

# Sebastian Gomez-Parra

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## Education

**Northwestern University** | Evanston, IL | Anticipated Graduation June 2021

Bachelor of Science in Chemical Engineering and Bachelor of Arts in Environmental Science

## Skills

**Technical Software:** Python, Aspen HYSYS, ChemDraw, MATLAB, GIS, Avogadro, MestreNova, VBA

**Computer Software:** Microsoft Excel, Microsoft Word, Microsoft PowerPoint, Microsoft Teams, Zoom

**Languages:** Proficient English, Conversational Spanish, Intermediate American Sign Language

## Experience

**Chemical Engineering Design Course** | Evanston IL | September - December 2020 | January - March 2021

- Designed chemical processing units by balancing properties like conversion and separation with cost and feasibility to maximize efficiency and profits. This resulted in the design of two plants:
  - Carbon dioxide methanation of biogas with Alumina Nickel catalyst, producing 138 kmol/h of methane gas at 93.7% purity and gross profits of over 100 \$MM/yr.
  - Autothermal reformation of methane to hydrogen, producing 101,000 Nm<sup>3</sup>/h of H<sub>2</sub> gas at 94.9% purity with a net carbon capture of 206,000 tonnes of CO<sub>2</sub> per year, with gross profits of 380 \$MM/yr.
- Simulated the chemical process using Aspen HYSYS and performed a complete economic analysis using Aspen Economic Analyzer for an 8% IRR in 10, 15, and 20 years.
- Implemented a heat exchanger network, which closes the heating cycle for the plant, and a life cycle assessment to greatly reduce the energy requirements and carbon emissions for the following plants:
- Worked with a chemical process consultant to maximize productivity while staying under a strict four-hour quota for the entirety of the project.

**Fundación Alerta Verde (FAV)** | Intern | Remote, Cochabamba Bolivia | September 2020 - December 2020

- Streamlined the education process of FAV by gathering feedback from the community on what they would like to learn and compiling a self-maintaining database of the aromatic plants native to and grown near Cochabamba.
- Developed a living database of aromatic plants containing all the information needed for each species, which created a convenient resource for all members.
- Coded multiple error messages, fail-safes, and Macros into the database, which allowed the document to be used by members with no knowledge of excel and for the insertion of new information without crashing or destroying the database.
- Communicated with both coworkers and clients halfway across the globe and in Spanish to set goals and benchmarks for my progress and to gather the community's response to and opinion of FAV.

**National Guest-Work Alliance** | Research Intern | Chicago IL | Jun - Aug 2019

- Collaborated with a diverse, remote team of people including lawyers, construction workers, local politicians, and community members dedicated to building natural disaster resilience in Southeast US.
- Independently gathered information, research, and media regarding current and past natural disasters to create informative, holistic, and accessible written briefs to then be shared with the team.
- Produced concise briefs at a moment's notice on current natural disasters and verbally presented my findings in a zoom call the same day to quickly alert the team of the situation.
- Synthesized weekly reports that informed the team how communities were recovering from past disasters and were creating resilience for future disasters.

## Leadership

**Fossil Free Northwestern** | Treasurer | Evanston IL | June 2019 - September 2020

- Founded a club with over 150 active members, with the help of six peer executive members, to strategically pressure Northwestern University (NU) into more sustainable investment policies.
- Organized teach-ins by recruiting and partnering with representatives of Chicago environmental organizations to spread awareness of the climate crisis and work towards creating positive change in our immediate community.
- Led students in multiple demonstrations and protests by collaborating with executive members and delegating tasks, resulting in an audience and partnership with the NU Board of Trustees.
- Facilitated dialogues between the NU Board of Trustees and Fossil Free members in an online setting, leading to the creation of plans for the divestment of NU's endowment from fossil fuels.