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## University Physics I

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**Instructors** Dr. Thorsten Schmidt, Room 040 F Integrated Sciences Building (ISB, basement)  
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Email is the preferred means to contact the instructors outside of class.

**Teaching Assistants** Kelum Perera, email: [wperera@kent.edu](mailto:wperera@kent.edu)  
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**Office Hours** Schmidt: 4:00-5:30 Mondays and Wednesdays or by appointment.  
Portman: 10:30 am – 12:30 pm on Tuesdays and Thursdays. Also by appointment.  
Office hours held virtually through blackboard collaborate. Email to schedule an available time slot within office hours.

**Class Time** Mondays, Wednesdays, and Fridays: 1:10–3:10 pm in 223 Smith Hall.

**Staying Informed** Sign up for <https://www.kent.edu/flashalerts>. Check email and Blackboard announcements daily.

**Co-requisite** MATH 12002

**Text** Essential University Physics, Volume I, by Richard Wolfson, Addison-Wesley, 4th Ed. (2019).

You may choose purchase the physical book at the bookstore or elsewhere, but this is not required. **To participate with online reading assignments, you must purchase or rent an electronic version of the text through Perusall.**

You can login to Perusall by clicking an appropriate link on the class site on blackboard. The first time you access the course, you will be prompted to rent or purchase the text.

**Instructional Approach** The course follows an “activity-based” or “studio” physics instructional methodology. Traditional lecture, recitation, and lab components will be combined during each class period within the classroom space. The format allows for increased interactions among students, TAs, and instructors. Students will work together in small collaborative groups. The atmosphere will be informal but rigorous. The

group format is intended to allow students to “brainstorm” class exercises and activities among themselves, and to encourage learning from peer interactions. However, the faculty instructors will (as needed) assist groups in performing these activities and in responding to issues or questions that may arise. Feel free to ask questions during class by raising your hand.

In this virtual, hybrid class, the groups will be conducted through blackboard collaborate and breakout rooms. Within blackboard collaborate you can ask questions through the chat or indicate you would like to say something by raising your hand. In the breakout groups, you are able to send a chat message to the moderator (professors). Since one person in the group will likely be in the classroom, that person can ask for help directly from the TA and professor in the classroom.

### **Working Groups**

Each student will be assigned to a working group of three students. Groups will be assigned at the beginning of the semester essentially at random. As we get to know you better, you can expect occasional adjustments to the groups during the semester, and bigger changes to the groups a couple during the semester. If you have a concern with your group, please let one of the instructors know, and we will discuss options for reassignment to a different group. Each student is expected to prepare individually for class (according to daily class preparation page on blackboard) and to play an active role in class activities within his/her group. Lack of such contribution, especially on a repeated basis, will result in a reduced class participation grade.

### **Blackboard**

Class preparation assignment, homework exercises, class activities, study aids, and general course information will be posted on Blackboard. We will use blackboard collaborate to meet during class time and conduct office hours.

### **Reading Assignments**

We will assign sections of the text to be read before each class. Reading assignments will be posted in Blackboard. Learning objectives will be posted along with the reading assignment that align with what will be done in class that day. Use these as a guide to focus your attention in your reading.

It is essential that you read the assigned sections in addition to pre-recorded before class. Because class time is organized around group work, your classmates' experience relies on your preparation. If you come to class unprepared, it not only affects your performance and success, but also that of the other members of your group.

Repeated failure to complete the assigned reading will be apparent in the degree of your participation in, and contribution to, class activities, and will significantly reduce your participation grade.

### **Lectures**

In the hybrid format this semester, we plan to pre-record lectures so that they can be viewed before each class. While the lectures provide background and context for the group activities, they do not necessarily include everything needed to master

the material for the course. When in doubt about what you are responsible to know for exams, look to the activities, learning objectives, homework, and quizzes.

**Attendance** Each student's individual class attendance will be recorded and will count toward his or her participation grade. If possible, let us know in advance if you will miss a class for a legitimate reason (such as travel or illness) by sending an email. Such absences can usually be excused. Please be on time to class!

**Absence,  
Illness,  
Remote  
Instruction** All class sessions will transition to remote instruction after the Thanksgiving Break. If a temporary or continuing need to transition to remote instruction at any other time in the semester is needed, I will communicate instructions concerning this transition to remote instruction to you via email.

**Graded  
Work** **Reading Assessment**  
We will be using Perusall, a social platform that allows students to ask questions, provide comments, and interact with others within the text. Part of your final grade is based on your engagement with assigned reading via this platform. You will have daily reading assignments, but grading based on your comments on the text will done primarily on a chapter by chapter (roughly weekly) basis.

Grading of reading assignments accounts for:

- thoughtful comments and questions (spread throughout the assignment)
- breaking reading into several chunks, and reading to the end
- comments that elicit responses from classmates
- answering questions from others, and upvoting thoughtful questions and helpful answers

Each assignment has a maximum of 0 - 3 points. Full credit will be awarded for a score of 2 and above.

### **Class Activities**

Activities to be performed by students in their groups during class time will typically consist of problem solving exercises, computer-based physics simulations, or hands-on laboratories. A certain fraction of these will be turned in for grading. *Whether graded or not, it is important that you individually record and review detailed solutions to these activities in order to prepare successfully for exams. Each student should maintain an organized notebook of these solutions.* A link to a Microsoft Onenote notebook containing activities and solutions will be posted on Blackboard.

### **Homework**

Written homework (typically 2 or 3 problems) will be assigned on the weekly assignment sheet posted on Blackboard. Homework will be due in class approximately one week after it is assigned. Homework will be graded, and solutions will be made available on Blackboard.

### **Quizzes**

Approximately every other Monday, a short (one problem) closed book quiz will be administered at the beginning of class. This quiz will be based on the material covered in the homework assignment due at that class. Quizzes and material covered will be noted in the calendar on Blackboard, and a reminder will be announced in class on the preceding Friday. Quiz questions will help you anticipate what to expect on the exams. Solutions to the quizzes will be posted on Blackboard within one week of the quiz date.

### **Exams**

There will be three midterm exams and a final exam based on reading, classwork, homework, and quizzes. Each midterm will be focused on previously untested material, but may include any of the material covered to date. The final will be comprehensive, though untested material may carry more weight. We will have more instructions at closer to the exam date.

A sheet with relevant formulas and constants will be provided. Unless otherwise announced, only a standard or graphing calculator will be allowed on an exam.

### **Make-up policy**

Make-up exams and quizzes will only be allowed in the case of absences for a legitimate reason, which must be documented in writing (e.g., written doctor's or nurse's excuse, written notice from a coach or sponsor, written consent from an advisor to attend a conference, interview, etc). If possible, give notice of the need for a make-up and provide the supporting documentation prior to any absence for an exam. Homework and labs turned in after the due date because of an excused absence will be accepted. Homework can not receive credit if turned in after the solutions have been posted.

### **Grading**

Grades will be determined by scores with the following weights

Exam I	10%
Exam II	10%
Exam III	10%
Final	15%
Graded in class work	10%
Homework	15%
Quizes	10%
Participation <sup>a</sup>	10%
Reading and class preparation	10%

<sup>a</sup>includes Attendance and class participation in activities

Grades will nominally be assigned according to the following scale:

91 – 100	A	79 – 82	B	68–71	C	51–59	D
87 – 90	A-	75 – 78	B-	64–67	C-	< 50	F
83 – 86	B+	72 – 74	C+	60–63	D+		

Final grade assignment can be adjusted to take into account the class average and the grade distribution.

**Classroom Expectations** The class atmosphere is intended to be informal, but also serious and with all students actively engaged. Members of your group are expected to help each other complete the activities, understand the material, and address technical difficulties as they arise. Please avoid unnecessary or loud conversation, especially if unrelated to the class activities.

**No food is allowed at any time in the classroom.**

**Academic Success Center** **NEW!** Academic Coaching is a personalized experience in which you work one-on-one with a peer coach to set goals, improve time management and develop learning skills in a supportive environment. Schedule your first coaching session through the Academic Success Center website at: [www.kent.edu/coaching](http://www.kent.edu/coaching).

See all of the other ways that the Academic Success Center can support you this semester by visiting the ASC website for information about Scheduled Tutoring, Drop-in Tutoring, eTutoring, Supplemental Instruction, and on-demand Learning Skills Videos [www.kent.edu/asc](http://www.kent.edu/asc).

**Health and Safety** The Flashes Safe Seven Principles have been implemented to protect your health as well as the entire Kent State community. When you are on campus you must follow the Flashes Safe Seven. As your instructor, I am committed to assuring a safe environment for all students. Noncompliance by any student may result in cancellation of the class session for the day and referral to the Office of Student Conduct.

### **FOLLOW THE FLASHES SAFE SEVEN**

#### **1. Always wear your face covering**

Face coverings are required. The university is working to make face coverings available for those who do not have their own. Wearing face coverings is a critical component to the Flashes Safe Seven principles. All who can safely wear face coverings are required to do so. Those who are unable to wear a face covering, for any reason, must submit the accommodation request form for Fall 2020. No exceptions. Noncompliance may result in cancellation of the class session for the day and referral to the Office of Student Conduct.

#### **2. Wash your hands frequently**

You must practice rigorous hand hygiene and coughing and sneezing etiquette. Wash your hands often with soap and water for at least 20 seconds, especially after you have been in a public place, or after blowing your nose, coughing, or sneezing. Avoid touching your eyes, nose, and mouth with unwashed hands. If soap and water are not available, use hand sanitizer.

#### **3. Clean and Sanitize**

Classrooms will be cleaned on an enhanced schedule. However, you are ex-

pected to clean and sanitize your classroom workspace at the beginning of each class. Cleaning supplies will be available in each classroom.

**4. Stay at least 6 feet apart**

Physical distancing guidelines will be strictly enforced. You are required to maintain at least 6 feet of separation from other people. Only sit in designated seats and refrain from moving classroom furniture.

**5. Monitor your health every day**

You must monitor your health daily for symptoms of COVID-19. Symptoms include cough, shortness of breath or difficulty breathing, fever, chills, muscle pain, sore throat or a new loss of taste or smell. Other less common symptoms have been reported, including gastrointestinal symptoms like nausea, vomiting or diarrhea. If you show symptoms of COVID-19 you should isolate yourself from others immediately and seek medical evaluation by calling University Health Services at 330-672-2326 or calling your primary care physician. If you are diagnosed with probable or confirmed COVID-19 you will be contacted by your local health department with additional guidance and instructions.

**6. Have Questions? Reach out.** For health questions about COVID-19 and safe practices, call University Health Services at 330-672-2326, or after hours, contact the Kent State Nurse Line at 330-672-2326. Also, visit our COVID-19 website for more information.

**7. Flashe take care of Flashes**

As we take care of each other during the COVID-19 pandemic, always demonstrate kindness and respect in all that you do.

**Important Dates**

Every class has its own schedule of deadlines and considerations. To view the add/drop schedule and other important dates for this class, go to Student > Resources > Courses and Registration in FlashLine. Choose View or Print Course Schedule and Purchase Textbooks. To see the deadlines for this course, click on the CRN. The add/drop schedule and important dates may also be found on the Drop or Add a Course link. Click on the green clock next to the course under Registration Deadlines.

**Intellectual Property and Privacy**

Any intellectual property displayed or distributed to students during this course (including but not limited to PowerPoint presentations, notes, quizzes, examinations) by the professor/lecturer/instructor remains the intellectual property of the professor/lecturer/instructor. This means that the student may not distribute, publish, or provide such intellectual property to any other person or entity for any reason, commercial or otherwise, without the express written permission of the professor/lecturer/instructor. Additionally, students may not distribute or publish recordings and/or links to live classroom presentations, lectures, and/or class discussions.

**Learning Outcomes**

Upon successful completion of this course, the student will be able to:

1. Demonstrate proficiency with principles of mechanics including kinematics, Newton's laws, dynamics, work and energy, and gravitation, as well as, waves, and sound.
2. Effectively apply knowledge to explain, analyze and solve a large variety of qualitative and quantitative problems using appropriate mathematical techniques and concepts.
3. Form the solid basis of general knowledge of classical physics needed for successful completion of upper level courses as well as future career objectives in science, industry and education.
4. Demonstrate proficiency with experimental processes including designing an investigation. Identify and explain the scientific method in a lab setting, evaluate scientific information, collaborate and perform team activities.

#### **University Policies**

University policy 3-01.8 deals with the problem of academic dishonesty, cheating, and plagiarism. None of these will be tolerated in this class. The sanctions provided in this policy will be used to deal with any violations. If you have any questions, please read the policy at <http://www.kent.edu/policyreg/administrative-policy-regarding-student-cheating-and-plagiarism> and/or ask.

Kent State University is committed to inclusive and accessible education experiences for all students. University Policy 3342-3-01.3 requires that students with disabilities be provided reasonable accommodations to ensure equal access to course content. Students with disabilities are encouraged to connect with Student Accessibility Services as early as possible to establish accommodations. If you anticipate or experience academic barriers based on a disability (including mental health, chronic medical conditions, or injuries), please let me know immediately. Student Accessibility Services (SAS) Contact Information: [sas@kent.edu](mailto:sas@kent.edu), [www.kent.edu/sas](http://www.kent.edu/sas); phone 330-672-3391; VP 330-968-0490.

## Rough Schedule

Due to the large number of topics covered in this class, the pace is roughly a chapter a week. This is a very fast pace, and we will skip topics when necessary to avoid rushing through the material.

**It is important that you keep up with the reading and homework, and address topics giving you trouble as they arise.**

Dates	Chapters	No. of Classes	Notes
Weeks 1 – 5	Ch. 1: Doing Physics	1	Labor Day
Aug. 28 – Sept. 25	Ch. 2: Motion in a straight line	4	– Sep. 7
	Ch. 3: Motion in 2 and 3 dimensions	4	
	Ch. 4: Force and Motion	3	
Weeks 6 – 10	<b>Exam 1 Ch. 1 – 4, Friday, Oct. 2</b>		
Sept. 28 – Oct. 30	Ch. 5: Using Newton's Laws	3	
	Ch. 6: Work, Energy, and Power	3	
	Ch. 7: Conservation of Energy	3	
	Ch. 8: Newton's Law of Gravitation	3	
Weeks 11 – 14	<b>Exam 2 Ch. 5 – 8, Firday, Nov. 6</b>		Veteran's Day
Nov. 2 – Nov. 27	Ch. 9: Systems of Particles	3	– Nov. 11
	Ch. 10: Rotational Motion	3	Thanksgiving
	Ch. 11: Angular Momentum	3	– Nov. 23 – 27
Weeks 15 – 16	<b>Exam 3 Ch. 9 – 11, Friday, Dec. 4</b>		Remote only
Nov. 30 – Dec. 11	Ch. 13: Oscillatory Motion	2	
	Ch. 14: Waves	2	
<b>Mon., Dec. 14</b>	<b>Final Exam, 10:15 – 12:30</b>		