

**Application Process for Postdoctoral Positions  
Universidad de O'Higgins  
March 2020**

**General Information**

1. This document presents the conditions and requirements for the March 2020 Application Process, for postdoctoral positions at Universidad de O'Higgins in Chile.
2. Universidad de O'Higgins is a Higher Education institution that undertakes the scientific research with excellence, giving people a comprehensive educational development, and with first and foremost contribution to the cultural, material, and social development in *Libertador General Bernardo O'Higgins* Region.
3. The academic organisation in Universidad de O'Higgins considers the existence of:
  - (i) Research Institutes and a multidisciplinary connection with the community;
  - (ii) Undergraduate and Postgraduate Schools.
4. The selected applicants will be appointed as fulltime postdoctoral researchers at the Institutes for a maximum of 2 years, and will be allowed to teach one course each year (3 class hours per week during one semester in the year) as part of their appointment.
5. Within the applicants, the university will select and appoint postdoctoral researchers (no minimum or maximum number per area), who will be destined to the following Institutes:
  - Social Sciences,
  - Educational Sciences,
  - Engineering Sciences,
  - Agrofood, Animal and Environmental Sciences,
  - and Health Sciences.

**Applicant profile**

6. The candidates should be in possession of a Doctoral Degree (obtained in the last 5 years), they should demonstrate potential to do research at an international level and to collaborate with the faculty members of the institute of adscription.
7. In addition to the research work, the postdoctoral researcher can assign part of their time for undergraduate teaching in their areas of specialty, teaching one

semester course per year. It is expected that the fulltime postdoctoral researcher will contribute significantly to the development of the academic project, and to the O'Higgins region as well, in their area.

8. To be part of the Social Sciences Institute, we invite researchers in the following areas:
  - Psychology of Education (Psychometrics): cognition and early mathematical development, multifactorial and/or hierarchical models for mathematical thinking (formal/informal) in small children.
  - Econometrics/Applied Mathematics and/or Engineering: relevant and diverse economic agents, from different sizes and nature, for analysis and diagnosis, descriptive, prescriptive and/or predictive studies.
  - Constitutional Studies: theory of law, theory of judicial argumentation, justice theory, the constitution, the formation of the constitutional state, fundamental rights, democracy and its institutionalization, judiciary control of the constitution, economic constitution, among others.
  - Socio-legal-Studies and/or empirical study of of the law and/or the judiciary system. Analytical skills, datasets and quantitative methods, statistical packages such as SPSS, STATA or R, Atlas.Ti or NVIVO.
  - Clinical and Health Psychology: Eating and Weight Disorders, quantitative research, especially in psychometrics.
  - Experimental Psychology: Associative learning, quantitative experimental research, programming (Python, E-Prime or similar), statistical analysis software such as SPSS, STATA or R.
  - Political Economics of political and institutional processes in Chile and Latin America, behavioral economics, programming, especially Python and R.
  - Economics of development, political economics, economics history, comparative historical analysis, and/or fiscal sociology.
  - Empirical Criminology: studies in criminology with quantitative and qualitative methodology. complex criminality, organized crime, financial crime, corruption, cybercrime, among others.
  - Environmental taxation or water law: dogmatic or theoretical analysis of environmental and water protection.
  - Sociology: Conflict and Social Crisis with mixed methodologies.
  - Natural Resources Economics, quantitative methods and application of theoretical models and governance frameworks to natural resources management and policy, especially in the water sector, statistical and econometric analysis using Stata and/or R, Geographical Information Systems (GIS).
  
9. To be part of the Health Sciences Institute, we invite to apply researchers and professionals from Health and/or Biomedical Sciences (Biology, Biochemistry,

Chemistry, Pharmacy, Medical Technology, and so on) or close areas with preferred specialization in the following: transmittable and non-transmittable diseases, chronic diseases, metabolic diseases, environmental diseases, environmental contaminants, among others. Specific research lines are: medicinal herbs, occupational health, mental health, severe mental problems, health determinants, sensorial and auditive fisiology, functional foods, cellular signalling associated with free fat acids, cellular communications. We expect applicants will demonstrate ability to work collaboratively with the faculty at the institute and create their own research lines.

10. To be part of the Education Sciences Institute, we invite to apply researchers with an international standard of quality in the areas of:

- Scientific Education, Teaching and Learning in Natural Sciences, Biology or Chemistry,
- Special Education, Educational Psychology, Inclusive Education, Learning Difficulties or close areas,
- Applied Linguistics, English Language, TESOL or close areas,
- Artistic Education, Teaching and/or Didactics of the Arts (Visual, Music, Scenic),
- Educational Psychology, Learning Difficulties, Child and/or Youth Development,
- First years, Initial Teaching, Early Childhood or close areas,
- Sociology of Education, Rural Education, Social Integration, Intercultural Education or close areas,
- Neurocognition, Cognitive Childhood Development and/or socioemotional processes that influence cognitive development,
- Mathematical Education (Teaching and Learning Mathematics, Teaching Training, Primary Education, Mathematical Skills),
- Education and/or Linguistics linked to reading and writing development in Primary, Secondary or Higher Education,
- Initial Teaching Training, Educational Policy, School Improvement or close areas, and
- Psicometric Models for Learning and Cognition, Test Classic Theory, IRT, Educational Statistics and Evaluation.

11. To be part of the Agrofood, Animal and Environmental Sciences Institute we invite to apply researchers from the following areas:

- Water resources management: natural resources, environmental sciences, or other related disciplines, in areas such as: water resources management, evaluation and availability of water resources, wastewater and industrial water treatment, among others.

- Irrigation/drainage or plant nutrition: intelligent water management (Smart irrigation), fertirrigation systems, soil-water-plant-atmosphere interactions, intelligent management of intrapredial water, use of advanced instruments and techniques for control and data analysis, measurements of organic matter and minerals in plants, nutrient deficiency and toxicity, use of biosolids and manures in the plant nutrition, nutrition and fertilization management in fruit and vegetable species.
- Climate change: bioclimatology, atmospheric sciences, environmental sciences, or a related discipline, in areas such as: agro-meteorology, air quality/pollution, natural disaster modelling, among others.
- Biostatistics and modelling: data sciences, (bio)statistics, applied mathematics, epidemiology, ecology, computer sciences, or in a related quantitative discipline. Multivariable statistical techniques, in the use of R, Stata, Python or other equivalent programming languages, management and analysis of large datasets, spatial or spatio-temporal statistics, Bayesian statistics, probabilistic modeling, network analysis, multilevel (hierarchical) modelling.

12. The Engineering Sciences Institute invites to apply researchers in the following areas:

- Applied Geosciences: Seismic Micro-zoning. Geophysical Exploration. Geotechnics and Rock Mechanics. Landslide Analysis. Modeling and Monitoring of Landslides. Extreme Rainfalls and Atmospheric Rivers. Remote Sensing of Precipitation. Sedimentary Flows in Basins in Central Chile and their Relation with the Climate.
- Physics and mechanics: Wave Turbulence. Surface Waves. Non-linear Waves in Soft Materials. Complex, Granular, and Multiphase Flows, Statistical Mechanics of Granular Media, Fluid-structure Interaction, Mechanical Vibrations, Mechanical Properties of Materials. Energy Efficiency and Conversion.
- Electrical Engineering and Computer Science: Computer Vision, Robotics and Machine Learning. Database and Symbolic Computation. Mathematical Modelling in Neuroscience and Ecology. Numerical Simulation for Deterministic and Stochastic Models. Sensors and Technologies for Acoustic and Ultrasound Imaging. Piezoelectric Transducers. Analysis and Control of Vibration. Power Electronics and Control Systems with Applications in Electricity Networks and Renewable Energy.
- Mathematics and Applications: Optimization. Algorithmic Design. Variational Analysis. Game Theory. Stochastic Models and Processes. Functional Analysis. Partial Differential Equations and Dynamical Systems. Mathematical Physics. Integer Programming.
- Systems Biology: Biotechnology, Biomedical Engineering and Medical Images, Biomining, Biological Networks, OMICS Technologies, Microbiomes.

### Requirements and documentation to apply

13. To be admitted in the application process, the applicants should meet the following requirements:
  - a) Hold a Doctoral Degree obtained in the last 5 years (or soon to be obtained within 3 months),
  - b) Demonstrate research ability at an international level, and
  - c) Show potential of collaboration with one or more faculty members from the Institute of application. (To guarantee this collaboration, one or more faculty members will be required to commit as tutor(s) for the postdoctoral researcher)
  
14. To certify the fulfilment of the requirements, the applicants will provide the following documentation (in PDF):
  - a) Curriculum Vitae
  - b) Academic and Professional Degrees
  - c) References: Name, position, institution, phone number and email address of three faculty in their area, available to issue a recommendation letter (they could be requested directly from the Academic Vice-Rector's office)
  - d) A proposal for their research plan (maximum 3 pages long), that accounts for the specific research area that they will develop, that includes the general exposition of the line of research and their relevance, precisising the innovative aspects to be developed, the focus currently being used, theoretical foundations and bibliographical analysis in which it is sustained, working hypothesis to guide their research, general and specific objectives to be obtained, methods and technologies to be used, activities and work plan for the next 2 years.
  - e) Identification of research lines(s) and/or faculty from the Institute with whom the applicant could collaborate and make a significant research contribution. Relevant information about the Institutes and their research lines and faculty at [www.uoh.cl](http://www.uoh.cl)
  
15. The original or certified copies of the required documentation to appoint the candidates, will be asked for after the selection process, when the appointment takes place.

### Application deadline

16. The applicants can apply for these positions and send the required documentation until March 31<sup>st</sup>, 2020, through the available platform for this purpose at [www.uoh.cl/#concurso-academico](http://www.uoh.cl/#concurso-academico) (in Spanish).

### Academic applications committee

17. The applicants will be selected by a Postdoctoral Application Committee, from now on referred as 'the Committee', which will be composed by:
- a) The Academic Vice-Rector, as president,
  - b) The Research Director, and
  - c) Three faculty members, designated by the Rector.
18. The members of the Committee will analyse the documentation of each candidate and, if they find it pertinent, will call them for an interview, in person or online.
19. The Committee will inform the Rector the results of the process, indicating the selected applicants according to the evaluation carried out.

### Application process results

20. The Rector will confirm or reject partially or in full the propositions of the Postdoctoral Applications Committee, ending the process.
21. The University's General Secretary will notify the selected professionals, informing the deadline to accept the position and also the documentation they need to send to appoint them and the respective deadlines.

### Stages and dates of the process

22. The stages and dates for the process will be the following:

Constitution of the Postdoctoral Applications Committee	January 30 <sup>th</sup> , 2020
Publication of the application process regulations	January 31 <sup>st</sup> , 2020
Reception and response of questions	March 2 <sup>nd</sup> to 16 <sup>th</sup> , 2020
Reception of applications deadline	March 31 <sup>st</sup> , 2020
Evaluation of applicants' background information	April 1 <sup>st</sup> to 20 <sup>th</sup> , 2020
Final Report by the Academic Applications Committee	April 21 <sup>st</sup> , 2020
Results report to the Rector	April 22 <sup>nd</sup> , 2020
Decision by the Rector	April 23 <sup>rd</sup> , 2020
Notification to applicants	April 24 <sup>th</sup> , 2020

### Conditions of affiliation to the university

23. The selected candidates will be appointed as postdoctoral researchers of Universidad de O'Higgins, for one year and, according to evaluation, their contract will be extended for an additional year.
24. The gross salary of a postdoctoral researcher will be \$1700000 Chilean pesos, equivalent to US\$2100 dollars app.
25. During each year of appointment, the postdoctoral researcher will have at their disposition a research-related activities mobility fund of \$2500000 Chilean pesos, equivalent to US\$3100 dollars app.

### Application and questions

26. The applicants can ask questions to the email: [concursoacademico@uoh.cl](mailto:concursoacademico@uoh.cl), they can also download the requirements and send their applications and documentation through the platform, available at: [www.uoh.cl/#concurso-academico](http://www.uoh.cl/#concurso-academico), no later than March 31<sup>st</sup> 2020.
27. Questions can be asked from March 2<sup>nd</sup> to 16<sup>th</sup>, 2020 through the platform mentioned before.

Rancagua, January 31<sup>th</sup> 2020.