

PHYS 122: Introductory Physics II — Fall 2022

Instructor: Dr. Cody Goolsby-Cole | Email: cagc@umbc.edu

Class: 1-1:50 PM in ENG 027 | Discussion: MTuW, based on registration

Welcome to Introductory Physics II! This course is the second semester of the calculus-based introductory physics courses. Our course will focus primarily on thermodynamics, electricity, DC circuits, and magnetism. The Table of Contents (formatted as a series of questions) below will help direct you to any section in the syllabus that you might be interested in, however it is your responsibility to read over the syllabus to familiarize yourself with course policies. Please let me know if you have any questions or concerns and I look forward to working with you this semester!

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What Are the Course Prerequisites?

- Completion of MATH 152(H) with "C" or better OR concurrent enrollment in MATH 152(H); completion of PHYS 121(H) with "C" or better.
- Algebra, geometry, trigonometry, & calculus which will be used extensively throughout the course.

What are the Course Resources and Extra Help?

- **Office Hours:** In-person hours in Physics Tutorial Center (Physics 226A); online hours on BB Collaborate.
Dr. G — MW 2:10-3 PM; Tu 10-10:50 AM (Online); Th 1-1:50 PM
TA — John Caporaletti (johnc3@umbc.edu); M 2-3 PM; Th 2:30-3 PM; 7-8 PM; W 7-8 PM (Online)
TA — Anoosha Fayyaz (afayyaz1@umbc.edu); Tu 12-2 PM; Tu 7-8 PM (Online)
TA — Liam Hunt (lhunt3@umbc.edu); W 12-1 PM; Th 3-5 PM; Th 7-8 PM (Online)
- **Supplemental Instruction Peer-Assisted Study Sessions (SI PASS):** SI PASS is a proactive academic assistance program that provides opportunities via group review sessions and collaborative learning, for students who want to learn course material more efficiently, improve their grades, and increase academic performance. Times and location: TBD.
- **Asynchronous Help — Discord Server:** Discord allows for a continuous chat between students, TAs/LAs, and the instructor. Course announcements will also be posted on discord. Here is the link: <https://discord.gg/srWYvr4qhb> . Enter your full name and student ID in the approval chat to gain access to the rest of the course. Please set your nickname to be your actual name.
- **Academic Success Center:** The [Academic Success Center](#) provides centralized support services to all undergraduate students at UMBC — check it out today!

What Are the Required Materials and Technologies?

- This course participates in the **Course Materials Initiative (CMI)** which is a program developed to provide students with reduced pricing for course materials through digital textbooks and ancillaries. This means that our textbook (Tipler) and online resources (FlipIt Physics) are included when you register for this course and do not have to be purchased separately.
- Primary Source Material: **FlipIt Physics** will be used for pre-lecture videos and homework assignments. Instructions on how to access FlipItPhysics are available on BB in the “Start Here!” section. The course access key is “F22PHYS122” which is the same for everyone. You should have received an email from no-reply@verbasoftware.com that contains your individualized payment code. For questions about initial sign-on and accessibility contact FlipIt Physics: 1-800-936-6899 or [FlipIt Physics Help](#).
- **Physics for Scientists and Engineers, by Tipler and Mosca, 6th ed., Volume 2:** An electronic version of this textbook is available online when you enroll in this course — see the Blackboard site for details. The textbook provides an additional perspective on the FlipIt material as well as worked out examples. For questions about how to obtain and access the online textbook contact the bookstore: textbook@umbc.edu or 410-455-2695.
- **Clickers:** You will be responding to in class questions using the TurningPoint app on your smartphone or computer. You do NOT have to have a physical clicker, instead you must have a clicker subscription which can be purchased from the UMBC bookstore. It will be your responsibility to remember to bring your computer/phone to respond to clicker questions. Hand written answers will not be accepted. For information on setting up your clicker see the clicker section on BB under the “Start Here!” tab.
- UMBC requires all students to be technologically self-sufficient, which entails having a **reliable personal computer** (preferably a laptop with webcam) and **Internet access**. Since UMBC requires all students to have a computer and Internet access, financial aid may be used to meet this requirement. To learn more, students should contact their financial aid counselor at financialaid.umbc.edu/contact. In addition, the Division of Information Technology (DoIT) provides a wealth of resources and support, including tips for getting online and minimum specifications to consider when purchasing a computer (doit.umbc.edu/students)

- **Discord:** Discord allows for a continuous chat between students, TAs/LAs, and the instructor. Course announcements will also be posted on discord. Here is the link: <https://discord.gg/srWYvr4qhb> . Enter your full name and student ID in the approval chat to gain access to the rest of the course. Please set your nickname to be your actual name.
- You may use a **scientific calculator** on homework, discussions, and exams. No cell phones or any other mobile device will be permitted during exams.

How Will I be Graded?

Type of Assignment	Percentage
FlipIt Physics: Pre-lecture & Checkpoint	5%
In-class (Clicker) Questions	5%
Discussion	7.5%
FlipIt Homework	7.5%
Exams (6 @ 10% each)	60%
Final Exam	15%
Total	100%

Percent Range	Letter Grade
89.5% or Above	A
79.5% - 89.5%	B
69.5% - 79.5%	C
59.5% - 69.5%	D
59.5% or Below	F

- There will be **no** extra credit at the end of the semester. If you are struggling in class, it is far easier to fix problems early in the semester than waiting until the end of the semester.
- You should check your grades regularly on BB, and contact me or your TA with any grading questions ASAP.

What are the Course Learning Objectives?

An integral component of this course are learning objectives (LOs) — a list of tasks that you should be able to perform by the end of the semester. The entire course (class time, discussion, homework, exams) is geared toward helping you develop the conceptual understanding and problem solving skills necessary to successfully complete these LOs.

The big, overarching LOs that you should be able to demonstrate by the end of the semester are located on BB in the “Start Here!” section. Even more importantly are a detailed list of learning objectives that you should be able to perform for each FlipIt unit. You will find these on BB in each of the weekly folders and should use them as a guide on what to study for on the exams.

What Are the FlipIt Physics Pre-Lectures & Checkpoints?

- You will be introduced to the material every week through FlipIt Units. Each FlipIt unit has associated videos and checkpoint questions that you must watch and answer before coming to class. The videos and checkpoint questions will be made available 7 days before they are due. Checkpoint questions are graded only on participation. Failure to watch the videos for their total length could result in losing credit for that unit.
- It is important to put forth a solid effort on being introduced to and grappling with the material before coming to class. Do not expect to get much out of class; discussion; or homework if you don't put in the time on the videos/checkpoint questions beforehand.
- The FlipIt Physics pre-lectures and checkpoints will generally be due MWF by 12 PM. See the calendar on FlipIt for the exact schedule.

What Will I Be Doing During Class?

- Taking place in Engineering 027 MWF 1-1:50 PM except on exam days. We will mainly be working through examples and problems from the most recent FlipIt units — not on introducing concepts and equations. Don't expect to get much out of class or discussion if you haven't put in a solid effort on watching the pre-lectures and grappling with the material before coming to class.
- Clicker questions will be used to track attendance and promote active learning by providing instant feedback for both myself and for you. Clicker questions will mainly be graded on participation. I'll let you know if one is graded on accuracy.
- If you miss any classes, you are still responsible for the material covered. I will post the class slides both blank and annotated on BB.

What Kind of Homework Will I Have?

- The main way to learn physics is by doing physics, AKA working through homework problems. There will be a homework assignment associated with each of the FlipIt units which will usually be due on SuTuTh at 11:59 PM (see the exact schedule on the FlipIt Physics website for when each is due). They are made available 7 days before they are due.
- You are allowed ten submissions per question and your answer must be to within 1% of the correct answer. Keep plenty of extra significant figures (at least four) for your answers as answers to early parts of a problem are usually used later in the problem and rounding errors can cause you to miss a question even though your physics approach is correct. For most questions you will receive immediate feedback, however some questions with a clock symbol next to them have delayed feedback meaning you will not know whether you got it right or wrong until after the due date. Longer homework problems usually have a greater weight toward your overall homework grade than shorter problems. You will be able to see if you got the delayed feedback problems correct once the first due date has passed.
- Before starting the homework, you should make sure you are able to solve and correctly think through the examples covered in the videos, class, and discussion. When you get stuck on a homework problem refer back to FlipIt and class material to find similar examples and take advantage of office hours or the discord server.
- I strongly discourage you from seeking out homework answers online. No doubt you can find answers if you look hard enough, but you are doing yourself a major disservice. Learning physics is a process that takes time, dedication, and hard work. Though finding answers online is attempting, you are short circuiting the learning process and having someone else do all the hard work for you.
- You are encouraged to work together, however, it is your responsibility to fully understand the material. Even though homework constitutes 7.5% of your overall grade, exams — for which you are solely responsible — make up the majority at 75%. Don't expect to do well unless you have put in serious effort on the homework.

What is Discussion?

- Discussions are weekly meetings (Monday, Tuesday, or Wednesday depending on which you registered for) where you work on a packet of problems in small groups — it's designed to provide you with a collaborative learning environment so you can help and learn from each other. You must attend the discussion section that you registered for. See your course schedule to find out which discussion section you are in and where it is located. The schedule for all discussions is list in the syllabus as well.
- Each discussion grade will be based mainly on effort with part of your grade based on accuracy. The exact proportions are decided after each discussion with one or two pages of the discussion graded for accuracy.
- Attendance at the discussion is mandatory and full attendance is required. If you arrive more than 5 minutes late to discussion, you will lose 10% of your discussion grade with an additional 10% penalty for each 5 minute increment you are late.

- You are allowed to bring your calculator and any notes (including equation sheets) you have taken from lecture, the textbook, or FlipIt Physics, but you are not allowed to use any other electronics such as laptops or cellphones. Tablets are OK, but make sure they are flat on your table and not a distraction to others.

What Will the Exams Be Like?

- If you want to do well in this course, then you will have to do well on the exams which constitutes 75% of your overall grade. The pre-lectures, classes, discussions, and homework are meant to help you acquire the conceptual and problem-solving skills you'll need to do well on them.
- Six 50-minute exams on Mondays from 8-8:50 AM. See the schedule at the end of the syllabus for the exact dates and exam content. You'll be assigned to a specific room on campus to take the exam.
- Each exam will consist of a mix of multiple-choice questions and free response questions. For the free response questions, your work must start with the fundamental equations as listed on the equation sheets (these can be found on BB). The majority of points for free response questions can be earned based on your work and reasoning. Thus it is more important to understand the conceptual and problem-solving skills needed to arrive at the final answer than to know the final answer itself.
- You are allowed to bring a scientific calculator during exams. No cell phones or other communication devices will be allowed.
- **Final Exam:** The final exam will be comprehensive and take place on Wednesday Dec 21st from 1-3 PM (see the [final exam schedule](#) on the UMBC website). This will be no make up final.

What is the Make Up Policy?

Life is full of surprises so it's understandable that you might miss a class or two. The course policy has been set up to accommodate a few unexpected situations.

- Class: Three "free" days for not clicking in class. These count towards ALL absences and clicker malfunctions.
- FlipIt Physics Pre-lecture, Checkpoints and Homework: Earning 80% of possible points on FlipIt Prelectures/ Checkpoints and FlipIt HW will get you full credit (Examples: You earn 84% of possible HW points? That becomes 100%. You earn 71% of possible HW points? That becomes $(71/80)*100\% = 89\%$.) In addition, you have two extra days to complete FlipIt assignments late (for example the late due date would be Tuesday 11:59 PM if the original is Sunday 11:59 PM). Completing assignments late gets you 80% of possible points; if your HW is always late and always perfect you'll end up with a 100% HW grade.
- Discussion: There is no make-up discussion. The lowest discussion score will be dropped at the end of the semester. If you must miss a discussion for legitimate reasons*, contact your TA as soon as possible to make a possible arrangement to attend another discussion section that week.
- Exams: Make-ups will only be allowed for legitimate reasons*, and it is your responsibility to contact me ASAP regarding arrangements for a possible make-up. Failure to do so could result in a zero for that exam.
- Final exam: There is NO make up for the final exam. An alternate time for the final exam might be allowed in cases where another class's final exam conflicts with our final exam (you will be required to provide documentation showing this). It is your responsibility to find out when your final exams will occur and e-mail me [well in advance](#) of the week of finals if you discover a conflict with another class.

*Legitimate reasons are defined as officially-sanctioned UMBC activities, illness, family emergency, detention by authorities, or another insurmountable difficulty. I'll request written verification for the cause of your absence.

What is the Instructor's Email Policy?

- E-mail is not a good way of addressing physics related questions and I will **not** answer such questions by e-mail. It's not that I don't want to help you out on questions related to the content (in fact it's one of the best parts of my job!), it's just that trying to answer physics questions through email is terribly inefficient. Much better avenues are during my office hours, on the Discord server, during discussion, with TAs during their office hours, at a SI/PASS session, with tutors at the Academic Success Center, or with fellow students.
- Email is — however — a great way for non-physics questions such as questions about your grades. Please include your full name, course number, and use your UMBC email address to ensure a prompt response.

What is the Academic Integrity Policy?

All instances of academic misconduct will be addressed according to the UMBC Policy on [Academic Integrity](#). Examples include attempting to make use of disallowed materials on assignments, attempting to communicate with anyone other than the instructor or TA during exams, soliciting help by posting material on the internet for any assignment, looking at posted material from others online, altering graded work and submitting it for regrading, asking someone else to take an assignment in your place, copying another's work on an assignment, asking someone else to do an assignment and representing it as your own, permitting or assisting another student to carry out any of the above, and any other instance of academic misconduct. Penalties range from a grade of 0 on the assignment to an F in the course (at my discretion), and from denotation of academic misconduct on the transcript to expulsion (as determined by official hearing of the Academic Conduct Committee).

What is the Student Disability Services (SDS) Policy?

Accommodations for students with disabilities are provided for all students with a qualified disability under the Americans with Disabilities Act (ADA & ADAAA) and Section 504 of the Rehabilitation Act who request and are eligible for accommodations. The Office of Student Disability Services (SDS) is the UMBC department designated to coordinate accommodations that would create equal access for students when barriers to participation exist in University courses, programs, or activities.

If you have a documented disability and need to request academic accommodations in your courses, please refer to the SDS website at sds.umbc.edu for registration information and office procedures (disAbility@umbc.edu and (410) 455-2459).

If you want to use your SDS approved accommodations in this class, please must contact me to discuss implementation of the accommodations. Your accommodations are not automatically applied. You must also register to take each exam at SDS at least two business days before the exam date. Failure to do so could result not being allowed extra time accommodations on your exams.

What are Resources for Sexual Misconduct/Harassment & Gender Discrimination?

UMBC's Policy on Sexual Misconduct, Sexual Harassment and Gender Discrimination and Federal Title IX law prohibit discrimination and harassment on the basis of sex in University programs and activities. Any student who is impacted by sexual harassment, sexual assault, domestic violence, dating violence, stalking, sexual exploitation, gender discrimination, pregnancy discrimination, gender-based harassment or retaliation should contact the University's Title IX Coordinator to make a report and/or access support and resources:

Mikhel A. Kushner, Title IX Coordinator (she/her/hers)
410-455-1250 (direct line), kushner@umbc.edu

You can access support and resources even if you do not want to take any further action. You will not be forced to file a formal complaint or police report. Please be aware that the University may take action on its own if essential to protect the safety of the community.

If you are interested in or thinking about making a report, please see the Online Reporting Form. Please note that, while University options to respond may be limited, there is an anonymous reporting option via the online form and every effort will be made to address concerns reported anonymously.

What are the Safety Protocols for Class & Discussion?

UMBC has set clear expectations for masking while on campus that include the requirement that you must wear a KN95 face mask or equivalent that covers your nose and mouth in all classrooms regardless of your vaccination status. For information on masks equivalent to KN95s please click the following link: <https://covid19.umbc.edu/masks/>

This is to protect your health and safety as well as the health and safety of your classmates, instructor, and the university community. Anyone attending class without a KN95 mask or wearing one improperly will be asked by the instructor to put on a KN95 mask or fix their mask in the appropriate position. Any student that refuses to comply with this directive will be asked to leave the classroom immediately and failure to do so may result in the instructor requesting the assistance of the University Police. Students who refuse to wear KN95 masks may be referred to Student Conduct and Community Standards and may face disciplinary action for violations of the Code of Student Conduct, specifically, Rule 2: Behavior Which Jeopardizes the Health or Safety of Self or Others and Rule 16: Failure to Comply with the Request of a University Official. UMBC's on-campus safety protocols, including masking requirements, are subject to change in response to the evolving situation with Covid-19.

Where is the Discussion Schedule & Discussion Instructor Information?

	Monday	Tuesday	Wednesday
8:00			8:00-9:50 S07 (6166) ILSB 201 Anoohsa Fayyaz* <i>Nishwanth Gudibandla, Jeffery Yang</i>
8:30			
9:00			
9:30			
...			
11:00		11:00-12:50	
11:30		S04 (6040) ILSB 201	
12:00		Liam Hunt* <i>Robert Berger, Jeffery Yang</i>	
12:30			
...			
2:30		2:30-4:20	
3:00	2:30-4:20	S05 (5459) ILSB 230	
3:30	S06 (6165) ILSB 101	John Caporaletti* <i>Nicholas Harrell, Roberto Villanueva</i>	
4:00	Liam Hunt* <i>Robert Berger, Nishwanth Gudibandla</i> Honors (5832) 201 Dr. Henriksen	S08 (6167) ILSB 101 Anoohsa Fayyaz* <i>Noah Zambidis</i>	
4:30			
5:00		5:00-6:50	
5:30	5:00-6:50	S02 (5458) ILSB 237	
6:00	S03 (5460) ILSB 201	Anoohsa Fayyaz*, <i>Nicholas Harrell, Roberto Villanueva</i>	
6:30	John Caporaletti*, <i>Laylor Matsibo, Noah Zambidis</i>	S10 (6217) ILSB 201 John Caporaletti*	

Teaching Assistants* (TAs) are current physics graduate students in charge of each discussion.
Learning Assistants (LAs) are current undergraduate students that previously took PHYS 122.

Discussion Instructor E-mail

Dr. Mark Henriksen (henrikse@umbc.edu)

John Caporaletti (johnc3@umbc.edu)

Anoosha Fayyaz (afayyaz1@umbc.edu)

Liam Hunt (lhunt3@umbc.edu)

Where is the Class, Discussion, and Exam Schedule?

Week (Dates)	FlipIt Unit Class Material	Textbook Chapter (Supplemental Material)	FlipIt Unit Discussion MTuW	FlipIt Unit Monday 8 AM Exam
1 (Aug 29 - Sept 2)	1 & 2	17, 18, & 20	No Discussion!	
2 (Sept 5-9)	3	18	No Discussion!	
3 (Sept 12-16)	4 & 5	19 & 21	3 & 4	
4 (Sept 19-23)	6 & 7	21 & 22	5	Exam 1: 1-4
5 (Sept 26-30)	8 & 9	22 & 23	7 & 8	
6 (Oct 3-7)	10	23	9	Exam 2: 5-8
7 (Oct 10-14)	11 & 12	24	10	
8 (Oct 17-21)	13 & 14	25	12	Exam 3: 9-11
9 (Oct 24-28)	15 & 16	25 & 26	14 & 15	
10 (Oct 31 - Nov 4)	17 & 18	26 & 27	16	Exam 4: 12-15
11 (Nov 7-11)	19 & 20	27 & 28	18 & 19	
12 (Nov 14-18)	21	28	20	Exam 5: 16-19
13 (Nov 21-25)	21	28	21	
14 (Nov 28 - Dec 2)	22	28	22	
15 (Dec 5-9)	23	29	23	Exam 6: 20-22
16 (Dec 12-16)	Review		No Discussion!	
<u>Final Exam Units 5-23: Wednesday Dec 21st 1-3 PM</u>				

This is the schedule as of the beginning of the course which is tentative and may be adjusted throughout the semester as needed by the instructor. See the schedule on FlipIt calendar for the most update schedule and announcements on BB for changes to the schedule.