

Physics 705: Mathematical Methods II

Professor: *Mark Henriksen*

Office: Physics 414

Office Hours: MWF 12:00 – 1:00

Class Time: TuTh 11:30 – 12:45

Classroom: Performing Arts 108

Goals for this course: Obtain a working knowledge of complex variables, integral transforms, and statistics.

Homework will be assigned each Tuesday and is due the following Tuesday (ungraded).

A Quiz will be given each Tuesday consisting of a problem (or part of a problem) taken from the homework that is due that day (graded). A make-up quiz or exam will be given only when prior arrangement is made with me. Possible justifications for a make-up include sickness with a note from the medical doctor.

The required text is “Mathematical Methods of Physicists and Engineers” by Riley, Hobson, and Bence, Second Edition, Cambridge University Press. “Mathematical Methods for Physicists”, by Arfken and Weber, Fifth Edition, Harcourt Academic Press, is also a good resource. There will likely be topics not covered in the textbooks: wavelet transforms, statistical methods for censored data sets, and image classification schemes (clustering, neural nets, SVM).

Grades will consist of: quizzes (20%), two midterm exams (20% each), a final exam (30%), and a lecture presented by you (10%). The lecture should utilize a paper (or papers) on a statistical method, applied to a field that interests you. The lecture will be given in class during the last few weeks of the term.