Physics 104: Summer 2020

Instructional Staff

Instructor: Dr. Abdollah Mohammadi

Office hours: Tuesday and Wednesday 4:00 PM – 5:00 PM

Section 301 TA: Gage Bonner

Office hours: Monday and Wednesday 2:30 PM – 3:30 PM

Section 302 TA: Cameron Kuchta

Office hours: Monday and Friday 1:00 PM – 2:00 PM

Section 303 TA: Justin Balantekin

Office hours: Tuesday and Thursday 12:00 PM – 1:00 PM

Week	Date	Pre-lecture/bridge set (8am) Discussion (9pm)	Main Lecture Topic	Reading	Homework/Quiz (9pm)	Lab (9pm)
1	15-June	1	Charge and electric materials	18.1-18.2	-	
	16-June	2a	Coulomb's law	18.3	-	L #1 (302)
	17-June	2b	E electric fields and potential energy	18.4-19.1	HW/Q #1	L #1 (301, 303)
	18-June	3a	Electric Potential	19.2-19.4	HW/Q #2	L #2 (302)
2	22-June	3b	Capacitance	19.5, 19.7		L #2 (301, 303)
	23-June	4a	Exam 1 Review	-	HW/Q #3	
	24-June	-	Exam 1	-		
	25-June	4b	Current, voltage and resistance	20.1-20.3, 20.6-20.7		L #3 (302)
3	29-June	5a	Circuits I	21.1, 21.3		L #3 (301, 303)
	30-June	5b	Circuits II	20.4, 21.6	HW/Q #4	L #4 (302)
	1-July	6a	Magnetic forces	22.1-22.5, 22.7	HW/Q #5	L #4 (301, 303)
	2-July	6b	Magnetism and wires	22.8-22.11		L #5 (302)
4	6-July	7a	Electromagnetic induction	23.1-23.3, 23.5	HW/Q #6	L #5 (301, 303)
	7-July	7b	Electromagnetic waves	24.1-24.4		
	8-July	8a	Exam 2 Review	-	HW/Q #7	
	9-July	-	Exam 2	-		
5	13-July	8b	Reflection and refraction	27.2, 25.1-25.5		L #6 (301, 303)
	14-July	9a	Interference and diffraction	27.1-27.6		L #6 (302)
	15-July	9b	Polarization, thin film interference	27.7	HW/Q #8	L #7 (301, 303)
	16-July	10a	Ray diagrams, plane and curved mirrors	25.7	HW/Q #9	L #7 (302)
6	20-July	10b	Lenses	25.6		L #8 (301, 303)
	21-July	11a	Optical instruments	26.4-26.5	HW/Q #10	L #8 (302)
	22-July	11b	Vision	26.1-26.2, 27.8		
	23-July	12a	Exam 3 Review	-	HW/Q #11	
7	27-July	-	Exam 3	-		
	28-July	12b	Wave-particle duality	29.1-29.3, 29.5-29.7		L #9 (302)
	29-July	13a	Spectra and atomic physics	30.1-30.3, 30.6, 30.8-30.9		L #9 (301, 303)
	30-July	13b	Nuclear physics	31.3, 31.6, 32.1	HW/Q #12	L #10 (302)

8	3-August	14a	Fission, fusion and nuclear decay	31.1, 31.4-31.5, 32.5-32.6	HW/Q #13	L #10 (301, 303)
	4-August	14b	Units 1, 2, 3 Review	-		
	5-August	-	Exam 4 Review	-	HW/Q #14	
	6-August	-	Exam 4	-		

Whole-class meeting (lecture)

- Lectures are Monday, Tuesday, Wednesday and Thursday each week from 8:55 AM – 9:45 AM CDT.
- The slides will be uploaded the night before the lecture. Try to look at them before the start of the class.
- Lectures are conducted live through the BlackBoard Collaborate in the course room.
- **Lectures will be recorded** and will be released on the evening of the lecture day.
- Attendance will be taken, and you will be awarded 3 points for attending each lecture.

Pre-lectures, bridge sets and homework

- We will be using an online system called Sapling to deliver four course components: pre-lectures, bridge sets, homework, and textbook.
- You are asked to complete pre-lecture and bridge set before coming to lecture. The pre-lecture consists of videos and a few questions.
- After gaining knowledge from the pre-lecture, you will be asked to try out your newly gained knowledge on the bridge sets, which include introductory problems. This experience will help you make the leap from pre-lectures to lecture, discussion, and lab.
- We will also use Sapling for the online homework, and for the course textbook. You can access Sapling directly through the “Macmillan Learning” link embedded in the Canvas site. And via the links in each topic page.
- Pre-lectures and bridge sets are due 8:00 AM CDT the day of the related lecture and are worth a total of 3 points awarded based on participation.
- Homework assignments are worth 12 points each and are due at 9:00 PM CDT as listed in the course schedule.

Quizzes

- On most weeks, there will be a multiple-choice quiz available through Canvas.

- Each quiz is worth 12 points and is due at 9:00 PM as listed in the course schedule.
- Solutions are available automatically after the quiz closes.

Discussions

- All discussions will be held on Blackboard Collaborate in your TA's room Monday, Tuesday, Wednesday and Thursday 10:20 AM – 11:10 AM Central time.
    - Section 301 TA: Gage Bonner
    - Section 302 TA: Cameron Kuchta
    - Section 303 TA: Justin Balantekin
- The central focus of the discussions is the discussion worksheet, which will be available to download from the associated Topic page starting 8:00 AM each day. Make sure you have it downloaded before your discussion starts.
- At the beginning of each discussion, your TA will say a few words about that day's material and take any general questions.
- Afterwards, you will be slit up into groups with 3 total members and assigned your own rooms in Blackboard Collaborate. You should introduce yourselves to your group members and familiarize yourself with the interface. In particular, you have the ability to draw on a shared whiteboard. This will be useful to communicate equations. Voice chat is also recommended. It is not required but consider using video to talk with your group members if you feel comfortable doing so.
- When you are ready, discuss and solve the group section of the worksheet (the first page of the worksheet.) This is usually 1-3 short problems. Each of you should screenshot or print your work and answers on this sheet and upload a photo to Canvas by 9:00 PM each day. **Important**: your upload must be a .jpg, .png or .pdf file.
- The discussion worksheet contains several "individual" problems. You should work on these with your group or by yourself after you finish the group problems.
- Your TA may go over some problems during or at the end of the discussion.
- Solutions to the discussion worksheet will be available in the same location as the worksheet starting 9:01 PM each day.
- You will be awarded a maximum of 3 points for attendance (1), participation (1) and timely submission of your group sheet answers (1).
- You are required to have fun discussing and solving physics problems with your peers.

Labs

- The labs in this course are conducted through the Pivot Interactives platform.
- Create an account and add Physics 104 with the code: **0a0f918f**
- Your TA will be available at the following times. It is recommended that you attempt the labs during these times.

    - Section 301; Gage Bonner; Monday/Wednesday 12:15 PM – 2:10 PM
    - Section 302; Cameron Kuchta; Tuesday/Thursday 12:15 PM – 2:10 PM
    - Section 303; Justin Balantekin; Monday/Wednesday 2:25 PM – 4:20 PM
- The labs are to be completed individually. You can ask your TA or post on Piazza if you have any questions.
- The written portion of the labs will be graded by your TA
- Labs are due at 9:00 PM that day.
- You will be awarded a maximum of 10 points for each Lab, scaled directly from your grade in Pivot.
- You are required to have fun learning about physics in this simulated lab environment.

Points and grades

	Points per assignment	Total number of assignments	# of lowest scores dropped	Total possible points
Prelecture	3	23	3	60
WCM	3	23	3	60
Discussions	3	23	3	60
Labs	10	10	0	100
Homework	12	14	3	132
Quizzes	12	14	3	132
Exam 1				125
Exam 2				125
Exam 3				125
Exam 4				200
Total				1119

The cutoffs for each letter grade will not be higher than the following.

A > 1011

AB > 966

B > 921

BC > 830

C > 716