

PHY370 - Spring 2018

Prof. Brandon Mitchell

Room SSS-402A

e-mail: bmittchell@wcupa.edu

Lecture: MWF 11:00 -11:50

Office Hours: My office hours for Spring 2018 are:

M 12:30 – 1:30 W 3:00 – 4:00 Th: 12:30 – 2:00

Occasionally I may be able to meet outside of regular office hours, please email me.

Required Textbook:

- *Mathematical methods for physics and engineering* 3rd ed. by Riley, Hobson and Bence

Highly Recommended Resources:

- *Student solution manual for mathematical methods for physics and engineering* 3rd ed. by Riley and Hobson
- Schaum's Outlines: Mathematical Handbook of Formulas and Tables, 4th ed. by Lipschutz, Spiegel, and Liu

Course Web Page:

D2L

Course information can be found here throughout the semester. The syllabus, homework and test solutions will be found here.

Content: This is the review session you've been waiting for. In this course, you will not necessarily hear many new topics, but rather more details on topics you have seen before. We will also go through common advanced mathematical techniques such as series solutions for differential equations, special functions and Fourier analysis.

You should try to read the relevant sections in the text before coming to lecture. Even if you don't understand the material after reading it for the first time, it is better than hearing for the first time from me.

Expectations: I expect you to engage the material, your peers and me both in and out of class in physics related conversations. I do not expect you to love math in all of its intricacies or be a master of this material instantly. When problems arise, I expect you to seek assistance from your peers or myself. I am happy to assist/review with you. **Disclaimer:** The internet is there as well, but you may not find it as useful as it has been for previous courses. You may find this course challenging and fast paced, but as long as you work diligently, you will succeed.

Guidelines for Office Hours: You set the agenda for office hours. Come with questions about the lecture, reading, homework, exams, grading, or anything else of concern or interest. Attend in groups or as an individual. If you would like to discuss something in private, please make a separate appointment. When multiple people are present, people will alternate asking questions. **Note:** You must demonstrate some effort/thought process towards an answer on homework problems before coming to see me. "I have no idea where to begin" is not an acceptable opening statement.

Attendance: You are expected to come to every class, attendance will be taken. You will not lose points for not attending class, however, you will be held responsible for all course materials missed due to class absences.

Phone Policy: Don't have them out and don't look at them!

Homework: You will have one homework assignment per week, which will be from the course textbook. A typical homework will range from 8-10 problems depending on the materials. In general, ~25% of the problems will be even problems, whose solutions can be found in the Student's Solution manual for the textbook. Use these to help you with the odd numbered problems. While I expect and encourage you to work together on these problems, make sure that the work you turn in is your own. You will be warned once and only once if your assignments are too similar to other students or the publisher solutions. The homework will be assigned on Friday during class, and will due the following Friday either during class or by 5:00pm in my mailbox. Note: I will drop your two lowest homework grades, so if you miss an assignment or two it will not affect your grade, but do not make a habit out of not turning in homework this will severely impact your final grade.

Exams: There will be 3 midterm exams during the semester as well as a comprehensive final exam. If you will be unable to make it to an exam, you must contact me before the exam, and we will discuss how to proceed. In general, THERE WILL NOT BE TEST CORRECTIONS, however, I may choose to change this policy as I deem necessary/appropriate. **Lastly, I do not post grades on D2L. You must come to class or office hours to pick-up your exams.**

Grading: Your course grade is based on your homework (25%), class participation (5%), Exams (70%)
Your total homework grade will be the average grade (minus the lowest two grades) for all assignments.
Your total exam grade will be 15% for the three mid-semester examinations, and 25% for the final examination.

A letter grade will be assigned based on performance in the course according to the following scale:

Grade	Quality Points	Percentage Equivalents	Interpretation
A	4.00	93-100	Excellent
A-	3.67	90-92	
B+	3.33	87-89	
B	3.00	83-86	
B-	2.67	80-82	
C+	2.33	77-79	
C	2.00	73-76	Average
C-	1.67	70-72	
D+	1.33	67-69	
D	1.00	63-66	Below Average
D-	0.67	60-62	
F	0	< 60%	

Refer to the Undergraduate Catalog for description of NG (No Grade), W, Z, and other grades.

Straight percentages will be given for all work, with the mid-semester and final grade based on overall class

performance. Other considerations will influence your final grade including, class participation, class and laboratory attendance, and seeking timely guidance during office hours. Any student achieving at a level of 'C-' or below will be given an estimated grade on their mid-term deficiency grade report.

E-Mail and Communication: The best way to contact me is via e-mail. But, be aware that I will only read and respond to e-mails written in proper English, with correct grammar, spelling, and etiquette. Do not send me any e-mails addressed to "hey" or "yo," like you would text a buddy or close friend.

"It is expected that faculty, staff, and students activate and maintain regular access to University provided e-mail accounts. Official university communications, including those from your instructor, will be sent through your university e-mail account. You are responsible for accessing that mail to be sure to obtain official University communications. Failure to access will not exempt individuals from the responsibilities associated with this course."

ACADEMIC & PERSONAL INTEGRITY: It is the responsibility of each student to adhere to the university's standards for academic integrity. Violations of academic integrity include any act that violates the rights of another student in academic work, that involves misrepresentation of your own work, or that disrupts the instruction of the course. Other violations include (but are not limited to): cheating on assignments or examinations; plagiarizing, which means copying any part of another's work and/or using ideas of another and presenting them as one's own without giving proper credit to the source; selling, purchasing, or exchanging of term papers; falsifying of information; and using your own work from one class to fulfill the assignment for another class without significant modification. Proof of academic misconduct can result in the automatic failure and removal from this course. For questions regarding Academic Integrity, the No-Grade Policy, Sexual Harassment, or the Student Code of Conduct, students are encouraged to refer to the Department Undergraduate Handbook, the Undergraduate Catalog, the *Ram's Eye View*, and the University website at www.wcupa.edu.

STUDENTS WITH DISABILITIES: If you have a disability that requires accommodations under the Americans with Disabilities Act (ADA), please present your letter of accommodations and meet with me as soon as possible so that I can support your success in an informed manner. Accommodations cannot be granted retroactively. If you would like to know more about West Chester University's Services for Students with Disabilities (OSSD), please visit them at 223 Lawrence Center. The OSSD hours of Operation are Monday – Friday, 8:30 a.m. – 4:30 p.m. Their phone number is 610-436-2564, their fax number is 610-436-2600, their email address is ossd@wcupa.edu, and their website is at www.wcupa.edu/ussss/ossd.

EXCUSED ABSENCES POLICY FOR UNIVERSITY-SANCTIONED EVENTS: Students are advised to carefully read and comply with the excused absences policy for university-sanctioned events contained in the WCU Undergraduate Catalog. In particular, please note that the "responsibility for meeting academic requirements rests with the student," that this policy does not excuse students from completing required academic work, and that professors can require a "fair alternative" to attendance on those days that students must be absent from class in order to participate in a University-Sanctioned Event.

REPORTING INCIDENTS OF SEXUAL VIOLENCE: West Chester University and its faculty are committed to assuring a safe and productive educational environment for all students. In order to meet this commitment and to comply with Title IX of the Education Amendments of 1972 and guidance from the Office for Civil Rights, the University requires faculty members to report incidents of sexual violence shared by students to the University's Title IX

Coordinator, Ms. Lynn Klingensmith. The only exceptions to the faculty member's reporting obligation are when incidents of sexual violence are communicated by a student during a classroom discussion, in a writing assignment for a class, or as part of a University-approved research project. Faculty members are obligated to report sexual violence or any other abuse of a student who was, or is, a child (a person under 18 years of age) when the abuse allegedly occurred to the person designated in the University protection of minors policy. Information regarding the reporting of sexual violence and the resources that are available to victims of sexual violence is set forth at the webpage for the Office of Social Equity at <http://www.wcupa.edu/admin/social.equity/>.

EMERGENCY PREPAREDNESS: All students are encouraged to sign up for the University's free WCU ALERT service, which delivers official WCU emergency text messages directly to your cell phone. For more information, visit www.wcupa.edu/wcualert. To report an emergency, call the Department of Public Safety at 610-436-3311.

ELECTRONIC MAIL POLICY: It is expected that faculty, staff, and students activate and maintain regular access to University provided e-mail accounts. Official university communications, including those from your instructor, will be sent through your university e-mail account. You are responsible for accessing that mail to be sure to obtain official University communications. Failure to access will not exempt individuals from the responsibilities associated with this course.

PHY370:TENTATIVE SCHEDULE			
Date	Topic	Reading	Homework
Week 1			
1/22	Introduction	Chapter 8	
1/24	Linear Algebra	Chapter 8	
1/26	Linear Algebra	Chapter 8	
Week 2			
1/29	Linear Algebra	Chapter 8	
1/31	Vector Analysis	Chapter 10	
2/2	Vector Analysis	Chapter 10	HW #1
Week 3			
2/5	Vector Analysis	Chapter 10	
2/7	Vector Analysis	Chapter 10	
2/9	Vector Analysis	Chapter 10	HW #2
Week 4			
2/12	Complex Variables (Basic)	Chapter 3	
2/14	Complex Variables (Basic)	Chapter 3	
2/16	Complex Variables (Basic)	Chapter 3	HW #3
Week 5			
2/19	Complex Functions	Chapter 24	
2/21	Complex Functions	Chapter 24	HW #4
2/23	EXAM I		
Week 6			
2/26	Complex Functions	Chapter 24	
2/28	Complex Functions	Chapter 24	
3/2	Complex Functions	Chapter 24	HW #5
Week 7			
3/5	Complex Functions	Chapter 24	
3/7	Fourier Series	Chapter 7	
3/9	Fourier Series	Chapter 7	HW #6
Week 8			
3/12	SPRING BREAK!		NO HW
3/14			
3/16			
Week 9			
3/19	Fourier Series	Chapter 7	
3/21	Fourier Series	Chapter 7	
3/23	Fourier Series	Chapter 7	HW #7

Week 10			
3/26	Fourier Series	Chapter 7	
3/28	Special Functions	Chapter 18	HW #8
3/30	EXAM II		
Week 11			
4/2	Special Functions	Chapter 18	
4/4	Special Functions	Chapter 18	
4/6	Special Functions	Chapter 18	HW #9
Week 12			
4/9	Series Solutions to Differential Equations	Chapter 16	
4/11	Series Solutions to Differential Equations	Chapter 16	
4/13	Series Solutions to Differential Equations	Chapter 16	HW #10
Week 13			
4/16	Series Solutions to Differential Equations	Chapter 16	
4/18	Series Solutions to Differential Equations	Chapter 16	
4/20	Partial Differential Equations	Chapter 20	HW #11
Week 14			
4/23	Partial Differential Equations	Chapter 20	
4/25	Partial Differential Equations	Chapter 20	
4/27	Partial Differential Equations	Chapter 20	HW #12
Week 15			
4/30	Partial Differential Equations	Chapter 20	
5/2	EXAM III		
5/4	Review Day (ALL)		
Week 16			
5/7	FINAL EXAM (10:30 - 12:30)		
5/9			
5/11			