

## LTCC Proposed Course

**Title:** Toric Varieties

**Basic Details:**

- Core Audience: 1<sup>st</sup> year postgraduate or above in pure mathematics
- Course Format (**Extended**: 5 x 2hr lectures)

**Course Description:**

- Keywords: Toric variety, fan, polytope, convex geometry, algebraic geometry
- Syllabus: We will discuss some basic notions in algebraic geometry, how these notions are understood in toric geometry, and how they are encoded in convex polyhedral geometry terms. Topics will include:
  - Affine toric varieties and convex cones
  - Atlases for toric varieties and fans
  - Polarized projective toric varieties and convex polyhedra
- Recommended reading:
  - *Toric Varieties* (by Cox, Little, Schenck) is expansive, detailed, and carefully written.
  - *Introduction to Toric Varieties* (by Fulton) is concise and well-motivated. Lectures, problems, and examples will be drawn from both texts.
- Prerequisites: Algebra, some familiarity with algebraic geometry will be helpful but is not required

**Format:**

- No of discussion/problem sheets: 4
- Electronic lecture notes will be provided after each lecture.

**Lecturer Details:**

- Lecturer: Timothy Magee
- Lecturer home institution: King's College London
- Lecturer e-mail: timothy.magee@kcl.ac.uk