MA 59800 - Spring 2022- Syllabus
Differential Topology

Faculty: Ralph Kaufmann
Office: MATH 722, Tel: (765) 494–1205
E-mail: rkaufman@math.purdue.edu
URL: http://www.math.purdue.edu/~rkaufman

Class times: TR 12:00 – 1:15 pm in REC 114

Homepage for the course: http://www.math.purdue.edu/~rkaufman/MA598sp14/

Office hours: Thursday 2– 3pm am.
If you have a conflict with these times, we can arrange for another time to meet.

Texts: The main reference is:
    Bott and Tu. Differential Forms in Algebraic Topology. Springer 1982.

Course description:
Differential topology is at the intersection of topology and analysis.
One could say that the main aim is to derive topological data using differential calculus. This has the advantage that many notions become more intuitive. For instance one can discuss cohomology using deRham forms and make Poincaré duality explicit. One can also represent characteristic classes using forms. This can be of computational as well as of conceptual help.

We will use the classic text of Bott and Tu for the most part.

Required Work: Besides the expected participation in class there may be homework assignments. There will be the choice of an oral presentation during the semester or a written project at the end of the semester.

The standard syllabus components apply, check brightspace.