Physics 122H Introductory Physics II

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Office Hours: Monday, Wednesday, and Friday 11:00-12:00
Tuesday and Thursday 1:00-2:00

Class Meeting:	Lecture:	Mon/Wed/Fri	9:00 – 9:50	Public Policy 206
	Discussion:	Tuesday	9:00 – 10:50	ILSB 230

Office Hours: I will be available in my office on Monday, Wednesday, and Friday 11:00-12:00 and Tuesday and Thursday 1:00-2:00. You may also make an appointment to meet at another time by contacting me through email. Please come prepared to discuss your question or issue. You may come to the office either individually or in a group.

Course Overview: This course is the second semester of the four-credit, calculus-based, introductory physics courses. In general, this is the intro physics course physical science and engineering majors, not for life-sciences. This semester the Honors section of the course will be a stand-alone course not part of the large-lecture course format. We cover the same material in more depth. The list of topics covered in this class include: electric and magnetic fields and potentials, Maxwell's equations, dc & ac circuits, and thermodynamics. The goals of this course are (1) that you can demonstrate a conceptual understanding of the topics listed above, (2) that you are able to analyze, interpret, and model physical situations using the principles found in the above topics, and (3) that you can communicate your reasoning processes clearly through logical, coherent homework and exam solutions. I expect you to be able to work with these ideas and apply them to various physical situations by the end of the semester.
We will cover the appropriate sections of the textbook (Chapters 17-30) in this course. The schedule of topics for the course is listed on the *FlipIt Physics* site associated with the course. There will be 3 in-class exams and a final exam. The dates of the exams are on the schedule.

The discussion class for this course is a required part of the course. The discussion classes will address particular difficult concepts and the practical matters of analyzing problems.

There are pre-lecture, animated PowerPoint documents that you need to examine before coming to the lecture. These pre-lecture assignments have a short set of questions that need to be answered and these electronic pre-lecture materials are part of your final grade.

Pre-requisites: PHYS121 and MATH151 are pre-requisites and MATH152 is a co-requisite. No computer programming knowledge is required.

Textbook and Materials: *Physics for Scientist and Engineers*, Tipler & Mosca (required)
FlipIt Physics (electronic pre-lectures and pre-lecture homework) (required)
Automated Response Clicker, Turning Technologies RFC-03 (required)
(If you do not own a clicker, please contact me and I can give you one.)

This course is a CMI course and so the e-book comes with the class registration. You can access it through the Blackboard site, and can download it using the VitalSource Bookshelf app.

If you have any difficulties with the e-book, FlipIt Physics site, or Clickers, please contact Ms. Jocelyn Ochoa-Garcia ochoa1@umbc.edu at the Bookstore and she can guide you through things.

(No calculators, tablets, computers, or cell phones during exams)

***FliptIt Physics*:** We will use an on-line system called *FliptIt Physics*. This system has many features and it includes pre-lecture material, pre-lecture questions, and electronic homework. To access *FlipIt Physics*, go to their website; **http://FlipItPhysics.com**. Follow their directions to enroll as a student. Please note that you can start off in *FlipIt Physics* with a 30-day, no-pay, grace period, however you need to pay for it either through their website or at the bookstore prior to the end of that period. If you fail to pay for it before your grace period expires all your material and grades for that part of the course will be lost. You need the course access key for this course: **Phys122H22** The course is now accessible. You need to enter an individual identifier and you must use your student ID number: the two-letter, five-digit on your student id card. Please be careful as you cannot change this once you have registered in *FlipIt Physics*. Also, please do not enter a practice name or id into the system as that will clog up the system for this course.

Clickers: We will use the Turning Technology clickers during the lectures. If you do not own a clicker, please contact me right away and I can lend you a clicker for the semester. Once you have your clicker it must be registered in Blackboard for you to receive credit for answering questions in the lecture. There is a file to help you register your clicker and prepare it for class located on the course Blackboard site under Other Bb Tools on the left sidebar. Also you can go to the UMBC Help page for clickers at:

https://wiki.umbc.edu/pages/viewpage.action?pageId=66159040

Please have a clicker with you at the first lecture that you have registered and that is ready. There will be graded questions at the first lecture. There is one unexcused clicker absence or clicker malfunction for the semester.

Grading:

3 one-hour in-class exams	45%
Final exam	20%
Paper-based homework	10%
Electronic homework problems	10%
Discussion class	5%
Pre-lectures and Checkpoints	5%
Clicker response questions	5%

A: 90-100 B: 80-90 C: 70-80 D: 60-70 F: 0-60

I do not grade on a curve, I do not drop any assigned work or exams, nor do I have any extra-credit material.

Pre-Lectures: These are very well done, animated, PowerPoint presentations with voice-over. It is important that you go through these pre-lectures when they are assigned, including answering the embedded questions. These and reading the textbook sections prepare you for the lecture. There are a set of questions that are separate from the pre-lectures and these are known as the pre-flight or Checkpoint questions. They ensure that you think through the material you have viewed and give me a chance to see the class' general understanding of the pre-lecture concepts. Note that there is a set of pre-lectures and Checkpoint questions that you must do prior to the first class.

Lectures: You are required to read the textbook material before coming to class. By this I do not mean that you should skim the material. You should read it, think about it, and formulate questions about the material. Cell phone, tablet, and laptop use during the lectures is prohibited. Let me know

if you use a laptop for note taking in the class. I expect class participation during the lecture. I hope you will quickly recognize the difference between a real question to the class and a rhetorical question, and respond accordingly. There will be clicker questions in many of the classes on the reading material and material we have already discussed, and questions meant to stimulate an active learning environment. Thus, you need to register your clicker in the Blackboard system to receive credit. Registering your clicker is explained in a document on the Blackboard site in the Course Documents section and at the UMBC Help page for clickers:

https://wiki.umbc.edu/pages/viewpage.action?pageId=66159040

Discussion Classes: The discussion classes are a required part of the course, and you must attend the discussion class. There are no exceptions to this rule and you will not receive credit for your work if you are not attending the class. The work in the discussion class will be done in small groups (2-3 students), and so it is critical that you are not late for this class.

Homework: This is one of the most important aspects of this class for learning the material. Although you will learn a lot from my enlightening lectures and from studying the textbook, the only way to understand and integrate the material to the level that is expected is by personally working through the important material and applying it to various situations (problems). At times, the homework will be very challenging. Remember that it is the only time I can ensure that you examine a complicated problem. There is not enough time for this on exams.

Much of the homework is submitted electronically through the *FlipIt Physics* website. You are responsible for checking the *FlipIt Physics* calendar regularly to ensure you do not miss any of the assignments. Thus, you need to make sure that you have good access to the internet via a computer. This is available in the library and in the computer labs across campus, as well as your own home internet access. Most of the electronic homework problems are broken into multiple sections. You have <u>three</u> chances at supplying the correct answer in each part and you will not lose credit for the first attempt. It is good practice to write out the solution to each of the electronic homework problems on paper before submitting the answer, and then keeping the written solution to use in studying for exams.

There is written homework that is due prior to the beginning of the lecture on the days listed on the *FlipIt Physics* calendar. These assignments will be posted on the Blackboard site under Written Homework Assignments. Write neatly, <u>staple the pages together</u>, <u>begin each problem on a new page</u>, and make sure that your name is on each page. If it is illegible or does not have a logical flow that can be followed, it will not be graded. There is no provision for late written homework.

Here are two tips from students who have been successful in this course in the past. The first concerns the electronic homework. These should be written out as if you would hand them in to be graded. Keeping a notebook with these written out is a great way to be able to review questions before exams. The second idea that successful students have mentioned is a method to do the written homework. They recommend working out the solutions to the written homework problems, and then rewriting them on fresh paper. When you do this, you can put the solution in that nice neat coherent order. It turns out that this fits with research on best study practices, that this method forms an immediate review of the material.

I imagine that you will get together on a regular basis in small groups. This is a good tool if used properly and a disaster if used incorrectly. Once you have done your own studying and worked on the assigned problems, it is good to discuss the ideas with others. Please do not use it without working on the problems on your own. If you receive help on the written homework, you must reference this in the margin of the work. Each person must submit the written homework in their own hand, and it must be their work.

Tutoring Help: The Physics Department has its Physics Tutorial Center in Physics 225. The schedule for the tutorial center is posted outside of Room 225. The Learning Resource Center has free tutors for this and many other 100- and 200-level courses. They are located on the third floor of Sherman Hall and more information is available at: https://academicsuccess.umbc.edu/tutoring/ There is a Supplemental Instruction leader for the PHYS121 large-lecture course. She will make announcements on Blackboard to tell you where and when she will have meetings. These have been extremely useful for students in the past semesters. These meetings will have problems that you work through with the assistance of the SI leader.

Other Policies: Do not forget to bring your clicker to every lecture class. You have one unexcused clicker absence or malfunction for the semester.

There are no discussion class make-ups.

If you will miss an exam due to a University-policy accepted absence, you must inform me of this at least two weeks before the exam.

If you are taking exams with Student Support Services, I must be informed by them in the first two weeks of the semester. That requires you to inform them in the first week of the semester. Also, you must remind me via email that you need an exam given to them 48 hours before every exam.

Academic Integrity: I feel obligated to ensure that students know the repercussions of cheating. If you are found cheating, you will receive a zero for that work, and you will be reported to the Academic Conduct Committee. The University has a website that addresses the concepts of academic integrity: https://academicconduct.umbc.edu/
Here is a statement from the Provost's Office:

UMBC Statement of Values for Academic Integrity

By enrolling in this course, each student assumes the responsibilities of an active participant in UMBC's scholarly community in which everyone's academic work and behavior are held to the highest standards of honesty. Cheating, fabrication, plagiarism, and helping others to commit these acts are all forms of academic dishonesty, and they are wrong. Academic misconduct could result in disciplinary action that may include, but is not limited to, suspension or dismissal. To read the full Student Academic Conduct Policy, consult UMBC policies.

Final Comments: I am always excited to teach this class. I have high expectations for all of us in this class. You will need to work hard to do well in this course, and I expect that you will work 8-12 hours outside of class per week on this course. This includes preparing for lecture, reviewing material, doing the assigned homework, and studying for exams. This course is not about memorization, but understanding and applying knowledge. Remember that getting help when you are having difficulty is part of life, but that exams are not a team sport. You must know the material. I promise you that I will be working just as hard as you to present the material and help you to understand it. Please, do not leave three days go by where you are in the dark about some concept or some method of approaching problems. See me for help.