

**University of Maryland
Department of Physics**

Physics 604

Fall 2011

GENERAL INFORMATION

Title: Methods of Mathematical Physics

Instructor: Dr. James F. Drake

Office: A. V. Williams Bldg. (3311)

Phone: 405-1471

e-mail: drake@umd.edu

Office Hours: by appointment or random access.

Web site: www.terpconnect.umd.edu/~drake/classes/physics604

Room: CHM 0127

Time: TuTh 9:30-10:45 AM

Grader: Jiang Xu

Office: PHYS 0104

Phone: 405-8577

email: xujiang@umd.edu

Course Description: The course is intended to provide a strong mathematical background for solving equations in physics. Topics to be covered are: (1) the theory of complex variables including analytic functions, integral theorems and analytic continuation; (2) methods for solving ordinary and partial differential equations including Fourier and Laplace transforms, integral representations, eigenfunction expansions, Green's functions and approximation methods. The emphasis will be on techniques which are useful to the practicing physicist.

Text: G. Arfken and H. Weber, *Mathematical Methods for Physicists*, 6th Edition (2005), Academic Press.

Supplementary

Reading: Churchill, *Complex Variables and Applications*,
McGraw-Hill
Mathews and Walker, *Mathematical Methods of Physics*,
Benjamin
Lea, *Mathematics for Physicists*,
Thomson
Bender and Orszag, *Advanced Mathematical Methods
for Scientists and Engineers*,
McGraw-Hill

Homework: Assignments will be made on each Thursday and
will be due the following Thursday. Late homework
will be penalized 20% for each day late
and will not be accepted beyond Friday
after it is due.

Grading: There will be three exams: two midterms and a
final. Grades will be assigned as follows:

Homework	100 points
1st midterm	100 points
2nd midterm	100 points
Final	200 points

The lowest score from the homework, either of the two
midterms or half of the final will be dropped.