

Physics 600

Mathematical Methods of Theoretical Physics

Instructor: Jason Kumar
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Class meets:
T Th 9:00-10:15am
WAT 417A

Supplementary Textbooks:
Mathematical Methods of Physics
Mathews and Walker

Topics to be covered:

Generalized Curvature
Group Theory (Representation Theory)
Perturbation Theory
Complex Analysis
Fourier Analysis

Grading:

The course grade will be based on homework and exams
60% -- homework
20% -- midterm
20% -- final

Student Learning Outcomes:

At the successful completion of this course, students will be expected to:

- 1) Have an understanding of the general nature of curvature and of its specific application to geometry and gauge-symmetry
- 2) Understand how to use the basic tools and results of representation theory

- 3) Understand methods of perturbation theory, along with basic computations of non-perturbative physics
- 4) Understand the basic tool and techniques of complex and Fourier analysis