

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

QLab

PUCP

- **Courses:** Machine Learning for Social Sciences, Time Series and Machine Learning for Macroeconomics and Finance, Applied Econometrics

Lima, Pe

January 2022 and January 2023

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

- Creation and correction of problem sets.
- **Mathematics for economists 3:** real dynamical systems in continuous and discrete time.
- **Mathematics for economists 4:** basic convex analysis, static and dynamic optimization (optimal control).

Lima, Pe

March 2022 - November 2022

Grupo de Análisis para el Desarrollo

RESEARCH ASSISTANT

- Collaborated with Professor Juan L. Jara Almonte.
- Creation of lecture notes for the course Fundamentals of Econometrics.
- Working paper: innovation indicator and relation with other variables. Data processing, k-means clustering and confirmatory factor analysis.

Lima, Pe

2022 and October 2023-present

Pontificia Universidad Católica del Perú

RESEARCH ASSISTANT

- Collaborated with Professor Jorge R. Chávez Fuentes.
- Working book about Linear Algebra and Static Optimization for Economists.
- Developed several proofs, examples and exercises, above all related to microeconomics.
- Working book about Dynamical Systems and Optimal Control in continuous time.
- Calculus of variations, economic growth models (Solow, Ramsey-Cass-Koopsman).

Lima, Pe

2022-2023

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 Gabriel Rodríguez.

Innovation in Peruvian universities, what is new? with 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 supervised by Johel Beltrán.

Lecture notes in Econometrics: with Juan L. Jara.

Books

Linear Algebra and Optimization for Economists with Jorge R. Chávez.

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

Awards, & achievements

2018 **Mention d'excellence au BAC, top mark 19.91/20**, Colegio Franco Peruano, Lima PE
2019 **Admission to l'X Bachelor Program**, Paris, France
2020 **Contest initiation to scientific research**, PUCP Lima, PE
2021 **Contest initiation to scientific research**, PUCP Lima, PE
2022- **Top 1% Faculty of Sciences and Engineering**, PUCP Lima, PE

900 s/.
900 s/.

Skills

Programming: Python, Matlab, Mathematica, \LaTeX

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

Research interests

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

References

1. **Jorge R. Chávez Fuentes.** Professor of the Mathematics Department at Pontificia Universidad Católica del Perú.
2. **Alfredo B. Poirier Schmidt.** Professor of the Mathematics Department at Pontificia Universidad Católica del Perú.
3. **Johel V. Beltrán Ramírez.** Professor of the Mathematics Department at Pontificia Universidad Católica del Perú.
4. **Juan L. Jara Almonte.** Professor of the Economics Department at Pontificia Universidad Católica del Perú and Research Associate at GRADE.