SYLLABUS
Math Methods
Physics 5013
Fall 2002

Instructor: R. Kantowski
Grader: Ye Zhang
Lectures: Mon. & Wed. 2:50-4:05
Office: 310 Nielsen Hall, 325-3961 ext. 36310
Office Hours: Fri. 1:00-5:00 and by appointment
E-mail: kantowski@mail.nhn.ou.edu
Text Book: A Course in Modern Analysis,
Cambridge University Press,
by E. T. Whittaker and G. N. Watson

Additional material from: Mathematical Methods of Physics,
W. A. Benjamin Press,
by J. Mathews and R. L. Walker

A web site containing info about this course can be reached by going to the Physics and Astronomy page at “http://www.nhn.ou.edu/NHN/” and opening “Classes”. The site will improve as time progresses.

Our class will meet MW 2:50-4:05pm and homework ordinarily is due at the beginning of class on Monday.

The course contents will be:

1. Analytic functions and residue theory, Chapters V, VI, VII, and VIII of Whittaker and Watson, Chapter 3 and Appendices A1 & A2 of Mathews & Walker.

2. Ordinary 2nd order differential equations, Chapter X of Whittaker & Watson, Chapters 1 and 2 of Mathews & Walker.
3. Special functions, Chapters XII-XVII of Whittaker & Watson and Chapter 7 of Mathews & Walker.

4. (PERHAPS) Elliptic Integrals and Functions, Chapters XX & XXII of Whittaker & Watson and Chapters 3 & 7 of Mathews & Walker.

5. Green’s functions for PDE’s, chapter 9 of Mathews & Walker.

Course Grades

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<tr>
<td>Homework</td>
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<td>Examinations: 3 exams</td>
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The three exams will be in class on prearranged dates. At this point the final is NOT expected to be just a comprehensive examination of all class material. Emphasis will be on that material covered after the last exam. Exactly how much time will be allotted to the comprehensive part will depend on how much extra material is covered and will be announced in class before the final.

Your weekly homework assignment is due at 5:00pm Friday. Please put it in my mailbox in the Phys. & Astr. office, Room 131 NH, before it closes. Grades for late papers will be reduced by 25% per week. You will not be penalized for ‘officially’ excused absences. Your homework assignments will be graded by our grader. You may consult/discuss etc. homework with other students; however, each of you should write up your own results to turn in. I don’t want to see identical papers turned in.

Your first homework assignment: Read Ch. V (except sections V·13 and V·2) of Whittaker and Watson, and start reading Ch. 3-3 and appendices A-1 & A-2 of Mathews & Walker. Work problems 10, 11, 12, 19, & 20 of Mathews & Walker. Homework # 1 will be due by 5:00pm Fri. Sept. 6. It can be put into my mailbox or put under my office door.

Any student in this course who has a disability that may prevent him or
her from fully demonstrating his or her abilities should contact me personally as soon as possible so we can discuss accommodations necessary to ensure full participation and facilitate your educational opportunities.