# Konstantinos Varvarezos
## Curriculum Vitae
November 2024

**Address**
Department of Mathematics
Math Sciences Building
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## Employment

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| 2022 – present | **University of California, Los Angeles** Assistant Adjunct Professor |

## Education

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|---|---|
| 2022 | **Princeton University** Ph.D. in Mathematics<br>adviser: Zoltán Szabó |
| 2018 | **Princeton University** M.A. in Mathematics |
| 2017 | **Rice University** B.S. in Mathematics, *summa cum laude* |

## Research Interests

My research interests are in low-dimensional topology and knot theory. Recent work has focused on applying invariants such as Heegaard Floer homology to questions about Dehn surgeries and contact structures.

## Honors and Awards

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| 2024 | Liggett Instructors Award, Department of Mathematics, UCLA |
| 2017 | Phi Beta Kappa Membership |
| 2016 | Hubert E. Bray Prize in Mathematics, Department of Mathematics, Rice University |
| 2013–17 | Trustee Scholar, Rice University |
| 2013–15 | Century Scholar, Rice University |

## Publications and Preprints

9. H. Min and K. Varvarezos "On contact invariants in bordered Floer homology". 2024. preprint. https://arxiv.org/abs/2410.05511

8. K. Varvarezos. "Certain connect sums of torus knots with infinitely many non-characterizing slopes". *Michigan Mathematical Journal*, to appear. https://arxiv.org/abs/2302.05068

7. K. Varvarezos. "Heegaard Floer homology and chirally cosmetic surgeries". *Communications in Analysis and Geometry*. **32**.10 (2024, to appear) https://arxiv.org/abs/2112.03144

6. K. Varvarezos. "Knot Floer homology of some even 3-stranded pretzel knots". 2021. preprint. https://arxiv.org/abs/2103.04171

5. K. Varvarezos. "3-braid knots do not admit purely cosmetic surgeries". *Acta Mathematica Hungarica*. **164**, p. 451–457 (2021). https://doi.org/10.1007/s10474-020-01129-z

4. K. Varvarezos. "Alternating odd pretzel knots and chirally cosmetic surgeries". *Journal of Knot Theory and its Ramifications*. **31**.6, p.2250045 (2022). https://doi.org/10.1142/S0218216522500456.

3. K. Varvarezos. "Representations of the (-2,3,7)-Pretzel Knot and Orderability of Dehn Surgeries". *Topology and its Applications*. **294**, p. 107654 (2021). https://doi.org/10.1016/j.topol.2021.107654

2. K. Varvarezos. "A Note on the Orderability of Dehn Fillings of the Manifold $v2503$". *Journal of Knot Theory and its Ramifications*. **29**.11, p. 2071002 (2020). https://dx.doi.org/10.1142/S0218216520710029

1. C. Harshaw, V. Prieto, K. Varvarezos. "On the Number of Equivalence Classes of $p$-Colorings of Symmetric Unions". 2016. preprint. https://people.vcu.edu/~moorea14/docs/Rice-HPV.pdf

## Teaching Experience

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| 2024 (fall) | **Instructor** MATH 131A Analysis, UCLA |
| 2024 (fall) | **Instructor** MATH 120A Differential Geometry, UCLA |
| 2024 (spring) | **Instructor** MATH 120A Differential Geometry, UCLA |
| 2024 (spring) | **Instructor** MATH 131B Analysis II, UCLA |
| 2024 (winter) | **Instructor** MATH 120A Differential Geometry, UCLA |
| 2024 (winter) | **Instructor** MATH 131B Analysis II, UCLA |
| 2023 (fall) | **Instructor** MATH 31A Differential and Integral Calculus, UCLA |
| 2023 (fall) | **Instructor** MATH 131B Analysis II, UCLA |
| 2023 (spring) | **Instructor** MATH 131B Analysis II, UCLA |
| 2023 (winter) | **Instructor** MATH 32B Calculus of Several Variables, UCLA |
| 2022 (fall) | **Instructor** MATH 131A Analysis, UCLA |
| 2022 (fall) | **Instructor** MATH 120A Differential Geometry, UCLA |
| 2022 (spring) | **Teaching Assistant** MAT 560 Algebraic Topology, Princeton University |
| 2020 (spring) | **Instructor** MATH 015 Basic College Mathematics, Prison Teaching Initiative |
| 2021 (fall) | **Preceptor** MAT 203 Advanced Vector Calculus, Princeton University |
| 2021 (fall) | **Instructor** (lead) MATH 020 Elementary Algebra, Prison Teaching Initiative |
| 2021 (spring) | **Instructor** MAT 104 Calculus II, Princeton University |
| 2021 (spring) | **Grader** MASB-000 Math Skills Booster, Prison Teaching Initiative |
| 2020 (fall) | **Teaching Assistant** MAT365 Topology, Princeton University |

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| 2020 (spring) | **Instructor** MATH 015 Basic College Mathematics, Prison Teaching Initiative |
| 2020 (spring) | **Teaching Assistant** MAT 104 Calculus II, Princeton University |
| 2019 (fall) | **Instructor** MAT 104 Calculus II, Princeton University |
| 2019 (fall) | **Tutor** Mathematics, Prison Teaching Initiative |
| 2019 (spring) | **Instructor** MATH 113 Precalculus II, Prison Teaching Initiative |
| 2019 (spring) | **Grader** MAT 104 Calculus II, Princeton University |
| 2018 (fall) | **Grader** MAT 104 Calculus II, Princeton University |
| 2017 (spring) | **Grader** MATH 443 General Topology, Rice University |
| 2016 (fall) | **Grader** MATH 331 Honors Analysis, Rice University |
| 2016 (spring) | **Grader** MATH 443 General Topology, Rice University |
| 2015 (fall) | **Grader** MATH 331 Honors Analysis, Rice University |

## Invited Talks

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| October 2024 | "On contact invariants in bordered Floer homology"<br>*Special Session on Geometry and Topology of Contact and Symplectic Manifolds*, AMS Fall Western Sectional Meeting |
| July 2024 | "Contact Invariants in Bordered Floer Homology"<br>*New structures in low-dimensional topology*, Rényi Institute |
| October 2023 | "Cosmetic Surgeries on Knots and Heegaard Floer Homology"<br>*Topology Seminar*, Claremont Colleges Consortium |
| September 2023 | "Cosmetic Surgeries on Knots and Heegaard Floer Homology"<br>*Topology Seminar*, University of Iowa |
| May 2023 | "Heegaard Floer homology and chirally cosmetic surgeries"<br>*Geometry & Topology Seminar*, UC Riverside |
| November 2022 | "Heegaard Floer homology, immersed curves, and chirally cosmetic surgeries"<br>*Joint Los Angeles Topology Seminar*, UCLA |
| October 2022 | "Heegaard Floer homology and chirally cosmetic surgeries"<br>*Special Session on Heegaard Floer Homology in Topology, Algebra, and Physics* , AMS Fall Western Sectional Meeting |
| April 2022 | "Heegaard Floer homology, immersed curves, and chirally cosmetic surgeries"<br>*Topology Seminar*, Rice University |
| April 2022 | "Heegaard Floer homology, immersed curves, and chirally cosmetic surgeries"<br>*Geometry Seminar*, Virginia Commonwealth University |
| March 2022 | "Heegaard Floer homology and chirally cosmetic surgeries"<br>*Special Session on Gauge Theory, Geometric Analysis, and Low-Dimensional Topology*, AMS Spring Eastern Virtual Sectional Meeting |
| October 2021 | "Heegaard Floer homology, immersed curves, and chirally cosmetic surgeries"<br>*Topology Seminar*, Princeton University |

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| November 2019 | "Left-Orderable Groups and Dehn Surgery"<br>*Graduate Student Seminar*, Princeton University |
| November 2016 | "What I did last summer"<br>*Undergraduate Mathematics Colloquium*, Rice University |

## Other Academic Activities/ Service

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| 2024 (fall) | **UCLA MATH 197** Oversaw directed reading of undergraduate student in Algebraic Topology |
| 2024 (spring) | **UCLA MATH 195** Oversaw directed reading of undergraduate student in Topological Data Analysis |
| 2023 (summer) | **UCLA Topology REU** Supervised an undergraduate research project in Knot Theory |
| 2022–24 | **Course design** Developed course materials (including problem sets, worksheets, exams, and solutions) for various math courses, including Analysis I & II, Calculus, and Differential Geometry at UCLA |
| 2019–22 | **Prison Teaching Initiative** Volunteer teaching and tutoring throughout prisons in New Jersey |
| 2019 (summer) | **Undergraduate Reading Supervisor** Oversaw a summer reading project by two undergraduates in Symplectic Topology at Princeton University |
| 2018–19 | **Mentoring Möbius** Met monthly with Princeton undergraduates to discuss mathematics |
| 2018 (summer) | **Teaching Assistant** Princeton Summer School in Topology and Geometry |