UF Krishnaswami Alladi
Department of Mathematics

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MAS 7216 – Analytic Number Theory II – Spring 2015

MWF 6th period (12:50-1:40pm) – LIT 235 – FALL 2014

INSTRUCTOR:

Krishnaswami Alladi

304 Little Hall

(352) 294-2290
email: alladik@ufl.edu

OFFICE HOURS:

M and W 7th period (1:55 – 2:45 pm) in LIT 304 and
by appointment.

PREREQUISITES:

Undergraduate course in number theory and a course in complex variable theory

COURSE DESCRIPTION:

Although this is a continuation of MAS 7215,
I will make it self contained. Thus, while
MAS 7215 is desirable, it is not necessary
for this course.

In the last twelve months, there have been
spectacular progress on both the small gap
and large gap problems regarding primes.
Although the twin prime conjecture is still
unsolved, progress towards it has been dramatic.
To better understand this, I will begin by
giving an account of Sieve Methods of Brun
and Selberg and establish several important
results on almost primes, which will be approximations
to the celebrated prime twin and Goldbach conjectures.
I will also discuss the results of Westzynthius-Erdos-Rankin
on the large gap problem of primes.
In connection with this, I will discuss next the distribution
of integers with restrictions on their prime factors.
Another topic for discussion with be the beautiful
subject of Probabilistic Number Theory ushered
in by Paul Erdos and Marc Kac – a subject whose
origins can be traced back to the work of Hardy
and Ramanujan. I will provide a novel sieve theoretic
approach to probabilistic number theory. Finally
I plan to discuss primes in arithmetic progressions
and the famous Siegel-Walfisz theorem.

TEXT:

No assigned text. I will use my own notes. A number of texts will be given as
references. All I expect is a background in complex variable theory.

GRADING:

Grades will be based on a few homework assignments,
and seminars that students will have an opportunity to give.

ACCOMODATION FOR STUDENTS WITH DISABILITIES:

Students requesting classroom accommodation must first register with the Dean of
Students Office. The Dean of Students Office will provide documentation to the
student who must then provide this documentation to the Instructor when requesting
accommodation.