Math 191 : Introduction to Research - Knot Theory

January 28, 2019

Course Description

This class will prepare you to do your own investigations into the theory of knots, culmi- nating in a self-chosen open-ended project. Topics to be covered include representing knots and links, projections, Reidemeister moves, examples of knots, operations on knots, prime decomposition, fundamental group, simplicial homology, numerical invariants, polynomial invariants. Additional topics will be based on student interest, e.g. fibered knots, categorifi- cation of invariants, knots in low-dimensional topology, hyperbolic knots and three-manifold geometry, knots in contact and symplectic geometry, links of singularities.

Course Information

INSTRUCTOR: Michael Klug   E-mail: *mrklug@berkeley.math.edu*

MEETING TIME AND LOCATIONS: MW 5:00-6:30 Evans 35.

OFFICE HOURS: M 7:00-8:00 PM Evans 835.

PREREQUISITES: amiliarity with mathematical proofs at the level of Math 55 and at least one of Math 110 or Math 113 (can be taken concurrently). Math 104 encouraged. Most importantly, curiosity and a willingness to work on open-ended problems!

GRADING: Long project and presentation: 50% In class presentation 20% Participation: 15% Quizes: 15%

ACCOMMODATIONS: If you require DSP or other accommodations, please let me know as soon as possible.