

# Afra Salazar

PhD Student — Department of Fundamental Microbiology  
University of Lausanne, Switzerland

Contact information  
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[salazarafra.github.io](https://salazarafra.github.io)

## FIELDS OF RESEARCH

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Microbial community ecology and evolution, Evolutionary transitions in individuality, Plasmid evolution

## EDUCATION

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- 2021 - **Doctoral School of the Faculty of Biology & Medicine**  
PhD in Life Sciences | University of Lausanne
- 2019 - 2021 **Erasmus Mundus Master Programme in Evolutionary Biology (MEME)**  
Master in Sciences | University of Groningen & University of Montpellier
- 2015 - 2019 **Undergraduate Program of Genomic Sciences**  
Bachelor in Sciences | National Autonomous University of Mexico (UNAM)  
*Graduated with Honours*

## RESEARCH EXPERIENCE

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- 2021 - **Research Assistant at the Department of Fundamental Microbiology**  
Doctoral Student | University of Lausanne, Switzerland  
Supervised by Dr. Sara Mitri  
*Developed a conceptual framework to study the individuality of communities*  
*Built a consumer-resource model to study the eco-evolutionary dynamics of bacterial communities*
- 2021 **Visiting Research Student at the Centre for History & Philosophy of Science**  
Six-month master thesis project | University of Leeds, United Kingdom  
Supervised by Dr. Ellen Clarke  
*Philosophical analysis on the evolutionary individuality of bacterial plasmids*
- 2020 **Research Student at the Groningen Institute for Evolutionary Life Sciences**  
Six-month master thesis project | University of Groningen, The Netherlands  
Supervised by Dr. Marjon de Vos & Dr. Sander van Doorn  
*Studied the long term evolution of plasmid host ranges using a model of adaptive dynamics*
- 2020 **Research Student at MIVEGEC**  
Three-month master project | University of Montpellier, France  
Supervised by Dr. Samuel Alizon  
*Built an compartmental epidemiological model to study the evolutionary conditions governing symptom onset rates of infectious diseases*
- 2019 **Research Student at the Department of Fundamental Microbiology**  
Six-month internship | University of Lausanne, Switzerland  
Supervised by Dr. Sara Mitri  
*Built a kinetic model to design antibiotic treatments based on microbiota composition to reduce resistance*

- 2018 **Research Student at the Department of Fundamental Microbiology**  
Summer internship | University of Lausanne, Switzerland  
Supervised by Dr. Sara Mitri  
*Built a consumer-resource model mapping out the effects of different antibiotic treatment strategies on the microbiota of individual patients*
- 2018 **Research Student at the Laboratory of Systems & Synthetic Biology**  
Six-month internship | Center of Genomic Sciences, Mexico  
Supervised by Dr. Rafael Peña Miller  
*Built an agent-based computational model to study plasmid population dynamics in bacterial populations*

## PUBLICATIONS

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- 2025 Salazar, A., & Mitri, S. Can a microbial community become an evolutionary individual? <https://doi.org/10.1016/j.mib.2025.102596>

## TALKS AND POSTERS

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- 2025  
July 21th **Transitions in Individuality Beyond History**  
University of Porto  
*Contributed talk* | ISHPSSB
- 2025  
June 3rd **Improving Community Breeding Through Evolutionary Individuality First**  
*Contributed talk* | EMPSEB
- 2025  
Feb 14th **Improving Community Breeding Through Evolutionary Individuality First**  
University of Lausanne  
*Contributed poster* | BIOLOGY25
- 2023  
May 25th **(How) Can we Manipulate Individuality in Multispecies Communities?**  
Max Planck Institute for Evolutionary Biology  
*Contributed talk* | EVOLUTIONARY TRANSITIONS IN INDIVIDUALITY MEETING
- 2023  
March 3rd **Biografía & Ciencia: Redes, Cooperación y Contexto**  
Autonomous University of Nayarit (UAN)  
*Invited talk* | LIBAT LECTURE
- 2022  
May 19th **Designing a Community Selection Strategy Based on Individuality First**  
Max Planck Institute for Evolutionary Biology  
*Contributed talk* | COMMUNITIES AND COEVOLUTION MEETING
- 2021  
May 05th **On the Evolutionary Individuality of Plasmids**  
Centre for History and Philosophy of Science | University of Leeds  
*Invited talk* | HPS LEEDS CENTRE VISITORS DAY

## HONOURS AND AWARDS

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- 2025 **Biology25 Conference**  
By the Swiss National Science Foundation (SNSF)  
*Awarded with CHF 12,000.00*
- 2019 - 2021 **Erasmus Mundus Joint Master Degree (EMJMD) Scholarship**  
By the European Commission  
*Selected as one of six high-ranked students of the Cohort 2019-2021*  
*Awarded with EUR 50,000.00*

- 2018 **The School of Biology Summer Undergraduate Research Programme**  
By the Faculty of Biology and Medicine, University of Lausanne  
*Selected out of nearly 250 international students of medicine and biology*  
*Awarded with CHF 3,200.00, plus travel expenses*
- 2017 **Research Methods Training Scholarship**  
By SEP-UNAM-FUNAM  
*Selected to carry out an undergraduate internship at the University of Lausanne*  
*Awarded with MXN 85,000.00*

## TEACHING EXPERIENCE

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- 2021- 2024 **Teaching assistant of Introduction to Mathematical Models in Biology**  
Elective course for bachelor students in life sciences | University of Lausanne  
*Provided one-on-one assistant instruction for ~20 students*
- 2018 **Teaching assistant of Introduction to Linear Algebra**  
Undergraduate program of Genomic Sciences | UNAM  
*Provided one-on-one assistant instruction for 24 students*

## OTHER RELEVANT COURSES / WORKSHOPS

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- 2023 **Evolutionary Biology in Guarda Summer School**  
Summer University of Basel & ETH Zurich
- 2022 **Bordeaux Summer School in Philosophy in Biology & Medicine**  
Summer University of Bordeaux

## REVIEWER

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- July 2023 **Proceedings of the Royal Society B**

## VOLUNTEERING

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- 2022 - **Evolutionary Biology Crash Course**  
Web co-designer and advertising design
- 2025 **Biology25 Conference**  
Head of communications, website creation, social media advertising and fund-raising

## TECHNOLOGY

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**Programming Languages:**  
Julia, R, Python

**Other:**  
LaTeX, Wolfram Mathematica, Adobe Illustrator

## LANGUAGES

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Spanish (native) & English (C1)