

COURSE ANNOUNCEMENT

FALL 2008

MAT 578

Functional Analysis

Instructor: John Quigg
Time: 1:30 - 2:45 Tuesday & Thursday
Location: PSY 161
Class Number: 76005
Credits: 3

Course Description: This is the first half of a two-semester sequence in functional analysis, which is the study of vector spaces equipped with a compatible topology, and continuous linear maps among them. Topics may include, but are not limited to: Banach spaces, Hilbert spaces, locally convex spaces, duality, compact operators, bounded and unbounded operators on Hilbert space, and spectral theorems. The syllabus will depend on the interests and abilities of the participants.

Prerequisites: The prerequisite listed in the course catalog is "MAT 472 or MAT 571 or instructor approval", but this is somewhat misleading. The basic prerequisite topics are: analysis in metric space (e.g., completeness, Baire Category Theorem, uniform convergence), basic topology (e.g., continuity, compactness), and linear algebra over the real and complex fields. The basic theory of Lebesgue integration, at least at the level of MAT 473, will be used at various times; if you have not seen it already you should pick up the necessary basics as we go.

However, I want to emphasize that, regardless of your background, if you are at all interested in this course, please contact the instructor at quigg@asu.edu or PSA 728.

Textbook: There is no "required" textbook. The lecture notes will be essentially self-contained, using the following books as primary references:

Rudin, *Functional Analysis*
Conway, *A Course in Functional Analysis*
Reed and Simon, *Functional Analysis*

I will try to put these books on reserve in the library.