PhD in

Astrophysics

ADMISSION 2026

Start of Applications:

July 25

Application Deadline:

September 5th

Formación de excelencia y generación de investigación de alto impacto

5 años

PhD in Astrophysics

ACCREDITED UNTIL NOV. 2027

Comisión Nacional de Acreditación CNA-Chile

https:/investigacion.unab.cl/doctorados-eng/astrophysics

Universidad Andrés Bello®

Program accredited for 5 years

8 semesters

Degree: PhD in Astrophysics

Faculty: Exact Sciences

Director: Timo Anguita

Research Lines

- Stellar Astrophysics
- Extragalactic Astrophysics
- Cosmology

01 Presentation

The PhD program in Astrophysics is the result of a collaborative effort by faculty researchers in Astronomy from the Department of Physical Sciences within the School of Exact Sciences. Its creation aligns with the mission of the School, which states:

"The School of Exact Sciences has the mission to develop and disseminate scientific knowledge, to train advanced human capital in the disciplinary areas it cultivates, and to provide foundational scientific education to the university's future professionals in accordance with the educational model, thereby contributing to the scientific, technological, and social development of the country."

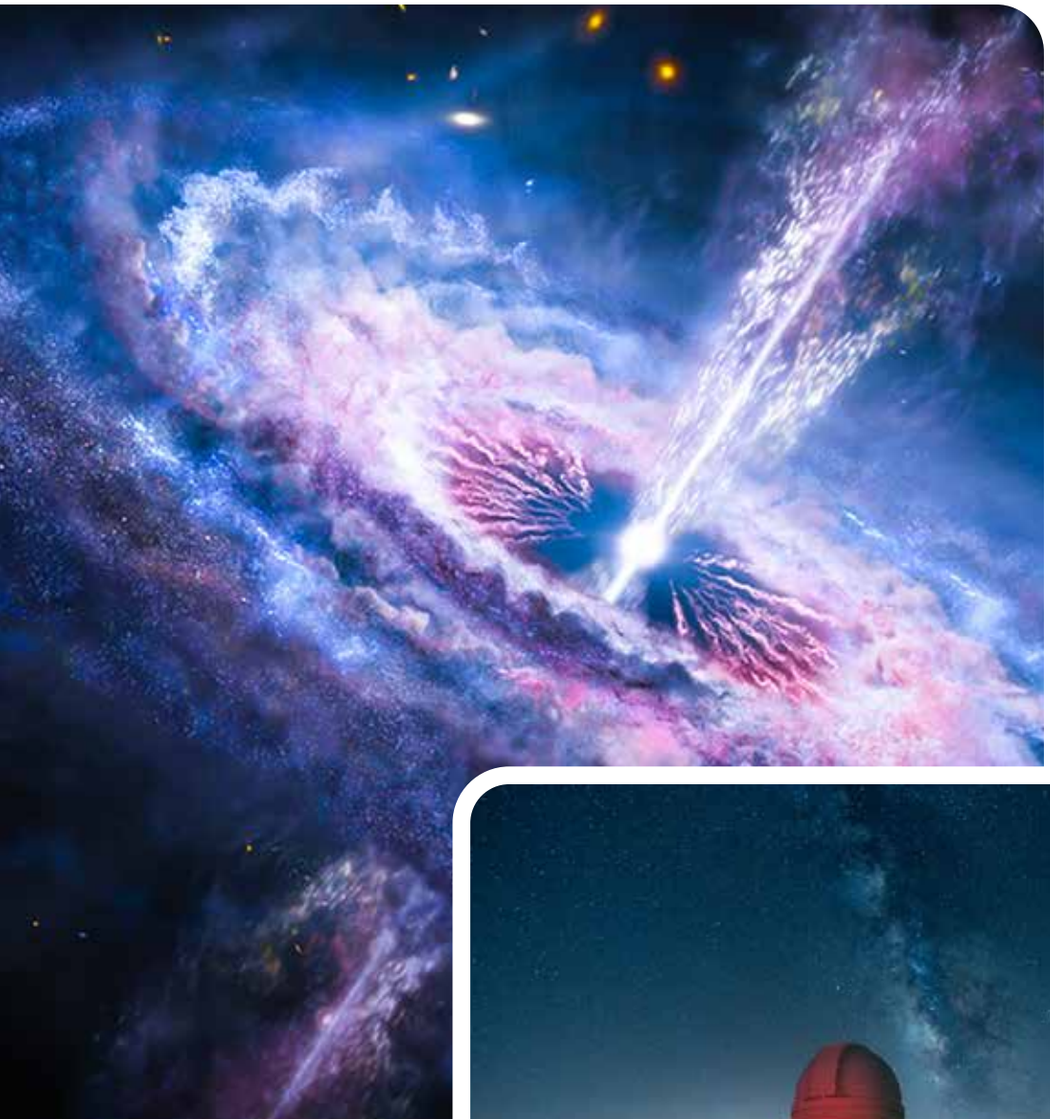
This program reflects the firm commitment of its members to fulfill their role in fostering the development of advanced human capital and promoting research across the various fields of astrophysics—an area in which the country holds recognized comparative advantages, including access to unique observational and recording instruments available nowhere else in the world.

02 Program Accreditation

Program accredited for 5 years, from 11/10/2022 to 11/10/2027 by the National Accreditation Commission.

03 General Objective

The objective of the Doctoral Program in Astrophysics is to provide a high-quality doctoral education that enables its graduates to conduct original, independent research that makes a significant contribution to the field of astronomy. The program aims to advance both national scientific development and global knowledge, leveraging from Chile's comparative advantages—particularly its access to international astronomical observatories equipped with state-of-the-art instrumentation.



04 Specific Objectives

The specific objectives of the program are to:

• Develop critical thinking aligned with the scientific method, grounded in an advanced understanding of the theories and methodologies associated with the program's research lines and the current state of the art in astronomy.

• Propose and solve complex, relevant problems in the scientific field by mastering the theoretical and methodological basis of the discipline.

• Train students in the development of original and impactful research proposals that advance the field of astrophysics, while also promoting their integration into scientific collaborations in astrophysics and related sciences.

• Contribute to the generation of frontier knowledge that advances the national and international understanding of astronomy, with a strong commitment to responsibility and ethical standards.

05 Graduate Profile

The graduate of the PhD Program in Astrophysics at Universidad Andrés Bello is an independent researcher with strong expertise in the field of astrophysics. Their training encompasses topics such as modeling and data analysis; the formation, evolution, and structure of the universe; and the fundamental physical processes that govern the formation and evolution of celestial bodies—from planets and stars to galaxies, galaxy clusters, and the large-scale structure of the cosmos.

They can conduct original research through analytical and critical thinking, contributing new knowledge to the field in areas such as Stellar Astrophysics, Extragalactic Astrophysics, and Cosmology.

Graduates also possess the skills to effectively communicate research findings and to integrate research teams within academic institutions, observatories, and research centers.

06 Research Lines

Stellar Astrophysics
This area focuses on characterizing the physical processes that govern the formation, evolution, and structure of exoplanets, sub-stellar and stellar systems, as well as their relationship with the interstellar medium and our galaxy.

Extragalactic Astrophysics
This area encompasses the characterization of the structure and evolution of galaxies and their various components, as well as their organization into groups and clusters.

Cosmology
This area involves the measurement of cosmological parameters, the study of large-scale structure, dark matter and dark energy, and the characterization of the different stages in the evolution of the universe.

07 Program Director

Timo Anguita
Ph.D. (University of Heidelberg, Germany).

08 Academic Committee

Timo Anguita
Ph.D. (University of Heidelberg, Germany).

Ignacio Araya
Ph.D. (University of Southern California, USA).

M. Celeste Artale
Ph.D. (University of Buenos Aires, Argentina).

Claudio Cáceres
Ph.D. (Pontifical Catholic University of Chile).

Ricardo Demarco
Ph. Ph.D. (University of Paris VII, Denis Diderot, France).

Bruno Dias
Ph.D. (University of São Paulo, Brazil).

Isabelle Gavignaud
Ph.D. (Université Paul Sabatier, Toulouse, France).

Matías Gómez
Ph.D. (Pontifical Catholic University of Chile).

Lucia Guaita
Ph.D. (Pontifical Catholic University of Chile).

Macarena Lagos
Ph. D. (Imperial College London, United Kingdom).

Dante Minniti
Ph.D. (University of Arizona, USA).

Lorenzo Monaco
Ph.D. (University of Bologna, Italy).

Julie Nantais
Ph.D. (Harvard University, USA).

Keiichi Ohnaka
Ph.D. (University of Tokyo, Japan).

Sandro Villanova
Ph. D. (University of Padua, Italy).

09 Visiting Professors

Yuri Beletsky
Ph.D. (Ludwig Maximilian
University of Munich, Germany).

Nicola Masetti
Ph.D. (University of Padua, Italy).

10 Study Plan

SEMESTER 1	SEMESTER 2	SEMESTER 3	SEMESTER 4	SEMESTER 5	SEMESTER 6	SEMESTER 7	SEMESTER 8
Advanced Stellar Astrophysics	Topics in Astrophysics	Thesis Project	Thesis I	Thesis II	Thesis III	Thesis IV	Thesis V
Advanced Extragalactic Astrophysics	Elective II	Elective IV					
Elective I	Elective III						Private thesis defense
	Qualification Exam	Candidacy Exam					Private thesis defense
30 SCT	30 SCT	30 SCT	30 SCT	30 SCT	30 SCT	30 SCT	30 SCT

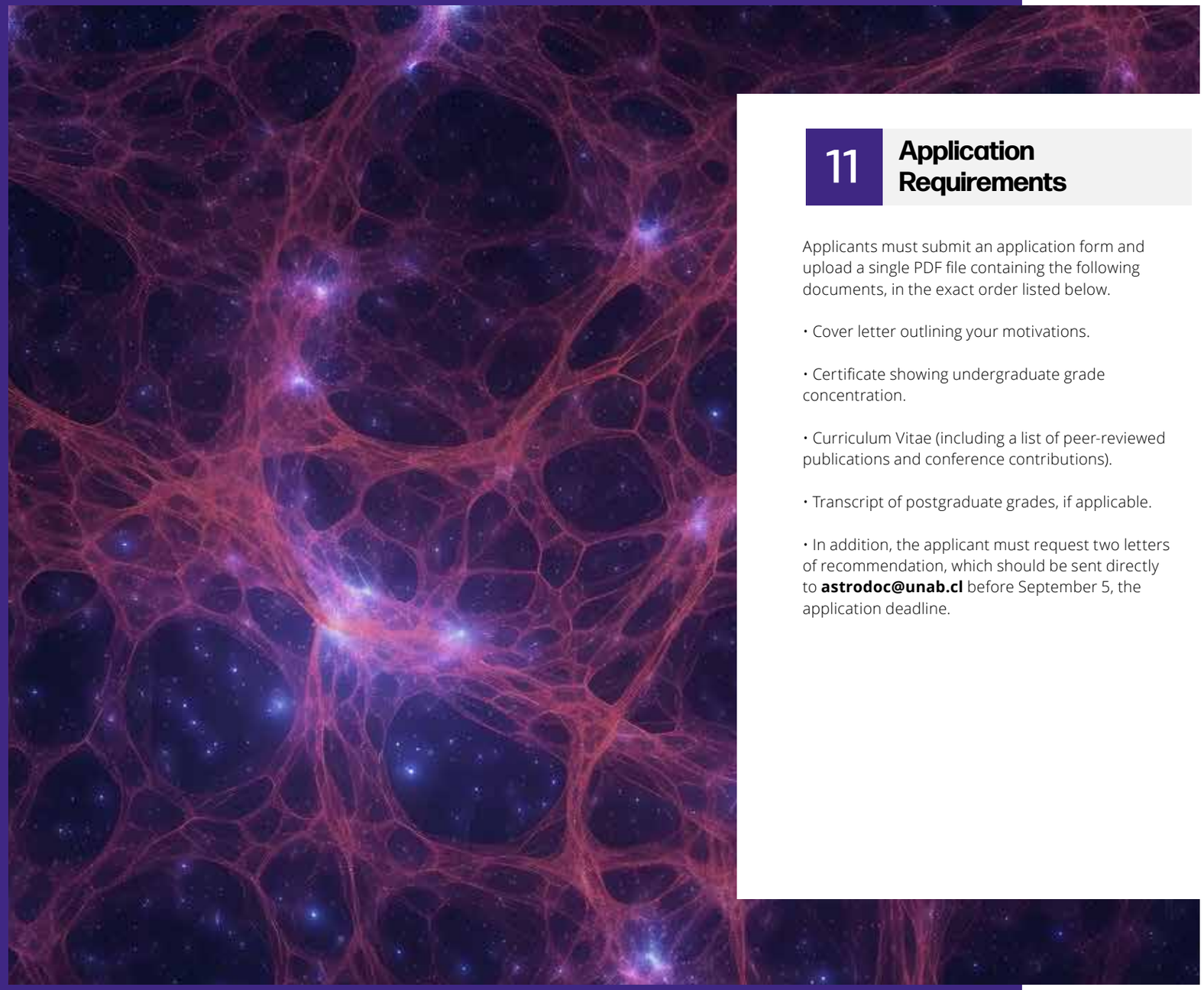
ELECTIVE COURSES

- Astrostatistics
- Radioastronomy
- Extragalactic Stellar Systems
- Gravitational Lensing
- Active Galactic Nuclei
- Astronomical Instrumentation and Observational Methods
- Cosmology
- Stellar Atmospheres Exoplanets
- Optical and Infrared Astronomy with High Angular Resolution
- Kinematics and Dynamics of Galaxies
- Cosmological Simulations
- Large-Scale Structures in the Universe

MANDATORY COURSES

- Advanced Stellar Astrophysics
- Advanced Extragalactic Astrophysics
- Topics in Astrophysics

SCT: Transferable Credit System



11 Application Requirements

Applicants must submit an application form and upload a single PDF file containing the following documents, in the exact order listed below.

- Cover letter outlining your motivations.
- Certificate showing undergraduate grade concentration.
- Curriculum Vitae (including a list of peer-reviewed publications and conference contributions).
- Transcript of postgraduate grades, if applicable.
- In addition, the applicant must request two letters of recommendation, which should be sent directly to **astrodoc@unab.cl** before September 5, the application deadline.

APPLICATION
July 25 to September 5, 2025

Applications at:
https://investigacion.unab.cl/doctorados-eng/astrophysics/

INFORMATION
PhD Program in Astrophysics
astrodoc@unab.cl

12 Scholarships and Competitive Funds

Maintenance Scholarship
All students accepted into the program will be able to apply for a maintenance scholarship corresponding to a monthly allowance for 12 months.

Tuition Scholarship
All students accepted into the program can apply for a tuition scholarship, which can cover up to 100% of its cost.

Requirements
• Be a regular student in an UNAB PhD program.

• Students enrolled at maximum in the the 4th year of the program.

• Must not receive any other funding of a similar or equivalent amount, including employment contracts, fee-for-service agreements, scholarship benefits, or project-based payments.

For programs accredited by the CNA, applicants are required to apply for the ANID National Doctoral Scholarship competition, and the application must be deemed admissible.

For more information, please visit the official webpage.

Option to Apply for UNAB Academic Funding Support
• Support for Attendance to Scientific Events

• Research Internships Abroad for PhD Thesis Students

• Initiation to Research

To review application details and requirements, go to
https://investigacion.unab.cl/financing/

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