3703 (Prime Numbers and their Distribution)

Year:	2012–2013
Code:	MATH3703
Title:	Prime numbers and their distribution
Level:	Advanced
Value:	Half unit (= 7.5 ECTS credits)
Term:	1
Structure:	3 hours per week
Assessment:	100% examination
Normal Pre-requisite:	A good grasp of Mathematical Analysis. 7102 would be helpful.
Lecturer:	Mr C Daw

Course Description and Objectives

Analytic Number Theory applies the methods of Classical Analysis to the integers and, in particular, to the properties of prime numbers.

Recommended Texts

The recommended textbook is Jameson, *The Prime Number Theorem.*

Detailed Syllabus

We prove the famous Prime Number Theorem about the distribution of primes as well as Dirichlet's theorem about primes in arithmetic progression. The role of the Riemann-Zeta function is discussed and its analytic continuation proved by means of its functional equation.