Maria A. Gutierrez

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Education

2021-2025   **PhD in Applied Mathematics and Gates Cambridge Scholar**, *University of Cambridge*
- Department of Applied Mathematics and Theoretical Physics (DAMTP).
- Supervisor: **Prof Julia Gog OBE**.
- Advisor (secondary supervisor): Prof Michael Cates FRS.
- 2022 Helsinki Summer School in Mathematical Ecology and Evolution.

2020-2021   **Mathematics MMath (Part III, Distinction)**, *University of Cambridge*
Thesis: "Renormalisation Group Approach to the Dynamics of Epidemics", with Dr Ronojoy Adhikari.

2017-2020   **Mathematics BA (First Class Honours)**, *University of Cambridge*
2019 London Mathematical Society Undergraduate Research Summer School.

Peer-reviewed publications

2023   **The importance of vaccinated individuals to population-level evolution of pathogens**, *Journal of Theoretical Biology*, 567, 111493, Gutierrez, M.A.; Gog, J.R.: link

2022   **Stabilization of microbial communities by responsive phenotypic switching**, *Physical Review Research*, 4, 033224, Haas, P.A.; Gutierrez, M.A.; Oliveira, N.M.; Goldstein, R.E.: link

Research presentations

2024   **Disease Dynamics and Pathogen Genomics seminar**, *Department of Veterinary Medicine, University of Cambridge*, slides

2024   **SMB MathEpiOnco 2024 (online mini conference)**, selected talk: slides

2024   **DSABNS 2024 (15th Conference on Dynamical Systems Applied to Biology and Natural Sciences)**, *Lisbon (Portugal)*, invited lecture: slides

2023   **EPIDEMICS9 (9th International Conference on Infectious Disease Dynamics)**, *Bologna (Italy)*, selected talk: slides

2023   **IDDConf2023 (Infectious Diseases Dynamics Conference)**, *Lake District (UK)*, talk: slides

2023   **UNAM, Faculty of Mathematics**, *Mexico City (Mexico)*, seminar in Spanish: slides

2023   **NORDITA program: Unifying the epidemiological and evolutionary dynamics of pathogens**, *Stockholm (Sweden)*, research seminar: slides

2023   **Cambridge Infectious Diseases Annual Symposium**, *Cambridge (UK)*, selected talk: slides

2023   **JUNIPER Consortium**, *United Kingdom*, online seminar: slides

2022   **ECMTB 2022 (SMB - ESMTB joint meeting: 12th European Conference on Mathematical and Theoretical Biology)**, *Heidelberg (Germany)*, selected poster: pdf

2022   **Cambridge Infectious Diseases Annual Symposium**, *Cambridge (UK)*, poster: pdf

Academic awards and grants

2021-2025   **Gates Cambridge scholarship**, *Bill & Melinda Gates Foundation*, merit, service and leadership full scholarship (stipend + international fees) for outstanding international PhD candidates

2022-2024   **Travel grants**, *European Society of Mathematical and Theoretical Biology, King's College Cambridge*, for academic travel to Germany, Finland, Sweden, Italy, and Portugal

2021   **Claredon scholarship (declined)**, *University of Oxford*, full scholarship for PhD position

2021   **Roth scholarship (declined)**, *Imperial College London*, full scholarship for PhD position

2018-2021	**Examination prizes and scholarships**, *Christ's College*, for outstanding academic performance, including the Kelly Prize, and the J. A. J. Whelan Prize in Mathematics (three times)
2017	**Excellence scholarship (2500€)**, *Region of Madrid, Department of Education*
2017	**Entrance award (500€)**, *Universidad Complutense de Madrid*
2017	**Honours scholarship**, *Sagrado Corazon Madrid School*, **more than 1000€** in university fees

Teaching experience

2021-2024	**Invited lecturer**, *Introduction to Mathematical Biology*, for junior high school students Christ's - Trinity Women in Maths Residential 2021, 2024; King's - Christ's Joint Easter Residential 2023.
2021-2023	**Undergraduate supervisor**, *Differential Equations, Methods, Mathematical Biology*
2022	**Undegraduate mathematics admissions interviewer**, *King's College Cambridge*
2021-2022	**Drop-in sessions (office hours for master courses)**, *Stochastic Processes in Biology*

Outreach talks

2023	**Maths and viruses**, *50 Years of Women at King's Festival*, invited speaker: slides
2022	**Maths and the evolution of viruses**, *Christ's College Maths Society*, invited speaker: slides
2022	**A mathematician's adventures in pandemic modelling**, *Pint of Science (international popular science festival)*, invited speaker: slides
2022	**Maths to help us in the next pandemic**, *Gates Cambridge Internal Symposium: How does your research improve the lives of others?*, selected speaker: slides
2022	**How mathematicians can save the world from the next pandemic**, *Cambridge University Ethics in Maths Society*, invited speaker
2020	**Statistical field theory in biological systems**, *Part III Seminar Series*, talks by masters students
2020	**Mathematical epidemiology**, *Cambridge University Biological Society*, student talk
2020	**Mathematical modelling of infectious diseases**, *The Archimedeans*, student talk
2019	**Una matemática biológica**, *Sagrado Corazon Madrid School*, for senior high school students

Undergraduate research internships

2021	**Quantitative finance (trading and research)**, *Susquehanna Intl. Group, Dublin (Ireland)*
2020	**Cosmology**, *University of Cambridge*, with Prof Enrico Pajer
2019	**Biophysics**, *University of Cambridge*, with Dr Pierre Haas and Prof Raymond Goldstein FRS

Committees (service)

2023-2024	**King's College Boat Club**, alumni officer Organised a boat naming ceremony and the alumni boat club dinner, held at King's College Cambridge.
2022-2023	**Equality, Diversity & Inclusion (Faculty of Mathematics)**, graduate representative Arranged for free menstrual products, LGBT/Trans flags during pride month/trans awareness week.
2021-2022	**Emmy Noether Society (for women in mathematics)**, graduate representative Gave two study skills workshops, organised socials, academic talks. Mentor of female undergraduates.
2020-2021	**Effective Altruism Cambridge**, committee member (consultant) Led 3 online careers workshops (over 200 sign-ups each) on "High Impact Careers for Mathematicians".

Journal referee

| 2024 | **Bulletin of Mathematical Biology** |
| 2023 | **Journal of Theoretical Biology** |