



## PURE MATHEMATICS 319 "TRANSFORMATION GEOMETRY"

**Calendar Description:** H(3-2T)

Geometric transformations in the Euclidean plane. Frieze patterns. Wallpaper patterns. Tessellations.

**Prerequisite:** Mathematics 211 or 221 and one other 200-level course labelled MATH (except Mathematics 205), AMAT or PMAT.

**Suggested text:** "Transformation Geometry", by G.E. Martin.

### *Syllabus*

| <u>Topics</u>                             | <u>Number of<br/>hours</u> |
|---|----------------------------|
| Ch.1: Introduction (geometry and algebra) | 3                          |
| Ch.2: Transformations                     | 1                          |
| Ch.3: Translations and halfturns          | 3                          |
| Ch.4: Reflections                         | 1                          |
| Ch.5: Isometries                          | 3                          |
| Ch.6: Translations and rotations          | 2                          |
| Ch.7.1: Even isometries                   | 3                          |
| Ch.8.1: Glide reflections                 | 2                          |
| Ch.7.2 and 8.2: Symmetry                  | 4                          |
| Ch.10: Frieze groups                      | 4                          |
| Ch.11: Wallpaper groups                   | 6                          |
| Student project and presentations         | 3                          |
| Mid-term exam                             | 1                          |
|   | 36                         |

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