

# Eduardo Alarcón-Bustamante

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## Education

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- 2021      PhD in Statistics, Pontificia Universidad Católica de Chile, Santiago, Chile.  
Thesis: *Modelling predictive validity problems: A partial identification approach.*  
Advisor: Ernesto San Martín and Jorge González
- 2012      MSc in Applied Statistics, Universidad de Concepción, Concepción, Chile.
- 2009      Teaching degree in Math and Computer Sciences, Universidad Católica del Maule, Talca, Chile.

## Academic Appointments

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- Since 2021    Part-Time Lecturer, Department of Statistics, Pontificia Universidad Católica de Chile.
- 2018 – 2021    Teaching Assistant, Department of Statistics, Pontificia Universidad Católica de Chile.
- 2011 – 2016    Part-Time Lecturer, Faculty of Basic Sciences, Universidad Católica del Maule.
- 2012 – 2016    Part-Time Lecturer, Institute of Mathematics and Physics, Universidad de Talca.

## Research Experiences

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- *Development of Modelling Tools for a Predictive Validity Agenda for University Admissions.* Postdoctoral FONDECYT 3220422 (April, 2022-April, 2025). Principal Investigator.
- *Millenium Nucleus on Intergenerational Mobility: From modelling to Policy (MMOVI)* NCS2021072. Postdoctoral Researcher.
- *A Multi-center, Randomized, Double-blind, Placebo-controlled Phase III Clinical Trial to Evaluate the Efficacy, Immunogenicity and Safety of Inactivated COVID-19 Vaccine (Vero Cell) in Children and Adolescents Aged 6 months to 17 Years (PRO-nCOV-3002).* Sinovac Life Sciences Co., Ltd. (2021/07/01 – 2022/12/31). Data Manager and Statistician.
- *Ignoring Ignorability: Towards a Realistic Educational Research.* FONDECYT 1181261 (2018–2021). Technical Staff.

## Teaching

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### Pontificia Universidad Católica de Chile

#### Graduate level

- Exploratory and Computational Methods for Statistics (I-2019, I-2021), Advanced Statistical Methods III (I-2019), Advanced Statistical Methods II (II-2018). (Teaching Assistant) in *PhD degree, Statistics*.

#### Undergraduate level

- Statistical Software (I-2021), Psychometric (II-2021), in *Statistics program*.
- Statistics and Probability (II-2021), in *Political Science Program*.
- Statistics for Chemistry and Pharmacy (I-2021). In *Pharmaceutical Chemistry program*.
- Introduction to Data Management and Exploration (I-2021), (Computational Laboratory) in *Statistics program*.
- Biostatistics (I-2020), Statistical Methods (II-2019). (Teaching Assistant) in *Statistics program*.

### Universidad de Talca

- Statistics and probability (I-2012 to II-2016) in *Undergraduate level, Civil Engineering*.
- Statistical Analysis (I-2016) in *Undergraduate level, Psychology*.
- Statistical quality control (II-2015, I-2016) in *Undergraduate level, Industrial Civil Engineering*.
- Statistics I (I-2014), Statistics II (I-2014) in *Undergraduate level, Public Accountant and Auditor*.

### Universidad Católica del Maule

#### Graduate level

- Data processing and random games (2014, 2015, 2016), Probability Models (2015, 2016) in *MSc degree, Didactic of Mathematics*.
- Biostatistics (II-2015), Advanced Biostatistics (I-2016) in *MSc degree, Nursing*.
- Fundamentals of Statistics (II-2014, 2015) in *MSc degree, Education*.

#### Undergraduate level

- Didactic of Statistics (II-2016), Statistics I (II-2016) in *Teaching in Maths and Computer Sciences program*.
- Biostatistics (II-2011, I-2012) in *Nutritionist program*.
- Linear regression analysis (I-2011), Statistics and experimental designs (II-2011) in *Forest Engineering program*.

## Publications

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- [1] Alarcón-Bustamante, E., San Martín, E. & González, J. (2021). On the marginal effect under partitioned populations: Definition and Interpretation. In Wiberg, M., Molenaar, M., González, J., Böckenholt, U., and Kim, JS. (Eds.), Quantitative Psychology: The 85th Annual Meeting of the Psychometric Society, Virtual. Springer Proceedings in Mathematics & Statistics. [DOI]
- [2] Alarcón-Bustamante, E., San Martín, E. & González, J. (2020). Predictive validity under partial observability. In Wiberg, M., Molenaar, M., González, J., Böckenholt, U., and Kim, JS. (Eds.), Quantitative Psychology. IMPS2019. Springer Proceedings in Mathematics & Statistics, vol 322. Springer, Cham. [DOI]
- [3] Cornejo, J., Tapia, J., Guerra, F., Yáñez, M., Baettig, R., Guajardo, J., Alarcón, E. & Vidal, G. (2017). Variation in Copper Accumulation at the Tissue Level of Five Hybrid Poplars Subjected to Copper Stress. *Water Air and Soil Pollution*, 228:212. [DOI]
- [4] Vásquez, B. & Alarcón, E. (2016) Inclusión en universidades chilenas: del discurso a interacciones prácticas, políticas y culturales. *Pensamiento Educativo. Revista de Investigación Educativa Latinoamericana*, 53(2), 1-19. [DOI]

## Working papers

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- [1] *Influences on the access to higher education: visualization and modeling for Chilean data*. Joint work with Bastian Olea-Duran, Francisco A. Segovia, Nixon Jerez-Lillo, and Danilo Alvares (Submitted for review).
- [2] *Dissecting Chilean surveys: the missing outcomes case*. Joint work with Ernesto San Martín.
- [3] *A functional predictive validity coefficient for partially observed populations*. Joint work with Ernesto San Martín and Jorge González.

## Fellowships

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- 2020 ANID, *Doctoral Internship in Umeå University, Sweden*. Chilean Government.
- 2020 ANID, *Doctoral Internship in Cornell University, USA*. Chilean Government.
- 2018 CONICYT, *Beca Doctorado Nacional, año 2018*. Chilean Government, PhD Scholarship.
- 2017 Vicerrectoría de Investigación, Pontificia Universidad Católica de Chile. *Teaching Assistant*. PhD Scholarship.
- 2010 Graduate School, Universidad de Concepción. *Beca de estipendio y Beca de exención de matrícula*. MSC Scholarship.

## Selected oral presentations

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- [1] *Marginal effect in selection tests: A partial identification approach*. (Virtual) International Meeting of the Psychometric Society. July, 2021.
- [2] *Global Marginal Effect: the total effect in partitioned populations*. XXXIII Jornadas de Matemática de la Zona Sur. Abril 20-24, 2021. Universidad de la Frontera, Temuco, Chile.
- [3] Alarcón-Bustamante, E. (2021, Feb) *Predictive Validity Under Partial Observability*. Paper selected for presentation at the International Objective Measurement Workshop (IOMW) Conference, Berkeley, CA. <https://www.iomw.org/>.
- [4] *Ignorabilidad o no Ignorabilidad... esa es la cuestión*. 16° aniversario de la carrera de Pedagogía en Matemática y Computación, Universidad Católica del Maule. Noviembre, 2020.
- [5] *New Insights on marginal effects*. (Virtual) International Meeting of the Psychometric Society. July, 2020.
- [6] *Partial identification in predictive validity of selection tests*. International Meeting of the Psychometric Society, Santiago, Chile. July, 2019.
- [7] *La inclusión en la universidad chilena, desde el discurso hacia las interacciones*. Cuarto congreso interdisciplinario de investigación en Educación, Santiago, Chile. Agosto, 2017.
- [8] *Datos, azar y probabilidades en el ayer, hoy y siempre*. Primer seminario de Matemática para docentes de establecimientos PACE. Universidad Católica del Maule, Talca, Chile. Noviembre, 2016.

## Academic Relevant Information

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- Associate Researcher to the [Interdisciplinary Laboratory of Social Statistics](#) (LIES), since 2018.
- Secretary of the [Chilean Society of Statistics](#), SOCHE, 2020-2021.
- Member of the Volunteer Team, International Meeting of the Psychometric Society, 2019.

## Events Organiser

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- [Ciclo de Coloquios “Ciencia, Política, Políticas Públicas: ¿Qué relaciones?”](#), LIES - UChile. April - October, 2021.
- Symposium *Identification Problems in Empirical Research*, International Meeting of the Psychometric Society, 2021.
- Symposium *Advanced topics in admission university tests*, International Meeting of the Psychometric Society, 2019.

## Skills

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- **Softwares:** R, SQL, SAS, SPSS, Minitab, Excel,  $\LaTeX$ .
- **Languages:** Spanish (native), English (advanced).

Last updated: January, 2022