



Faculty of Science  
DEPARTMENT OF MATHEMATICS AND STATISTICS  
Course Information Sheet

1. **Course:** PMAT 425 **Winter 04**  
**Lecture/Time/Session:** L01/MWTF/13:00-14:00 **Room: MS317**  
**Instructor:** Dr. A. A. Bruen  
**Office:** MS416 **Phone: 220-6324**  
Email: bruena@math.ucalgary.ca
2. **Prerequisites:** Pure Math 315 or consent of the division.

**NOTE:** The Faculty of Science policy on pre- and co-requisite checking is outlined on page 198 of the 2003-2004 Calendar. **It is the students' responsibility to ensure that they have the pre- and co-requisites for the course, and if they do not they will be withdrawn from the course without notice.**

3. **Fee policy:** After the last day to drop/add courses, there will be no refund of tuition fees if a student withdraws from a course, courses or the session.
4. **The University policy on grading and related matters** is described on pages 41-42 of the 2003-2004 Calendar. In determining the overall grade in the course, the following weights will be used:

Assignments	10%
Mid-term Tests	35%
Class participation	10%
Project	10%
Final Exam	35%

5. **Missed Components of Term Work.** The regulations of the Faculty of Science pertaining to this matter are outlined on page 199, of the 2003-2004 Calendar. It is the student's responsibility to familiarize herself/himself with these regulations.
6. **Academic misconduct** (cheating, plagiarism, or any other form) is a very serious offence that will be dealt with rigorously in all cases. A single offence may lead to disciplinary probation or suspension or expulsion. The Faculty of Science follows a zero tolerance policy regarding dishonesty. Please read the sections of the 2003-2004 University Calendar under the heading "Student Misconduct", pages 53-56.
7. **Dates and times of class exercises held outside of class hours (evening tests, Saturday laboratory examinations, weekend field trips, etc.):** **\*\*There will be no out-of-class-time activities.\*\***

## Course Information Sheet, Winter2004

**Calendar description:** Affine and projective planes, collineations, linear transitivity, projective closure, Ternary Tings and the theorems of Desargues and Pappus.

**Suggested text:** "Foundations of Projective Geometry" by Robin Hartshorne.

**Reference:** "Projective Geometry and Modern Algebra" by Kadison and Kromann.

**Syllabus** (Approximate: time permitting)

Week beginning	
Jan 12	Affine planes, projective planes, the vanishing line.
Jan 19	Fields, the planes $AG(2, F)$ , $PG(2, F)$ .
Jan 26	Homogeneous coordinates, quadratic forms, conics, pole and polar, Euclidean examples.
Feb 2	Curves in $PG(2, F)$ , dual curves, polar curves.
Feb 9	Desargues theorem, automorphisms, 3-dimensional space.
Feb 16	Study week.
Feb 23	Automorphisms of planes.
March 1	Projectivities, Harmonic Conjugates.
March 8	Pappus and the fundamental theorem.
March 15	Introduction of coordinates.
March 22	Coordinates and $(V, I)$ transitivity.
March 29	Homologies, elations, conjugacy, projective collineations.
April 5	Collineations and matrix collineations, transitivity, the fundamental theorem of projective geometry.