SHEET G

DOCTORAL COURSE IN INNOVATIVE TECHNOLOGIES AND SCIENCES FOR HEALTH AND ACTIVE AGING

Course: XXXVIII

Estimated starting date of the course: 1/11/2022

Coordinator: Professor Elena Ranieri (PO) Area 6 SSD MED/05 – University of Foggia

Administrative headquarters: DEPARTMENT OF MEDICAL AND SURGERY SCIENCES – UNIVERSITY OF FOGGIA

Length: 3 years

Curricula: YES

1) Innovative Biotechnologies: biotechnologies applied to organ transplants; predictive medicine and new biomarkers in human pathology; development of innovative diagnostic technologies; biotechnologies for the characterization, molecular diagnostics, imaging and the individualization of cancer and rare diseases therapies; biology of aging.

2) Innovative Methodologies in Clinical Research: technologies for the study of emerging infectious diseases through big data analysis; robotic innovation and surgery; regenerative medicine; bioinformatics and artificial intelligence for the improvement of SSN (National Healthcare System); telemedicine and proximity medicine; promotion of strategies for active aging; risk management; innovative tools to support medical decision-making processes; government of innovation in the healthcare sector; law, healthcare responsibility and new technologies; BCT and new medical business models.

Total number of positions available No**. 8** of which:

- No. 5 positions through scholarships granted by the university;
- No. 1 position through scholarship granted by Ministerial Decree No. 351/2022:
  - Within the scope of: PNRR;
- No. 2 positions without scholarship.

Short description of the research projects:

The doctoral course, through a multidisciplinary approach, will train researchers expert in healthcare technologies and innovation. There are two curricula:

1) Innovative Biotechnologies: biotechnologies applied to organ transplants; predictive medicine and new biomarkers in human pathology; development of innovative diagnostic technologies; biotechnologies for the characterization, molecular diagnostics, imaging and the individualization of cancer and rare diseases therapies; biology of aging. 2) Innovative Methodologies in Clinical Research: technologies for the study of emerging infectious diseases through big data analysis; robotic innovation and surgery; regenerative medicine; bioinformatics and artificial intelligence for the improvement of SSN (National Healthcare System); telemedicine and proximity medicine; promotion of strategies for active aging; risk management; innovative tools to support medical decision-making processes; government of innovation in the healthcare sector; law, healthcare responsibility and new technologies; BCT and new medical business models.

The doctoral course will operate as an interdisciplinary work platform to develop health technologies in the preclinical and clinical-therapeutic areas. The designation of 2 curricula offers parallel visions with a core-business of technological innovation and a semester of multidisciplinary integration. The experiences in application and production sectors are provided by the various public and private partners. Course Objectives: the PhD program aims to train the next generation of leaders in the research on innovative health technologies in academia, business and clinics. The goal is to develop an organic and innovative research program 1 which, by combining new technologies with the most recent discoveries in biomedical research, will guide the

development and clinical translation of technologies for public health. The educational objectives of the PhD program are: ° the development of innovative surgery technologies, also with the implementation of robotic surgery ° the development of innovative clinical-laboratory diagnostic technologies ° the development of advanced therapeutic technologies and regenerative medicine ° innovative biotechnological approaches for the characterization, molecular diagnostics, imaging and individualization of neoplasia treatments ° biotechnologies applied to organ transplants ° predictive medicine and the development of new diagnostic and prognostic biomarkers applied to human pathologies ° screening, diagnosis and development of innovative therapies for rare diseases ° the development of new medical devices and innovative services, such as bioinformatics and artificial intelligence applications, for the improvement of the National Healthcare System. Specific attention will be paid to the implementation of strategies for the study of aging and the promotion of active aging.

Short description of the research projects referred to in the PNRR (Ministerial Decree 351 of 2022):
The doctoral course in Innovative Technologies and Sciences for Health and Active Aging, consistently with the objectives of the PNRR (PE8_Invecchiamento-Aging) aims to develop research on aging with an interdisciplinary and integrated approach between the different disciplinary areas relating to this program, making use of advanced technologies and methodologies. In particular, the course aims to address the study of the aging process in its biological, behavioral and environmental determinants, as well as the related chronic and degenerative diseases, the development of prevention strategies, early diagnosis, treatment, digital monitoring and evaluation. Finally, the program aims to analyze the determining factors that favour active aging and the elderly's autonomy. Both curricula will be fully involved in addressing the objectives of the PNRR. In particular, the curriculum in Innovative Biotechnologies will develop the study of the pathophysiological processes of aging and aging-related pathologies. The curriculum in Innovative Methodologies in Clinical Research will deal more specifically with the aspects of prevention, early diagnosis, treatment, monitoring of aging-related diseases, not neglecting the socio-economic aspects.

Admission prerequisites:
All Master's Degrees or the corresponding Postgraduate Degrees or the corresponding Degrees obtained according to the system prior to Ministerial Decree 509/99 or the corresponding equivalent qualifications.

Admission procedures:
The selection will be based on the assessment of qualifications, research project and oral exam.
The assessment of qualifications will be carried out in compliance with the provisions of art. 6 of the selection notice, with the exception of the scientific qualifications relating to the subjects covered throughout the doctoral course. In fact, for the purposes of this selection, the examination board will only assess scientific publications in English (original articles, literature reviews) provided with DOI, already published in journals and subjected to a peer-review system. Any minor publications (e.g. national and international conference proceedings, specific contributions in volumes, etc.) will not be assessed.
During the oral exam, the research project presented by the candidate at the time of the application will also be discussed and the knowledge of the English language will be ascertained.
The assessment will take place pursuant to art. 6 of the selection notice.
The projects presented by the candidates should be written in English in a doc, docx, rtf or pdf file format, with a maximum length of 6 pages. Moreover, the projects should be organized as follows: Abstract (up to 300 words) - Background - Objectives - Materials and Methods - Expected Results - Added Value - References

Test completion methods for foreign candidates:
Foreign candidates can choose to take the admission test in English.

Admission test calendar and venue:
Oral test: 19 September 2022 at 10.00.
Test venue: the oral test will take place online for all candidates. The email address provided by the candidate will be used to arrange the platform and the related *virtual rooms* for connection.

For further information please visit:
https://www.unifg.it/it/studiare/post-lauream/dottorati-di-ricerca