



PHY1120: Precalculus Based Physics II

Precalculus Based Physics II, PHY1120, Spring 2024

Instructor Monty Clark

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Course Meeting Days and Time Monday 14:00-16:00, Wednesday 14:00-16:00

Required **Experiential**
Learning Dates

Office Hours Monday 12:00-14:00

Catalog Description:

This course introduces the principles of simple harmonic motion, waves, Coulomb's Law, electric fields and circuits, magnetism, and optics. Quantitative as well as qualitative aspects of the subject are developed utilizing precalculus. This course should be taken concurrently with PHY 1125, PrecalculusBased Physics II Lab. (3 credit hours)

Prerequisites: Minimum of C- in PHY 1110 or permission of the instructor. Corequisites: PHY 1125.

Credit Hour Policy Statement:

"This class meets the federal credit hour policy through a combination of lecture + laboratory (or lecture + practicum) for a total of 45-75 hours of supervised learning activities for each credit."

Course Learning Objectives:

PHY 1120 and the accompanying laboratory course (PHY 1125) are technical courses designed to provide undergraduate science majors and pre-health students with a solid foundation in physics principles as described in the catalog through the use of reading, discussions in lecture, laboratory activities, and problem solving using precalculus-based mathematics. Physics is the most fundamental of the sciences and has applications in every scientific discipline (and some non-science as well).

Methods of Instructions:

This class will be delivered as a set of lectures with problems classes, guided self-study and exams as forms of assessment. This is to work towards developing an understanding of fundamental physics

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critical in underpinning many scientific disciplines and developing the skills and knowledge to answer questions posed as a part of this course, PHY1120, and its corequisite, PHY1125.

Textbooks and Required Reading:

Physics for Scientists and Engineers: A Strategic Approach with Modern Physics by Randall D. Knight (4th edition)



[Course Schedule:](#)



Week	Date:	Day :	Lecture no.:	Content: Hour 1	Content: Hour 2	Reading:	Lab Work:	Problem Sets:	Due:
1	15-Jan	M	1	Introduction & Syllabus	Simple Harmonic Motion	15.1			
	17-Jan	W	2	SHM and Circular Motion	Lab 0: Induction	15.2	Lab Prep: SHM		29-Jan
2	22-Jan	M	3	Energy in SHM	Dynamics of SHM	15.3-15.4		Problem Set 1	24-Jan
	24-Jan	W	4	Damped Oscillations	Problem Class	15.5-15.7			
3	29-Jan	M	5	Driven Oscillations & Resonance	Intro to Waves 1	15.8, 16.1-16.3			
	31-Jan	W	6	Intro to Waves 2	Lab 1: SHM	16.7-16.9	Lab Write Up: SHM		07-Feb
4	05-Feb	M	7	Acoustics 1	Acoustics 2	17.1-17.4		Problem Set 2	07-Feb
	07-Feb	W	8	Interference	Problem Class	17.5-17.8	Lab Prep: Waves		12-Feb
5	12-Feb	M	9	<u>Exam: SHM & Waves</u>	Lab 2: Waves		Lab Write Up: Waves		19-Feb
	14-Feb	W	10	Intro to Electricity	The Electric Field 1	Ch22,23.1-23.4	Lab Prep: Electric Fields		21-Feb
6	19-Feb	M	11	The Electric Field 2	Gauss' law	23.5-23.7, Ch24		Problem Set 3	13-Mar
	21-Feb	W	12	Electric Potential	Lab 3: Electric Fields	Ch25	Lab Write Up: Electric Fields		28-Feb
7	26-Feb	M	13	Magnetism	Intro to Electromagnetism 1	Ch29, 30.1-30.3	Lab Prep: Magnetism		28-Feb
	28-Feb	W	14	Intro to Electromagnetism 2	Lab 4: Magnetism	30.4-30.7	Personal Project, Lab Write Up: Magnetism		18-Mar, 18-Mar
8	04-Mar	M	No class						
	06-Mar	W	No class						
9	11-Mar	M	No class						
	13-Mar	W	15	Intro to Electromagnetism 3	Problem Class	30.8-30.10			
10	18-Mar	M	16	<u>Exam: Electromagnetism</u>	Personal Research Proposal		Lab Prep: Personal Research		15-Apr
	20-Mar	W	17	Intro to Circuits 1	Intro to Circuits 2	Ch27	Lab Prep: Ohm's Law		25-Mar
11	25-Mar	M	18	Circuits 1	Lab 5: Ohm's Law	28.1-28.4	Lab Write Up: Ohm's Law		03-Apr



	27-Mar	W	19	Circuits 2	AC Circuits 1	28.5-28.9, 32.1-32.3	Lab Prep: Capacitance	Problem Set 4	01-Apr, 03-Apr
12	01-Apr	M	20	AC Circuits 2	Problem Class	32.4-32.6			
	03-Apr	W	21	Exam: Circuits	Lab 6: Capacitance		Lab Write Up: Capacitance		10-Apr
13	08-Apr	M	22	Intro to Optics 1	Intro to Optics 2	Ch34	Lab Prep: Optics		10-Apr
	10-Apr	W	23	Wave Optics 1	Lab 7: Optics	33.1-33.4	Lab Write Up: Optics	Problem Set 5	22-Apr, 15-Apr
14	15-Apr	M	24	Wave Optics 2	Problem Class	33.6-33.8			
	17-Apr	W	25	Exam: Optics	Lab 9: Personal Research				
15	22-Apr	M	26	Lab 9: Personal Research	Lab Write Up: Personal Research				
	24-Apr	W	27	Exam: Finals	Frontiers in Physics and Goodbye				

Grading Criteria:

Work Standard:	Distinguished		Excellent, Average			Above Average			Minimally Accepted			Not Acceptable
Grade:	A	A-	B+	B	B-	C+	C	C-	D+	D	D-	F
Min %:	93	90	87	83	80	77	73	70	67	63	60	0

Withdrawal and Attendance policies:

Harlaxton College expects regular class attendance by all students. Students are considered sufficiently mature to appreciate the necessity of regular and punctual attendance, to accept this personal responsibility and to accept the consequences of failure to attend. When absences occur due to emergency or medical reasons, students are expected to notify their instructors of the absence prior to class or to seek the assistance of the College nurse or a member of the Student Experience Team for help in notifying instructors.

Instructors have the authority to grant excused absences for medical, psychological, or personal reasons upon review of appropriate documentation and professional recommendation supporting such a request. In the event of long-term illness, reasonable accommodations will be made to allow



a student to complete a course. In these cases, the Dean will need to approve the long term nature of the accommodation.

The Dean of Harlaxton College has the authority to grant excused absences for medical, psychological, or personal reasons.

Each instructor is expected to maintain an attendance policy in keeping with the nature of the Harlaxton program and may consider it in evaluating performance in their courses.

Policy Governing Unexcused Absences:

Harlaxton College operates an attendance policy that is binding on all faculty and students. The number of unexcused absences that are allowed before incurring a penalty is related to the number of times a class meets each week. For courses which meet three times a week, students are allowed a maximum of three unexcused absences during the semester without attracting penalty points. For courses meeting twice a week two such absences are permitted, and for courses meeting once a week a single absence is allowed. Additional unexcused absences will attract a grade penalty.

The grade penalty of unexcused absences will be a third-letter grade (A- to B+)

Policy Governing Excused Absences.

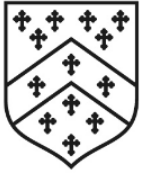
- Excused absences are not given to facilitate student travel independent of College-sponsored travel.
- Students may be permitted to miss class because of participation in academic field trips.
- Instructors must co-ordinate and confirm academic fieldtrips with the Dean, prior to the commencement of the Semester to ensure their inclusion in the Semester timetable.
- Where authorization for an academic fieldtrip is requested after the commencement of the semester, the request must be submitted to the Dean.

The following information is required:

- Purpose and brief description of the official Harlaxton event or academic fieldtrip.
- Dates, location, and times (as applicable).
- Alphabetical list of students involved [Last Name/First Name] along with their student identification number.

If approval is granted:

- Instructors affected will be notified at least one week prior to the class period during which absence is anticipated, or as soon as possible.
- Missed class time due to student participation is to be considered an excused absence.
- The grade of a student may not be lowered in any class due to excused absences.



- It is the student's responsibility - to take the initiative by consulting with their instructors before the absence occurs, and - to do what is required by the instructor to make up all missed assignments and/or examinations.
- Instructors are required to assist students in these occasional situations of excused absences.

Honor Code:

All students at the University of Evansville agree to the University honor code: *I will neither give nor receive unauthorized aid, nor will I tolerate an environment that condones the use of unauthorized aid.*

AI may be used only with prior permission or direction by the instructor.

- All work submitted in this course must be your own.
- The use of generative AI composition tools, such as those offered by ChatGPT, Google Bard etc. is prohibited in this course except for specific assignments and subject to the instructor's guidelines.
- Work generated by such tools without proper attribution is plagiarism and, thereby, a breach of the University's Plagiarism and Academic Honesty policy.

Disability Policy:

It is the policy and practice of the University of Evansville to make reasonable accommodations for students with properly documented disabilities. Students should contact Disability Services within the Office of Counseling Services by calling 812-488-2663 to seek services or accommodations for disabilities. Written notification to faculty from Disability Services is required for academic accommodations.

The University of Evansville Disability Services office will share the request for academic accommodations with the Academic Support team at Harlaxton College. Staff members at Harlaxton will meet individually with students to discuss needs and provide additional information related to examinations or other assessments.

Students from partner institutions should provide the appropriate letter of accommodation from their institution to the Academic Support team at Harlaxton College.



Non-Discrimination Statement

The University of Evansville expects all members of its community to treat each other with respect and civility. Harassing behaviors directed towards any member of our community will not be tolerated. As part of its commitment to non-discrimination, the University specifically prohibits harassment based on any other characteristics set forth in its nondiscrimination statement as follows: including race, color, gender, gender identity and expression, sexual orientation, creed or religion, national origin, age, disability, veteran status and all federally protected groups/classes. Any form of harassment undermines the mission of the University and negatively impacts the University community as a whole.

Prohibited Conduct and Confidentiality

The University of Evansville is committed to fostering an atmosphere free from harassment and discrimination. This commitment includes identifying problems that may lead to sexual harassment and misconduct, as well as other forms of harassment and discrimination, by creating an atmosphere in which the entire University community is sensitive to preventing prohibited conduct. Additionally, the University is committed to providing support and resources to individuals who have experienced prohibited conduct. This commitment includes effectively responding when a student, visitor, guest or program participant is the victim of prohibited conduct.

All campus employees, students, and guests are required to abide by the Title IX and Other Sexual Harassment and Misconduct Policy, the Harassment and Discrimination Policy, and the Consensual Sexual or Romantic Relationships Between Employees and Students Policy. Violation of these policies could result in disciplinary action, up to and including expulsion for students and termination for employees.

Faculty members at the University of Evansville are considered “Responsible Employees” under the applicable federal guidelines and the University’s policies. This means that I am unable to offer you confidentiality if you report any incidence of prohibited conduct to me as defined by Title IX statute. If I am made aware of a violation, I am required to report any known information to the Office of Institutional Equity.

You may choose to report the violation yourself the following ways:

Email: · Annie Sills, Assistant Director of Institutional Equity and Title IX Coordinator:

cs175@evansville.edu ·

Keith Gehlhausen, Executive Director of HR and Institutional Equity: kg77@evansville.edu ·

Title IX: titleix@evansville.edu

Phone: [812-288-5261](tel:812-288-5261)



Online: <https://www.evansville.edu/safety/report.cfm>

You may also choose to speak with a Confidential Resource. Confidential Resources are required to maintain confidentiality and cannot report violations to the Office of Institutional Equity:

University of Evansville

- Counseling Services: counselingservices@evansville.edu, 812-488-2633
- Health Center Professionals: healthcenter@evansville.edu, 812-488-2033
- University Chaplain: chaplain@evansville.edu, 812-488-5262

Harlaxton College

- College Nurse: Lesley Selby, RGN, +44 01476 403027, lseyby@harlaxton.ac.uk
- Counselling Services: counselling@harlaxton.ac.uk