

**UNIVERSITY OF SÃO PAULO**  
**FACULTY OF PHILOSOPHY, SCIENCES AND LETTERS OF RIBEIRÃO**  
**PRETO**

**NOTICE**

From **January 4th to June 30th of 2021**, the graduate program in Physics Applied to Medicine and Biology (FAMB) will receive applications to its Masters and Doctorate in Sciences programs. The applications shall be registered at the Graduate Service from the Faculty of Philosophy, Sciences and Letters from University of Sao Paulo, at Avenida Bandeirantes, 3.900, (Rua Clóvis Vieira, Casa 37). There will be 20 vacancies for the Masters program and 15 vacancies for the Doctorate program for the period of **January to June of 2021**.

**Admittance tests will take place in March 1th and 2th for applications received until February 19th of 2021; and, admittance tests will take place in May 3th and 4th for applications received until April 16st of 2021** (<https://sites.usp.br/famb/acontece/>).

**Application:** During COVID-19 pandemic restrictions, candidates may contact the Graduate Service from the Faculty of Philosophy, Sciences and Letters from University of Sao Paulo by e-mail ([posgraduacao@listas.ffclrp.usp.br](mailto:posgraduacao@listas.ffclrp.usp.br)) to check if the application should be in person or via e-mail:

- i) in person: candidates will apply in person, or using a letter of attorney, or via snail mail, at the Graduate Service from the Faculty of Philosophy, Sciences and Letters from University of Sao Paulo – address: Avenida Bandeirantes, 3900, Campus da USP – Ribeirão Preto – SP, CEP: 14040-901, from 8am to noon and from 2pm to 4 pm. Alternatively, exclusively for applicants who live outside Brazil, documents can be e-mailed to [famb@ffclrp.usp.br](mailto:famb@ffclrp.usp.br). In that case, original documents must be provided upon the enrollment for candidates accepted in the Program.
- ii) via e-mail: candidates must send all the documentation in PDF format (each document in a separate file) to [posgraduacao@listas.ffclrp.usp.br](mailto:posgraduacao@listas.ffclrp.usp.br) using the subject “Inscrição (curso ME ou DO FAMB)”.

**Documents for application:** the following documents shall be presented for the application process (accepted languages: Portuguese, English and Spanish):

***Masters:***

- Application form (available at [www.ffclrp.usp.br](http://www.ffclrp.usp.br) → option **Pós-Graduação** → option **Formulários** → [Inscrição - Pós-Graduação](#));
- copy of the passport;
- copy of the university diploma or statement by the institution that the applicant has a degree in physics, biology, medicine, engineering, chemistry, mathematics, computer science or related courses to Applied Physics to Medicine and Biology. An official statement from the university or college that the candidate attends the last semester of the undergraduate course is also accepted;
- copy of the official transcript of the undergraduate course;

- letter to the Coordinating Committee of Program (CCP) on whether or not an institutional scholarship is required for the Masters completion;
- "curriculum vitae" (preferably Lattes CV);

***Doctorate:***

- Application form (available at [www.ffclrp.usp.br](http://www.ffclrp.usp.br) → option **Pós-Graduação** → option **Formulários** → [Inscrição - Pós-Graduação](#));
- copy of the passport;
- copy of the university diploma or statement by the institution that the applicant has a degree in physics, biology, medicine, engineering, chemistry, mathematics, computer science or related courses to Applied Physics to Medicine and Biology;
- copy of the master's degree or certificate (containing the date of the approval), or statement from the institution that the defense of the dissertation is scheduled (containing the defense date, which must be prior to the date of enrollment in case of approval in the admittance process);
- copy of the transcript of the Master's degree;
- advisor's Term of Commitment (available at [www.ffclrp.usp.br](http://www.ffclrp.usp.br) → option **Pós-Graduação** → option **Formulários** → [Inscrição - Aceite do Orientador \(Todos Programas\)](#));
- letter to the Coordinating Committee of Program (CCP) on whether or not an institutional scholarship is required for the course completion;
- "curriculum vitae" (preferably Lattes);
- research proposal, developed with the future FAMB advisor.

**Direct Doctorate:** Applicants who do not hold a Master's degree must be subscribed upon request to CCP, accompanied by a justification by the future FAMB advisor. The candidate shall present the documents mentioned for a doctorate application, except for the diploma and transcript for the Master's degree.

**General:** The applicants who subscribes with incomplete documentation, or do not meet the requirements of the Program, will have their registrations rejected by the CCP. Enrollment will be subjected to the acceptance of candidates by a FAMB advisor.

**Admittance Process:** Applications approved by the CCP will proceed to the admittance process, taken in two phases. Each phase will be assigned a grade from 0 (zero) to 10 (ten). The first phase is eliminatory and will consist of a written test. Applicants who get grades lower than 6.0 (six) in the first phase will be eliminated from the admittance process. For the Master admittance, the second phase will consist of curriculum vitae analysis and interview. The grade of the second phase will be the arithmetic average of the grades from the analysis of the *curriculum vitae* and of the interview. Applicants with grades lower than 6.0 (six) in the second phase will be eliminated from the admittance process. For the Doctorate and Direct Doctorate, the second phase will consist of the analysis of the *curriculum vitae* and of the research proposal, and interview. The grade of the second phase will be the arithmetic average of the previous three items's grades. Applicants with grades lower than 6.0 (six) in the second phase will be eliminated from the admittance process.

The final grade obtained by the candidate is the arithmetic average of the first and second phases. The final grade will be used for classification and admittance purposes.

The written test (first phase) is valid for a period of three years, and can be used for applicants who have already taken the test but weren't accepted in the Program. In any cases, the last grade obtained in the written test will be considered.

Alternatively to the first phase, the applicants can use their score at the Unified Physics Exam (EUF - <http://www.ifsc.usp.br/~posgraduacao/inf/UnifiedExam2.php>). In this case, the EUF score will be linearly transformed to a FAMB grade (first phase) considering 6 (six) points the average grade in the global EUF exam and 10 (ten) points as the maximum grade.

**Written test:** The FAMB written test will have 4 hour duration and will consist of a total of 12 questions distributed as follows: 4 Physics questions, 4 Biological Sciences questions and 4 Mathematics / Computing questions. The candidate must solve 5 freely-chosen-questions from the 12 available questions.

The content for the candidate's preparation for the written test can be found on the following suggested bibliography:

Physics: The content will be related to the following topics: a) Mechanics; b) mechanical waves; c) fluids; d) Thermodynamics; e) electromagnetism; f) Optics; g) Modern Physics.

Halliday, D. and Resnick, R., Fundamentals of Physics, 2nd Edition: Vol. 1 - Mechanics; Vol. 2 - Gravitation, Waves and Thermodynamics; Vol. 3 - Electromagnetism; Vol. 4 - Optics and Modern Physics (chs. 38 to 41), Technical and Scientific Books Publisher, Rio de Janeiro, 1993.

Tipler, P., Physics, 4th Edition: Vol. 1 - Mechanics, Oscillations and Waves, Thermodynamics; Vol. 2 - Electricity and Magnetism, Optics, Technical and Scientific Books Publisher, Rio de Janeiro, 1999.

Keller, FJ, Gettys, WE and Skove, MJ, Physics: Vol. 1 and Vol. 2 (chs. 20 to 37), Makron Books of Brazil Editora Ltda, Sao Paulo, 1999.

Edminister, JA, Biophysics, Sarvier, 1998.

Okuno, E., Caldas, IL and Chow, C., Physics for Sciences Biomedical and Biomedical, Harbra Publisher, São Paulo, 1986.

JE Rodas Duran, Biophysics: Fundamentals and Applications, 2nd edition, MAKRON Books, 2005.

Biological Sciences: Content will be related to following topics: a) Molecular logic of life, b) Cells, c) Biomolecules, d) Water, e) Amino acids, f) Peptides, g) Proteins, h) Carbohydrates, i) Glycobiology, j) Nucleotides, k) Nucleic Acids and l) Lipids.

David L. Nelson, Michael M. Cox, Lehninger Principles of Biochemistry 4a. edition, São Paulo: Sarvier, 2006.

Bruce Alberts [et al.], Molecular Biology Cell, 4th edition, Porto Alegre: Artmed, 2008.

Harvey Lodish [et al.], Cell Biology and molecular, 5th edition, Porto Alegre: Artmed, 2005.

Mathematics / Computing:

Shenk, A., Calculus and Analytical Geometry, Vols. 1 and 2, Publisher

Campus, Rio de Janeiro, 1984. Leithold, L. The Calculus with Analytical Geometry, 2nd Edition, Vol. 1 and 2, Harper & Row do Brasil, São Paulo, 1982.

Forbellone, Andre Luiz Villar and Eberspacher, Henri Frederico, Programming Logic, Second Edition. Makron Books.

The written test can be taken in Portuguese, English or Spanish (English and Spanish under prior request from the candidate upon registration to the admittance process).

The candidate can request the revision of the correction of the written test. The request for revision will be accepted until noon on the business day following the release of the written test results. Such request for revision must be submitted in the form of a letter sent

to the Examining Committee of the Selection Process. The letter must clearly state which question(s) should be reviewed by the committee and the argument justifying the request for revision. The Examining Committee of the admittance process will judge the request and the revision. If the grade, after the revision is performed, is equal or above the minimum grade, the applicant will proceed to the second phase in the same day.

**Research proposal:** For the Doctorate and Direct Doctorate, the research proposal must be prepared by the candidate, in accordance with a FAMB advisor. The research proposal should be presented on A4 paper, font Times New Roman 12 pt, in a maximum of 10 pages. It should contain the following topics: Summary, Introduction (with theoretical framework) and Justification, Objectives, Methodology, Execution Schedule and Bibliography. The Examining Committee will evaluate the project awarding up to 2.0 points for each of the following: (a) originality and relevance; (b) objectives; (c) feasibility; (d) whether the bibliography is consistent and up to date, and (e) adequacy to the lines of research of the FAMB program.

The final grade will be the sum of the points awarded to each item.

**Curriculum Vitae:** Analysis of curriculum vitae will take into account the following items: (a) Undergraduate fellowship/training (up to 3.0 points); (b) Publication of scientific articles (up to 1.5 points); (c) Scientific initiation (up to 1.0 point); (d) Participation in scientific events (up to 0.5 point); (e) Internships (up to 0.5 point); (f) teaching assistant experience (up to 0.5 point); (g) Overall performance at the discretion of the committee (up to 3.0 points).

**Interview:** In the interview the Examining Committee will analyse the *curriculum vitae* and will question about the previous experiences of the applicant, also analyzing details of the research proposal in the case of Doctorate and Direct Doctorate applicants. The Examining Committee will assign a grade (from 0 to 10) to the interview.

**Classification:** The classification will take into account the final grade obtained by the candidate in the admittance process.

**Scholarship:** All scholarships will be distributed by CCP in internal analysis considering all students of the program.

**Periodicity:** The admittance process will take place in July and September of 2020, according to the demand of subscribed candidates. Accepted subscriptions will be informed by the program through their email addresses, at [www.ffclrp.usp.br](http://www.ffclrp.usp.br) → Postgraduate → Programs → Physics Applied to Medicine and Biology), and by notices in the Department of Physics, Block 3.

**General:** Documentation delivered upon registration will remain in the Graduate Service for 60 (sixty) days from the final result. Applicants that do not request their documentation in the 60 days period will have their documents discarded for recycling.

**Distance test:** Applicants from outside Brazil can perform a remote admittance process. To this end, the candidate must perform the written test in the presence of a doctoral professor from a college or university, who will be responsible for the application of the test. The professor must be nominated by the candidate upon subscription in the admittance process – the institutional e-mail address must be provided. The assigned professor will apply the written test and, up to two hours of its completion, e-mail the scanned copy of

the written test to the Selection Board. The interview will be done remotely by the Commission Examiner for applicants that progress to the second phase.

During the covid-19 pandemic restrictions the written test can be performed using videoconference applications. In such case, the candidates will receive a notice before the exams.

**Enrollment:** During the covid-19 pandemic restrictions, the candidates must contact the Graduate Service for information on how to officially enroll, in person or via e-mail. The documents are:

- 1) Enrollment form - Incoming Students Master / Doctorate;
  - 2) 3 x 4 photo;
  - 3) copy of the registered undergraduate diploma;
  - 4) Masters candidates must present a research proposal, developed in conjunction with the FAMB advisor, in up to a maximum of 90 days after the enrollment;
- i) in person: candidates will enroll in person, or using a letter of attorney, or via snail mail, at the Graduate Service from the Faculty of Philosophy, Sciences and Letters from University of Sao Paulo – address: Avenida Bandeirantes, 3900, Campus da USP – Ribeirão Preto – SP, CEP: 14040-901, from 8am to noon and from 2pm to 4 pm. Alternatively, for applicants who live outside Brazil, documents can be e-mailed to [famb@ffclrp.usp.br](mailto:famb@ffclrp.usp.br). In that case, original documents must be provided upon the enrollment for candidates accepted in the Program.
  - ii) via e-mail: candidates must send all the documentation in PDF format (each document in a separate file) to [posgraduacao@listas.ffclrp.usp.br](mailto:posgraduacao@listas.ffclrp.usp.br) using the subject “Matrícula (curso ME ou DO FAMB)”.

**Language Proficiency:** Students must present their language proficiency certificate no later than 6 (six) months after the enrollment, under penalty of the termination of the program.

English: The accepted exams and the minimum scores are:

- (a) TEAP (Test of English for Academic Purposes) - minimum score 65;
- (b) WAP (Writing for Academic Purposes) - minimum score 65;
- (c) PEICE (Proficiency Exam for International Communication) - minimum score 65;
- (d) TOEFL iBT (Test of English as a Foreign Language - Internet-based Test) - minimum score 70;
- (e) IELTS (International English Language Testing System) - minimum grade 4.5;
- (f) MTELP (Michigan Test of English Language Proficiency) - minimum score 7.0.

Foreign students from countries whose official language is English will be exempt from this examination.

Portuguese: Students from countries whose official language is not Portuguese must take a proficiency test in Portuguese. The student must subscribe to the exam, which will be prepared and applied by the CCP by the 10th of each month.

