patient care
- 19 surgical booths
- Conscious sedation booths

The Clinic has two prosthetics laboratories with cutting-edge digital imaging technology, which allows students to practice the latest techniques in all areas of dentistry.

Exclusive laboratory dedicated to CAD-CAM technology. The equipment available in this laboratory includes:

- Three milling machines: Lyra, Cerec, Roland
- One ceramic oven
- 13 intraoral scanners (four 3Shape; one 3M; one Omnicam Cerec; four Carestream; one Primescan; one Itero (loan); one Aadvia (loan); and one Medit scanner).
- One 3D printer

A variety of design programmes: nine exocad; ten 3shape and two Cerec; four Exoplan; one Simplant and one Implant Studio.

We have built **six new laboratories**, one of which is dedicated to dentistry research.

The pre-clinical laboratory, a technological laboratory, is fitted with **95 dental simulators** with phantom models, oral cavities simulation tools, and **X-ray and digital radiology equipment** for practising dentistry using the **Simudont virtual reality simulator**. This laboratory allows students to practice dentistry procedures under very real conditions before treating actual patients.

For complementary tests, all dental equipment is fitted with intraoral radiology. The centre has two diagnostic imaging rooms for taking panoramic dental X-rays with three CBCT/iCat machines.

Digital technology and implant-prosthetic planning programmes allow students to learn and work with the latest technologies from day one.

- Option to stream dentistry treatments and procedures live.
- Smart storage for delivering and collecting equipment.
- Sterilisation service for medical equipment and instruments.
- Dentistry management software to keep track of students' and patients' progress

The technology available to our students helps them gain awareness of the daily reality at a clinic and prepares them in all theoretical and practical aspects of working in the safest and most professional way.

All resources are up-to-date and the university has agreements with different industries in the sector, thus strengthening ties between industry, universities and RDI.

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Basic information

Calendar

September 2021 to July 2022

Timetable

On-site part: 2 weeks

Monday to Friday, 9 a.m. to 7 p.m.

Pre-registration date

From January 2021

Fees

€10,320*

**Annual registration fees are included in the cost (€480/year). The annual registration fee has not yet been approved by the University's Board of Governors.*

**Programme pending final approval*

Places available

There are 20 places available.

Accreditation

60 ECTS, University Master's Degree in Research in Dentistry

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Documentation required for pre-registration

- Pre-enrolment form.
- A certified copy of the relevant undergraduate degree*.
- Transcript of grades (original or certified copy)*.
- Photocopy of National Identity Document (DNI) or passport.
- Receipt for payment of €90 by bank transfer**.
- Curriculum vitae with courses and conferences attended.
- Letter/s of recommendation (not obligatory).

* For students from outside the European Union, both the academic record and the degree certificate must be processed through diplomatic channels or bear The Hague Apostille. Candidates in the last year of their degree programme must provide a list of the qualifications they obtained before their registration date.

** Management fees are non-refundable

Send to:

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Paola Lago
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Faculty of Dentistry
Universitat Internacional de Catalunya
Hospital General Building
C/ Josep Trueta, s/n
08195 Sant Cugat del Vallès (Barcelona)

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Bank details

The fee can be paid in the following bank account held by the Universitat Internacional de Catalunya, Fundació Privada. The student's name and program should be entered in payee details.

- Bank: BANCO SANTANDER
- IBAN code: ES63 0049 1806 9429 1189 8561
- SWIFT/BIC code: BSCHEMM
- Address: Paseo de Gracia, 5, 4^a pl. - 08007 BARCELONA

Admission application form 2021-2022

Personal details

Name					
First Surname			Second Surname		
Date of Birth	/	/	Sex	Male	Female
E-mail			Mobile phone		
Address					
Country			City		
Postal Code			Nationality		
Country of Birth			Place of Birth		
NIF/NIE		Foreign ID*		Passport number	
Usual Language					
What language do you want to receive information in?			English	Spanish	

*Born outside of Spain or non-Spanish nationality

Master's Degrees / Postgraduate Degrees*

Másteres presenciales / On-Site Master's Degrees

Master's Degree in Periodontology
 European Master's Degree in Endodontics
 International Master's Degree in Oral Surgery (IMOS)
 Máster en Odontopediatría Integral y Hospitalaria
 Máster en Ortodoncia y Ortopedia Dentofacial
 Máster Universitario en Odontología Restauradora Estética
 Master's Degree in Advanced Aesthetic Restorative Dentistry
 Máster en Gerodontología, Pacientes especiales y con compromiso médico
 Double Master Degree in Periodontology and Prosthodontics

Postgrados / Postgraduate Degrees

RC en Periodoncia
 RC en Prótesis bucal
 RC en Implantología Oral
 RC en Ortodoncia
 RC en Odontopediatría
 RC en Técnicas Quirúrgicas Aplicadas a la Cavidad Oral
 Postgrado en Odontología Integrada Avanzada
 Postgrado Avanzado en Radiología Oral y Maxilofacial
 Postgrado en Creación y Gestión de la Clínica Dental
 Postgrado de Actualización en Odontología Europea

Másteres Online / Online Master's Degrees

Master's Degree in Endodontics Online
 University Master's Degree in Research in Dentistry
 Máster en Estética Dental Online
 Máster en Odontopediatría Integral y Hospitalaria Online

Academic information – Degree from the university of origin

University		Country			
Degree					
Type of degree	Graduate	University Master's degree holder	Master's degree holder	Other	
Year	/	/			

How did you find out about the UIC Barcelona (Spain)?

Word of mouth (through friends, school, ...)
 Visit to the university
 The website
 Fairs
 Advertising
 Other

Send to: infodonto@uic.es
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