

Instructor: Zhi-Feng Huang, 356 Physics Building
 Tel: (313) 577 2791; Email: huang@wayne.edu
 Office hours: Mon & Wed 2:30pm – 3:30pm, or by appointment

Lecture time and location: M W 10:30am – 12:10pm, 245 Physics Building

Prerequisite: PHY 2130/2131 (or PHY 2170/2171); PHY 2140/2141 (or PHY 2180/2181);
 MAT 2010; MAT 2020; with average GPA ≥ 3.0 for these four courses

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

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

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; Collected in class on due date.
 Late solutions will NOT be accepted; The lowest homework score will be dropped.
 You must show your own work and solution steps to receive credits, although group discussions are allowed. Any copy from other sources (e.g., from other students, internet, or elsewhere) is prohibited and will be given 0 credit.

Exams: Two midterm exams: to be announced at least 1 week in advance (NO make-up exams);
 Final exam (Cumulative): December 13 (Wednesday), 10:15am – 12:15pm.

Grading: 1st exam: 20%
 2nd exam: 20%
 Final exam: 30%
 Quiz (in class): 10%
 Homework: 20%

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%

Learning outcomes

This course covers the required mathematical techniques and tools used in biomedical physics courses, and provides training in the following applied topics of mathematics that students are expected to learn and understand:

- Differentiation, integration, and applications: for single and multiple variables.
- Complex numbers and complex variables.
- Taylor expansion and infinite series.
- Fourier series and Fourier transform.
- Matrices; Determinants.
- Vector algebra; Scalar and vector products; Vector calculus.
- Line, surface, and volume integrals; Spherical and cylindrical coordinates.
- Ordinary differential equations; Partial differential equations; Diffusion equation; Wave equation; The Schrödinger equation.
- Probability and statistics; Probability distribution.

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.