

MATH 561, Fall 2022

References:

J. Munkres, Elementary Differential Topology—Princeton U.P., 1966

Chapter 1: Differentiable Manifolds

Submanifolds and embeddings/mappings and approximations/smoothing of maps

V. Guillemin, A. Pollack, Differential Topology—AMS 1974

Ch. 1, 2: Manifolds and Smooth maps/ Transversality and intersection theory (mod 2)

M. Hirsch, Differential Topology—Springer-Verlag, 1976

Ch 1 –4: Manifolds and maps/Function Spaces/Transversality/Vector bundles, tubular neighborhoods

J. Munkres, Topology—Pearson Prentice-Hall, 2000

33,34 (Urysohn metrization) 41 (paracompactness), Ch.7 (complete metric spaces/function spaces), 48 (Baire spaces)

Additional references:

J. Milnor, Topology from the Differentiable viewpoint, U.VA press, 1965

Andrew Wallace, Differential Topology—first steps (Dover 2006)

R. Benedetti, Lectures on Differential Topology (AMS 2021)

MATH 562, Spring 2023 (Preview)

Oriented intersection theory, Euler Characteristic, Poincare-Hopf (vector fields)

Fundamental group, covering spaces, orientability/ Higher homotopy groups

Morse Theory/ classification of surfaces

De Rham cohomology