Course title: **Applied and computational topology.**

Schedule/abstract (materials may vary depending on the real data to analyze I will be able to obtain):

1. Simplicial and cubical complexes as generalization of graphs.
2. Ways of introducing filtration on complexes.
3. Simplicial complexes of relations.
4. Boundary operators and (persistent) homology groups.
5. Stability of persistence.
6. Persistence landscapes and statistical topology.
7. Reeb graphs and mapper.
8. Discrete Morse Theory.
9. Applications of computational topology.

Software: Perseus, Phat, Persistence Landscapes Toolbox, Mapper (if time permits), sliding window embedding software (if time permits).

Data: if you have any data to analyze, please bring it in!