GABRIEL LEONARDO SALIERNO, Ph.D.

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- 22 years of in-depth academic and industrial expertise in chemistry focused on chemical engineering and clean energy,
- Over a decade of experience providing scientific and technical solutions and applying in-depth research and discovery.
- Successfully mounted and ran customized bench and pilot-scale chemical reactors and separation equipment under budget.
- Managed and facilitated activities of a research group comprising diverse backgrounds to meet challenging deadlines.
- Resourceful problem-solving. Training in chemical synthesis, UV, IR, spectroscopy, Mass Spectrometry, Liquid and Gas Chromatography, ^{1}H, ^{13}C Nuclear Magnetic Resonance, SEM, TEM, EDS, XPS, XRD, ICP, biocatalysts kinetics, ELISA, Capillary Electrophoresis, and Flow Cytometry. Developed Standard Operational Procedures for process control.

EXPERIENCE HIGHLIGHTS

10/2022 – Present (Lowell - Massachusetts – USA)	***Green Chemist:*** Toxics Use Reduction Institute – UMass Lowell • Research and develop safer alternatives to toxic chemicals by applying green chemistry principles. • Design, conduct, and perform laboratory experiments to evaluate the performance of safer alternatives; supervise students assisting with testing. • Work with businesses to propose, test, and implement green chemistry and toxics use reduction solutions. • Summarize work for case studies and other publications. Assist with alternative assessment reports.
10/2020 – 10/2021 (Vaasa, Finland)	***Researcher:*** Faculty of Science and Engineering - Åbo Akademi University • Conducted and led in-depth data analytics resulting in mathematical models improving key chemical processes for next-generation biofuel production, mineral dissolution, and carbon capture. • Managed international research collaborations; published articles in Q1 journals on chemical engineering.
06/2019 – 06/2022 (Buenos Aires City, Argentina)	***Research Scientist:*** National Scientific and Technical Research Council (CONICET) • Coordinated and managed a group of multidisciplinary scientists to generate Q1 scientific articles. • Developed 3D-printed catalytic reactors and static mixers for green organic synthesis. • Developed intensification and scale-up strategies for organic synthesis by heterogeneous catalytic wet peroxide oxidation Nano Catalyst development. Enzyme-based analysis of glucose, ethanol, and peroxides.
11/2017 – 12/2021 (Buenos Aires City, Argentina)	***Adjoint Professor***: Faculty of Agronomical Sciences and Engineering - Universidad Católica Argentina • Taught the fundamentals of GMP and product development to future Chemists and Food Engineers. • Modernized and taught Transport phenomena, Rheology, and Unit Operations for Food Engineering. • Conducted research on extraction, identification by Agilent HPLC-UV (EZChrom), and stability assessment of spray lyophilized berry flavonoid nutraceuticals. Method development and validation.
04/2017 – 12/2020 (Buenos Aires City, Argentina)	***Sustainable entrepreneurship zero-interest loan*** I Grantor: Ministry of Production (Argentina) • Recicla3D: additive manufacturing from recycled plastics. Polymer product development. • Cost-informed techno-economic assessment of polystyrene circular economy approaches. • Supplied 3D-printed labware and crucial parts for developing country laboratories. • Incubate a group of innovative students for the production of delta 3D-Printers.
04/2011 – 03/2016 (Buenos Aires City, Argentina)	***Ph.D. Fellow:*** University of Buenos Aires; Grantor: CONICET - Supervisor: Prof. Dr. Miryan C. Cassanello • Managed large volumes of complex experimental data from multiphase chemical reactors. Data mining and non-linear statistics. Scale-up strategies. Pilot-scale multiphase reactors' fluid dynamics • Produced and published novel results from advanced tomographic techniques, such as Radioactive Particle Tracking, utilized in a few laboratories worldwide. Radiotracers microfabrication. • Synthesized, characterized (SEM, TEM, EDS, XPS), and implemented heterogeneous catalysts based on carbon, graphene, Nickel, and Iron-containing nanoparticles. CVD, impregnation, and electroless plating.
08/2009 – 09/2022 (Buenos Aires City, Argentina)	***Docent:*** Faculty of Exact and Natural Sciences – University of Buenos Aires • Conceived, managed, and taught green chemical engineering and multiphase chemical reactor scale-up strategies for master's degree students in chemical sciences. • Assessed safety and purpose of chemistry and food tech pilot plant utilized by students and researchers. • Supervised undergraduate laboratory practices of inorganic transition metal chemistry, electrochemistry, and analytical chemistry. Generated content for science disclosure.

07/2008 – 08/2009 (Buenos Aires City, Argentina)	***R&D analyst***: Osmotica Pharmaceuticals S.A. • Tech transfer assistant. Supported pilot-scale CMO and CRO development and phase 4 trial (FDA) of novel osmotic delivery capsules of novel drugs. • Conducted dissolution analysis of prolonged-release tablets. • Manipulated UV spectrometer, High-performance liquid chromatography (HPLC) in reverse phase (Shimadzu Class-VP), Gas Chromatography (Perkin-Elmer Empower), and Karl Fisher water moisture assay. • Collaborated in the analytical development of novel drug HPLC quantification.
08/2006 – 07/2008 (Buenos Aires City, Argentina)	***R&D analyst***: Alpargatas Textil S.A. • Tech-transfer of textile finishing for clients in the fashion industry. • Textiles ASTM testing and colorimetry. Issuing Certificate of Analysis (COA). • SAP quality tracking. Provided consulting on textile counterfeiting strategies. • Managing a pilot scale industrial washing machine for developing '' Looks '' in cotton and polyester cotton garments. Colorist. Instron digital dynamometer and microscope.
06/2005- 07/2006 (Buenos Aires City, Argentina)	***Volkswagen Stiftung Internship:*** INQUIMAE/CONICET *Electric-field control of active site conformation and dynamics in heme proteins.* • Conduct organic and organometallic Schlenk synthesis at a micro-scale. • Development of reactive centers for bio-inorganic catalysts and artificial enzymes. • Synthesis, identification & purity verification of novel organic compounds. • Kinetic determinations. Recrystallization. Thin Plate Chromatography (TLC). Dry glove box manipulation. • ^{1}H and ^{13}C nuclear magnetic resonance (NMR). • Fourier Transformed Infrared (FTIR) spectroscopy; Mass spectrometry (MS).
03/2003 – 06/2005 (Buenos Aires, Argentina)	***Q&A analyst***: Gobbi Novag Pharmaceuticals S.A. • Analytical development and tech transfer for CMO quality assurance. • SOP development based on USP-NF, GMP, GLP & EP pharmacopeias. • Assistant on product development under FDA-like guidelines. • Compiling outsourced testing. Issuing Certificate of Analysis (COA). • Organic analytical chemistry for purity assessment. HPLC.
11/2001 – 03/2003 (Buenos Aires City, Argentina)	***Q&A analyst***: Sudamfos S.A • Quality assurance of CMO phosphoric acid, phosphates, and polyphosphates. • Inorganic analytical chemistry development. Acid-base, argentometric, complexometric, pH-metric endpoint, potentiometric titrimetry in aqueous and non-aqueous media. Densimeters. Granulometry. • Operation of the UV spectrophotometer to determine phosphorous, nitrates, nitrites, arsenic, iron, and lead. pH meter calibration. Thermogravimetry. Differential Scanning Calorimetry.

EDUCATION

Postdoctoral Research Fellow **I Åbo Akademi University, Finland**	**2020 - 2021**
Postdoctoral Research Fellow **I Universidad Católica Argentina**	2018 - 2020
Postdoctoral Research Fellow **I Universidad de Buenos Aires, Argentina**	2016 - 2018
Ph.D Industrial Chemistry **I Universidad de Buenos Aires, Argentina** **https://bibliotecadigital.exactas.uba.ar/collection/tesis/document/tesis_n5951_Salierno**	2016
Master type II - Chemical Sciences **Faculty of Exact and Natural Sciences - University of Buenos Aires, Argentina**	2011
Chemistry technician (Associate degree in Chemistry) **- Otto Krause Technical School**	2002
34th International Chemistry Olympiad: **Bronze medal**	2002
National Chemistry Olympiad **(Argentina): Gold and Silver medals**	2000-2002