

Math 708 - Complex Algebraic Geometry - Spring 2024

Tuesdays and Thursdays 1:00 → 2:15 PM LGRT 1114

Instructor: Eyal Markman

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Office hours: Tuesday 4:00 → 4:55 pm, Thursday 3:00 → 4:00 pm, and by appointment.

Prerequisites: Complex analysis of one variable at the level of Math 621 and Differentiable manifolds at the level of Math 703.

References: The main textbooks will be:

- (1) “Complex Geometry, an introduction”, by Daniel Huybrechts, Springer Univeritext, 2005.
- (2) “Principle of algebraic geometry”, by P. Griffiths and J. Harris.

Course Plan: The basic techniques of Kähler geometry, Hodge theory, line and vector bundles, needed for the study of the geometry and topology of complex projective algebraic varieties, will be introduced and illustrated in basic examples such as Riemann surfaces, algebraic surfaces, abelian varieties, and Grassmannians. The core material is contained in Chapters 0 and 1 of Griffiths and Harris and in an expanded and more detailed form in the first five chapters of Huybrechts’ book.

Homework: Will be assigned biweekly.

Grades: Will be determined by each student’s individual progress, homework, and class participation.

Accommodation: The University of Massachusetts Amherst is committed to making reasonable, effective and appropriate accommodations to meet the needs of students with disabilities and help create a barrier-free campus. If you have a disability and require accommodations, please register with Disability Services (161 Whitmore Administration building; phone 413-545-0892) to have an accommodation letter sent to your faculty. Information on services and materials for registering are also available on their website www.umass.edu/disability.

Academic honesty: Since the integrity of the academic enterprise of any institution of higher education requires honesty in scholarship and research, academic honesty is required of all students at the University of Massachusetts Amherst. Academic dishonesty is prohibited in all programs of the University. Academic dishonesty includes but is not limited to: cheating, fabrication, plagiarism, and facilitating dishonesty. Appropriate sanctions may be imposed on any student who has committed an act of academic dishonesty. Instructors should take reasonable steps to address academic misconduct. Any person who has reason to believe that a student has committed academic dishonesty should bring such information to the attention of the appropriate course instructor as soon as possible. Instances of academic dishonesty not related to a specific course should be brought to the attention of the appropriate department Head or Chair. Since students are expected to be familiar with this policy and the commonly accepted standards of academic integrity, ignorance of such standards is not normally sufficient evidence of lack of intent (http://www.umass.edu/dean_students/codeofconduct/acadhonesty/).