

A DIFFERENTIAL TOPOLOGY READING LIST

1. *Topology from the Differential Viewpoint*, by J. Milnor (U. of Virginia Press, 1969, 2nd ed) [Milnor 1]
2. *Differential Topology*, by Victor Guillemin and Alan Pollack (1974—AMS 2014)
3. *Topology*, by James R. Munkres [Munkres 1]
4. *Elementary Differential Topology*, by James R. Munkres (Princeton UP, 1966) [Munkres 2]
5. *Differential Topology*, by Morris W. Hirsch (Springer GTM no. 33, 1976)
6. *Morse Theory*, by J. Milnor (Princeton UP, 1963) [Milnor 2]
7. *Differential Manifolds*, by A. Kosinski (1993, Dover 2007)

Comments: [1] is a brilliant geometric, introductory overview of the subject. [2] is intermediate, and develops the same topics in more detail. The course will be mainly based on [2] and, for the approximation results, partly on [4]. [5] and [6] are more advanced; in the course, Morse theory will be based on Ch.1 of [6] or (more ambitiously) Ch. 6 of [5]. Reference [7] is a suggestion for students who want to go a bit deeper into the subject (topics in ch. 1-4 will be seen in the course, and ch.5 if time allows.) Reference [6] is one of the best mathematics texts ever written, and has a lot of differential geometry too. (All the books listed are classics, by the way.)