

# PHYS:4761

# Mathematical Methods of Physics I

Fall 2016

**Instructor:** Professor Gregory Howes  
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**Office Hours:** 1:00–2:00pm W, 10:00am–12:00pm Th, or by appointment  
**Department:** Physics & Astronomy, 203 Van Allen Hall, Prof. Fred Skiff, Chair

**Catalog Description:** Functions of complex variables, integration methods, linear vector spaces, tensors, matrix algebra.

**Lectures:** Wednesday and Friday, 2:00–3:15pm  
618 Van Allen Hall

**Required Textbook:** Arfken, Weber, & Harris, *Mathematical Methods for Physicists*, 7th edition

**Recommended Reference:** Spiegel, Lipschutz, & Liu, *Schaum's Outlines: Mathematical Handbook of Formulas and Tables*, 4th edition

**Web Page:** <http://newton.physics.uiowa.edu/~ghowes/teach/phys4761/index.html>

**Exams** **Two Midterm Exams:** Tentatively on Friday, Oct 7 and Friday, Nov 18  
**Final Exam:** To be announced by Registrar in mid-September

**Grading:** Homework: 20%  
Two Midterm Exams: 20% each  
Final Exam: 40%

**Homework:** Homework will be assigned weekly, due on Friday mornings at the beginning of lecture. Late homework will not be accepted. Working through the homework problems is a critical step in learning the course material. You are encouraged to work together in groups on the homework, but each student must write his or her own solutions; you may discuss how to solve the problem together, but you may not copy another student's solution.

**Symbolic Solvers:** The only way to learn to use advanced mathematical methods is to actually apply them yourself. Thus, you are not allowed to use symbolic solvers (Mathematica, Maple, etc.) to do your homework. You may check your answers with this software, if you wish, but the homework that you submit must have the solutions written out by hand to demonstrate that you actually solved problem yourself, otherwise you will get at most half credit for that problem.

**Topics:** Chapters 1–10 and 23 of Arfken, Weber, & Harris in PHYS:4761.

## **The College of Liberal Arts and Sciences Policies and Procedures**

### **Administrative Home**

The College of Liberal Arts and Sciences is the administrative home of this course and governs matters such as the add/drop deadlines, the second-grade-only option, and other related issues. Different colleges may have different policies. Questions may be addressed to 120 Schaeffer Hall, or see the CLAS Academic Policies Handbook at <http://clas.uiowa.edu/students/handbook>.

### **Electronic Communication**

University policy specifies that students are responsible for all official correspondences sent to their University of Iowa e-mail address (@uiowa.edu). Faculty and students should use this account for correspondences (Operations Manual, III.15.2, k.11).

### **Accommodations for Disabilities**

The University of Iowa is committed to providing an educational experience that is accessible to all students. A student may request academic accommodations for a disability (which includes but is not limited to mental health, attention, learning, vision, and physical or health-related conditions). A student seeking academic accommodations should first register with Student Disability Services and then meet with the course instructor privately in the instructor's office to make particular arrangements. Reasonable accommodations are established through an interactive process between the student, instructor, and SDS. See for information.

### **Academic Honesty**

All CLAS students or students taking classes offered by CLAS have, in essence, agreed to the College's Code of Academic Honesty: "I pledge to do my own academic work and to excel to the best of my abilities, upholding the IOWA Challenge. I promise not to lie about my academic work, to cheat, or to steal the words or ideas of others; nor will I help fellow students to violate the Code of Academic Honesty." Any student committing academic misconduct is reported to the College and placed on disciplinary probation or may be suspended or expelled (CLAS Academic Policies Handbook).

### **CLAS Final Examination Policies**

The final examination schedule for each class is announced by the Registrar generally by the fifth week of classes. Final exams are offered only during the official final examination period. *No exams of any kind are allowed during the last week of classes.* All students should plan on being at the UI through the final examination period. Once the Registrar has announced the date, time, and location of each final exam, the complete schedule will be published on the Registrar's web site and will be shared with instructors and students. It is the student's responsibility to know the date, time, and place of a final exam.

### **Making a Suggestion or a Complaint**

Students with a suggestion or complaint should first visit with the instructor (and the course supervisor), and then with the departmental DEO. Complaints must be made within six months of the incident (CLAS Academic Policies Handbook).

### **Understanding Sexual Harassment**

Sexual harassment subverts the mission of the University and threatens the well-being of students, faculty, and staff. All members of the UI community have a responsibility to uphold this mission and to contribute to a safe environment that enhances learning. Incidents of sexual harassment should be reported immediately. See the UI Comprehensive Guide on Sexual Harassment for assistance, definitions, and the full University policy.

### **Reacting Safely to Severe Weather**

In severe weather, class members should seek appropriate shelter immediately, leaving the classroom if necessary. The class will continue if possible when the event is over. For more information on Hawk Alert and the siren warning system, visit the Department of Public Safety website.