;8 Topology
›ring 1998
›hn Palmieri

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›xt: Differential Topology by Guillemin and Pollock

:tually, the first half of the semester was spent on point-set
›pology for subsets of Euclidean space, and we didn't use a book. I
ıded up writing summaries of the main ideas and posting them on the
›b page for the course. I had planned to work through a bit of the
›xt book very slowly, but we ended up doing less than I had hoped.

ırticular comments about the book: this is a very hard book,
›pecially for weak math majors. It requires a certain level of
ıthematical sophistication; students who have carefully read parts of
real math book will have a good grounding, but it didn't seem that
ıny of the students in the class had this grounding (even some of the
:ronger students). I think this book would be suitable for a strong
:oup of senior math majors; for a group of mixed ability levels, I
›uld use something else. (Various people have suggested:
M. Henle, "A combinatorial introduction to topology",
C.T.C Wall, "A geometric introduction to topology",
E. Bloch, "A first course in geometric topology and differential
geometry"
ıt I can't really vouch for any of these. Bloch's is the newest,
›nce least well tested.)

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ıterial covered:

›en and closed sets in Euclidean space.

›untable and uncountable sets.

ıive topological spaces (Definition: A "naive topological space" is
subset of R^n for some n.)

:operties of open sets in R^n, properties of closed sets.

›en, closed subsets in an arbitrary naive topological space.

›nnectedness.

.mit points.

›ntinuous functions.

›meomorphism.

ıages, preimages, continuity.

›en covers, compact sets.

space-filling curve.

ırfaces.

:om the text:

ection 1.1 (definition of manifold)
ection 1.2 (derivative, tangent space)
(both in quite a bit of detail)

ection 1.4 (the "preimage theorem" in particular)
ections 1.5 and 1.6 (the definition of transversality in particular)
(briefly)