

# Matias Bettera Marcat

## Physicist

Last update: January 17, 2024

Up-to-date version of CV is available at

<https://mbetteram.github.io/online-resume>

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Physicist, currently finishing a PhD. Researching in biophysics, and interested in science and technology. With a strong background in mathematics and physics, and experience facing problems with modeling, simulations and statistical analysis. Linux, Open and Free software enthusiast.

Skills: Fortran, C, Bash/Shell scripting, ssh, gnuplot, Python, numpy, matplotlib, seaborn, jupyter, Git/Github, scikit-learn, tensorflow, SQL

## Professional Experience

Mar 2023 - Present

### Professor

[Universidad Empresarial Siglo 21](#) is a business oriented private university. I am professor of theoretical and problem classes of many mathematics courses, statistics and physics.

- **Distance courses** (*two months period*): Physics, Statics, Mathematical Analysis, Algebra.
- **Presentational intensive courses** (*two months period*): Mathematical Analysis, Statistics II.
- **Presentational courses** (*four months period*): Mathematical Analysis.

May 2023 - Sep 2023

### Monitoring teacher

My role at [Data science diploma, at FAMAF-UNC](#) consisted in the monitoring, advising and evaluation of assignments, of four groups of four people each.

Python jupyter numpy pandas matplotlib seaborn SQL scikit-learn tensorflow Git

Mar 2022 – Present, Mar 2016 - Jul 2016

### Lecturer (Profesor Ayudante de Primera.)

Lecturer for problem classes. Evaluation of midterm and final exams.

- **2nd term 23** Thermodynamics and Statistical Mechanics II and Modern Physics I
- **1st term 23** Thermodynamics and Statistical Mechanics I and Physics 4 (Modern Physics)
- **2nd term 22** General Physics III (Electricity and Magnetism).
- **1st term 22** Thermodynamics and Statistical Mechanics I.
- **1st term 16** General Physics IV (Waves and Optics).

March 2022 – Feb 2023

### Lecturer (Profesor Ayudante B D.S.)

Lecturer for problem classes. Evaluation of midterm and final exams.

- **Feb 23** Admission and introductory course.
- **2nd term 22** Mechanics

- **1st term 22** Admission and introductory course.

Apr 2014 – Feb 2017

## Research

**Research fellowship**, granted by CONICET. (*Beca Interna Doctoral de CONICET*)

Research on active matter, particularly sperm dynamics in confined environments, with simulations and experimental data analysis.

(*Investigación sobre materia activa, en particular dinámica de espermatozoides en ambientes confinados, con simulaciones y análisis de datos experimentales.*)

Data analysis

Modeling

Simulation

Active Matter

Biophysics

Aug 2014 – Jul 2015, Aug 2012 – Jul 2013

## Student assistant (Alumno Ayudante de Segunda D.S.)

Student assistant for problem classes. - **1st term 15** Electromagnetism I - **2nd term 14** General Physics I (Introduction to Mechanics) - **1st term 13** Mechanics - **2nd term 12** Electromagnetism I

## Education

**Diploma** in Data Science and its applications (*FaMAF, UNC*) [2020]

**PhD in Physics**, research on Dynamics of microconfined swimmers. Mathematics, Astronomy, Physics and Computer Science school, UNC, AR. (*Doctorado en Física. FaMAF, UNC. Investigación: Dinámica de nadadores microconfinados, FaMAF, UNC*) [2016 - Present]

**PhD Courses**: Numerical Methods in Astrophysics, Computational Physics, Fluid Mechanics, Topics in Mathematical Biology, Introduction to LAMMPS code.

**B.S. in Physics**, Final grad work: Simultaneous uptake model of water and nutrients by crop roots. Physics department, UNRC, AR.

(*Licenciatura en Física, Trabajo Final: Modelo de toma simultánea de agua y nutrientes por raíces de cultivos. UNRC*) [2010 - 2016]