

MATH / PHYS 931 – Mathematical Physics – Fall 2011

- Instructor:** Prof. Karsten Pohl DeMeritt Hall 327 603-86-2-4197
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- Class:** Tue & Thu from 8:10 – 9:40 in DeMeritt (DeM) 251
- Office hours:** Mon & Wed from 2:00 – 3:00 in DeM 327 (office) of DeM 119 (lab) or by appointment.
- Announcements:** All important course information can be found on <http://blackboard.unh.edu>, including schedules, homework assignments, literature lists, grades, ...
- Prerequisites:** Enrollment in a CEPS graduate program or by permission.
- Course Goals:** Beginning graduate students will develop a fundamental understanding of the mathematical tools used in graduate level physics courses.
- Texts:** F. W. Byron, Jr. and R. W. Fuller (required)
Mathematics of classical and quantum physics
(Dover Publications, 1992)
- G. B. Arfken and H. J. Weber (recommended reference)
Mathematical Methods for Physicists
(Elsevier, 6th Edition, 2005)
- Other Books:** An extensive list of useful books will be on Reserve in the Physics library.
- Assignments:** About 10 problem sets will be given out, generally on a Thursday and are due back on Thursday the following week in class. Solutions will be discussed on that day. Teamwork is encouraged, so groups of up to 3 students may hand in one solution set, with all collaborators names and signatures listed. If you collaborated with others but prefer to hand in your own solution, please list you collaborators. Late homework will generally not be accepted.
- Grading:** 40% problem sets
15% midterm exam
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30% cumulative final exam

- Course Outline:**
- I. Complex Analysis
analytical functions, residue theorem, integration methods
 - II. Vector Spaces
vector calculus, linear algebra, complete orthogonal sets
 - III. Hilbert Spaces
PDEs, special functions, Sturm-Liouville systems
 - IV. Green's Functions

DSS: The University is committed to providing students with documented disabilities equal access to all university programs and facilities. If you think you have a disability requiring accommodations, you must register with Disability Services for Students (DSS). Contact DSS at 2-2607. If you have received Accommodation Letters for this course from DSS, please provide me with that information privately, in my office, so that we can review those accommodations.