

**Critical requirements are boldface in shaded areas**

Course Subject and Title	Credit Hours	Upper Division	Min. Grade	Important Notes
<b>Semester One: [15 Credit Hours]</b>				
MATH 12002 Analytic Geometry and Calculus I	5			Fulfills LER Mathematics and Critical Reasoning; enrollment based on placement tests; prerequisites: MATH 11010 and 11022 may be bypassed with sufficient background
PHY 12000 Introductory Physics Seminar	1			
PHY 23101 General University Physics I	5			
ENG 11011 College Writing I	3			Enrollment based on placement tests; fulfills LER Composition
US 10097 Destination Kent State: FYE	1			Not required for transfer students with 25 credits
<b>Semester Two: [16 Credit Hours]</b>				
MATH 12003 Analytic Geometry and Calculus II	5			
PHY 23102 General University Physics II	5			
LER Humanities or Fine Arts	3			Should fulfill diversity requirement; visit <a href="http://www.kent.edu/catalog">www.kent.edu/catalog</a> and search "LER" and "diversity" for course lists
LER Social Sciences	3			
<b>Semester Three: [16-17 Credit Hours]</b>				
CHEM 10060 General Chemistry I	4			Fulfills LER Basic Sciences
CHEM 10062 General Chemistry I Laboratory	1			Fulfills LER Basic Sciences
MATH 32051 Mathematical Methods in Physical Sciences I	4	■		
ENG 21011 College Writing II	3			Fulfills LER Composition
Foreign Language (Elementary I)	4-5			
<b>Semester Four: [16-17 Credit Hours]</b>				
CHEM 10061 General Chemistry II	4			Fulfills LER Additional
CHEM 10063 General Chemistry II Laboratory	1			Fulfills LER Basic Sciences
MATH 32052 Mathematical Methods in the Physical Sciences II	4	■		
PHY 36001 Introductory Modern Physics	3	■		
Foreign Language (Elementary II)	4-5			
<b>Semester Five: [14 Credit Hours]</b>				
CS 10061 Introduction to Computer Programming	3			
PHY 35101 Classical Mechanics	4	■		
PHY 36002 Application of Modern Physics	3	■		
PHY 45201 Electromagnetic Theory	4	■		
<b>Semester Six: [14 Credit Hours]</b>				
PHY 22564 Introduction to Materials Physics	3			
PHY 30020 Intermediate Physics Laboratory	2	■	C	Fulfills writing-intensive course requirement
PHY 45403 Data Analysis and Computational Physics Techniques	3	■		
LER Additional	3			Should fulfill diversity requirement if not satisfied earlier; visit <a href="http://www.kent.edu/catalog">www.kent.edu/catalog</a> and search "LER" and "diversity" for course lists
PHY Elective (lower or upper division)	3			See note 1 on page 2

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<b>Semester Seven: [15 Credit Hours]</b>				
PHY 32511 Electronics	4	■		
PHY 40092 Internship in Physics	2	■		See note 2 below
LER Humanities	3			Should fulfill diversity requirement if not satisfied earlier; visit <a href="http://www.kent.edu/catalog">www.kent.edu/catalog</a> and search "LER" and "diversity" for course lists
LER Social Sciences	3			
General Elective (lower or upper division)	3			
<b>Semester Eight: [13-15 Credit Hours]</b>				
PHY 40020 Advanced Physics Laboratory	2	■	C	Fulfills writing -intensive requirement
PHY 45501 Electromagnetic Waves and Modern Optics	3	■		
LER Fine Arts	3			Should fulfill diversity requirement if not satisfied earlier; visit <a href="http://www.kent.edu/catalog">www.kent.edu/catalog</a> and search "LER" and "diversity" for course lists
PHY Elective (upper division)	4	■		See note 1 below
General Elective (lower or upper division)	1-3			Number of credits required depends on meeting minimum 121 credit hours and minimum 42 upper-division credit hours

### Graduation Requirements Summary

Total Hours	Upper-Division Hours	Liberal Education Requirements Hours	Diversity Course Global / Domestic	Writing-Intensive	Minimum	
					Major GPA	Overall GPA
121	42	45	LER or General Electives	PHY 30020 or PHY 40020	2.0	2.0

**Note 1: Physic electives (7 credit hours):** with advisor's permission, these courses may be replaced with physics-related electives selected from mathematics or the natural sciences.

**Note 2:** With advisor's permission. PHY 40092 may be replaced with PHY 40096 Individual Investigation or PHY 40099 Senior Honors Thesis. If PHY 40096 is taken, a suitable research project should be selected.

### Additional Notes for the Physics major:

- The following courses **may not** count towards the major:

PHY 11030 Seven Ideas that Shook the Universe	3	PHY 21430 Frontiers in Astronomy	3
PHY 21040 Physics in The Entertainment and the Arts	3	PHY 24001 Astronomy	3
PHY 21041 Physics in The Entertainment and the Arts Laboratory	1		

- Credit is not granted for both the PHY 13001/PHY 13002 and the PHY 23101/PHY 23102 series, nor for the PHY 13011/PHY 13012 series.

### Liberal Education Requirements (LER)

Students must complete a minimum 36 credit hours of Liberal Education Requirements. Colleges or degree programs may specify certain courses to fulfill the requirements. Courses in the students' major field will not count toward the completion of any LER. Honors equivalents shall satisfy the LER. None of the courses on the LER list may be taken with a pass/fail grade.

### Diversity Course Requirement

Students must complete a two-course diversity requirement, consisting of one with a domestic focus and one with a global focus. One course must be come from the LER and cannot be in the student's major. The second course may be taken as a second LER; or within a major or minor; or as a general elective; or, with dean's approval, by completing one semester of study in another country.

### Writing-Intensive Course Requirement

Students must complete a one-course writing-intensive requirement in their major and earn minimum C (2.00) grade.

### Upper-Division Requirement

In general, baccalaureate programs require the successful completion of at least 39 upper-division (numbered 30000 to 49999) credit hours of coursework. Programs in the College of Arts and Sciences require a minimum of 42 hours of upper-division coursework.