Content:
It is known that every smooth connected surface can be given a Riemannian metric with constant Gauss curvature 1,0 or -1. A classical result due to Minding map is that the surface with this metric is locally isometric to the 2-sphere S^2, the Euclidean plane E^2, or the hyperbolic plane H^2 respectively. This results in a geometric structure on the surfaces – namely an atlas consisting of diffeomorphisms between open sets in the surface and open set in S^2, E^2 or H^2, such that coordinate changes are given by local isometries of the "model geometry" S^2, E^2 or H^2.

Each closed connected surface Σ of genus $g \geq 2$ has a hyperbolic structure – that is a geometric structure modeled on H^2. The aim of the course is to examine the hyperbolic structures on Σ up to a certain equivalence relation. These form the Teichmüller space $\mathcal{T}_g$, which has a very rich structure. Topologically it is $\mathbb{R}^{6g-6}$.

Our approach to $\mathcal{T}_g$ through hyperbolic geometry gives a description of $\mathcal{T}_g$ due to Fenchel and Nielsen in terms of length - and twist parameters.