

## **ME 274: Basic Mechanics II – FALL 2021**

School of Mechanical Engineering  
Purdue University, West Lafayette

**Course description** Particle kinematics (both 2D and 3D motion, including moving reference frame descriptions for each). Particle kinetics including Newton's laws, work/energy and impulse/momentum. Planar kinetics of rigid bodies. Kinetics for planar motion of rigid bodies including equations of motion and principles of energy and momentum. Introduction to linear vibrations with emphasis on single-degree-of-freedom systems.

**Course schedule** A topical schedule for the course is attached at the end of this syllabus.

### **Course instructors**

	<b>Lecture</b> (MWF, ME 2061)	<b>Office</b>	<b>Office hours</b>	<b>Email</b>
Chuck Krousgrill	12:30-1:20	ME 3061G	1:30-2:30, MWF	krousgrill@purdue.edu
Tina Han	2:30-3:20	ME 3007	3:30-5:00, MW	han547@purdue.edu

### **Course TAs**

Hongcheng Tao	taoh@purdue.edu
Qianyu Zhao	zhao482@purdue.edu

**Course Textbook** The required course lecturebook: *Dynamics: A Lecturebook, 3<sup>rd</sup> Edition*, can be purchased from the University Bookstore.

**Course blog** <https://www.purdue.edu/freeform/me274/>

The course blog will be used for both threaded discussions and for the delivery of all course material. Example problem solutions from the lecturebook are posted as multimedia video/audio files on the course blog. Use these solutions to help assess your ability to work the homework problems for that day. Homework video solutions will be made available on the blog following the date of submission. Animations and simulations are presented on the blog to assist you in visualizing motion and other concepts related to the topics of the course. All information related to homeworks and exams is available on the blog.

**Class meetings** Your attendance is expected for all meetings during the semester. If you are unable to attend a class meeting, you are expected to contact your instructor prior to the start of the class period. If you feel ill, or have any symptoms associated with COVID-19, or suspect that you have been exposed to the virus, you should stay home and contact the Protect Purdue Health Center (496-INFO).

**Homework** There will be a homework assignment for every regular class period of the semester. Two problems will be included in each assignment. The problem statements will be posted on the

course blog on the date of the assignment. The homework is to be submitted on Gradescope by 11:59PM on the day of the next regular class period. Please see the pages on “*Homework guidelines*” and “*Homework format*” near the end of this document.

### **Course grading**

Your course grade will be based on a straight grading scale: 97-100% A+; 93-97% A; 90-93% A-; 87-90% B+; 83-87% B; 80-83% B-; 77-80% C+; 73-77% C; 70-73% C-; 67-70% D+; 63-67% D; 60-63% D-; <60% F. The percentage breakdown for the components of your course grade are the following:

1. *Homework and quizzes: 25%*  
Two homework problems are assigned per lecture. Completed homework assignments are to be submitted on Gradescope by 11:59PM of the due date. *Late homework will not be accepted.* A sample format is attached. Your work needs to be presented with a logical thought process and in a neat, easy-to-read style. Failure to do so can result in a loss of points in your homework grade.
2. *Midterm and final exams: 75%*  
You will be given three, one-hour midterm term exams during the term and a final exam during the scheduled University final exam period. At the end of the term, the average of the three midterm exams will be compared against your final exam score. The higher of these two will be given a 50% weighting and the lower of these two will be given a 25% weighting in the computation of your course average from which your course grade is determined.
3. *Bonus points:* Officially there are 40 homework assignments during the semester. At the end of the semester, your course homework score will be based on 37 homework assignments. That is, you are able to miss submissions for 3 homework sets without penalty to your grade; however, submitting more than the minimum 37 will allow for your homework total to exceed 100%, thereby providing bonus points. In addition, participation in blog discussion can allow for up to 40 homework bonus points. See attached page detailing blog points for the course. Your instructor may also announce additional bonus points for your section.

### **Tutorial assistance**

The discussion thread of the course blog will be open 24/7 throughout the course. We will be closely monitoring this discussion thread, and you can expect a quick turn-around on your questions during normal daytime hours. During the remaining time, we will continue to monitor the discussion and provide assistance when needed. In addition, the course instructors and TAs will be providing interactive tutorial sessions/office hours. Your instructor will provide you with a schedule of tutorial/office hours during the first week of class. You are free to attend any of the office hours/tutorial sessions, as you are not restricted to just the office hours of your instructor.

**Collaboration**

You are encouraged to work together in learning the course material (including homework). However, your submitted homework solutions should be YOUR work and not copied from other sources. Copying solutions from other sources will be considered to be a serious offense in this course. Please see your instructor if you are uncertain about the difference between collaborating and copying.

Usage of services such as Chegg, Course Hero, Quizlet, etc. for unauthorized help (including, but not limited to, accessing online cheating services) is a violation of class policy. The consequences of not following the course policy on this include a lowering of your course grade up through possible expulsion from the University. Suspect use cases will be submitted to the Office of the Dean of Students and, if copyright infringement is involved, to appropriate legal counsel.

**Academic Integrity**

Your instructor is a strong believer that the mission of the University can only be fulfilled in an environment of high academic integrity. Students are encouraged to review the University's policies on academic integrity, which is located at:

<https://www.purdue.edu/odos/academic-integrity/>

In addition, the Purdue University Honor Pledge is located at:

<https://www.purdue.edu/provost/teachinglearning/honor-pledge.html>

Suspected cases of academic integrity violations will be reported to the Dean of Students.

**Questions?**

Please see the following page entitled "*Some common questions at the start of the semester.*", and/or contact your instructor.

**Emergency Preparedness**

Though Purdue University is continuously preparing for natural disasters and human-caused incidents with the ultimate goal of maintaining a safe and secure campus, emergency preparedness is a personal responsibility. Please review the following items:

- To report an emergency, call 911.
- To obtain updates regarding an ongoing emergency, and to sign up for Purdue Alert text messages, view [www.purdue.edu/ea](http://www.purdue.edu/ea)
- There are nearly 300 Emergency Telephones outdoors across campus and in parking garages that connect directly to the Purdue Police Department (PUPD). If you ever feel threatened or need help, push the button, and you will be connected immediately.
- If we hear a fire alarm, we will immediately suspend class, evacuate the building, and proceed outdoors away from the building. Do not use the elevator.
- Emergency assembly area for ME building occupants:
  - Primary: Purdue Mall area outside MSEE.
  - Secondary (in case of inclement weather): Atrium of the MSEE building, located in the center of the building's first floor.
- If we are notified of a Shelter in Place requirement for a *tornado* warning, we will suspend class and shelter in the

lowest level of the ME building away from windows and doors.

- If we are notified of a Shelter in Place requirement for a *hazardous materials release*, or a *civil disturbance*, including a shooting or other use of weapons, we will suspend class and shelter in our classroom, shutting any open doors or windows, locking or securing the door, and turning off the lights. If you are directed to shelter in place, but you are unaware of the specific reason, proceed to the lowest level of the building but continue to seek additional information by all possible means to determine the type of incident. Once you have determined the type of emergency, follow the below chart:

<b><i>Emergency</i></b>	<b><i>Emergency Assembly Area (EAA)</i></b>
Weather-Related / Tornado Warning	Basement corridors, basement offices, basement restrooms or the lowest level of the building (stay away from windows and doors)
Hazardous Materials (HAZMAT) Release	Remain or find an unaffected office or work area and close windows and doors
Civil Disturbance / Active Shooter	Seek a safe location, preferably a room without windows that can be locked or secured by barriers

Please review the Emergency Preparedness website for additional information:

[http://www.purdue.edu/ehps/emergency\\_preparedness/index.html](http://www.purdue.edu/ehps/emergency_preparedness/index.html)

**Diversity & Inclusion** Purdue University is committed to maintaining a community which recognizes and values the inherent worth and dignity of every person; fosters tolerance, sensitivity, understanding, and mutual respect among its members; and encourages each individual to strive to reach his or her own potential. In pursuit of its goal of academic excellence, the University seeks to develop and nurture diversity. The University believes that diversity among its many members strengthens the institution, stimulates creativity, promotes the exchange of ideas, and enriches campus life. Purdue's nondiscrimination policy can be found at: [http://www.purdue.edu/purdue/ea\\_eou\\_statement.html](http://www.purdue.edu/purdue/ea_eou_statement.html).

**CAPS information** Purdue University is committed to advancing the mental health and well-being of its students. If you or someone you know is feeling overwhelmed, depressed, and/or in need of support, services are available. For help, such individuals should contact Counseling and Psychological Services (CAPS) at (765)494-6995 and <http://www.purdue.edu/caps/> during and after hours, on weekends and holidays, or by going to the CAPS office of the second floor of the Purdue University Student Health Center (PUSH) during business hours.

**Accessibility** Purdue University strives to make learning experiences as accessible as possible. If you anticipate or experience physical or academic barriers based on disability, you are welcome to let me know so that we can discuss options. You are also encouraged to

contact the Disability Resource Center at: [drc@purdue.edu](mailto:drc@purdue.edu) or by phone: 765-494-1247.