

Marcia Andrea Zambrano Riquelme

ASSOCIATE PROFESSOR

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Vast experience in bidirectional link between undergraduate students and problems of the territory through "Experiential Learning" using "Design thinking", collaborative process to develop key competencies in the students.

Expert in the use of Participatory Methodologies, to address environmental problems in the forestry industry using Lean Management tools, for Stakeholders of the forestry industry (company personnel, community and suppliers).

TECHNICAL SKILLS

- ◆ Specialist in Processes and Integrated Management Systems. With experience in Engineering and Environment.
- ◆ Specialist in strengthening local environmental governance, in NOGAL space for cooperation and participation between the Ministry of the Environment and different universities, research centers, social organizations, communities and associations of municipalities around environmental and climate challenges at a community level.
- ◆ Expert in the use of Participatory Methodologies, to address environmental problems in the forestry industry using Lean Management tools.

STUDIES AND PROJECTS

2021-2022

General Coordinator of the Project "PRODUCTION OF BERRY JUICES WITH IMPROVED QUALITY BY NON-TRADITIONAL PROCESSES" in La Araucanía Region CODE PYT-2021-0626. Agricultural Innovation Fund.

2017-2023

UFRO Representative (in charge)

"Environmental Assistance Clinics", Project Ministry of the Environment and La Frontera University

2018- at Present

Juror and expert evaluator of student projects of a Cornerstone Civil Engineering course at the "Engineering Challenge Fair".

2019-2020

Preliminary conceptual development of an ABM model for the modernization of a Mapuche agricultural cooperative Start your Idea Fund Universidad de La Frontera/Universidad de Los Andes.

2017

Researcher in charge

"Implementation of a cornerstone course: Introduction to Engineering". UFRO

2014-2015

Researcher in charge

"Toxicity indicators in waste compost from the Kraft Pulp Industry".

PUBLICATIONS

- Zambrano M. and Vidal G. (2001). "Indicadores de toxicidad en compost de residuos de la Industria de Celulosa Kraft". *Residuos* 56: 108-112.
- Arias M., Zambrano M, Gallardo, F. y Vidal, G. (2003). " Utilización de dregs y grits provenientes del proceso de fabricación de celulosa kraft en la productividad vegetal". *Afinidad* 60(503): 16-25. 2003
- M. Zambrano, J. Freer, M. Villarroel, J. Baeza and G. Vidal. (2007). "Using second-order polynomial model to determine the optimum dregs-bark ratio for industrial sludge composting: initial conditioning stage". *Waste Management Research* 25 (4), 319 – 326. 2007
- M. Zambrano, V. Parodi, J. Baeza and G. Vidal. (2007). Acids soils's pH and nutrient improvement amended with inorganic solid wastes from Kraft mill. *J. Chil. Chem. Soc.* 52 (1), 1088-1091. 2007
- M. Zambrano, C. Pichún, J. Freer, G. Vidal y J. Baeza. (2008). Efecto de la utilización de dregs en aspectos físicos y químicos en el compostaje de lodos industriales provenientes de la industria de celulosa Kraft. *AIDIS*, 1 (4). 2008. *Ingeniería Sanitaria* V1,4 (ISSN 0718 – 378 X)
- M. Zambrano, J. Baeza y G. Vidal. (2010). Caracterización físico-química y toxicologica de compost obtenido a partir de residuos de la industria de celulosa kraft. *Ingeniería Química* 37,13-18 2010
- M. Zambrano, C. Pichún., M. Alvear , M. Villarroel , I Velásquez., J. Baeza and Vidal G.(2009). Dreg effect on secondary sludge composting from Kraft pulp mill wastewater treatment plant. *Bioresource Technology* 101(3), 1028-1035.

- Marcia Zambrano Riquelme, Dante Rodríguez-Luna, Francisco Javier Alcalá, Olga Rubilar, Marysol Alvear, Francisco Encina-Montoya and Gladys Vidal (2023). Composting as an alternative for the treatment of solid waste from the Kraft pulp industry. *Agronomy* 13, 1099. <https://doi.org/10.3390/agronomy13041099>
- Dante Rodríguez-Luna, Olga Rubilar , Marysol Alvear, Joelis Vera and Marcia Zambrano Riquelme (2024). Implementation of Environmental Engineering Clinics: A Proposal for an Active Learning Methodology for Undergraduate Students. *Sustainability* 16 (1), 365. <https://doi.org/10.3390/su16010365>

PROFESSIONAL EXPERIENCE

2021 at Present

Director of the Environmental Civil Engineering Undergraduate Program at La Frontera University, Chile.

Designing and implementing the Career Development Plan, leading its self-assessment, evaluation of the Study Plan, coordinating with the departments which provide services to the career the most pertinent pedagogical approaches for the curricular implementation of the career.

Coordinating bidirectional linking activities with the environment and carrying out follow-up graduates together with workshops with employers to provide feedback on the Career Study Plan.

1997 at Present

Associate Professor of the Department of Chemical Engineering at La Frontera University, Chile.

An Associate Professor is considered to be the one who has prestige and reputation for the knowledge about his discipline and his contribution to it, both in study and in research.

1991 – 1996

Process Engineer at CMPC Pulp Mills Company, Mininco-Chile

Analyzing and executing the rising and management of productive indicators of the plant, with the purpose of contributing with information that allows generating greater operational continuity in production according to quality and service standards. Responsible for keeping the risk analysis and evaluation system updated in product safety, quality and legality.

ACADEMIC BACKGROUND

2022

"Outstanding teacher award" La Frontera University-Chile - Faculty of Engineering and Sciences.

2007 Concepcion University - Chile

PhD in Forest Sciences.

Doctoral Thesis: Optimization of the aerobic composting process of solid waste from the kraft pulp industry and its effect on the growth of *Pinus radiata* d. don.

Conicyt Aide Program for payment of doctoral studies and maintenance stipend

1991 La Frontera University-Chile - Faculty of Engineering and Sciences

Industrial Civil Engineer.

Thesis: Start up of a multipurpose pilot dryer

OTHER STUDIES

2022 TÜV Rheinland

Lead auditor EnMS (Energy Management System) ISO 50001:2018

2022 TÜV Rheinland

Lead auditor OH&SMS (Occupational Health and Safety Management System) ISO 45001:2018.

2021 TÜV Rheinland

Lead auditor EMS (Environmental Management System) ISO 14001:2015.

2021 TÜV Rheinland

Lead auditor QMS (Quality Management System) ISO 9001:2015. Lead Auditor in ISO 14001/2015 standards; EMS ISO 14001:2015

2021 "Training Citizen in Higher Education", taught by the Consortium of State Universities.

January to July, 1981

Exchange Student for 6 months in Oklahoma City, Oklahoma.

COMMUNITY SERVICE

2017-2022

Community work in 28 communes of La Araucanía region through the Environmental Assistance Clinics.