Instructor:	Howard Haber
Office:	ISB, Room 326
Phone Number:	459-4228
Office Hours:	Mondays 2:30–4:30 pm
E-mail:	haber@scipp.ucsc.edu
Webpage:	`http://scipp.ucsc.edu/~haber/index.html`

COURSE WEB PAGE:

`http://scipp.ucsc.edu/~haber/ph116C/index.html`

CLASS HOURS:

Lectures: Tuesdays and Thursdays, 12–1:45 pm, Physical Sciences Building, Room 110
Discussion Section: Mondays 5:00–6:10 pm, Natural Sciences Annex, Room 101

CLASS TEACHING ASSISTANT:

TA:	Angelo Monteux
Office:	ISB, Room 329
Phone Number:	459-1962
E-mail:	amonteux@ucsc.edu

REQUIRED TEXTBOOK:

Mathematical Methods in the Physical Sciences, 3rd edition, by Mary L. Boas

Other introductory texts:

Mathematical Methods for Physicists: A Comprehensive Guide, 7th edition, by George B. Arfken, Hans J. Weber and Frank E. Harris

Advanced Engineering Mathematics, 10th edition, by Erwin Kreyszig

Mathematical Methods for Scientists and Engineers, by Donald A. McQuarrie

PREREQUISITES:

Prerequisites: Physics 116A and B.

COURSE GRADING:

40% Weekly Homework (9 problem sets)
25% Midterm Exam (Thursday November 8, 2012 from 12–1:45 pm)
35% Final Exam (Thursday December 13, 2012 from 12–3 pm)

Course Outline for Physics 116C

Topic	Reading
1. Series solutions of differential equations	Boas Chapter 12, sections 1, 11
2. Legendre polynomials and functions	Boas, Chapter 12, sections 2–10
3. Bessel functions	Boas, Chapter 12, sections 12–20
4. Fuchs' Theorem and the Sturm-Liouville problem	Boas, Chapter 12, section 21
5. Hermite and Laguerre functions and polynomials	Boas, Chapter 12, section 22
6. Partial differential equations of mathematical physics	Boas, Chapter 13, sections 1–4
7. Problems with cylindrical and spherical symmetry	Boas, Chapter 13, sections 5–7
8. Potential theory and Green function techniques	Boas, Chapter 13, section 8
9. Integral transform solutions of partial differential equations	Boas, Chapter 13, section 9
10. Theory of probability	Boas Chapter 15, sections 1–4
11. Random variables and probability distributions	Boas Chapter 15, sections 5–9
12. Statistics and experimental measurements	Boas, Chapter 15, section 10

Course Requirements

Homework assignments will be posted on the course website on a weekly basis, and are due at the beginning of class on the due date specified on the assignment sheet. The homework problem sets are not optional. You are encouraged to discuss the class material and homework problems with your classmates and to work in groups, but all submitted problems should represent your own work and understanding. In order that homework can be graded efficiently and returned quickly, there will be a 50% penalty for late homework. This penalty may be waived in special circumstances if you see me before the original due date. Homework solutions will be posted to the course website one or two days after the official due date; no late homeworks will be accepted after that.

The midterm exam and final exam will be held in the same classroom as the lectures. The midterm exam will be 1 hour and 45 minutes long and cover the first half of the course. The final exam will be three hours long and cover the complete course material. You must take the final exam to pass the course. You will be permitted to consult the class textbook, your own handwritten notes, and any class handout during the exams.