

# GEOFYSICS

<b>Coordinator</b>	Prof.ssa Nadia Pinardi Dept of Physics and Astronomy Viale Berti Pichat 6/2 - Bologna <a href="mailto:nadia.pinardi@unibo.it">nadia.pinardi@unibo.it</a>
<b>Programme start date</b>	01/11/2017
<b>Duration</b>	3 years
<b>Programme language</b>	Italian and English
<b>Mandatory stay abroad</b>	Yes (3 months)
<b>Research topics</b>	
<p>1) <b>Solid Earth:</b> Seismology, Physics of volcanism, Geodesy, Quantitative geodynamics, Tsunami</p> <p>2) <b>Atmosphere:</b> Atmospheric physics and chemistry, remote sensing of the atmosphere, urban meteorology, atmospheric dynamics and weather forecasting, physical climatology</p> <p>3) <b>Oceans:</b> Ocean circulation dynamics, numerical modeling of the ocean, ocean predictions, marine biogeochemical cycles, numerical modeling of pollutants in the marine environment.</p>	
<b>Admission requirements</b>	
<p>Applicants who have one of the following degrees may participate in the selection:</p> <ul style="list-style-type: none"> <li>- Laurea specialistica or Laurea magistrale (second cycle degree)</li> <li>- Laurea Vecchio Ordinamento (degree obtained under the Italian previous regulations);</li> <li>- Degree granted by AFAM (Alta Formazione Artistica e Musicale) member institutions;</li> <li>- an academic Master's degree obtained abroad, comparable to the above mentioned Italian degrees and recognized as suitable for the admission to doctoral programmes.</li> </ul> <p>Undergraduated applicants may also submit applications with the obligation of getting their degree by the October 31<sup>st</sup> 2017.</p>	
<b>Documents to be attached to the application under penalty of exclusion</b> (only documents in Italian, English, French, German and Spanish will be considered valid and assessed by the Admission Board)	
<ul style="list-style-type: none"> <li>- Scanned Copy of a valid identification document with photo (either National Identity document or Passport)</li> <li>- Curriculum vitae</li> <li>- Certificates and academic transcripts of records of <u>both Bachelor's and Master's degrees</u> containing the following details for each degree held: <ul style="list-style-type: none"> <li>o university that granted the degree</li> <li>o type of degree (first cycle / second cycle / single cycle)</li> <li>o name of the degree programme</li> <li>o date of graduation</li> <li>o final mark</li> <li>o list of exams taken with their scores (academic transcript of records)</li> <li>o translation into Italian or English (<u>only for degrees issued in languages other than Italian, English, French, German and Spanish</u>).</li> </ul> </li> </ul> <p><b>Applicants who have degrees obtained in:</b></p> <ul style="list-style-type: none"> <li>o <b>an italian public university</b> have to submit a <u>self-declaration</u> with date and signature (of <u>both first and second cycle degrees</u>: Laurea triennale and laurea specialistica/ magistrale/ laurea vecchio ordinamento)</li> <li>o <b>EU Countries</b>, except Italy, can submit a <u>self-declaration or degree certificate or Diploma Supplement</u> (of <u>both Bachelor's and Master's degrees</u>)</li> <li>o <b>non-EU Countries</b> have to submit the degree <u>certificate</u> and <u>academic transcript of records</u> (of <u>both Bachelor's and Master's degrees</u>)</li> </ul> <p><b>Undergraduated applicants</b> have to submit:</p> <ul style="list-style-type: none"> <li>o the documents as above, except for the following details: Master's degree date of graduation and final mark</li> <li>o a self-declaration of the scores' weighted average (if not indicated in the academic transcript of records).</li> </ul>	
<b>Other documents to be attached to the application, if in the applicant's possession</b> (only documents in Italian, English, French, German and Spanish will be considered valid and assessed by the Admission Board)	
<ul style="list-style-type: none"> <li>- Abstract of the dissertation of the second cycle degree or, for undergraduated applicants, of the draft dissertation approved by the supervisor (max. 5000 characters, spaces included, and any formulas, and not including title, contents, bibliography or illustrations, if any).</li> <li>- No more than 2 letters of presentation from university professors and/or Italian and international professionals who are not members of the Admission Board attesting the applicant's aptitude and interest in the scientific research <u>Note: The applicant should not personally attach the letters of presentation to the application. The applicant should enter the email address of the professor/professional of whom the letter of presentation is requested when filling in the application on the website <a href="http://studenti.unibo.it">http://studenti.unibo.it</a>. The professor/professional will receive an email containing instructions for uploading the letter of presentation. The letter of presentation should be uploaded by the professor/professional in pdf format only and before the deadline of this Call for Applications.</u></li> <li>- long-term Research project with particular emphasis on the 1st year activities, which the applicant plans to carry out as part of the PhD and must: <ul style="list-style-type: none"> <li>o <b>state on the title page the PhD research topic that the applicant is interested in</b> and that the project concerns (research projects without this information will not be considered);</li> </ul> </li> </ul>	

- have a maximum length of 20,000 characters, spaces and formulas included, and not including title, contents, bibliography or illustrations, if any (anything in excess will not be considered);
  - be broken down into: state of the art; project description; bibliography.
- The research project submitted with the application, however, may not be the one the successful applicant will carry out during the doctoral studies. Supervisors and Academic Board can propose a different one.
- Letter stating why the applicant wants to attend the PhD programme and describing the applicant's experience and research interests, which justify the applicant's suitability for the PhD programme (max. 3000 characters, spaces included).
  - Scientific publications *in extenso* (essays, articles in scientific journals) (up to 5)
  - Minor publications *in extenso* (conference proceedings distributed at national and international level, contributions in monographs, etc.) (up to 5)
  - Other Master's and/or specialization degree in subjects consistent with the research topics of this PhD programme
  - Postgraduate and/or specialization programmes in subjects pertinent to the PhD programme research topics
  - Scientific research of any type (basic, oriented, targeted, translational, applied, etc.) and carried out in any capacity, including research grants and taking part in research projects
  - Internships
  - Knowledge of foreign languages
  - Mobility experience abroad (e.g.: Erasmus or similar)
  - Any other document certifying the applicant's training and abilities (grants, awards, etc.)

#### Entrance exams (art. 4 of the Call for Applications)

Type of exams	Exam book (applicants will not receive any summoning)	Publication of exam results (applicants will not receive any exam result notification)
Assessment of qualifications and research project	The applicant's presence is not required.	The results of the assessment of qualifications and the research project can be consulted starting from <b>04/07/2017</b> on the website <a href="http://studenti.unibo.it">http://studenti.unibo.it</a> (select: 'summary of the requests in progress' → 'see detail' and open the pdf file named 'risultati valutazione titoli e progetto').
Oral exam	<b>Date</b>	The oral exam results can be consulted on the website <a href="http://studenti.unibo.it">http://studenti.unibo.it</a> starting from <b>21/07/2017</b> (select: 'summary of the requests in progress' → 'see detail' and open the pdf file named 'risultati prova orale').
	<b>Place</b>	
	<b>Time</b>	
	Applicants residing abroad can take the oral exam remotely by audio/video teleconference via web (e.g. Skype). Applicants must request this method and specify a valid contact when applying. The Admission Board has to authorise this request. The Admission Board will assess any requests to take the oral exam remotely that arrive after the Call for Applications expires at its discretion. The remote oral exam calendar (with date, time and place where the Admission Board will meet specified) can be consult on the website <a href="http://studenti.unibo.it">http://studenti.unibo.it</a> together with the results of the exam whose passing gives admission to the oral exam. Applicants admitted to the oral exam must make they are available at the contact provided on the application for three hours starting from the time given on the remote exam calendar. Applicants who are not found three times will be considered absent. Oral exams, including the remote exams, are public.	
<b>Date</b>	<b>12/07/2017</b> If there are too many applicants for the oral exam to be carried out in a single day, the oral exam calendar will be published on the website <a href="http://studenti.unibo.it">http://studenti.unibo.it</a> together with the results of the assessment of qualifications and of the research project	
<b>Place</b>	Bologna – Viale Berti Pichat 8 Dept of Physics and Astronomy Geophysics Sector	
<b>Time</b>	9 a.m. (local time)	

#### Exam assessment criteria

Judgement is expressed by assigning a total grade in a 100 point scale that is divided up as follows:

##### 1. Assessment of qualifications and research project

- minimum for being admitted to the oral exam: 30 points
- maximum: 50 points

Only qualifications and documents no older than 5 years (up to the deadline of this call for applications) - Bachelor's and Master's degrees excluded - and deemed congruent with the research topics of the PhD programme will be assessed.

The assessment of qualifications grade will be given based on the following criteria:

- degree mark, and for those who are undergraduated students on the date this Call for Applications expires, the weighted average of marks of the exams: up to 25 points
- consistency of the degree dissertation with doctoral programme's research topics: up to 5 points
- letters of presentation: up to 10 points
- scientific publications: up to 2 points

- other qualifications: up to 3 points

The assessment of the research project grade will be given based on the following criteria:

- scientific value and originality of the proposal: up to 2 points
- structure of the proposal: up to 2 points
- feasibility of the proposal: up to 1 point

## 2. Oral exam

- minimum to be placed on the list of qualified applicants: 30 points
- maximum: 50 points

The oral examination will focus on the explanation and discussion of the applicant's research project and will assess his/her aptitude for scientific research and his/her overall preparation on subjects regarding the research topics of the PhD programme.

Knowledge of the English language will be ascertained during the oral exam.

The oral exam is taken in Italian or English.

Scores will be assigned according to the following criteria:

- knowledge of foreign language: up to 5 points
- good argument regarding the project: up to 20 points
- grounding on the PhD programme topics: up to 25 points

If the Admission Board should establish any sub-criteria for assessing the exams before the exams are held, and in any case before having the applications submitted by the applicants at their disposal, they can be consulted on <http://studenti.unibo.it> (select: 'summary of the requests in progress' → 'see detail' and open the pdf file named 'sub-criteri di valutazione').

## Final ranking list and enrolment (Art. 6 and 7 of the Call for Applications)

The final ranking list will be published on <http://studenti.unibo.it> (select: 'summary of the requests in progress' → 'see detail' and open the pdf file named 'graduatoria').

No personal written communication shall be provided to applicants concerning the final results and the deadlines for enrolment.

Selected applicants will have to enroll by the date indicated in the final ranking list, published on <http://studenti.unibo.it>.

## Positions and scholarships

### Positions with scholarship dedicated to specific research topics (Art. 9 of the Call for Applications)

During the oral exam, applicants may express to the Admission Board their interest in being assigned to a specific research topic. The Board will decide on the applicant's eligibility for a specific research topic in consideration of his/her competences, experience, specific aptitudes and research project. The ranking list will be assigned according to applicants' eligibility to a specific research topic.

7, of which:

- 1 financed by Unibo central budget, dedicated to the research topic "Metereology: the role of the far infrared radiative budget in the earth radiation balance"
- 2 dedicated to the research topic "Solid earth geophysics which includes seismology, physics of volcanism, geodesy, quantitative geodynamics, tsunami" of which:
  - o 1 financed by Unibo central budget
  - o 1 financed by INGV (Istituto Nazionale di Geofisica e Vulcanologia)
- 1 co-financed by Unibo central budget and the Dept. of Physics and Astronomy with resources made available by Horizon 2020 Project "Sea Data Cloud - Further developing the pan-European infrastructure for marine and ocean data management" (GA 730960) and dedicated to the research topic "Oceanography in particular climatologies from in situ and satellite data for the global ocean and the European Seas"
- 1 co-financed by Unibo central budget and the Dept. of Physics and Astronomy with resources made available by CNR - ISAC and dedicated to the research topic "Atmospheric radiative transfer, in particular analysis of remote sensing data from the far and near infrared range"
- 1 financed by the Dept. of Physics and Astronomy with resources made available by CNR - ISAC and dedicated to the research topic "Air-sea interactions, in particular the correlation between aerosol and marine productivity and development of models and instruments for the study of the marine spray in the Mediterranean Sea"
- 1 financed by CMCC Foundation, dedicated to the research topic "Oceanography: downscaling with unstructured grid model in shelf area of the world ocean". The beneficiary of this scholarship will carry out part of his/her doctoral activities at CMCC in Lecce.