Phys 780   "ST: Mathematical Physics"   **Spring 2012**

INSTRUCTOR Dr. Vitaly A. Shneidman, e-mail: vitaly@oak.njit.edu

TIME: Tue. 2:30-5:25 pm

WEB page: http://web.njit.edu/~vitaly/780/

Textbook: Arfken & Weber, *Mathematical Methods for Physicists*, 6th ed.

This is a new course, designed to prepare Physics students for the Ph.D. qualifying examination and to develop active knowledge of basic and some advanced aspects of math, which are used in other graduate courses.

Major topics include:

- Vector analysis

- Matrices

- Series. Asymptotic methods.

- Functions of complex variable.

- Ordinary differential equations. 1st order and linear 2nd order.

- Partial differential equations. Separation of variables.

- Special functions.

- Integral transforms.