

# Ana Emilia de Orellana

<https://anadeore.github.io>

University of St Andrews

St Andrews  $\diamond$  KY16 9SS  $\diamond$  Room: 103

## EDUCATION

---

### St Andrews University

*Sep. 2023 - Present*

Ph.D. in Pure Mathematics (funded by the University of St Andrews)

Supervisor: Dr. Jonathan Fraser.

Co-supervisor: Dr. Kenneth Falconer.

### Universidad Nacional del Litoral (UNL)

*Jan. 2018 - Mar. 2023*

Licentiate Degree in Mathematics (equivalent to M.Sc.)

GPA: 8.68 (on a 10 point scale), part of the honour board.

Degree Dissertation Title: *Homogeneous Type Spaces and Metrisation.*

Supervisor: Dr. Marisa Toschi.

Co-supervisor: Dr. Mauricio Ramseyer.

Dissertation date: March 2023.

Keywords: Muckenhoupt weights, Spaces of homogeneous type, Hardy-Littlewood maximal operator.

## TEACHING EXPERIENCE

---

### University of St Andrews

*2024 - 2025*

- Tutor for MT2502: Analysis (3 Tutorials and 2 Example Classes), Autumn.
- Tutor for MT1001: Introductory Mathematics (3 Tutorials), Autumn.

### University of St Andrews

*2023 - 2024*

- Tutor for MT1003: Pure and Applied Mathematics (2 Tutorials and 2 Example Classes), Spring.
- Tutor for MT2502: Analysis (2 Tutorials and 2 Example Classes), Autumn.

### Chemical Engineering School (UNL)

*Feb. 2023*

- Mathematics Tutor for Chemistry Engineering and Food Engineering entrants.

### Chemical Engineering School (UNL)<sup>1</sup>

- Teaching assistant in Mathematics A. *2023*
- Teaching assistant in Basic Mathematics. *2023*
- Teaching assistant in Calculus 1. *2022*
- Teaching assistant in Discrete Mathematics 1. *2022*

### Chemical Engineering School (UNL)

*Mar. 2017 – Dec. 2018*

- Took part on the extracurricular activity “Pedagogical care in mathematics for people without access to education”.

---

<sup>1</sup>The position was granted after a competition among several candidates

## PUBLICATIONS

---

2. A Fourier analytic approach to exceptional set estimates for orthogonal projections, with J. M. Fraser. 2024. 19 pages. [arXiv: 2404.11179](#)
1. Obtaining the Fourier spectrum via Fourier coefficients, with M. Carnovale and J. M. Fraser. 2024. 13 pages. [arXiv: 2403.12603](#)

## TALKS

---

- Fourier analytic methods for orthogonal projections. *Oct. 2024*  
Shenzhen Technology University Analysis Seminar, China (online talk).
- Orthogonal projections and a continuum of dimensions. *Oct. 2024*  
University of Birmingham Analysis Seminar, UK.
- Dimension interpolation and exceptional set estimates. *Sep. 2024*  
University of Edinburgh Analysis Seminar, UK.
- The continuity of exceptional estimates for orthogonal projections. *Sep. 2024*  
Fractal Geometry and Stochastics 7, Chemnitz (Saxony), Germany.
- Orthogonal projections and the Fourier spectrum. *Sep. 2024*  
Afternoon workshop on Fourier analysis, fractals, and finite fields, University of St Andrews, UK.
- Projection theorems for the Fourier spectrum. *Sep. 2024*  
Workshop on the Geometry of Deterministic and Random Fractals II, Rényi Institute, Budapest, Hungary.
- Fourier analysis for fractal measures. *Jul. 2024*  
Workshop on Ergodic Theory and Fractal Geometry. University of Loughborough.
- Exceptional projections and dimension interpolation. *Jun. 2024*  
Geometry and Fractals under the Midnight Sun Conference, University of Oulu, Finland.
- The Fourier spectrum under orthogonal projections. *Feb. 2024*  
University of St Andrews Analysis Seminar, UK.
- Knot Theory. *May. 2019*  
Before Graduating Seminar, Universidad Nacional del Litoral, Argentina.

## AWARDS

---

- St Leonard's College, University of St Andrews, £250 scholarship. To attend the "Workshop on Ergodic Theory and Fractal Geometry" at the University of Loughborough. *Jul. 2024*
- Santander Development Fund, £250 scholarship. To attend the "Geometry and Fractals under the Midnight Sun Conference" at the University of Oulu. *Jun. 2024*
- University of St Andrews - Fee scholarship for Ph.D. in Mathematics. *2023*
- University of Minnesota - Fully funded scholarship for M.Sc. in Mathematics. *2023*
- CONICET Scholarship - Doctorate in Mathematics at UNL. *2023*
- Second place in the Monograph competition held by the Argentinian Mathematical Union. *2019*  
Title: "Knot Theory".

## LANGUAGES

---

**Spanish**

Native.

**English**

TOEFL IBT Home Edition. Overall: 107; R: 28; L: 29; S: 27; W: 23.

*2022*

Grade A in the Certificate of Advanced English (CAE).

*2016*

Grade A in the First Certificate in English (FCE).

*2015*

**German**

Course: Approximation to the German language from a cultural and professional perspective.

*2021*

**PROGRAMMING LANGUAGES**

---

**JavaScript/ReactJS/NextJS**

Advanced.

**R/Shiny-r**

Advanced.

**Python**

Basic.

**MatLab**

Basic.