General Physics II (PHYS 212-003, 004 and 102)
Course Policy and Syllabus

Instructor: Dr. **Jia-An Yan**
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Office Hours: **Mon. 13:00 – 14:00** **Wed. 13:00 – 14:00**
(Other times by appointment; if my office is open, feel free to ask questions)

Lab: **Christy Zuidema Metzger**
Phone: (410) 704-4729
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Meeting Times:

Lecture: **Mon Wed** **10:30 – 11:45**

WebEx: https://towson.webex.com/meet/jyan

Lab:			
	Tue (Sec. 003)	**9:00 – 11:45**	**Online (Metzger)**
	Tue (Sec. 004)	**13:00 – 15:45**	**Online (Yan)**
	Wed (Sec. 102)	**17:00 – 19:45**	**Online (Metzger)**

Texts and Course Materials:

1. **Free Textbook**: OpenStax College Physics: http://openstaxcollege.org/textbooks/college-physics/get

2. Wilson, Buffa, and Lou, College Physics, 7th ed. (Pearson Prentice Hall, Upper Saddle River, 2007). ISBN13: 978-0321601834, http://www.prenhall.com/wilson. (Recommended)

3. Laboratory manual. (No need to buy. Will be posted on Blackboard.)

4. Online homework:

Class Registration - PHYS 212 (Spring 2021) Gen Physics II w/ Dr. Yan $32.50
Student Registration Link: http://goeta.link/USH22MD-7A3D9C-279

Optional: **1. Student Study Guide and Selected Solutions Manual for College Physics** (Volume 2, ISBN13: 978-0321592781)
2. Halliday and Resnick, Fundamentals of Physics (John Wiley and Sons, New York)**,**
3. Serway and Beichner, Physics for Scientists and Engineers (Saunders College Publishing, Orlando, 2000)
4. Free interactive science simulations: http://phet.colorado.edu/

Course Description:
PHYS212: General Physics II (non-calc based) is for Arts and Sciences, Biology, and Geosciences majors. Prerequisite is PHYS 211. Proficiency in basic algebra, geometry, trigonometry, and PHYS 211 will be required and used extensively throughout this course. Physics 212 develops the concepts of electricity, magnetism, and optics. The course will cover approximately chapters 15-24 of College Physics (Chapter 21 will not be included) and any supplemental information provided in class. Given that the class spans 15 weeks, this amounts to approximately one chapter per 3-4 lecture classes. A tentative breakdown per class is attached to the end of the syllabus.

Note: PHYS 212 is hard, but please keep in mind that Dr. Yan is always willing to help throughout the whole semester. If you have any difficulty, questions or concerns, please feel free to come to my office and talk to me! The earlier the better!

Course Objective:
Upon successful completion of this course, students will be expected to develop:
- A good conceptual understanding of physics, especially on electricity, magnetism and optics;
- Advanced problem-solving skills;

- Basic laboratory and technology skills;
- Attitude that is favorable for learning physics with deep understanding.

Grading:
The course grade will be determined from homework, labs, in-class exams, and final exam with the following breakdown per assignment. The following guidelines guarantee at least a final letter grade as indicated in the table.

Assignment	Weight (%)
Homework	12.5
Labs	20.0
Exam 1	12.5
Exam 2	12.5
Exam 3	12.5
Quiz	10.0
Final Exam	20.0
Total:	100

Grade	Score (%)
A	92-100
A-	89-91
B+	86-88
B	81-85
B-	78-80
C+	75-77
C	64-74
D+	61-63
D	50-60
F	<50

Keep in mind that the statistical performance of the entire class will also be taken into consideration in determining the final letter grades.

Laboratory:
Laboratory worksheets and videos will be posted each week. You will have one week to finish up your lab work and post your work onto Blackboard. The lab is mandatory. All labs are required, there is no dropped lab.

Homework:
Our homework will be assigned using ExpertTA. You can register using the link at the beginning of this syllabus. If you have trouble registering you can contact me or the ExpertTA help staff at main@theexpertta.com. We will have about one homework assignment each week. Do not wait until the day the homework assignment is due to get started on it!! Work on it steadily, bit by bit, throughout the week. This will help your understanding and will relieve time pressure as the due date approaches!

Quizzes:
After a major topic is finished, in-class online quizzes will be given before the exam to check the learning outcome. This part will be 10% of the total grade. Students are responsible for any missing quiz.

Exams:
There will be three in-class online examinations during regular class hours and one cumulative final exam. All are open-book exams. Calculators may be used, but will not be required. Reasoning and accompanying work will count more than the final numerical answer. The use of other portable electronic devices, including cell-phones, is prohibited during exams. In order to receive full credit, you must show in detail all of your work for each exam problem. Exams will allow you to demonstrate both conceptual understanding and problem solving skills.
Final Exam: You must take the final exam. The final exam will be comprehensive.

Attendance Policy:
Attendance in lecture is **strongly recommended**. Students are responsible for all information, announcements, materials, and assignments covered during lectures. Attendance and class participation will be recorded electronically with the clickers or by written work such as quiz and short-question answering. Each student is required to take notes and follow the examples presented in the class.

Make-up Policy:
Missing an exam, quiz, or in-class exercise without prior approval is unacceptable except under an extreme documentable circumstance (e.g., serious illness). Reasons for absence from an exam must be in accordance with university policy and copies of required documentation submitted: *Students requesting an excused absence must provide documentation to the instructor two weeks prior to the scheduled absence when known in advance, and as soon as possible when not known in advance.* **In order to be eligible for a make-up assignment, you must contact**

me before the absence if you feel that you have a valid circumstance. Failure to attend a scheduled event without prior approval will result in a grade of zero for that assignment. There is no make-up for the final exam.

Inclement Weather and Emergency Closings:
In emergency situations, e.g., extreme weather conditions, the campus may close or open late. Announcements will be posted on the campus voice mail system (410-704-2000) and the main web site (www.towson.edu). Additionally, an "all campus" email will be sent and students may wish to enroll in text message alerts, http://www.towson.edu/textalerts. In the event class or lab cancellation, all assignments will be postponed until the class following reopening of the university. Additional reading, exercises, etc. may be assigned to compensate for lost instructional time.

Academic Integrity:
Towson University treats academic dishonesty as a serious offense. Students are responsible for reading and understanding the Towson University "Student Academic Integrity Policy." Sanctions for cheating include a grade of **F** on an assignment/exam or a grade of **F** for the entire course, and in cases of repeat offenses, may include expulsion from the university.

Students with Disabilities:
This course is in compliance with Towson University policies for students with disabilities. Students with disabilities are encouraged to register with Disability Support Services (DSS), 7720 York Road, Suite 232, 410/704-2638 (Voice or TDD). Students who suspect that they have a disability but do not have documentation are encouraged to contact DSS for advice on how to obtain appropriate evaluation. A memo from DSS authorizing your accommodation is needed before any accommodation can be made.

Diversity Mission Statement:
The Department of Physics, Astronomy and Geosciences, in accordance with the Fisher College of Science and Mathematics Diversity Plan (http://www.towson.edu/fcsm/aboutfcsm/diversity_action_plan.asp) and with the Towson University Strategic Plan, believes that we must support initiatives that promote diversity among FCSM faculty, staff and students while continuing to meet the workforce needs of the State of Maryland. To fulfill that vision, we are committed to increasing the quality and diversity of our students, faculty and staff while increasing retention and curriculum initiatives.

Lab Fee:
Lab fees for this course will be used to purchase materials needed for in class activities and other activities. Additional information is available at www.towson.edu/provostpbo/documents/class_fees.pdf

Copyright Material:
All of my course materials, including lecture slides and exams, are copyrighted. I am the exclusive owner of these copyrighted materials. You can take notes and make copies of course materials for your own use. However without my written consent, you many not, nor may you allow others to, reproduce or distribute course materials publicly. This applies whether or not a fee is charged for the distribution of the course copyrighted material.

General Guidelines:

1. **Read the book!** Especially important to read the material **before** the lectures. While reading, make notes of the important concepts by trying to rephrase them in your own words. Also, formulate a list of questions that you would like to ask in class.
2. **Do the homework!** Solving homework problems is one of the best ways to learn the material. Perhaps the most important skill you should learn from this course is the ability to solve quantitative problems. I cannot stress enough the importance of "struggling" with and "mastering" the homework problems. Physics is like any other learned skill; the only way to improve is to practice continually.
3. **Ask questions in class.** Don't be afraid to ask questions … likely other students have similar questions and will benefit from the answer.
4. **Re-work on examples!** The examples presented in class as well as related examples given in the textbook are starting points for you to develop the problem-solving skills. This process of reworking examples should prepare you for completing the homework assignments.
5. **Seek help** from the instructor and other resources (see below) as soon as possible.

6. **Personal Electronics.** As a courtesy to your fellow students and myself, cellular phones should not ring, nor should they be answered **during** class. This is disruptive to the learning environment.

Additional Resources for Assistance:

- Tutoring in Smith Hall (SM) 538.
- Learning assistants (LAs) will be assisting with homework grading, problem solving, lecture, and tutoring. The science, technology, engineering, and mathematics teaching community (STEM-TC) project at Towson is providing resources to improve student learning in STEM courses. Resources include undergraduate majors serving as learning assistants. General information on the STEM-TC project is available here: http://www.towson.edu/fcsm/community_engagement/STEM-TC/index.asp.
- Students interested in refreshing their mathematics skills, particularly algebra and trigonometry, may find these online math resource sites useful.
  Purple Math: http://www.purplemath.com/
  S.O.S. Mathematics: http://www.sosmath.com/index.html

Important Dates

25-Jan (Mon)	First day of classes.
02-Feb (Tue)	Last day to add a course. Last day to withdraw with no grade posted.
24-Feb (Wed)	**Exam I (tentative date)**.
29-Mar (Mon)	**Exam II (tentative date)**.
05-Apr (Mon)	Last day to withdraw from a full semester course with a grade of "W."
	Last day to change to Pass or Audit grading options.
26-Apr (Mon)	**Exam III (tentative date)**.
14 to 21 Mar	Spring Break.
11-May (Tue)	Last day of classes.
12-May (Wed)	**Online Final Exam 08:00-10:00.**

Tentative Schedule for PHYS 212 – Section 003, 004 & 102 (Spring 2020, Dr. Yan)

WEEK	DATE	PRE-READING	CHAPTER / TOPIC	LAB
1	M 01/25	Sect. 1.1-1.7	Introduction & Math Review	Lab 0: Introduction
	W 01/27	Sect. 15.1-15.2	Chapter 15 (Part 1): *Electric charge, charging*	
2	M 02/01	Sect. 15.3	Chapter 15 (Part 2): *Electric force, Electric field*	Lab 1: Static electricity
	W 02/03	Sect. 15.4-15.5	Chapter 15 (Part 2 &3): *Electric field*	
3	M 02/08	Sect. 15.4-15.5	Chapter 15 (Part 3): *Electric field*	Lab 2: E-field plotting
	W 02/09	Sect. 16.1-16.2	Chapter 16 (Part 1): *Electric potential energy;* *Quiz 1*	
4	M 02/15	Sect. 16.3-16.5	Chapter 16 (Part 2): *Capacitance, capacitors*	**Problem-solving tutorial 1**
	W 02/17	Sect. 17.1-17.2	Chapter 17 (Part 1): *Batteries, current, resistance;*	
5	M 02/22	Sect. 17.3-17.4	Chapter 17 (Part 2): *Ohm's Law, power*	Lab 3: Volts, Amps, Ohms
	W 02/24		**Exam #1 (Ch 15-16)**	
6	M 03/01	Sect. 18.1-18.2	Chapter 18 (Part 1): *Resistors, circuits, Kirchhoff's rules*	Lab 4: Kirchhoff's rules
	W 03/03	Sect. 18.2	Chapter 18 (Part 2): *Kirchhoff's rules*	
7	M 03/08	Sect. 16.3-16.5, 18.3	Chapter 16 (Part 3): *Capacitors in series and parallel* Chapter 18 (Part 3): *RC circuits*	Lab 5: RC circuits
	W 03/10	Sect. 18.4-18.5	Chapter 18 (Part 4): *RC circuits, Household electricity;* *Quiz 2*	
8	**Spring break (March 14-21)**			
9	M 03/22	Sect. 19.1-19.2	Chapter 19 (Part 1): *Magnetism, magnetic force*	**Problem-solving Tutorial 2**
	W 03/24	Sect. 19.3	*Chapter 19 (Part 2): Applications*	
10	M 03/29	Sect. 19.4-19.5	Chapter 19 (Part 3): *Magnetic force*	Lab 6: B-field plotting
	W 03/31		**Exam #2 (Ch 17-18)**	
11	M 04/05		***LAST DAY TO WITHDRAW***	Lab 7: Magnetic force
	M 04/05	Sect. 19.6-19.7	Chapter 19 (Part 4): *Electromagnetism, mag. materials*	
	W 04/07	Sect. 20.1	Chapter 20 (Part 1): *Magnetic flux, Faraday's Law*	
12	M 04/12	Sect. 20.2	Chapter 20 (Part 2): *Lenz's Law, generators*	Lab 8: Magnetic induction
	W 04/14	Sect. 20.3-20.4	Chapter 20 (Part 3): *Transformers, EM waves*	
13	M 04/19	Sect. 22.1-22.3	Chapter 22 (Part 1): *Reflection, refraction*	**Problem-solving Tutorial 3**
	W 04/21	Sect. 22.1-22.3	Chapter 22 (Part 1): *Reflection, refraction*	
14	M 04/26	Sect. 22.4-22.5	Chapter 22 (Part 2): *Snell's Law, mirrors*	Lab 9: Mirrors
	W 04/28		**Exam 3 (Ch 19-20)**	
15	M 05/03	Sect. 23.1-23.2	Chapter 23 (Part 1): *Mirrors*	Lab 10 Lens
	W 05/05	Sect. 23.3	Chapter 23 (Part 2): *Lenses;* *Quiz 4*	
16	M 05/10	Sect. 23.3	Chapter 23 (Part 2): *Lenses;*	
	T 05/11	***LAST DAY OF CLASS***		
17		**Cumulative FINAL EXAM (05/12, 8:00 – 10:00)**		