

Reading course on *Elliptic operators, topology and asymptotic methods*

Gustav Nilsson, Universität Münster

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In this reading course, given at the University of Münster during the summer semester of 2026, we will be covering parts of [1]. We will be meeting regularly to discuss the material and any questions that arise.

Preliminary plan for the course

This plan is tentative and will be adjusted as the course progresses, depending on pace and interests.

- Chapter 1 (recap of basic Riemannian geometry, vector bundles, connections, curvature, and exterior calculus)
- Chapter 3
- Chapter 5
- Chapter 7
- Chapter 8
- Chapter 11
- Additional topics in dimension four (notes/references will be posted here later)

First meeting (April 21, 2026)

We will discuss Chapter 1 and then talk about the big-picture overview of the course.

References

- [1] J. Roe. *Elliptic operators, topology and asymptotic methods*. Second. Vol. 395. Pitman Research Notes in Mathematics Series. Longman, Harlow, 1998, pp. ii+209. ISBN: 0-582-32502-1.