UNIVERSITÀ DEGLI STUDI DI TRIESTE

Area dei Servizi Istituzionali
Settore Servizi agli studenti e alla didattica
Ufficio Dottorati di ricerca

ATTACHMENT 10　　　　　　　　　　　　　　　　　　**LAST REVISED 09/05/2016**

PhD IN
EARTH SCIENCE AND FLUID MECHANICS
OVERVIEW

IN BRIEF		
Lines of research	1	Environmental fluid mechanics, fluid mechanics in industrial and technological processes, and in biological systems
	2	Solid and fluid earth geophysics and geology
	3	Mathematical methods and modeling in fluid mechanics and in geophysics, differential equations and inverse problems
Administrative location	University of Trieste	
Organizing Department	Department of Mathematics and Geosciences	
Partner University Department	Department of Engineering and Architecture	
Duration	3 years	
Attendance abroad that entitles to a scholarship increase - min. max. of months for each PhD student (over 3 years)	0 - 12	
Official language	English	
Subject Areas (in alphabetical code order)	01	MATHEMATICS AND INFORMATICS
	04	EARTH SCIENCES
	08a	CIVIL ENGINEERING
	09	INDUSTRIAL AND INFORMATION ENGINEERING
Macro Research Fields (in alphabetical code order)	01/A	MATHEMATICS
	04/A	EARTH SCIENCES
	08/A	LANDSCAPE AND INFRASTUCTURAL ENGINEERING
	09/C	ENERGY, THERMOMECHANICAL AND NUCLEAR ENGINEERING
Scientific Disciplinary Sectors (in alphabetical code order)	GEO/02	STRATIGRAPHY AND SEDIMENTOLOGY
	GEO/03	STRUCTURAL GEOLOGY
	GEO/06	MINERALOGY
	GEO/07	PETROLOGY AND PETROGRAPHY
	GEO/10	SOLID EARTH GEOPHYSICS
	GEO/11	APPLIED GEOPHYSICS
	GEO/12	OCEANOGRAPHY AND PHYSICS OF THE ATMOSPHERE
	ICAR/01	HYDRAULICS
	ICAR/02	HYDRAULIC STRUCTURES, MARITIME ENGINEERING AND HYDROLOGY
	ING-IND/10	THERMAL ENGINEERING AND INDUSTRIAL ENERGY SYSTEMS
	MAT/05	MATHEMATICAL ANALYSIS
	MAT/08	NUMERICAL ANALYSIS
Domain European Research Council	PE	PHYSICAL SCIENCES AND ENGINEERING

ERC Panels	PE10	EARTH SYSTEM SCIENCE: PHYSICAL GEOGRAPHY, GEOLOGY, GEOPHYSICS, ATMOSPHERIC SCIENCES, OCEANOGRAPHY, CLIMATOLOGY, ECOLOGY, GLOBAL ENVIRONMENTAL CHANGE, BIOGEOCHEMICAL CYCLES, NATURAL RESOURCES MANAGEMENT
	PE1	MATHEMATICS: ALL AREAS OF MATHEMATICS, PURE AND APPLIED, PLUS MATHEMATICAL FOUNDATIONS OF COMPUTER SCIENCE, MATHEMATICAL PHYSICS AND STATISTICS
	PE8	PRODUCTS AND PROCESSES ENGINEERING: PRODUCT DESIGN, PROCESS DESIGN AND CONTROL, CONSTRUCTION METHODS, CIVIL ENGINEERING, ENERGY SYSTEMS, MATERIAL ENGINEERING

WHO'S WHO	
Chair	Prof. Vincenzo Armenio - Department of Engineering and Architecture – University of Trieste – phone N. 040.558.3472; fax 040.572.082; email armenio@dic.units.it
Vice	Prof. Giovanni Costa – Department of Mathematics and Geosciences – University of Trieste – phone N. 040.558.2619; fax 040.558.2111; email costa@units.it
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Course description and objectives	This PhD course aims to the advanced training of students in the field of earth sciences, fluid mechanics and applied mathematics. It promotes theoretical and applicative formation of students through the investigation of scientific themes developed by the research groups belonging to the involved departments and through international collaborations with qualified foreign structures. With regard to fluid mechanics, the processes that involve the study of the motion of fluids and their transport properties, dispersion and mixing in environmental and industrial settings, are in particular addressed, as well as their interaction with the solid elements. In the field of earth sciences, the main objective is the transfer of knowledge on advanced methods of investigation with applications to the study of composition, structure, stratigraphy and evolution of our planet, from the close surface up to the deep structures and characteristics at the global scale. The fundamental laws, upon which these disciplines rely, are generally expressed by differential equations of considerable complexity, the study of which requires the application of advanced mathematical methods and represents a research field of great theoretical and practical importance and relevance. The mathematics is thus a central part of the program.
Job placement opportunities	This PhD program is designed to prepare students to pursue a variety of careers in research, teaching and industrial use of high technologies in the fields of earth science, fluid mechanics and applied mathematics. In the course of their doctoral studies, students will be in touch with different realities, local and international, and will get a considerable experience in both theoretical and applied problems that originate in the disciplines mentioned above. In addition, they will develop familiarity and competence in using the most advanced tools for the analysis of complex physical systems, which will be of great use for their future activity in public or private research centers, or in companies with high technological content. The EIFM PhD School, of which this course is the development, has collaborated, besides INOGS and ICTP, with various research or services institutions, like ARPA-FVG , ISMAR-CNR , ENEA, as well as with industries present on the territory, like Electrolux. The scholarships funded by these institutions come from their need to acquire highly specialized people in the themes addressed in this doctoral program. Part of the students of this course will therefore obtain, as a natural outlet, post-doctoral fellows or working positions within the institutions themselves.
Main cooperating international Universities and Research Institutions	1 Princeton University, U.S.A.
	2 Universit Libre de Bruxelles, Belgio
	3 Technische Universiteit Eindhoven, Paesi Bassi
	4 University of California Irvine, U.S.A.