

Instructor: Zhi-Feng Huang, 356 Physics Building
 Tel: (313) 577 2791; Email: huang@wayne.edu
 Office hours: Mon & Wed 4:00pm – 5:00pm, or by appointment

Lecture time and location: M W 1:55pm – 3:55pm, 245 Physics Building

Prerequisite: PHY 2130/2140 or PHY 2170/2180; MAT 2010; MAT 2020 (co-requisite);
 with average GPA ≥ 3.0

Textbook: “Further Mathematics for the Physical Sciences”, by Michael Tinker and Robert Lambourne, Wiley.

Supplementary text: "Schaum's Outline of Mathematical Handbook of Formulas and Tables", by Murray R. Spiegel, Seymour Lipschutz, and John Liu, McGraw-Hill.

Additional text/References: “Mathematical Methods in the Physical Sciences”, by M. L. Boas, Wiley; “Basic Training in Mathematics: A Fitness Program for Science Students”, by R. Shankar, Springer.

Homework: Posted in Blackboard course website; Due 1 week after assigned.
 Late solutions will NOT be accepted; The lowest homework score will be dropped.

Exams: Two midterm exams: to be announced at least 1 week in advance (NO make-up exams);
 Final exam (Cumulative): December 14 (Wednesday), 1:20pm – 3:50pm.

Grading: 1st exam: 20%
 2nd exam: 20%
 Final exam: 30%
 Homework: 15%
 Quiz and class attendance: 15%

A: 90 – 100%; A-: 85 – 89%
B+: 80 – 84%; B: 75 – 79%; B-: 70 – 74%
C+: 65 – 69%; C: 60 – 64%; C-: 55 – 59%
D+: 50 – 54%; D: 45 – 49%; D-: 40 – 44%
F: 0 – 39%

Course content

This course is designed to prepare students for the required mathematical tools used in biomedical physics courses, by providing training in the following topics:

- Complex numbers and variables.
- Differentiation, integration, and applications: for one and many variables, 2D and 3D integral calculus, surface and volume integrals.
- Spherical and cylindrical coordinates.
- Taylor expansions and infinite series.
- Fourier expansions and Fourier transform.
- Ordinary differential equations.
- Partial differential equations; Wave equations; The Schrödinger equation.
- Vector algebra; Scalar and vector products.
- Vector calculus.
- Matrices; Determinants.
- Probability and statistics.

Note: The new course withdrawal deadline is Saturday, November 12th (This is a new change of university policy).

Additional resources and help

Student Disability Services: If you have a documented disability that requires accommodations, you will need to register with Student Disability Services (SDS) for coordination of your academic accommodations. The Student Disability Services (SDS) office is located at 1600 David Adamany Undergraduate Library in the Student Academic Success Services department. SDS telephone number is 313-577-1851 or 313-577-3365 (TDD only). Once you have your accommodations in place, I will be glad to meet with you privately during my office hours to discuss your special needs. Student Disability Services' mission is to assist the university in creating an accessible community where students with disabilities have an equal opportunity to fully participate in their educational experience at Wayne State University.

Please be aware that a delay in getting SDS accommodation letters for the current semester may hinder the availability or facilitation of those accommodations in a timely manner. Therefore, it is in your best interest to get your accommodation letters as early in the semester as possible.