

Math 4220 Syllabus

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1. COURSE INFORMATION

Text: *Differential Topology*, Guillemin/Pollack
Boyd 222
11:15-12:05 MWF
<http://ada.math.uga.edu/teaching/math4220/>

2. COURSE SCHEDULE

Topics	Sections	Dates
Review of Multivariable Calculus		8/17 - 8/20
Inverse Function Theorem and Immersions	1.3	8/20 - 8/22
Submersions	1.4	8/22 - 8/24
Transversality	1.5	8/24 - 8/27
Homotopy and Stability	1.6	8/27 - 8/29
Sard's Theorem and Morse Functions	1.7	8/29 - 9/5
Whitney Embedding Theorem	1.8	9/5 - 9/10
Take-home exam 1		9/12 - 9/19
Manifolds with boundary	2.1	9/12 - 9/14
Classification of 1-manifolds	2.2	9/26 - 9/28
Transversality	2.3	9/28 - 10/5
Intersection theory mod 2	2.4	10/5 - 10/12
Winding Numbers	2.5	10/12 - 10/17
Orientations	3.2	10/17 - 10/19
Oriented Intersection Number	3.3	10/19 - 10/24
Vector Fields and Poincaré-Hopf	3.5	10/19 - 10/24
Take-home exam 2		10/24 - 11/5
Intersections in other codimensions		10/24
Tensors and the Exterior Algebra	4.2	10/29 - 11/2
Differential Forms	4.3	11/2 - 11/5
Integration on Manifolds	4.4	11/5 - 11/9
Exterior Derivatives	4.5	11/12 - 11/14
Cohomology with Forms	4.6	11/14 - 11/19
Generalized Stokes Theorem	4.7	11/26 - 11/28
Integration and Mappings	4.8	11/28 - 11/30
The Gauss-Bonnet Theorem	4.9	11/30 - 12/5
Final Exam (take-home)		11/30 - 12/7

3. GRADING AND POLICIES

The overall course grade is computed from homework, exam, and final grades by the formula:

- (1) 20% for each exam.
- (2) 30% for the final exam.
- (3) 30% for the homework assignments.

Homework will be due approximately weekly.

4. ACADEMIC HONESTY

The University of Georgia expects every student to live up to the highest standards of academic honesty and ethics. There are severe punishments for cheating, and they are enforced by gigantic killer robots from the future. You have been warned.

5. DISCLAIMER

“The syllabus is a general course plan, but deviations may become necessary over the course of the semester.”