

Mathematical Methods for the Physical Sciences

Course Description: Physics 2400 (Mathematical Methods for the Physical Sciences) provides an overview of complex variables, matrix theory, vector and tensor analysis, variational calculus, integral transformations, ordinary and partial differential equations, special functions with applications to various physics problems. The course introduces computerized typesetting (as used by physicists and mathematicians for professional publications) and Computer Algebra Systems (as analytic calculators).

Lectures: TuTh 3:30 PM — 4:45 PM in M407, Math Building

Computer Lab: Physics Computer Lab P122, time to be arranged

Course Webpage: <http://www.phys.uconn.edu/phys2400/>

Instructor: Michael Rozman

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office hours: TuTh 2:00PM to 3:30 PM in P322, and/or by appointment

Course Assistant: William Zimmerman

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office: P211, Physics Building
office hours: Tu 12:30PM to 1:30 PM in P211, and/or by appointment; appointments are possible Mon, Tue, and Fri
computer help: if there are questions about Mathematica that would be best answered by example, then office hours can be moved to P122, Physics Computer Lab

Textbook:

- Mary L. Boas, *Mathematical Methods in the Physical Sciences*, 3rd edition, Wiley, 2005

Other books (worth knowing/owning):

- J. Mathews and R. L. Walker, *Mathematical Methods of Physics*, 2nd edition, Benjamin, 1970
- G. Arfken and H. Weber, *Mathematical Methods for Physicists*, 6th edition, Academic Press, 2005

- K. F. Riley, M. P. Hobson, S. J. Bence, *Mathematical Methods for Physics and Engineering*, 3rd edition, Cambridge University Press, 2006

Communications: Email to rozman@phys.uconn.edu is the preferred method to contact the instructor. *Please include the tag “[phys2400]” (without quotes, no spaces) in the subject of your email, e.g. “[phys2400] midterm II retake”.*

Homework: Weekly homework assignments

Some reminders about the minimum requirements for acceptable written assignments:

- Use letter-size paper. Use only one side of each sheet.
- Put your name and the assignment number on the top of each page.
- Staple your sheets together. (i.e. no paper clips, torn or folded corners)
- Assignments that are hard to understand are also hard to grade properly, therefore:
(a) use words and pictures to supplement your equations; (b) work must progress linearly down the page – recopy solutions that are too nonlinear.
- Box your answers.

Honors conversion: Students interested in honors conversion should contact the instructor during *the first week of classes*.

Exams: Two lecture-hour midterm exams and a *cumulative* final exam

Course project: Hand in one of the homework assignment written in L^AT_EX. (Not required for non-physics/mathematics/engineering students.)

Grading scheme: The course grade will be calculated using the following scheme.

Homework	40%
Project	10%
Midterms	30%
Final exam	20%