# Introduction to Geoinformatics – IFGI-Munster SS 2015

## Assignment #1

In this assignment, you will read first three papers describing three different methods for measuring topological relations between objects in 2D Space: Egenhofer on point-set topology, Clementini on the calculus-based method (CBM), Cohn on the region-connected calculus (RCC). Then you will read two papers that compare these methods (Egenhofer comparing 4- and 9- intersection methods, Clementini comparing CBM with Egenhofer's 9-intersection method). Note that the Cohn paper also has a comparison between the RCC and point-set topology.

Your assignment is to write a 400-1000 word short revision of the topic "Topological Operations on 2D Space for Geographical Applications", using these five papers as a basis. Your assignment should consider, among others, the following issues:

- Why is topology important for GIS?
- Why did these authors work to have formal definitions of topological operations on 2D space?
- What are the restrictions of the 2D partitions in which the operations are defined? For example, what kinds of 2D space regions are included? What are those left out?
- How do you compare the 4- and 9- intersection methods with the RCC? What are the arguments for and against each method?
- How do you compare the 4- and 9- intersection methods with the CBM? What are the arguments for and against each method?
- Why method was adopted by the OGC for the standard simple feature operations?
- Do the topological operations in QGIS and ArcGIS follow any of these methods?