

Afra Salazar

PhD Candidate — Department of Fundamental Microbiology

University of Lausanne, Switzerland

Contact information

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EDUCATION

- 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

- 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 **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 evolution of plasmid host ranges using adaptive dynamics
- 2020 **Research Student at MIVEGEC**
Three-month master project | University of Montpellier, France
Supervised by Dr. Samuel Alizon
Studied the evolutionary conditions driving symptom onset rates in infectious diseases
- 2019 **Research Assistant at the Department of Fundamental Microbiology**
Six-month undergraduate 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 Assistant at the Department of Fundamental Microbiology**
Two-month 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

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

PRESENTATIONS

2025.10.16 **Can individuality help us improve community functions?**
 Internal conflicts and organismal adaptation ESEB Special Topic Network
 Invited seminar | Online seminar

2025.10.03 **Improving community breeding through evolutionary individuality first**
 Alma Dal Co School on Collective Behaviour
 Contributed poster | Venice, Italy

2025.07.21 **Transitions in individuality beyond history**
 International Society for the History, Philosophy and Social Studies of Biology
 Contributed oral presentation | Porto, Portugal

2025.06.03 **Improving community breeding through evolutionary individuality first**
 European Meeting for PhD students in Evolutionary Biology (EMPSEB)
 Contributed oral presentation | Milovy, Czechia

2025.02.14 **Improving community breeding through evolutionary individuality first**
 Biology
 Contributed poster | Lausanne, Switzerland

2023.05.25 **(How) Can we manipulate individuality in multispecies communities?**
 Evolutionary transitions in individuality meeting
 Contributed oral presentation | Plön, Germany

2023.03.03 **Biografía & Ciencia: Redes, cooperación y contexto**
 LIBAT Lectures by the Autonomous University of Nayarit
 Invited seminar | Tepic, México

2022.05.19 **Designing a community selection strategy based on individuality first**
 Communities and coevolution meeting
 Contributed oral presentation | Plön, Germany.

2022.05.19 **The evolutionary individuality of bacterial plasmids**
 Centre for history and philosophy of science visitors' day
 Invited seminar | Leeds, England

AWARDS & GRANTS

2025	BIOLOGY25 Conference Swiss National Science Foundation (SNSF) CHF 12,000.00
2019 – 2021	Erasmus Mundus Joint Master Degree (EMJMD) Scholarship European Commission EUR 50,000.00
2018	Summer Undergraduate Research Programme (SURP) Faculty of Biology & Medicine, University of Lausanne CHF ~ 4,000.00
2017	Research methods training SEP-UNAM-FUNAM MXN 85,000.00

TEACHING EXPERIENCE

2025	Principles of programming and modelling in biology <i>Teaching assistant</i> Bachelor in biology, University of Lausanne
2021–2024	Introduction to mathematical models in biology <i>Teaching assistant</i> Bachelor in biology, University of Lausanne
2021–2024	Introduction to linear algebra <i>Teaching assistant</i> Undergraduate programme in genomic sciences, UNAM

OTHER COURSEWORK

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

REVIEWER

2023	Proceedings of the Royal Society B
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ORGANISER

2022 –	Evolutionary Biology Crash Course <i>Website design and advertising</i>
2025	The European Meeting for PhD Students in Evolutionary Biology <i>Website design and social media advertising</i>
2025	Biology Conference <i>Team coordinator, website design, social media advertising, and fund-raising</i>