

U560 – GEOMETRY (Fall 2008)

- Time:** Mondays, Wednesdays & Thursdays 1:35 pm – 2:40 pm
- Place:** 431 Ryder Hall
- Instructor:** Professor Egon Schulte
469 Lake Hall, 373-5511
schulte@neu.edu, www.math.neu.edu/~schulte
- Office hours:** M 2:50–3:55, W 2:50–3:55, Th 11:45-12:50, and by appointment.
- Text:** G.E.Martin, *Transformation Geometry*, Undergraduate Texts in Mathematics, Springer (1982).

Course Outline

The course covers most of Chapters 1–12 of the textbook.

- Week of September 8: Chapter 1 – Introduction
1.1 – Transformations and Collineations
1.2 – Geometric Notation
Chapter 2 – Properties of Transformations
2.1 – Groups of Transformations
- Week of September 15: 2.1 (cont.) – Groups of Transformations
2.2 – Involutions
Chapter 3 – Translations and Halfturns
3.1 – Translations
- Week of September 22: 3.1 (cont.) – Translations
3.2 – Halfturns
Basics about groups
- Week of September 29: Chapter 4 – Reflections
4.1 – Equations for a Reflection
4.2 – Properties of a Reflection
Chapter 5 – Congruence
5.1 – Isometries as Products of Reflections
- Week of October 6: 5.1 (cont.) – Isometries as Products of Reflections
5.2 – Paper Folding Experiments and Rotations

Week of October 13:	Chapter 6 – The Product of Two Reflections 6.1 – Translations and Rotations 6.2 – Fixed Points and Involutions
Week of October 20:	Chapter 7 – Even Isometries 7.1 – Parity 7.2 – The Dihedral Groups
Week of October 27:	Chapter 8 – Classification of Plane Isometries 8.1 – Glide Reflections 8.2 – Leonardo’s Theorem
Week of November 3:	Chapter 9 – Equations for Isometries 9.1 – Equations Chapter 10 – The Seven Frieze Groups 10.1 – Frieze Groups
Week of November 10:	10.1 (cont.) – Frieze Groups 10.2 – Frieze Patterns
Week of November 17:	10.2 (cont.) – Frieze Patterns Chapter 11 – The Seventeen Wallpaper Groups 11.1 (cont.) – The Crystallographic Restriction
Week of November 24:	Chapter 11 – Tessellations 12.1 – Tiles
Week of December 1:	12.1 (cont.) – Tiles 12.2 – Reptiles
Week of December 8:	Review

Final Exam: Tuesday, December 17, 2008 at 8:00 am

Grading: There will be five 45-minute Tests counting 60% in all. Your lowest Test score will be dropped; only the highest four scores will count. There are no make-ups. The two-hour Final Exam will count 40%, or 50% if it helps your grade (in this case the Test scores are counted proportionally).

Final Exam: All students without legitimate conflicts must take the final exam at the scheduled time. Contact the Registrar if you have a time conflict or three finals in one day.

Attendance Policy: Your regular attendance is expected. It is your responsibility to know assignments and other class information including any changes to the syllabus the instructor may make as they are announced in class. Students are responsible to know about all information given, even when they are absent. Feel free to use e-mail to ask me.

To Talk to Someone Else: If you have a concern about the course or the instructor that cannot be resolved by speaking to the instructor, the next step is to speak with the Undergraduate Director, Professor Martsinkovsky (471 Lake Hall, x5510, alexmart@neu.edu).

Academic Honesty from Student Code of Conduct: see

<http://www.northeastern.edu/osccr/academichonesty.html>

“A necessary prerequisite to the attainment of the goals of the University is maintaining complete honesty in all academic work. Students are expected to present as their own only that which is clearly their own work in tests and in any material submitted for credit. Students may not assist others in presenting work that is not their own. Offenders are subject to disciplinary action.”

Changing grades, Incompletes: It is University policy that no grade, including an Incomplete, may be changed after one year. Exceptions must be authorized by the Academic Standing Committee. Note that an "Incomplete" grade request requires a written understanding (contract) between the Instructor and student with details about what material will be made up and how. They are normally appropriate only for a student who is doing well, but becomes ill, or has a family emergency late in the semester.

MTH U560 course description from Undergraduate Catalog:

Studies classical geometry and symmetry groups of geometric figures, with an emphasis on euclidean geometry. Teaches how to formulate mathematical propositions precisely and how to construct and understand mathematical proofs. Provides a line between classical and modern geometry with the aim of preparing students for further study in group theory and differential geometry.