

LTCC Basic Pure Course

- Title: **C*-algebras**
- Basic Details:
 - Core Audience: Pure
 - Course Format: Basic/Core (10h)
- Course Description:
 - Keywords: Operators and C^* -algebras. Spectral theory. Ideals and quotients. States and representations. GNS construction. Spectrum of a C^* -algebra. Von Neumann algebras. Kaplansky's density theorem. Factors. Murray-von Neumann classification.
 - Synopsis: C^* -algebras play a fundamental role in many branches of mathematics such as functional analysis, representation theory, non-commutative geometry and quantum theory. This course gives an introduction to C^* -algebras and their representations in Hilbert spaces, as well as the classification of van Neumann algebras. It presents the most basic ideas as simply and concretely as possible, and should be appropriate for graduate students who have knowledge of general topology, real and complex analysis.
- Recommended reading:
 1. W. Arveson, *An Invitation to C^* -algebras*, Springer-Verlag, Heidelberg, 1976.
 2. M. Takesaki, *Theory of operator algebras I*. Springer-Verlag, 1979.
- Additional/Optional reading:
 1. J. Dixmier, *C^* -algebras*. North-Holland, Amsterdam, 1977.
 2. R.V. Kadison and J. R. Ringrose, *Fundamentals of the Theory of Operator Algebras, I, II*, Academic Press, New York, 1983, 1986.
- Format: Proposed timing: early Autumn 2009
- Lecture details: Professor Cho-Ho Chu, QMUL.