MTH 627 - Fall 2018
SYLLABUS

<u>**Contact information**</u>

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Office hours: TR 3:30 - 4:30 pm

<u>**Lectures**</u>

Time: TR 2:00 - 3:20 PM

Place: Math 122

Course description: This is a first course in differential topology. The first part of the course studies smooth manifolds, submnaifolds, and maps between smooth manifolds. The second part lays the ground for doing calculus on manifolds. Topics include but not limited to smooth manifolds, smooth maps, tangent vectors, immersions, submersions, and embeddings, submanifolds, implicit and inverse function theorems, Sard's Theorem, Whitney Embedding Theorem, transversality, differential forms, orientations, integration on manifolds, and de Rham cohomology.

Prerequisities: Background in general topology. Specifically, MTH 427/527 or equivalent.

Grading: Your final grade for the course will depend on your performance in biweekly homework assignments. The first homework will be assigned on September 6, 2017 and will be due in two weeks.

Course objectives: To build a background in differential topology for specialized topics.

REFERENCES

- •. Victor Guillemin and Alan Pollack, *Differential Topology*.
- •. John M. Lee, *Introduction to Smooth Manifolds*, Second Edition. (**Required Text**)
- •. John W. Milnor, *Topology from the Differentiable Viewpoint*.