WEEKLY SCHEDULE
– TOPOLOGY OF MANIFOLDS –
ETH ZÜRICH, SPRING 2022

DANICA KOSANOVIĆ

Lecture 1. – **20.02** – **What is this course about?**
- Definition of Top and Diff manifolds.

Key Thm 1. Diff and Top: Schoenflies Conjecture
Key Thm 2. Top: Poincaré Conjecture
Key Thm 3. Diff: exotic smooth structures
- Key Thm 0 [h-and s-cobordism Thms]: statements, ingredients
- orientations, tangent bundle

Lecture 2. – **27.02** – Diff – **Main tools**
- vector fields, Thm: can find integral curves
- Collar Thm, Thm: no crit.pts implies product
- Thm: Handle Decomposition Thm
- submanifolds, transversality, isotopy, ambient isotopy,
- tubular neighbourhoods

Lecture 3. – **05.03** – Diff – **Handle Calculus**
- gluing, connected sum, handle attachment
- examples of handle decompositions
- Isotopy Lemma, Unknot Lemma & Cor
- Reordering Lemma
- Cancellation Lemma
- Remove 0-handles Lemma