California State University, Long Beach
Department of Mathematics and Statistics

**Syllabus for the Topology Comprehensive Examination**

1. Topics
   (a) Topological spaces
      i. Definition
      ii. Weak topology induced by functions
      iii. General product spaces
      iv. Quotient spaces
      v. Metric spaces
      vi. Bases, subbases, and neighborhood bases
   (b) Continuous functions and homeomorphisms
   (c) Separation and countability axioms
   (d) Connectedness, pathwise connectedness
   (e) Compactness, local compactness
   (f) Embedding and compactification

2. References

   (a) Cullen, Helen F. *Introduction to General Topology*, D.C. Heath and Company, 1968.
   (b) Dugundji, James. *Topology*, Allyn and Bacon, 1966.
   (c) Gamelin and Greene. *Introduction to Topology*, Saunders, 1983.
   (d) Gemignani, Michael. *Elementary Topology*, Addison-Wesley, 1967.
   (e) Kelly, John. *General Topology*, Van Nostrand, 1955.
   (f) Long, Paul. *General Topology*, Merrill, 1971.
   (g) Munkres, James. *Topology, a First Course*, Prentice-Hall, 1975.
   (h) Willard, Stephen. *General Topology*, Addison-Wesley, 1970.


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