Mathematics 425/525, Term I, 2020

Instructor: JINGYI CHEN

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Topics: Manifolds, smooth structures, tangent and cotangent spaces, vector fields, immersion and embedding, submanifolds, Sard theorem, Frobenius theorem, tensors and differential forms, vector bundles, orientation of manifolds, integration on manifolds, and if we have time, we will give a brief introduction to Lie groups.

Prerequisites: Undergraduate training in analysis (for example Math 320) and linear algebra.

Text: Introduction to Smooth Manifolds, John M. Lee, Springer edition, 2nd Ed. (Note: The entire e-book can be viewed online via the UBC Library website.)

Reference:
(1) Foundations of Differentiable manifolds and Lie groups, by F.W. Warner, Springer edition
(2) Lectures on Differential Geometry, by S.S. Chern, World Scientific
(3) A Comprehensive Introduction to Differential Geometry, Vol. 1, 3rd Edition, by M. Spivak

Evaluation:
- The course mark will be based on bi-weekly assignments (6 sets in total).
- You are encouraged to use Latex to write your solutions.
- Copying solutions from another student, from the web or from any other source, and turning them in as your own is a violation of the Academic Code.

Structure of the Course: We are going to use Canvas. Each lecture will be delivered via Zoom. The recorded lecture and its notes (in the pdf formate) will be posted at the course Canvas site. Homework assignments are now posted there with due dates.