MATH 431 – Introduction to Algebraic Geometry

Semester: Spring 2009
Instructor: Alex Degtyarev
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Assistant:

Exams & Grading: 2 Midterms (100 pts each)
• 1st Midterm ~ 5th week
• 2nd Midterm ~ 10th week
Final exam (150 pts)
• Final Exam Finals week
Homework (~ 50 pts)

Course Schedule:
Tuesday 8:40–10:30 Room SAZ-01
Friday 8:40–9:30 Room SAZ-19

Office Hours:
Tuesday 10:40–11:30
Friday 10:40–11:30

Textbook: Lecture notes
Supplementary: Phillip A. Griffiths Introduction to Algebraic Curves.
Trans. Math. Monographs, Volume 76,

Tentative course contents

• Complex projective plane and projective algebraic curves
• Abstract Riemann surfaces; holomorphic functions and differentials
• Complex manifolds and algebraic varieties; maps
• Smooth vs. singular points, tangent spaces; singularities of plane curves
• The Normalization theorem (resolution of singularities for curves)
• Divisors, intersection numbers, the Bézout theorem; the Riemann-Hurwitz formula; the genus formula
• The Riemann-Roch theorems; applications to small genera
• Abel’s theorem and its applications

The contents is subject to change without notice.