

Information on Math 331

Transformation Geometry

Call No. 3165

January 21, 2004

TIME OF MEETING: Mon, Wed, & Fri 1:25 – 2:20.

PLACE: ES 147

INSTRUCTOR: W. F. Hammond, ES 137A, phone 442-4625.
Office hours: Mon. & Wed. 3:00 – 3:50
Email: hammond@math.albany.edu
World Wide Web: <http://www.albany.edu/~hammond/>

TEXT: Melvin Hausner, *A Vector Space Approach to Geometry*
Dover Publications, Inc., Mineola, N.Y., ISBN: 0-486-40452-8

PRE-REQUISITE: Math 220. Math 214 will also be useful.

BRIEF DESCRIPTION:

Isometries, similarities, and affine transformations for Euclidean geometry and associated groups of transformations.

ABOUT THE TEXT

Important: The course will not follow the textbook closely. Handouts and notes taken in class will be important in this course.

COURSE OBJECTIVE:

Course objectives include:

1. Understanding how the notions of congruence and similarity in school geometry are best handled with the study of transformations.
2. To become fully familiar with isometries, similarities, and affine transformations in the geometry of the Euclidean plane and of Euclidean space.
3. Understanding both synthetic and analytic methods and gaining experience with deciding on the choice of method.
4. Understanding how coordinate-free methods in geometry are related to coordinate-free methods in linear algebra.
5. Understanding the role of transformation groups in geometry.

TEST SCHEDULE:

| Event | Weight | Date |
|---------------------------|--------|-------------------------|
| Final examination | 100 | Wed, May 12, at 3:30 pm |
| Midterm test | 50 | Wed, Mar 24, in class |
| Short tests (10 @ 5 each) | 50 | |
| Total weight | 200 | |

ATTENDANCE:

Attendance at class meetings is a *requirement* for passing the course unless the student has been granted a special exception *in advance*. Unexcused absence may result in failure or grade reduction. There will be no retrospective excused absences from tests except for compelling emergencies and religious holidays.