

Ph.D. Program in Clinical and Experimental Medicine

Training Program – Cycle 38°

Chairman: Prof. Francesco Beguinot



The Doctoral Program in Clinical and Experimental Medicine (DCMS) of the University of Naples Federico II trains investigators to manage research projects in academia and industry. During the training program, PhD students will acquire clinical and experimental skills for biomedical research. This will happen by using synergies between several scientific areas, i.e. cardiovascular, dermatologic, endocrinologic, metabolic, gerontologic, immunologic, odontostomatologic, and pediatric sciences.

Training program consists of: 1) acquisition of the basics needed to approach research activity; 2) experimental or clinical research performed under the supervision of a Tutor; 3) possibility of training at prestigious institutions in Europe, USA or in Italy.

At the end of the training program, students must be able to: 1) design e manage innovative research projects; 2) write a scientific paper; 3) present their results at conferences; 4) work together with other investigators.

The three-year Ph.D. program provides in-depth training covering a wide range of clinical and experimental expertise, and promotes synergies between the following scientific areas: immunologic cardiovascular, gerontologic, endocrinologic, metabolic, dermatologic, pediatric, and odontostomatologic.

Indeed, because of the breadth of the scientific fields, the Ph.D. program provides 4 different Curricula: 1) Cardiovascular and Gerontologic Sciences (SCG), 2) Translational Medical Sciences (SMT), 3) Translational Pediatric Sciences (SPT), and 4) Odontostomatologic Sciences (SO).

At the beginning of the program, all Ph.D. students, assessing the specific inclinations and skills, are entrusted to a Tutor and included in a specific Curriculum. The goal is to get the skills typical of that Curriculum at the beginning, and then broaden their scientific horizon through participation in interdisciplinary activities.

The educational activities develop according to a program that promotes the acquisition of multidisciplinary and integrated knowledge through formal lectures and seminars. Faculty members, lecturers, and eminent Italian and foreign researchers will provide them (see details in the specific section).

Research activities implicate the inclusion of all Ph.D. students in departmental research projects. The aim is to get Ph.D. students to acquire the experimental skills typical of their Curriculum and to promote participation to collaborative research projects. We pursue this last aspect by both synergies between researchers related to other Curricula and synergies with other national and international research groups.

The training course gives to Ph.D. students the chance to carry out training periods of at least 6 months in prestigious Italian or foreign research institutions. During the training period abroad, Ph.D. students are supported with a 50% increase in their scholarship for a maximum period of 18 months. In particular, to encourage the internationalization of the Ph.D. programs, the University of Naples Federico II funded a three-year project named "Study experiences and research training abroad". The project provides all Ph.D. student with a grant to support his/her stay abroad for a training period. The grant is expected to cover all expenses of Ph.D. students during their stays abroad. Finally, starting from the 2nd year of the course, all Ph.D. students will have access to an annual budget dedicated to supporting their training and research activities in Italy and abroad.

Correspondence to the objectives of the National Recovery and Resilience Plan (PNRR)

The PNRR has among its main objectives addressing some critical issues that limit the development of our economy and our society such as the low investments on human capital. As part of the fourth Mission of the PNRR, Education and Research, Component-1: "Strengthening the offer of educational services: from nursery schools to the University", with regard to PhD Programs, the PNRR intends to qualify and innovate such programs through three strategic objectives: digitization, culture of innovation and internationalization.

The DCMS fits coherently into this context, as its main mission is the training of researchers able to manage research projects in the academic and industrial fields through the acquisition of several skills in the field of biomedical research guaranteed by synergies between the different areas involved in the training program. Many characteristics of the DMCS contribute to defining a mission consistent with the objectives of the PNRR. For this reason, in the 38th Cycle the DMCS received additional scholarships financed with funds from the PNRR. The PhD students holding these scholarships will follow specific research projects concerning topics aimed at develop a significant increase of knowledge in the areas of interest of the PNRR. In addition, the training course will encourage the involvement of other research centres and will necessarily include a period of study and research abroad from a minimum of six (6) months to a maximum of eighteen (18) months. Finally, the PhD students holding these additional scholarships will undergo a program of verification and reporting of the activities as required by the MUR.

Starting from the 36th Cycle, the Advisory Board of the Ph.D. Program in Clinical and Experimental Medicine recognized some key requirements that make up the Core Curriculum of the Program. These requirements meet the recommendations progressively implemented in the Ph.D. programs by Italian Minister of University and Research (MIUR), the indications of the National Agency for Evaluation of University and Research (ANVUR), and the latest ministerial suggestions supplied to promote the process of internationalization.

In particular, during the Ph.D. Program, students should meet some minimum specific requirements that Advisory Board will evaluate in an objective manner. Three out of four of these requirements will be mandatory for those students who aspire to an “Excellent” evaluation in the Final Report of the Advisory Board. As provided by the *Regulation of Ph.D. Programs of the University of Naples Federico II*, the Final Report of the Advisory Board is the main evaluation document considered during both the process for admission of Ph.D. students to the final examination, and the discussion of the Ph.D. thesis.

Core Curriculum: Objectives to be achieved over the three-year training period (at least 3):

- 1) Certification of English Language knowledge at least B1 level according to Common European Framework of Reference for Languages (CEFR) as assessed by Cambridge exams.
- 2) Training period of at least 6 months in prestigious foreign research institutions to perform research activity in collaborative projects.
- 3) Coauthor of at least 2 scientific articles or, alternatively, first name author of at least 1 scientific article published during the Ph.D. Program in peer-reviewed journals indexed in Scopus and/or Web of Science.
- 4) Participation as speaker (oral communication or invitational report) at least 2 national scientific congresses or, alternatively, 1 international scientific congress.

Mandatory Course for all Ph.D. Students

English language course aimed at preparing Ph.D. students for the Cambridge exam according to CEFR levels.

The English language is the reference language of scientific knowledge in the biomedical field. Thus, the Linguistic Center (CLA) of the University of Naples Federico II offers English language courses to prepare Ph.D. students for one of the Cambridge ESOL certifications.

These courses take place at the CLA, a center awarded with the certification of excellence being one of the seven Cambridge centers in the south Mediterranean area. More information and details on courses are available on the CLA's website (www.cla.unina.it).

Participation of Ph.D. students to above courses are completely free of charge. However, to access the courses Ph.D. students should perform a placement test to assess their current knowledge. They will subsequently participate in different courses depending on their actual CEFR level.

Ph.D. students will have to book their placement test by themselves. This should happen after publication of the schedule on the CLA website (about every 6 months). The courses are for a limited number of students, and are in high demand, so it is up to Ph.D. students to book the placement test in the right time.

The courses will take place according to a schedule that CLA managers will communicate after the assignment of students to the classes. Participation in these courses is mandatory, so it is up to Ph.D. students to show a certificate of attendance at the end of the course. Alternatively, it is also possible to show a certification of English language knowledge at least B1 level according to CEFR as assessed by Cambridge exams.

Main Courses¹

Mandatory for all Ph.D. students²

Title	CFU	Hours	Teacher
<i>“Scientific writing and reviewing in biomedical research”</i> Triennial program	1	24	Prof. R. Napoli
<i>“Biostatistics and Bioinformatics”</i> Triennial program	1	24	Prof. P. Formisano
<i>“Enhancement strategies of biomedical research”</i> Triennial program	1	24	Prof. F. Beguinot
<i>“The role of ethics committee in controlled clinical trials”</i> Triennial program	1	24	Prof. N. Ferrara
<i>“Basic principles of clinical and experimental research in the biomedical field”</i> Triennial program	1	24	Prof. A. de Paulis

1) Lessons will be held in the months of March and April 2022 with one of the following procedures based on the progress of the Covid-19 health emergency: a) REMOTE, by using Microsoft Teams, the telematics platform of our University, b) IN PRESENCE, at the Ph.D. Room (Building 4, II floor). Ph.D. students will receive via email the final procedure and the scheduled lessons.

2) At the end of the lessons there will be a final assessment by administering a written test with multiple choice questions.

Interdisciplinary Courses ¹

Mandatory for all Ph.D. students²

Title	CFU	Hours	Teacher
<i>“Approach to the study of dermatological diseases in the different periods of life”</i> Triennial program	1	24	Prof. G. Fabbrocini
<i>“Pathophysiological consequences of endocrine-metabolic alterations on cardiac function”</i> Triennial program	1	24	Prof. A. Cittadini
<i>“Life-changes of systemic and organ-specific immune responses in autoimmune diseases”</i> Triennial program	1	24	Prof. F.W. Rossi
<i>“Impact of obesity in the development of cardiovascular diseases in the course of life”</i> Triennial program	1	24	Dr.ssa S. Cabaro
<i>“Chronic diseases throughout life: molecular and translational aspects”</i> Triennial program	1	24	Prof. F. Oriente

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Courses of the Curriculum in Cardiovascular and Gerontological Sciences (SCG)¹

Mandatory for all Ph.D. Students joining this Curriculum²

Reference Teacher: Prof. Giovanni Esposito

Title	CFU	Hours	Teacher
<i>“Molecular basis of hypertrophy and heart failure”</i> Triennial program	1	24	Prof. P. Perrone Filardi
<i>“Role of interventional hemodynamic approach in the treatment of cardiovascular diseases”</i> Triennial program	1	24	Prof. G. Esposito
<i>“Molecular and cellular basis of endothelial damage”</i> Triennial program	1	24	Prof. P. Cirillo
<i>“Pathogenetic aspects of cardiovascular diseases in the geriatric age”</i> Triennial program	1	24	Prof. D. Leosco
<i>“Molecular aspects of aging”</i> Triennial program	1	24	Prof. G. Rengo
<i>Seminars of the Curriculum in Cardiovascular and Gerontological Sciences</i> Triennial program	1	24	Prof. C.G. Tocchetti

1) Lessons will be held in the months of May and June 2022 with one of the following procedures based on the progress of the Covid-19 health emergency: a) REMOTE, by using Microsoft Teams, the telematics platform of our University, b) IN PRESENCE, at the Multimedia Room (Building 2, ground floor). Ph.D. students will receive via email the final procedure and the scheduled lessons.

2) At the end of the lessons there will be a final assessment by administering a written test with multiple choice questions.

Courses of the Curriculum in Translational Medical Sciences (SMT)¹

Mandatory for all Ph.D. Students joining this Curriculum²

Reference Teacher: Prof. Francesco Beguinot

Title	CFU	Hours	Teacher
<i>"Molecular and cellular basis of inflammatory and neoplastic skin diseases"</i> Triennial program	1	24	Prof. M. Scalvenzi
<i>"Molecular aspects of biological therapy of dermatological diseases"</i> Triennial program	1	24	Prof. L. Gallo
<i>"New approaches for the prevention and treatment of chronic degenerative diseases"</i> Triennial program	1	24	Dr.ssa A. Desiderio
<i>"From vulnerability to multidimensional fragility in the patient with chronic degenerative diseases: a translational approach."</i> Triennial program	1	24	Prof. F. Cacciatore
<i>"Cellular and molecular networks in immune diseases"</i> Triennial program	1	24	Prof. M.R. Galdiero
<i>Seminars of the Curriculum in Translational Medical Sciences</i> Triennial program	1	24	Prof. F. Granata

1) Lessons will be held in the months of May and June 2022 with one of the following procedures based on the progress of the Covid-19 health emergency: a) REMOTE, by using Microsoft Teams, the telematics platform of our University, b) IN PRESENCE, at the Ph.D. Room (Building 4, II floor). Ph.D. students will receive via email the final procedure and the scheduled lessons.

2) At the end of the lessons there will be a final assessment by administering a written test with multiple choice questions.

Courses of the Curriculum in Translational Pediatric Sciences (SPT)¹

Mandatory for all Ph.D. Students joining this Curriculum²

Reference Teacher: Prof. Giancarlo Parenti

Title	CFU	Hours	Teacher
<i>"Infectious diseases in children"</i> Triennial program	1	24	Prof. G. Guarino
<i>"Role of inflammation and other risk factors in celiac disease"</i> Programma Triennale	1	24	Prof. R. Auricchio
<i>"Allergology and Rheumatology in the pediatric age"</i> Triennial program	1	24	Prof. R. Troncone
<i>"Novel diagnostic and therapeutic approaches in pediatric gastroenterology"</i> Triennial program	1	24	Prof. E. Miele
<i>"Experimental models in the pathogenesis of neurological diseases in developmental age"</i> Triennial program	1	24	Prof. G. Terrone
<i>Seminars of the Curriculum in Translational Pediatric Sciences</i> Triennial program	1	24	Prof. G. Parenti

1) Lessons will be held in the months of May and June 2022 with one of the following procedures based on the progress of the Covid-19 health emergency: a) REMOTE, by using Microsoft Teams, the telematics platform of our University, b) IN PRESENCE, at the Seminar Room (Building 11, ground floor). Ph.D. students will receive via email the final procedure and the scheduled lessons.

2) At the end of the lessons there will be a final assessment by administering a written test with multiple choice questions.

Courses of the Curriculum in Odontostomatological Sciences (SO)¹

Mandatory for all Ph.D. Students joining this Curriculum²

Reference Teacher: Prof. Sandro Rengo

Title	CFU	Hours	Teacher
<i>“Innovative therapeutic procedures in conservative dentistry”</i> Triennial program	1	24	Prof. S. Rengo
<i>“Methodology of research on orofacial pain”</i> Triennial program	1	24	Prof.ssa A. Michelotti
<i>“The biological role of surfaces in the healing of craniofacial tissues”</i> Triennial program	1	24	Prof. G. Sammartino
<i>“Science and technology of materials in dentistry”</i> Triennial program	1	24	Prof. F. Zarone
<i>“Molecular aspects of immune and neoplastic diseases of the oral cavity”</i> Triennial program	1	24	Prof. M.D. Mignogna
<i>Seminars of the Curriculum in Odontostomatological Sciences</i> Triennial program	1	24	Prof. G. Spagnulo

1) Lessons will be held in the months of May and June 2022 with one of the following procedures based on the progress of the Covid-19 health emergency: a) REMOTE, by using Microsoft Teams, the telematics platform of our University, b) IN PRESENCE, at the Orthodontics Room/Valletta's Room (Building 14, ground floor). Ph.D. students will receive via email the final procedure and the scheduled lessons.

2) At the end of the lessons there will be a final assessment by administering a written test with multiple choice questions.