

Marcelo Gallardo

MATHEMATICS · PUCP

San Isidro, Lima, Peru

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Education

Pontificia Universidad Católica del Perú

B.S. AND LIC. MATHEMATICS

- **Master courses:** Optimal Transport, Stochastic Processes, Advanced Microeconomics
- 18.7/20

Lima, Pe

2020 - Present

Q-LAB

PUCP

- **Courses:** Machine Learning for Social Sciences, Time Series and Machine Learning for Macroeconomics, Finance, Applied Econometrics, Asset Pricing, Empirical Industrial Organization

Lima, Pe

January-February 2022, 2023 and 2024

École Polytechnique Fédérale de Lausanne

CYCLE PROPÉDEUTIQUE PHYSICS

- **Courses 2019:** Advanced Real Analysis for Physicists, Advanced Linear Algebra for Physicists, Advanced Mechanics
- **Courses 2020-2021:** Numerical Physics I, Numerical Physics II

Lausanne, SW

September 2019 - January 2020

Experience

Pontificia Universidad Católica del Perú

Teaching Assistant

- **Mathematics for economists 3.** Undergraduate. With Professor PhD Jorge R. Chávez.
- **Mathematics for economists 4.** Undergraduate. With Professor PhD Jorge R. Chávez.
- **Convex Optimization.** Undergraduate. With Professor PhD Jorge R. Chávez.
- **Functional Analysis.** Undergraduate. With Professor PhD Percy Fernández.
- **Microeconomics 2.** With PhD Pavel Coronado.

Lima, Pe

March 2022 - November 2022 and March

2024-present

Grupo de Análisis para el Desarrollo

RESEARCH ASSISTANT

- Collaborating with PhD Juan L. Jara Almonte.
- Creation of lecture notes for the course Fundamentals of Econometrics.
- Working paper: innovation indicator in Peruvian universities. Data collection, processing, k-means clustering and confirmatory factor analysis.
- Explore and eventually develop a statistical package and test to study structural changes in parameters.

Lima, Pe

March 2022 - November 2022 and

October 2023-present

Pontificia Universidad Católica del Perú

RESEARCH ASSISTANT

- Collaborating with PhD Jorge R. Chávez.
- Pre-published book about Linear Algebra and Static Optimization for Economists.
- Working book about Dynamical Systems and Optimal Control in continuous time.

Lima, Pe

March 2021-present

UNSW Sydney

RESEARCH ASSISTANT

- Collaborating with PhD Juan Carlos Carbajal.
- Literature review, expositions, mathematical derivations, academic and logistical support.

Sydney, Au

March 2024-present

Working papers, papers and others

Harnessing Twitter and GPT for a Novel Political Uncertainty Index for Peru: Implications for USD/PEN Exchange Rate Fluctuations with Manuel Loaiza and PhD Gabriel Rodríguez.

Innovation in Peruvian universities with PhD Juan L. Jara.

Brouwer fixed point theorem and applications in general equilibrium with Carlos Cosentino and Eduardo Llamoca.

Lecture notes in Optimal Transport: Entropic Regularization and Applications to Economics and Finance with Carlos Cosentino and mentored by PhD Johel Beltrán.

Lecture notes in Econometrics: with PhD Juan L. Jara.

Books

Linear Algebra and Optimization for Economists (pre-published) with PhD Jorge R. Chávez.

Dynamical Systems and Optimal Control Theory in Continuous Time for Economists (working) with PhD Jorge R. Chávez.

Awards, & achievements

12/2018 **Mention d'excellence au BAC, top mark 19.91/20**, Colegio Franco Peruano, Lima PE
05/2019 **Admission to l'X Bachelor Program**, Paris, France
12/2020 **Contest initiation to scientific research**, PUCP Lima, PE
12/2021 **Contest initiation to scientific research**, PUCP Lima, PE
2022-2023 **Ranked first in Economic courses.**, PUCP Lima, PE
2022- **Top 5% Faculty of Sciences and Engineering**, PUCP Lima, PE
2022- **Ranked first in my class in the Mathematics major.**, PUCP Lima, PE

900 s/.
900 s/.

Skills

Programming: Python, \LaTeX , Matlab, STATA

Languages: Spanish (Native), French (Proficient), English (Proficient).

Research interests

Economic theory. Optimization and convex analysis. Optimal control theory. Optimal Transport. Quantitative methods applied to economics.

References

1. **Jorge R. Chávez Fuentes.** Professor of the Mathematics Department at Pontificia Universidad Católica del Perú.
2. **Juan L. Jara Almonte.** Professor of the Economics Department at Pontificia Universidad Católica del Perú and Research Associate at GRADE.
3. **Juan Carlos Carbajal.** Associate Professor Post-Graduate Coordinator (PhD program) School of Economics, UNSW Sydney
4. **Alfredo B. Poirier Schmidt.** Professor of the Mathematics Department at Pontificia Universidad Católica del Perú.
5. **Johel V. Beltrán Ramírez.** Professor of the Mathematics Department at Pontificia Universidad Católica del Perú and Visiting Professor at Fundação Getulio Vargas.
6. **Pavel Coronado.** Professor of the Economics Department at Pontificia Universidad Católica del Perú and Q-LAB director.
7. **Percy Fernandez.** Professor, Faculty Coordinator and Graduate School Director of the Mathematics Department at Pontificia Universidad Católica del Perú.