

DRP 2023: DIFFERENTIAL TOPOLOGY

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SYLLABUS

Meetings take place Monday, Wednesday, and Friday at 10am outside Room 2-390A.

Topics	Sections	Exercises	Date
Manifolds with boundary	2.1	1, 2, 3, 4, 5, 9, 10	Jan 9
1-manifolds	2.2	1, 2, 3, 4, 7	Jan 11
Transversality	2.3	1, 2, 3, 4, 7, 9, 14, 15, 16, 19	Jan 13
Intersection theory	2.4	1, 5, 6, 7, 10, 11, 19	Jan 16
Winding numbers, Jordan-Brouwer separation theorem	2.5	1, 2, 3, 4, 6, 7, 9, 10	Jan 18
Borsuk-Ulam theorem	2.6	1, 2, 3	Jan 20
Orientation	3.1 - 3.2	1, 2, 3, 6, 7, 8, 10, 12, 13, 17, 20, 26	Jan 23
Oriented intersection number	3.3	1, 2, 3, 6, 7, 8, 10, 13	Jan 25
Lefschetz fixed-point theory	3.4	2, 3, 4, 6, 7, 8, 11	Jan 27
Vector fields, Poincaré-Hopf theorem	3.5	1, 2, 3, 4, 5, 11, 17, 19	Jan 30
Practice presentation	–	–	Feb 1
DRP Symposium	–	–	Feb 3

REFERENCES

- [A] Guillemin, V., & Pollack, A. (2010). *Differential topology (Vol. 370)*. American Mathematical Society.

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