MATHEMATICS 722 A1
Introduction to Differential Topology II
Spring Semester 2005

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Lectures: MWF 10-11 in MCS B29

Text(s): *A Comprehensive Introduction to Differential Geometry, Volume One*, Third Edition, by Michael Spivak, Publish or Perish, Inc., 1999; ISBN 0-914098-70-5

Text(s): *A Comprehensive Introduction to Differential Geometry, Volume Two*, Third Edition, by Michael Spivak, Publish or Perish, Inc., 1999; ISBN 0-914098-71-3

My Office Hours: MW 11-12, F 12-1

Class Web Page: http://math.bu.edu/people/kimura/Spring05/722/

Content: This course is a continuation of *Differential Topology I* (MA 721). We will cover topics such as metric tensors, geodesics, parallel transport, curvature, symplectic geometry and Hamiltonian mechanics, Lie groups, homology, Poincaré duality and topological invariants such as the Euler characteristic. If time permits, we will also cover fiber bundles and connections.

Prerequisites: The prerequisites to this course to have mastered the material in MA 721.

Homework: Homework will be assigned periodically. Late homework will not be accepted. Students may discuss homework with each other (and are encouraged to do so) but all written work must be prepared independently.

Exams: There will be a final exam.

Grades: Your final grade is determined by – the homework, and the final. Grades are based upon the formula:

$$\text{Final Grade} = \frac{1}{2}(\text{ Homework Average}) + \frac{1}{2}(\text{Final Exam})$$