

PHYS 2704

Physics IV

2018 Syllabus

Instructor: Jasper S Halekas
Office: 414 Van Allen Hall
Phone: (319) 335-1929
E-mail: jasper-halekas@uiowa.edu
Office Hours: Monday 10:30-11:30am,
Wednesday 2:00-3:00pm,
Thursday 3:00-4:00pm,
Or by Appointment

Department: Physics and Astronomy, 203 Van Allen Hall, DEO Fred Skiff

Description: This course will introduce students to modern physics. We will focus on building a strong conceptual understanding of special relativity and quantum mechanics, and developing skills and experience in problem solving. This is the final course of a four-semester sequence intended primarily for physics and astronomy majors, or science majors who want an in-depth introduction to physics. This course uses calculus extensively. We will cover material approximately corresponding to Ch. 1-10 in the book. Reading and homework assignments will be given in class and on the course web page. Three weekly lectures are given by Prof. Halekas, with a weekly lab conducted by a TA.

Lectures: MWF 12:30-1:20, 70 Van Allen Hall

Labs: Individual by section

Required Text: *Modern Physics (Third Edition)*, Kenneth Krane

Required Lab Text: *None* (Lab materials will be available on ICON)

Course Web Pages: Main Course Web Page:

http://www.physics.uiowa.edu/~jhalekas/teaching/physIV_2018/index.html

ICON: <https://uiowa.instructure.com/courses/73540>

Course Work: This is a 4 semester-hour course with lab (or 3 semester-hour course w/o lab). CLAS guidelines are that students should expect to spend two hours per semester-hour on study outside of class. This means 8 hours per week on homework, reading, and other course preparation.

homework will not be accepted, but your lowest scoring assignment will be dropped. Homework assignments will be long form, hand-written and hand-graded. Showing your work completely, carefully, and logically is crucial, since partial credit may be assigned for partially correct solutions. You are allowed to work with other students on the homework, but each student must write out their own complete solutions.

Reading: Reading should be completed before lecture. Completion of the reading is essential for class discussion to be productive, and tests may include material not explicitly covered in class.

Labs: The laboratory assignments are a key part of the course held under the supervision of your teaching assistant, who will grade the lab reports. Questions about lab grading should be directed to your TA. Eating and drinking in the lab is not allowed. Conflicts between lab meeting times and night exams in other classes are to be resolved by the student asking for a make-up for the conflicting night exam. University policy is that instructors *must* offer such a make-up exam and that regularly scheduled laboratories take precedence over night exams. There will be *no* make-up labs, but the lowest scoring lab of the semester will be dropped.

Instructions for all laboratories will be provided on the class ICON page.

Three labs during the semester will be computer-based. These labs will take place outside of the usual laboratory room. They can be completed in the 2nd floor computer room (Van Allen 201) or in any location where you can access Mathematica or a comparable program.

Exams: Midterm exams will be held during regular class hours. The final exam will be two hours, during finals week at a time to be announced. Midterm exams will cover the material specified above, and the final exam will be comprehensive. Exams may cover material not explicitly discussed in class – reading is important! Any material that you are not responsible for on exams will be explicitly noted. There will be no make-ups for the one-hour exams except in extraordinary circumstances, and then **only** if the student comes to the instructor **before** the exam to plan a make-up.

Exams will be closed book, long-form pencil and paper, with both conceptual questions and questions requiring mathematical calculations. Partial credit may be assigned for solutions that follow correct logic but make an error at an intermediate step. Therefore, showing your work

completely, carefully, and logically is crucial. Students may have an equation sheet, which they are responsible for preparing. Calculators are allowed and may be needed for a small percentage of the problems.

Absolutely no cheating will be tolerated. Anyone caught copying or allowing someone else to copy from his or her exam will receive a zero for the exam, and may face disciplinary action.

Participation: Participation will be tracked by student response during lectures. Questions are un-graded, so any response counts as participation. Extra credit will be assigned based on participation on a lecture-by-lecture basis (answering a question during a lecture counts as participation for that lecture), up to a maximum of 2% of the overall course points. Extra credit will be awarded based on the following scale:

>60% participation	0.5% of overall points
>80% participation	1.0% of overall points
>90% participation	2.0% of overall points

Note that 90% participation earns the maximum points. This is to allow for a few unavoidable absences, dead batteries, technological issues, etc.

Absence Policy: Attendance is encouraged but not required for all regular class meetings, but opportunities for extra credit through participation will not be made up for any reason in the event of absence (note that 90% = 100% for the purposes of the participation credit, so a few unavoidable absences will not eliminate the student's opportunity for bonus credit).

Attendance during scheduled exams is required and make-up exams will only be given if the student comes to the instructor with appropriate justification *before* the exam to plan a make-up.

Communication: Students may communicate with the professor by phone, e-mail, or in person. E-mail messages and phone calls may not always be answered immediately (other than in emergencies). Students with issues or questions should if possible raise them in person, in discussion, by attending office hours, or by scheduling an appointment with the professor.

Physics Tutorials: Teaching assistants are available for free assistance in the TILE Commons Room, 310 Van Allen Hall, during posted hours.

College of Liberal Arts and Science Policies & Resources

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 <https://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](#)).

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 <https://sds.studentlife.uiowa.edu/> for information.

Nondiscrimination in the Classroom

The University of Iowa is committed to making the classroom a respectful and inclusive space for all people irrespective of their gender, sexual, racial, religious or other identities. Toward this goal, students are invited to optionally share their preferred names and pronouns with their instructors and classmates. The University of Iowa prohibits discrimination and harassment against individuals on the basis of race, class, gender, sexual orientation, national origin, and other identity categories set forth in the University's Human Rights policy. For more information, contact the Office of Equal Opportunity and Diversity, diversity@uiowa.edu, or visit diversity.uiowa.edu.

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 [Office of the Sexual Misconduct Response Coordinator](#) 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.