

Educational offerings delivered by the BiGeA Department (or by BiGeA in coordination with external parties)

TITLE OF THE ACTIVITY	TYPE	COVERAGE	CREDITS	TEACHING HOURS	VERIFICATION MODE	DELIVERY PERIOD	COURSE YEAR	ABSTRACT	LANGUAGE
Grant Writing: Lesson from the ERC Scheme	Disciplinary and multidisciplinary training	Ordinary teaching load	0.28	4	Qualification (Idoneità)	1-3 Oct 2025	2,3	Securing research funding is a critical skill for early-career scientists, yet it remains a challenging and often intimidating process. This course provides PhD students with a comprehensive introduction to grant writing, using the European Research Council (ERC) scheme as a framework. Through a combination of lectures, interactive discussions, and hands-on activities, participants will learn the key principles of crafting a compelling research proposal. Drawing from my personal experience in successfully obtaining ERC and other grants, I will share practical insights on structuring proposals, formulating strong research questions, and addressing evaluation criteria. The course will also include a group exercise where participants will collaboratively write and review a short, simulated grant proposal, gaining firsthand experience in both proposal development and peer evaluation. By the end of the course, attendees will be equipped with essential strategies to improve their grant-writing skills and enhance their chances of securing funding for their future research.	English
Application of writing techniques to scientific paper: a practical session	Disciplinary and multidisciplinary training	Ordinary teaching load	0.4	6	Qualification (Idoneità)	6-10 Oct 2025	2,3	The finalisation of research ideas into a publishable paper represents one of the main research aims. Using both lectures and practical sessions, the course will focus on developing writing skills and confidence in writing for journals. The course is designed for PhD students who are new to scientific writing or publishing, or who wish to refresh their skills in this area.	English
BigData, High-Performance Computing and Quantum Computing	Soft skills	Coordination	0.14	2	Qualification (Idoneità)	Nov 2025		This meeting is dedicated to the world of High-Performance Computing and Quantum Computing. In this short talk we will see how Bologna, besides being famous for its towers and good food, is also the Italian capital of Supercomputing. Not everyone knows, in fact, that Bologna is the home to the fourth most powerful supercomputer in the world, Leonardo, which will soon be joined by Italy's first quantum computer. We will introduce CINECA, Italy's largest supercomputing centre and one of the most important in Europe, based in Casalecchio di Reno, where supercomputing experts work side by side with researchers from all over Europe to develop high-performance computing solutions. We will explain who we are and what we can do for you, as our mission is to serve research.	English
Raman Workshop	Disciplinary and multidisciplinary training	Coordination	0.54	8	Qualification (Idoneità)	Nov-Dec 2025	1,2	The aim of the course is to provide PhD students with theoretical and practical aspects of the analytical techniques of RAMAN spectroscopy, instructing students on the use and potential of the instrumentation.	English
Laboratory of Environmental Scanning Electron (ESEM) Microscopy and X-Ray Microanalysis (EDX)	Disciplinary and multidisciplinary training	Coordination	0.54	8	Qualification (Idoneità)	Nov-Dec 2025	1,2	The aim of the course is to provide PhD students with theoretical and practical aspects of ESEM-EDX analytical techniques, instructing students on the use and potential of the instruments.	English
Fundamental and Applied Research	Extra-curricular training	Coordination	0.14	2	Qualification (Idoneità)	Dec 2025		This lecture will provide a basic introduction to the social studies of science and technology (STS). STS were introduced in the aftermath of the WWII, when historians, sociologists, anthropologists and philosophers of science, and scientists themselves, became interested in the relationship between scientific knowledge, technological systems, and society. The rise of STS acknowledges that STEM specialization in today's universities does not fully prepare researchers to reflectively tackle the most important challenges of contemporary societies. The dilemmas that confront practitioners and researchers, whether in government, industry, politics or daily life,	English

								cut across the traditional cultures of SSH and STEM. Since mid XX century STS have constituted an effort to overcome these divisions.	
Phylogeography and historical biogeography	Soft skills	Ordinary teaching load	0.28	4	Qualification (Idoneità)	Jan 2026	1,2	The evolutionary relationships among organisms can be often explained by their geographic distribution. The phylogeography, starting from phylogenetic trees inference, analyzes the clustering pattern of closely related lineages with the aim to establish a correlation between genetic diversity and geographic areas. The historical biogeography, on the other hand, includes a broader evolutionary context and investigates deeper divergences, much more distant in time from the present. These two aspects of the organismal biogeography are tightly linked, and they become a popular tool to investigate the large-scale effect of changing environment on organismal diversity. The application of molecular clock to phylogenetic analyses further added to the discipline, allowing to correlate past cladogenetic events with known paleogeographic or paleoclimatic events. In the last years, this become a complex and multidisciplinary field which develop at the boundary between phylogenetics, paleontology, climatology and structural geology.	English
Data Analysis for in Earth and Life Sciences	Disciplinary and multidisciplinary training	Ordinary teaching load	0.8	12	Qualification (Idoneità)	Feb 2026	1,2	Regardless of the specific focus of a PhD project, students will almost certainly be required to engage in quantitative data analysis. This course is designed to help doctoral students develop the practical skills necessary to carry out effective data analysis and achieve the goals of their research. The course begins with a concise overview of essential data analysis techniques commonly applied in Biological, Geological, and Environmental Sciences. Participants will then be invited to bring their own research data, formulate a research question, and apply analytical methods to address that question. By the end of the course, students will have developed a set of computational tools and theoretical foundations that can be directly applied to data analysis and modeling within their own research contexts. While a basic understanding of probability and statistics is expected, key concepts and notation will be reviewed as needed. Python (using Jupyter Notebooks) will serve as the primary programming language for the course. Students may opt to work in a different language (e.g., R); however, in such cases, expert guidance from the instructor may be limited.	English
Life and Deep Time Catastrophes	Soft skills	Ordinary teaching load	0.6	9	Qualification (Idoneità)	Jun 2026		This course explores how major geological catastrophes throughout deep time — such as meteorite impacts, massive volcanism, and mass extinctions — have shaped the evolution of life on Earth. Through case studies of catastrophic events and biological responses, we will examine the resilience and adaptability of past biospheres, highlighting the interplay between environmental crises and evolutionary innovation.	English
Sedimentary facies and biological habitat: two sides of the same coin	Soft skills	Ordinary teaching load	0.2	3	Qualification (Idoneità)	Feb 2026	1,2	Rocks, geometries, and structures description represents the core activity of scientists working with sedimentary deposits, and the definition of the basic building blocks (i.e., Facies) represents the starting point to organise and interpret them. The course will focus on the discussion of techniques of recognition, representation, and interpretation of sedimentary facies. Using a sedimentary approach, participants will develop skills applicable to sedimentology and beyond, making the course of potential interest to all Geo-PhD students.	English
Fundamental principles of ethics, gender equality and integrity	Extra-curricular training	Coordination	0.14	2	Qualification (Idoneità)	Mar-Apr 2026		"Scientific research: ethical aspects, potentiality and social sustainability". The seminar is aimed at reflecting on the objectives and operating rules of institutions involved in scientific research, the impact and sustainability of scientific research in the social sphere, potential conflicts between the legitimacy of research and ethical, religious and political issues. Perception and impact of research activity in the laboratory and in the field among indigenous communities (modern colonialism?).	English

Other educational activities (seminars, laboratory and research activities, interdisciplinary training, multidisciplinary and transdisciplinary)

TITLE OF THE ACTIVITY	TYPE	COVERAGE	DOCTORAL CREDITS	TEACHING HOURS	VERIFICATION MODE	DELIVERY PERIOD	COURSE YEAR	ABSTRACT	LANGUAGE
Course on safety in the workplace	Soft skills	Coordination	0.75	10	Qualification (Idoneità)	Feb-May 2026	1	Mandatory safety training according to Article 37 of Legislative Decree 81/08 - Indoor and Outdoor Laboratories - Chemical Biological/Naturalistic Risk and Geological/Naturalistic Risk The course aims to give appropriate general training to all PhDs and PhD students in relation to their duties in health and safety in the workplace and research, hazards and risks, and correct practices to be adopted during the activity.	Italian and English
Language improvement	Disciplinary and multidisciplinary training	Ordinary teaching load	3.2	48	Qualification (Idoneità)	Check out the CLA Webpage		UNIBO CLA (Centro Linguistico di Ateneo) Courses AcEs: 24-hour classroom + 24-hour e-learning modules aimed at the acquisition of English language skills targeted at teaching and research activities.	English
Management of research and knowledge of European and international research systems	Soft skills	Coordination	0.14	2	Qualification (Idoneità)	Mar-May 2026	2,3	This seminar will be organized with the University of Bologna Research Area (ARIC) to inform the students about the opportunity of the national and international research projects. Big data, Open access, data sharing.	English
Valorization and dissemination of results, intellectual property and open access to research data and products	Dissemination	Coordination	0.14	2	Qualification (Idoneità)	Mar-May 2026		The seminar will be organized with UNIBO - Business Relations, Third Mission and Communication Area (ARTEC) to provide the students with information on the valorization of the results of scientific research and on the management of relations with the companies that collaborate with UNIBO in the field of Third Mission. The seminar also inform the PhD students on the potentialities of development and management of actions aimed at the creation of enterprises, startups, companies and other forms of business.	English
Seminars					Certificate of attendance			The BiGeA Department provides a broad and continuously updated calendar of scientific seminars, publicly available on its institutional website (https://phd.unibo.it/stva), and on the Teams channel. This program serves as a strategic resource for the STVA PhD course, allowing each student to enrich their training through events aligned with their individual research focus. Among these, dedicated seminars introduce doctoral students to the key principles, rules, and administrative procedures governing research and teaching activities. Additionally, students are informed about international mobility opportunities across the three-year program.	English