

MTH 996: Special Topics in Topology

Instructor: Kristen Hendricks

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Course Location and Time: MW 12:40-2:00 in Wells C329.

Website: www.math.msu.edu/~hendricks/MTH_996.html

Office Hours: By appointment. This is because the class is tiny, not because I don't want to see you.

Prerequisites: Math 961 or equivalent.

Assignments: Optional exercises will be interspersed throughout lecture, and typically consolidated into a homework sheet at the end of the week. Registered students are expected to regularly attend class and give an hour talk during the last three (or possibly four, depending on number of students) weeks of the course. We will schedule the talks shortly before spring break; you should come meet with me around that time to plan a topic.

Resources: All of the papers below are linked from the class website.

Expository papers:

- P. Ozsváth and Z. Szabó, *An introduction to Heegaard Floer homology*
- P. Ozsváth and Z. Szabó, *Lectures on Heegaard Floer homology*
- P. Ozsváth and Z. Szabó, *Heegaard diagrams and holomorphic disks*
- R. Lipshitz, *Heegaard Floer homologies*
- C. Manolescu, *An introduction to knot Floer homology*
- D. McDuff, *Floer theory and low-dimensional topology*

The original papers on Heegaard Floer homology:

- P. Ozsváth and Z. Szabó, *Holomorphic disks and topological invariants for closed three-manifolds*
- P. Ozsváth and Z. Szabó, *Holomorphic disks and three-manifold invariants: properties and applications*

Other references:

- V. Turaev, *Torsion invariants of spin^c structures on 3-manifolds*

Some references on low-dimensional topology:

- N. Saveliev, *Lectures on the topology of 3-manifolds*
- D. Rolfsen, *Knots and links*
- R. Gompf and A. Stipsicz, *4-manifolds and Kirby calculus*
- R. Lickorish, *An introduction to knot theory*