Books

This course is not based directly on any one book. Recommended reading for the course:

- Nakahara, *Geometry, Topology and Physics* 
  (IOP) I very much recommend this one!

- Isham, *Modern differential geometry for physicists*  
  (World Scientific)

- Nash and Sen, *Topology and Geometry for Physicists*  
  (Dover)

I have largely tried to use the notation and conventions of Nakahara, which I regard as an excellent book for physicists. In particular the book goes significantly beyond this course, and so familiarity with it can be very useful long term. Isham’s book is a excellent and readable introduction which includes many of the formal details that Nakahara skips.

Also of interest, particularly for those interested in GR applications:

- Wald *General Relativity* First 4 chapters and appendices A-C  
  (Univ. chicago press)

- Eguchi, Gilkey, Hanson  *Gravitation, Gauge Theories and Differential Geometry*  
  Physics Reports 66, No. 6 (1980) p.213-393

- S. W. Hawking and G.F. R. Ellis, *The Large Scale Structure of Space-Time*, (CUP), Chapter 2.