






Matias Bettera Marcat

Physicist

Last update: August 9, 2024

Up-to-date version of CV is available at

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

Residence	 Cordoba
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Physicist, currently finishing a PhD. Researching in biophysics, and interested in science and technology, with a strong background in physics, mathematics, statistics and data analysis. Experience facing problems with modeling and simulations.

Linux 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 bussiness oriented private university. I am professor of theoretical and pblem clases of many mathematics courses, statcis and physics.

- **Presential courses** (*four months period*): Algebra, Mathematical Analisys, Statistics I.
- **Presential intensive courses** (*two months period*): Mathematical Analisys, Statistics II.
- **Distance courses** (*two months period*): Physics, Statics, Algebra, Mathematical Analisys, Statistics I, Advanced Calculus.

Editions 2023 and 2024 (from May to September)

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 examns.

- **2nd term 24** Thermodynamics and Statistical Mechanics II *and* General Physics III (Electricity and Magnetism).
- **1st term 24** Thermodynamics and Statistical Mechanics I *and* General Physics IV (Waves and Optcis).
- **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 I (Mechanics).
- **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 examns.

- **Feb 23** Admission and introductory course.
- **2nd term 22** Mechanics
- **1st term 22** Admission and introductory course.

Apr 2016 – Mar 2022

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]