Freie Universität Bozen
Libera Università di Bolzano
Università Liedia de Bulsan

Public Competition
for the admission to the PhD programmes
42nd cycle
Academic year 2026/27
Faculty of Agricultural, Environmental and Food Sciences
PhD Programme in
Food Engineering and Biotechnology

Website: PhD in Food Engineering and Biotechnology / Free University of Bozen-Bolzano

Duration: 3 years

Academic year: 2026/27

Start date: November 1st, 2026

Official language: English

Art. 1 - POSITIONS

1. A total of 7 positions are available for the PhD programme in Food Engineering and Biotechnology.

2. All information about the PhD programme in general, the schedule and its structure as well as the possible research projects listed below can be found at the following link: PhD in Food Engineering and Biotechnology / Free University of Bozen-Bolzano

3. **Positions with unibz scholarship: 4**

Positions without scholarship: 1

Positions tied to subject-related scholarship: 2

Laimburg Research Centre: 2

Research topic:

1. Advancing Encapsulation Strategies for protection of antioxidant compounds recovered from wine by-products using advanced analytical techniques
2. Proteomics and Molecular Characterization of Bioactive Peptides from Fermented Foods: Implications for Gut–Brain Axis Modulation

4. The following list of research projects and related supervisors and linked to positions financed with a unibz scholarship or without a scholarship is listed for illustrative purposes only, as other topics inherent to the activities of the various research groups at the university may be the subject of study.

Title	Supervisor
1. . Decoding Antioxidant Function in Food Systems	Prof. Matteo Mario Scampicchio
2. Advancing Encapsulation Strategies for protection of antioxidant compounds recovered from wine by-products using advanced analytical techniques (co-funded by Laimburg Research Centre)	Prof. Giovanna Ferrentino
3. Proteomics and Molecular Characterization of Bioactive Peptides from Fermented Foods: Implications for Gut–Brain Axis Modulation (co-funded by Laimburg Research Centre)	Prof. Raffaella Di Cagno
4. Next-generation winemaking innovation: from precision enology and digital decision systems to circular bioeconomy, authenticity and low-alcohol wine strategies	Prof. Emanuele Boselli
5. Investigation of the role of novel pollutants as a vector of microbial genetic resistances under the One-Health vision	Dr. Lorenzo Brusetti
6. Application of multi-omic approaches to investigate the relationships between synthetic microbial communities and crop plants to improve their resilience and yield traits	Prof. Youry Pii/Prof. Stefano Cesco
7. Forefront solutions for integrated food waste biorefinery	Prof. Francesco Patuzzi
8. Green extraction technologies for the recovery of bioactive compounds and their application in food products	Prof. Giovanna Ferrentino
9. Nutritional aspects of the sourdough fermentation for making baked goods	Prof. Marco Gobbetti
10. Diet, probiotics and prebiotics to improve the composition and functionality of the human gut microbiome: invitro and in vivo challenges	Prof. Raffaella Di Cagno/ Prof. Marco Gobbetti
11. Cheese fermentation to improve the sensory and nutritional attributes and to decrease the time of ripening	Prof. Raffaella Di Cagno/ Prof. Marco Gobbetti
12. Metabolism of phenolic compounds and fatty acids during plant-based food fermentation	Prof. Raffaella Di Cagno
13. Innovative analytical methods for assessing bioactivity of natural products	Prof. Giovanna Ferrentino/Prof. Emanuele Boselli

Below is a brief description of the research areas covered by the PhD:

a) Primary production: Application of biotechnology and innovative renewable technologies for smart process management; application of multi-omics techniques for the study of the soil-microorganism-plant system, with identification of molecular and metabolic markers in plants and their associated microorganisms; development of technologies for improving quality and

sustainability, both in the field and post-harvest; and sustainable management of agro-food by-products through circular and poly-generative approaches for conversion into energy carriers and value-added products.

b) Technologies for food processing and characterisation: development of innovative processes, including precision fermentation, with the aim of improving the production of bioactive and antioxidant compounds, modelling and assembling the food microbiome, and optimising the functional and sensory properties of food. The programme also includes the development of advanced methodologies for the purification and extraction of bioactive and antioxidant compounds, with a focus on environmental sustainability and the valorisation of agro-food by-products and unconventional substrates. Furthermore, advanced technologies such as encapsulation and controlled release are explored to formulate innovative food and nutraceutical products characterised by high stability, bioavailability, shelf life and nutritional value, reducing environmental impact and promoting the circular economy. Innovation in wine-related processes and products: light and precision oenology, sustainable processes, health and sensory aspects, authenticity and techniques for analysing and enhancing typicality.
c) Application of omics techniques: functional characterization of foods and their microbiota; microbial starters to improve the nutritional and functional aspects of foods; definition of nutrients that modulate the human gastrointestinal microbiome; valorization of secondary raw materials and characterization of functionality; and study of molecular mechanisms of bioactive compounds using advanced spectroscopic techniques.

5. The application for admission must state the preference for the position with a subject-related scholarship and/or for a maximum of 3 research projects. The preference expressed will be indicative of the interests of the applicant and not binding for the selection committee.

6. Separate rankings will be compiled for positions tied to subject-related scholarship. The positions tied to subject-related scholarships oblige the winners to carry out research activities relevant to the indicated subject. These will be assigned preferentially to applicants who make a specific request in their application.

7. Pursuant to the general part of the present call for applications, the number of positions may be increased as a result of funding provided by other universities, public research bodies or qualified private companies. Notice of such an increase will be given exclusively on the Unibz web page dedicated to PhD programmes. Applicants wishing to obtain eligibility for any additional subject-related scholarships may make an explicit request to the selection committee during the interview, in order to allow it to assess the specific eligibility.

Art. 2 – ADMISSION REQUIREMENTS

1. Application to the present public competition for the admission at the PhD programme in Food Engineering and Biotechnology may be presented pursuant to art. 4 of the general part of the present call for application, without limitations regarding gender, age or citizenship, by:

a) Applicants holding a postgraduate degree as per Ministerial Decree no. 509/1999, a postgraduate degree as per Ministerial Decree no. 270/2004, a degree of the former Italian university system of the following degree classes: all;

b) Applicants holding an equivalent degree obtained abroad;

c) Applicants achieving one of the above-mentioned titles within the enrolment deadline. In the latter case, applicants will be conditionally admitted to the public competition and are **required to present the qualification by the enrolment deadline, under penalty of forfeiting admission to the programme.**

2. The prerequisites for admission to doctoral programmes are related to having achieved an appropriate educational, and/or cultural background, and/or have worked in the Ph.D. course areas of research. Qualifications in food science, agriculture, biotechnology and food engineering are preferable.

3. Language requirements: a good/very good knowledge of English is required, which will be assessed during the interview.

Art. 3 – APPLICATION FOR ADMISSION

1. In addition to the documentation listed in the general part of the present call for applications, the following documents must be uploaded to the application portal:

a) Motivation letter in English language (maximum 1 page), stating your preference for research projects (maximum 3) and/or for the position tied to a subject-related scholarship, briefly justifying your choice;

b) Updated curriculum vitae in English pursuant to the European format, downloadable at the following link: https://europass.cedefop.europa.eu/en/documents/curriculum-vitae

In addition to the documentation under a-b, if available, please upload:

c) up to a maximum of 2 letters of reference, written in Italian, German or English by a university lecturer or researcher from a research institute, in which the work carried out or the quality of the same is described; instead of letters, the names and institutional contacts of up to 2 professional references may be provided;

d) a list of publications (published, in print or submitted) with link, if available (max 3). It will be evaluated up to 3 peer-reviewed manuscripts published in indexed-journals.

Art. 4 – SELECTION PROCEDURE

1. The selection procedure consists of three phases:

a) applications will be examined ex officio for completeness and fulfilment of the formal requirements; applicants excluded due to incomplete applications or lack of requirements will be notified on the dedicated unibz web page. The publication will have the nature of a notification to all effects. No individual communications will be made.

b) The selection committee will assess the complete applications in accordance with Article 5, considering the qualifications and attached documentation referred to in Article 3. Applicants who reach the minimum score referred to in Article 5 will be admitted to the interview. Admission to the interview, as well as the relevant dates and times, will be communicated on the unibz dedicated web page. Individual communications will be sent in due time to the e-mail address indicated in the application form to applicants admitted to the interview.

c) Interviews may be held in videoconference and will be evaluated in accordance with the criteria set out in article 5. Applicants must ensure the use of a webcam to enable them to identify themselves to the selection committee by showing a valid identity document or passport, under penalty of exclusion from the public competition.

2. Absence from the tests and/or interviews, non-connection, unavailability of the applicant on the appointed day and/or time or non-exhibition of a valid identity document or passport are a cause for exclusion from the public competition.

3. If technical problems occur during the interviews by videoconference, if the problem concerns one or more members of the selection committee, the interview is deferred to another date ex officio; if the problem concerns the applicant, the committee may, subject to the principles of non-discrimination and equal treatment of applicants, postpone the test to another date for justified reasons.

4. Once the examinations have been completed, the relevant selection committees draw up rankings on the basis of the scores obtained by the applicants in the individual tests.

Art. 5 – EVALUATION CRITERIA

1. The selection committee carries out a comparative assessment of the applicants. For applicants who have expressed a preference for positions tied to subject-related scholarships, the committee also ascertains their suitability for the specific subject.

2. The following scores will be awarded during the evaluation of the documents submitted with the application under Article 3:

a) up to a maximum of 10 points: motivation letter, CV, titles;

b) up to a maximum of 10 points: coherence of the applicant's profile with the scientific fields relevant to the PhD;

3. Applicants who reach the threshold of 10/20 points will be admitted to the interview. Admission to the interview and the relevant dates and times will be communicated on the unibz dedicated web page. Individual communications will be sent in due time to the e-mail address indicated in the application form to applicants admitted to the interview.

4. The following elements will be assessed during the interview: aptitude for research; possession of a language level appropriate to the language of the programme; argumentative capacity in relation to the theoretical and methodological hypotheses of the research project presented. A maximum of 20 points will be awarded. The interview is considered passed if at least 10/20 points are obtained.

5. The final score is made up of the sum of the scores obtained in the assessment of the documentation and interview. Applicants and candidates who have obtained at least 20/40 points will be eligible. In the event of a tied score, the applicant with the youngest age will have priority.

Art. 6 – RANKING

1. Applicants and candidates will be admitted to the programme in the order of their ranking until the number of positions available is reached. In the event of equal merit, the applicant who is younger in age shall prevail. In the event of successful placement in more than one ranking list, the winner must exercise the option for only one position. Separate rankings will be drawn up for each position tied to a subject-related scholarship.

2. The final rankings will be published on the unibz website on the page dedicated to PhDs unibz Ranking lists / Free University of Bozen-Bolzano (unibz.it). Such publication has the value of an official communication. No individual communications will be made.