Instructor Info

Instructor: Dr. Katrina Black
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Office: Dept. of Physics, Fisher Hall 114
Zoom Office Hours: Mondays 6-7 PM and Thursdays 2-3 PM EDT, or email for appointment. See Canvas Home Page for Zoom link.

Materials

1. Required Text: College Physics, OpenStax College Publishing, ISBN 978-1-93816-00-0, available as a FREE PDF. Non-free print copies are also available.
2. WebAssign for online homework is made available via Inclusive Access.
3. Calculator (not your phone). A scientific calculator is sufficient for the course, but I recommend a graphing calculator for ease of entering more complicated calculations.
4. High-speed internet sufficient for streaming video, accessing course materials, etc. Most students will want access every weekday.
5. Webcam or phone with camera for video proctoring of exams.

Course Overview

Vital Course Information

1. **Time Commitment:** This summer course is very intense – we cover a semester's worth of physics in only 7 weeks. Expect to spend around 20 hours per week on this course. Many students find it takes even more time during more difficult material.
2. **Ask for help when you need it:** In an online course, it's up to you to seek help when you need it. Unlike in a synchronous environment, I can't see when you look confused! It's my job to help you learn this material, so please don't hesitate to be in touch with me and your classmates early and often.
3. **Not Entirely Self-Paced:** Assignments will be due each weekday and exams are scheduled for specific days. Each week's material will open on the prior Thursday and you are welcome to work ahead to accommodate your schedule.
4. **Exams Proctored via Zoom:** A TA or I will proctor your exams via Zoom - as each exam approaches, we will determine a mutually agreeable time slot.

Grading Policy

Your final grade will be determined using the following weights:

Assignment Group	Percentage
Discussion Participation	5%
Daily Review Quizzes	20%
WebAssign Homework	25%
Midterm Exams	30% (15% each)
Final Exam	20%

Letter grades will be assigned as follows, rounding to the nearest percent:

Grade	Range
A	90-100%
AB	85-89%
B	80-84%
BC	75-79%
C	70-74%
CD	65-69%
D	55-64%
F	0-54%

I reserve the right to adjust these ranges downward (to raise final grades), but will not adjust them upward.

Course Components and Work Schedule

Our work weeks will start on Tuesdays. Each Tuesday through Friday introduces new material, broken into two parts (a and b). Mondays are set aside to review and wrap up WebAssign homework. As you work through each weekly Module, you will find four types assignments associated with each day of new material.

- Work through the *Reading, Video, and Activities (RVA)* pages
- Take the *Daily Quizzes*
- Begin (and eventually finish) the *WebAssign Homework*
- *Reflect* on your learning

Reading, Video, and Activities (RVA) pages: These pages connect you to the associated parts of your textbook and contain a variety of materials to help you apply what you have read, including explanatory videos, online activities and simulations, and skill-building practice quizzes.

Daily Quizzes: Daily quizzes check that you understood the fundamental ideas from each RVA page and give you practice in the ideas you will use in the homework. If you have trouble with the quizzes, you will want to review the reading, video, and activities, or ask for help in our class discussion - you have ten tries to get these questions right! Two quizzes will be dropped to allow for any technical issues.

Try the Homework: I recommend looking over the WebAssign homework immediately after completing the day's RVA and Quizzes, but you don't have to finish the problems immediately! Instead, think about how you might solve each problem based on what you have just learned. Make a plan and start work on each problem. You have five attempts for each problem. Asking for (and giving) help in the Discussion can count toward your *Reflect* grade.

Finish the homework: Homework for each day's new material is due at the end of the week (Mondays at 11:59 pm EDT), except for the last week of class. Your lowest homework grade will be dropped to allow for any technical issues.

Reflect on your learning: There will be several Discussions available through the course. Daily Discussions invite you to reflect on that day's new material and how it connects to what you have already learned. Weekly Wrap-Up Discussions are for general issues that arise over the week and allow collaboration on homework problems. Because there are 24 days of new material, I expect that each student contributes at least 24 times over the course. One way to do this is to post to each Daily Discussion, but can also earn points by asking and answering questions in the Weekly Wrap-Up or Exam Discussions. You can earn extra credit in this portion of the course, up to a total of 36/24, or 150%.

Your own personal schedule will dictate the most appropriate timing to work on the course components, keeping in mind that daily quizzes are due at 11:59 pm EDT each day and each week's WebAssign homeworks are due at 11:59 pm EDT on Mondays. I suggest allowing something like 30 – 60 minutes to read, 60 – 90 minutes to watch the videos, do activities, and take the daily quizzes, 30 – 60 minutes to begin the homework, and 2 hours to finish the homework.

Late Work and Extensions

I know everyone is busy, especially during a compressed summer class! Canvas will automatically apply a 12-hour grace period for daily quizzes. In WebAssign, you must apply for an "automatic extension", which will expire 12 hours after the due date. After these grace periods, late work will only be accepted for reasons consist with the Dean of Students' excused absence policy. *Please use the grace period responsibly and only when needed so that I can continue to offer it.*

Exams

This course has two midterms and one final exam. The scheduled dates are:

- Midterm 1: Tuesday, May 20 (Covering the material from Weeks 1 and 2)
- Midterm 2: Tuesday, June 3 (Covering the material from Weeks 3 and 4)
- Final: Friday, June 20 (Comprehensive with a focus on the material from Weeks 5, 6, and 7)

Exams for this course are hybrid computer/paper exams. The exams will be presented online, but some questions will require written work to be uploaded via photograph or pdf.

Please allow 90 minutes for your midterm exams and 120 minutes for your final exam.

Exams are open book/open notes/open course. You may use the resources available in the Canvas course, but you may not use the open internet to look up how to do a problem. Calculators are allowed. I or a TA will proctor your exams via Zoom, so you need to have access to a computer with webcam or another device that allows video conferencing. Exams will only be available during specific time slots the day of the exam, which will be mutually determined based on instructor and student availability.

Academic Integrity

I have a liberal policy toward students working together to solve homework problems. Just as physicists work together to do physics, physics students should work together to understand homework problems! You can work together in real time (in person or virtually!) or ask and answer questions in our Discussion threads. HOWEVER, do not short-change yourself by using another student's work to answer quizzes and homework questions. Not only is this a breach of academic integrity, but doing homework is like practicing for a recital or training for a marathon. You may find a way to cut corners, but your exam grades will show it!

Of course, during an exam, any communication with any other person, or use of any unauthorized resources is considered cheating.

If academic dishonesty is suspected, the matter will be referred to the Office of Student Affairs. The penalty is no less than an academic integrity warning and no more than expulsion.

University Policies

Student work products (exams, essays, projects, etc.) may be used for purposes of university, program, or course assessment. All work used for assessment purposes will not include any individual student identification.

Michigan Tech has standard policies on academic misconduct and complies with all federal and state laws and regulations regarding discrimination, including the Americans with Disabilities Act of 1990. For more information about reasonable accommodation for or equal access to education or services at Michigan Tech, please call the Dean of Students Office at (906) 487- 2212 or view the policies here.

This course supports University Student Learning Goal #2: Knowledge of the Physical and Natural World.

If you require disability accommodation for any reason, please don't hesitate to contact me or the Dean of Students for guidance. Visiting students should know that according to Michigan Tech University guidelines, disability accommodations should be verified through the Dean of Students.

Tentative Schedule

Week	Day	Date	Topic	Reading
0	Mon	5-May	Course Introduction	
1	Tue	6-May	Displacement, Velocity, and Acceleration in 1-D	2.1-2.4
	Wed	7-May	Forces and Newton's Laws	4.1-4.4
	Thu	8-May	Vector Components and Writing Newton's Second Law	3.2-3.3
	Fri	9-May	Problem Solving with Forces	4.5-4.7; 5.1
	Mon	12-May	Week 1 HW Due	
2	Tue	13-May	Kinematics in 1-D	2.5-2.6
	Wed	14-May	Free-fall and Projectile Motion	2.7; 3.4
	Thu	15-May	Creating Circular Motion	6.3
	Fri	16-May	Problem Solving with Circular Motion	6.1-6.2
	Mon	19-May	Week 2 HW Due	
3	Tue	20-May	**Midterm Exam 1**	
	Wed	21-May	Conservation of Energy, Week 3 HW Due	7.2, 7.3, 7.6
	Thu	22-May	Doing Work	7.1, 7.5
	Fri	23-May	Work and Power	7.7-7.8
	Mon	26-May	*Memorial Day Recess*	
4	Tue	27-May	Week 3 HW Due; Momentum	8.1-8.5
	Wed	28-May	Statics and Torque	9.1-9.4
	Thu	29-May	Kinematics of Rotational Motion	10.1-10.2
	Fri	30-May	Dynamics of Rotational Motion	10.3-10.5
	Mon	2-Jun	Week 4 HW Due	
5	Tue	3-Jun	**Midterm Exam 2**	
	Wed	4-Jun	Fluid Statics: Density and Pressure	11.1-11.5
	Thu	5-Jun	Fluid Statics: Gauge Pressure and Buoyancy	11.6-11.8
	Fri	6-Jun	Fluid Dynamics	12.1-12.4
	Mon	9-Jun	Week 5 HW Due	
6	Tue	10-Jun	Temp, Thermal expansion, KMT, Ideal Gases	13.1-13.4
	Wed	11-Jun	Specific and Latent Heat	14.1-14.4
	Thu	12-Jun	1st and 2nd Laws of Thermodynamics	15.1-15.5
	Fri	13-Jun	Oscillations and Making Waves	16.1-16.6; 16.9
	Mon	16-Jun	Week 6 HW Due	
7	Tue	17-Jun	Superposition and Sound	16.10-17.2, 17.5
	Wed	18-Jun	Sound Intensity and the Doppler Effect	17.3-17.4
	Thu	19-Jun	Week 7 HW Due	
	Fri	20-Jun	**Final Exam (Comprehensive)**	