



Universidad
Andrés Bello®
Conectar • Innovar • Liderar

DOCTORADOS UNAB

PhD in Astrophysics

ADMISIÓN 2022


Comisión Nacional
de Acreditación
CNA-Chile

3 ACCREDITED
years
The program is accredited for three
years by the CNA, starting March
2019 and ending March 2022.





01 Presentation

The PhD Program in Astrophysics is the result of a collaborative effort of the astronomy researchers in the Physical Sciences Department in the Exact Sciences Faculty. It was created to fulfill the mission of the Faculty: “The mission of the Exact Sciences Faculty is to develop and spread scientific knowledge, form advanced human capital in the disciplines cultivated within the Faculty, and provide knowledge of basic sciences for future professionals of the university according to the Educational Model, contributing to the scientific, social, and technological development of the country.” The PhD program comes from the determination of its members to fulfill their role in promoting the formation of advanced human capital and research in different areas of astrophysics, a discipline in which the country has many comparative advantages including observational and recording instruments that are unique in the world.

02 Credentials

The program is accredited for three years by the CNA, starting March 2019 and ending March 2022.

03 General Objective

The General Objective of the PhD Program in Astrophysics is to provide an excellent doctoral-level education, preparing its graduates to perform original and independent research whose results provide an important contribution to astronomical knowledge. Their research will also contribute to the development of the country and of science, making use of Chile’s relative advantages in access to international astronomical observatories with state-of-the-art instruments.



04 Specific Objectives

The Specific Objectives of the program are:

- Develop the critical thinking characteristic of the scientific method, based on advanced knowledge of the specific theories and methods of the areas of research of the Program and of the state of the art of astronomy.
- Propose and solve relevant and complex problems in the scientific domain, based on theoretical and methodological knowledge of the area of research.
- Educate the students in the process of proposing original and relevant research for the advancement of Astrophysics, as well as promote their integration in scientific collaborations in astrophysics and related sciences.
- Contribute to the generation of cutting-edge knowledge which enriches the national and international understanding and advancement of astronomy responsibly and ethically.

05 Graduate Profile

The graduate of the Astrophysics PhD Program at Andres Bello University is an independent researcher with solid knowledge in the area of Astrophysics, covering areas such as: data modeling and analysis; formation, evolution, and description of the Universe; and fundamental physical processes that regulate the formation and evolution of various objects, from planets to stars, galaxies, galaxy clusters, and large-scale structure.

The graduate is capable of performing original research using analytical and critical thinking abilities, allowing for the generation of new knowledge in the area of Astrophysics, in the research areas of Stellar Astrophysics, Extragalactic Astrophysics, and Cosmology.

The graduate is capable of communicating the results of a research project and forming part of research teams in academic institutions, observatories, and research centers.

**06****Astrophysics Research Lines****• Cosmology:**

This area covers the measurement of cosmological parameters, large-scale structure, dark matter and dark energy, as well as the characterization of the various stages of evolution of the Universe.

• Extragalactic Astrophysics:

This area covers the characterization of the structure and evolution of galaxies and their distinct components, as well as their association in groups and clusters.

• Stellar Astrophysics:

This area covers the characterization of physical processes that regulate the formation, evolution, and structure of exoplanets, stellar and sub-stellar systems and their relation to the interstellar medium and our Galaxy.

07

Program Director**Giuliano Pignata**

Ph.D. (Università degli Studi di Padova, Italia).

08

Academic Faculty**Matías Gómez**

Ph.D. (Pontificia Universidad Católica de Chile).

Timo Anguita

Ph.D. (Universität Heidelberg, Alemania).

Isabelle Gavignaud

Ph.D. (Université Paul Sabatier, Toulouse, Francia).

Julie Nantais

Ph.D. (Harvard University, EE.UU.).

Lorenzo Monaco

Ph.D. (Universidad di Bologna, Italia).

Claudio Cáceres

PhD (Pontificia Universidad Católica de Chile).

Dante Minniti

PhD in Astronomy (University of Arizona, EE.UU.).

Giuliano Pignata

Ph.D. (Università degli Studi di Padova, Italia).

Lucia Guaita

Ph.D. in Astronomy (Pontificia Universidad Católica de Chile)

Keiichi Onhaka

Ph.D. (University of Tokyo, Japón)

09

Guest Professor**Nicola Masetti**

Ph.D. (Universidad degli Studi di Padova, Italia).



10 Curriculum

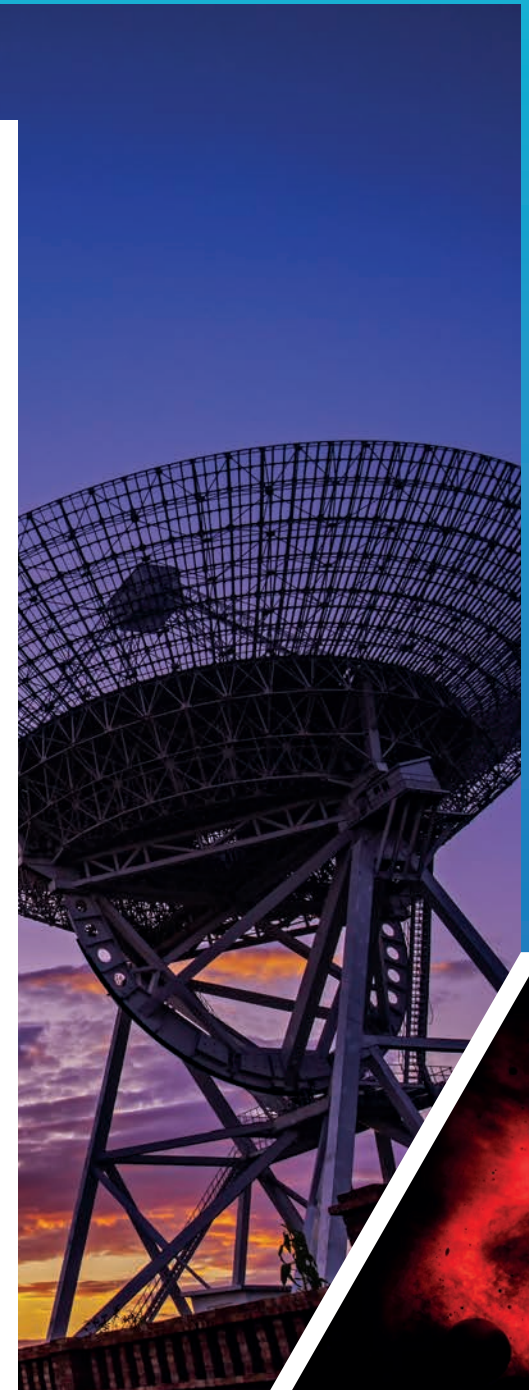
1º SEM	2º SEM	3º SEM	4º SEM	5º SEM	6º SEM	7º SEM	8º SEM
Advanced Stellar Astrophysics	Topics of Astrophysics	Thesis proyect Candidature Exam	Thesis I	Thesis II	Thesis III	Thesis IV	Thesis V
Advanced Extragalactic Astrophysics	Elective course II	Elective course IV					
Elective course I	Elective course III						
	Qualify exam						
30 SCT	30 SCT	30 SCT	30 SCT	30 SCT	30 SCT	30 SCT	30 SCT

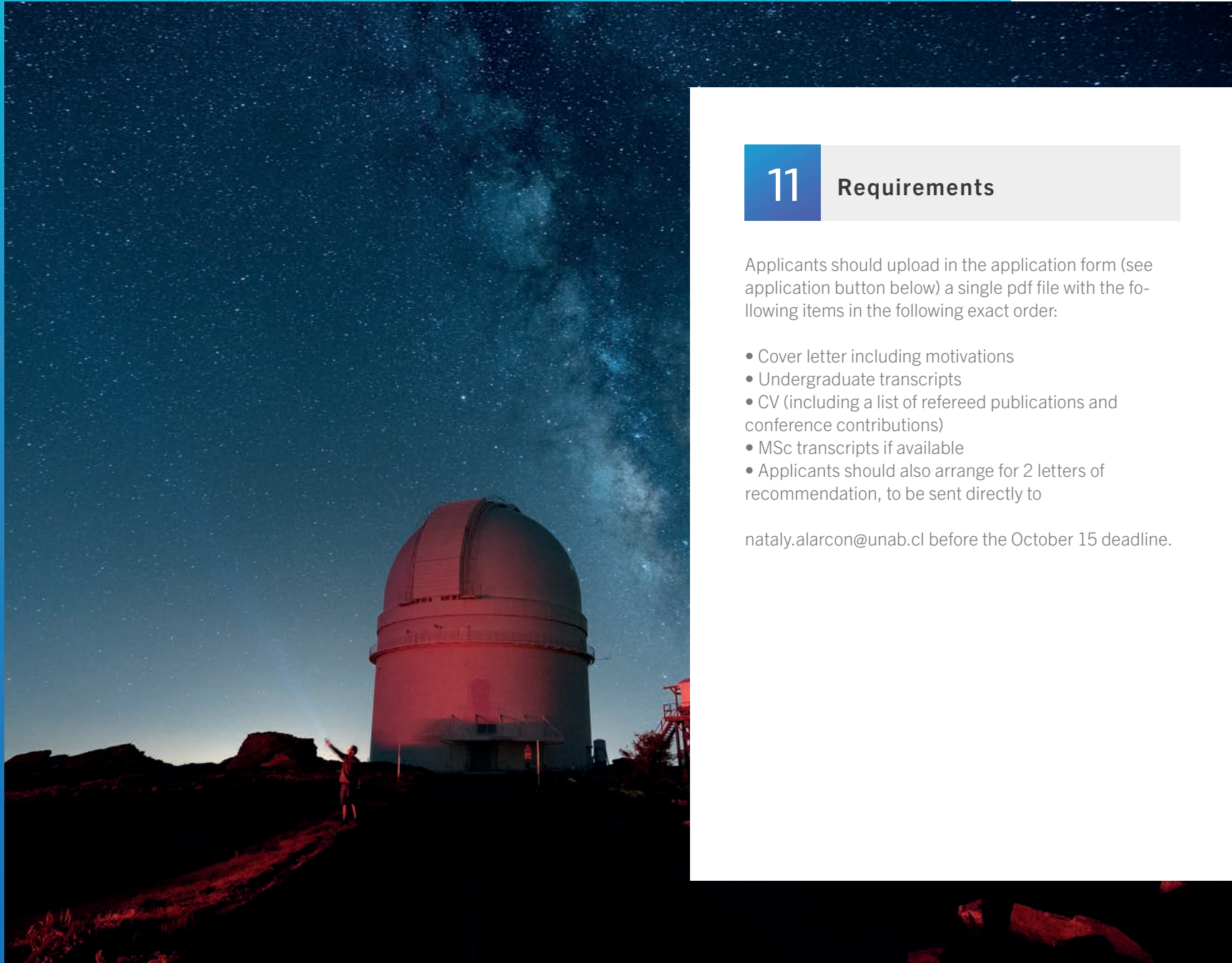
ELECTIVE COURSES

- Astrostatistics
- Supernovae
- Radioastronomy
- Gravitational lenses
- Extragalactic Stellar Systems
- Astronomical instrumentation and observatonal methods
- Cosmology
- Stellar Atmosphere
- Extrasolar Planets
- High angular resolution optical/infrared astronomy

MANDATORY COURSES

- Advanced Stellar Astrophysics
- Advanced Extragalactic Astrophysics
- Topic of Astrophysics





11 Requirements

Applicants should upload in the application form (see application button below) a single pdf file with the following items in the following exact order:

- Cover letter including motivations
- Undergraduate transcripts
- CV (including a list of refereed publications and conference contributions)
- MSc transcripts if available
- Applicants should also arrange for 2 letters of recommendation, to be sent directly to

nataly.alarcon@unab.cl before the October 15 deadline.

POSTULATIONS

<https://astrounab.cl/doctorado-en-astrofisica/>

INFORMATION

Dr. Giuliano Pignata
Director of the PhD in Astrophysics
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Timo Anguita
Academic Secretary of the PhD in
Astrophysics Program
timo.anguita@unab.cl



12 Scholarships and Financing

Andrés Bello University has different scholarships for its doctoral students, to learn more we invite you to visit the Doctorates home where you will find Scholarships and Financing Opportunities.

Tariff Scholarship

The grant program provides students accepted into a doctoral program, partial or total tariff scholarships, who must personally apply to the direction of the program. The scholarship percentage will be evaluated by the program, and must be renewed annually.

Academic Assistance Benefit

Academic Assistance, a monthly allowance covers the months from March 2021 until February 2022 or the corresponding months to complete the maximum permitted stay. This assignment must be renewed annually and may be extended for up to a maximum of 9 semesters of permanence in the program. To receive this benefit, the student must have his or her current enrollment for the 2022 academic year.

Requirements

Be a regular student of a UNAB PhD program.
 Begin to study at most, the 4th year in the Program.
 Not having any type of financing of similar or equivalent amounts, either through a labor contract, an honorarium contract, a scholarship benefit or payment per project.
 For programs accredited before the CNA, it is an obligation to apply to the CONICYT Contest of Scholarships for Doctoral Studies and the application must be admissible.
 Applications will not be accepted who have been out of bases. Proof of application must be attached to the form.

External scholarships

ANID Scholarship

ANID Scholarship: Through this support, it seeks to contribute to the increase in the number of researchers and professionals of excellence with high preparation in all areas of knowledge for the development of Chile and their active participation in the globalized world. In addition, increase the number of doctors of excellence by executing efficient processes and generate public data about selected, scholarship holders and graduates.



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Doctorado
en Astrofísica