



This roadmap is a recommended semester-by-semester plan of study for this major. However, courses and milestones designated as critical (in boldface and shaded areas) must be completed in the semester listed to ensure a timely graduation.

| Course Subject and Title | Credit Hours | Upper Div. | Min. Grade | Major GPA | Important Notes |
|--|--------------|------------|------------|-----------|---|
| Semester One: [14 Credit Hours] | | | | | |
| MATH 12002 Analytic Geometry and Calculus I | 5 | | | ■ | Fulfills Kent Core 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 | | | ■ | |
| US 10097 Destination Kent State: First Year Experience | 1 | | | | Not required for transfer students with 25 credits |
| Foreign Language Requirement (Elementary I) | 4-5 | | | | Fulfills College General Requirements; see foreign language note |
| Kent Core Requirement | 3 | | | | See Kent Core Summary on page 2 |
| Semester Two: [14 Credit Hours] | | | | | |
| MATH 12003 Analytic Geometry and Calculus II | 5 | | | ■ | |
| PHY 23101 General University Physics I | 5 | | | ■ | Fulfills Kent Core Basic Sciences |
| Foreign Language Requirement (Elementary II) | 4-5 | | | | Fulfills College General Requirements; see foreign language note |
| Semester Three: [15 Credit Hours] | | | | | |
| MATH 32051 Mathematical Methods in Physical Sciences I | 4 | ■ | | ■ | |
| PHY 23102 General University Physics II | 5 | | | ■ | Fulfills Kent Core Basic Sciences |
| Foreign Language Requirement | 3-5 | | | | Fulfills College General Requirements; see foreign language note |
| College General Requirement | 3 | | | | Must be from Kent Core Basic Sciences; see note 3 on page 2 |
| Semester Four: [16 Credit Hours] | | | | | |
| MATH 32052 Mathematical Methods in the Physical Sciences II | 4 | ■ | | ■ | |
| PHY 36001 Introductory Modern Physics | 3 | ■ | | ■ | |
| Foreign Language Requirement | 3-5 | | | | Fulfills College General Requirements; see foreign language note |
| Kent Core Requirement | 3 | | | | See Kent Core Summary on page 2 |
| Kent Core Requirement | 3 | | | | |
| Semester Five: [15 Credit Hours] | | | | | |
| PHY 30020 Intermediate Physics Laboratory | 2 | ■ | | ■ | Fulfills writing-intensive course requirement; see note 1 on page 2 |
| PHY 35101 Classical Mechanics | 4 | ■ | | ■ | |
| PHY 36002 Applications of Modern Physics | 3 | ■ | | ■ | |
| Kent Core Requirement | 3 | | | | See Kent Core Summary on page 2 |
| College General Requirement | 3 | | | | Must be from Kent Core Social Sciences; see note 4 on page 2 |
| Semester Six: [15 Credit Hours] | | | | | |
| PHY Elective (upper division) | 3 | ■ | | ■ | See note 2 on page 2 |
| Kent Core Requirement | 3 | | | | See Kent Core Summary on page 2 |
| Kent Core Requirement | 3 | | | | |
| Kent Core Requirement | 3 | | | | |
| General Elective (upper division) | 3 | ■ | | | |
| Semester Seven: [15 Credit Hours] | | | | | |
| PHY 40020 Advanced Physics Laboratory | 2 | ■ | | ■ | Fulfills writing-intensive course requirement; see note 1 on page 2 |
| PHY 45201 Electromagnetic Theory | 4 | ■ | | ■ | |
| Kent Core Requirement | 3 | | | | See Kent Core Summary on page 2 |
| Kent Core Requirement | 3 | | | | |
| General Elective (upper division) | 3 | ■ | | | |

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| Semester Eight: [17 Credit Hours] | | | | | |
| PHY Electives (upper division) | 5 | ■ | | ■ | See note 2 below |
| General Elective (lower or upper division) | 12 | ■ | | | Number of credits required depends on meeting minimum 121 credit hours and minimum 42 upper-division credit hours |

Graduation Requirements Summary

| Minimum Total Hours | Minimum Upper-Division Hours | Minimum Kent Core Hours | Global / Domestic Diversity Course | Writing-Intensive | Experiential Learning | Minimum Major GPA | Minimum Overall GPA |
|---------------------|------------------------------|-------------------------|------------------------------------|--------------------|--|-------------------|---------------------|
| 121 | 42 | 36 | Kent Core or General Electives | PHY 30020 or 40020 | Visit www.kent.edu/catalog/elr | 2.000 | 2.000 |

Kent Core Summary

| Kent Core Categories | Important Notes | Remaining Credit Hours |
|--|--|------------------------|
| Composition (6-8 credit hours) <i>ENG 11002, 11011, 21011; HONR 10197, 10297</i> | Enrollment based on placement test | 6-8 |
| Mathematics and Critical Reasoning (3-5 credit hours) | Fulfilled in this major with MATH 12002 | 0 |
| Humanities and Fine Arts (9 credit hours) <i>Minimum one course from humanities in Arts and Sciences and minimum one course from fine arts</i> | May fulfill global diversity requirement | 9 |
| Social Sciences (6 credit hours) <i>Must be selected from two curricular areas</i> | May fulfill global diversity requirement | 6 |
| Basic Sciences (6-7 credit hours) <i>Must include one laboratory</i> | Fulfilled in this major with PHY 23101 and PHY 23102 | 0 |
| Additional (6 credit hours) <i>Must be selected from two Kent Core categories</i> | May fulfill global diversity requirement | 6 |

Note 1: Students must earn a minimum C (2.0) grade in either PHY 30020 Intermediate Physics Laboratory or PHY 40020 Advanced Physics Laboratory to fulfill the writing-intensive requirement.

Note 2: Physic (PHY) electives (8 credit hours): with advisor's permission, students may replace 3 credit hours of physics electives with PHIL 41035 Philosophy of Science or ENG 20002 Introduction to Technical Writing.

Note 3: One additional course taken from the Kent Core Basic Science courses in the following Arts and Sciences disciplines: Anthropology (ANTH), Biological Sciences (BSCI), Chemistry (CHEM), Geography (GEOG), Geology (GEOL) or Physics (PHY). Students may take the courses listed in the "introductory" sequences with the restrictions noted above in the Kent Core Basic Science section. The course may not be from the student's major.

Note 4: One additional course taken from the Kent Core Social Sciences courses in the following Arts and Sciences disciplines: Anthropology (ANTH), Applied Conflict Management (CACM), Geography (GEOG), Criminology and Justice Studies (JUS), Political Science (POL), Psychology (PSYC) or Sociology (SOC). The course may not be from the student's major.

Additional Notes for the Physics major:

- The following courses fulfill **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 21431 Frontiers in Astronomy Laboratory | 1 |
| 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.

Note: All courses taken from the list of major program requirements are used in the calculation of the major GPA.

Foreign Language Note: Students pursuing a Bachelor of Arts degree in the College of Arts and Sciences must have the equivalent of Elementary I and II in any language, plus one of the following options:

- Intermediate I and II of the same language
- Elementary I and II of a second language
- Any combination of two courses from the following list:
 - Intermediate I of the same language
 - MCLS 10001 Introduction to Structural Concepts for Language Students
 - MCLS 20000 Global Literacy and Cultural Awareness
 - MCLS 20091 Seminar: Global Literacy Case Studies

All students with prior foreign language experience should take the foreign language placement test to determine the appropriate level at which to start. Some students may begin their university foreign language experience beyond the Elementary I level and will complete the requirement with fewer credit hours and fewer courses. This may be accomplished by: (1) passing a course beyond the Elementary I through Intermediate II level or (2) receiving credit through Credit by Exam (CBE), the College Level Examination Program (CLEP), the Advanced Placement (AP) exam or credit through the International Baccalaureate (IB) program; or (3) being designated a "native speaker" of a non-English language (consult with the College of Arts and Sciences Advising Office for additional information). When students complete the requirement with fewer than 14 credit hours and four courses, they will complete the remaining hours with general electives.

Kent Core

Students must complete a minimum 36 credit hours of the Kent Core. Certain courses required in programs and in student's major field may also fulfill the Kent Core. Honors equivalents shall satisfy the Kent Core. None of the courses on the Kent Core list may be taken with a pass/fail grade. Visit www.kent.edu/catalog/kent-core for course list.

Diversity Course Requirement

Students must complete a two-course diversity requirement, consisting of one with a domestic (U.S.) focus and one with a global focus. One course must come from the Kent Core. The second course may be taken as a second Kent Core, within a major or minor, or as a general elective; or, with dean's approval, by completing one semester of study in another country. Visit www.kent.edu/catalog/diversity for course list.

Writing-Intensive Course Requirement

Students must complete a one-course writing-intensive requirement in their major and earn minimum C (2.000) grade. Visit www.kent.edu/catalog/wic for course list.

Experiential Learning Requirement (ELR)

To provide students with direct engagement in learning experiences that promote academic relevance, meaning and an understanding of real-world issues, students must complete this requirement at Kent State, either as a for-credit course or as a non-credit, non-course experience approved by the appropriate faculty member. Visit www.kent.edu/catalog/elr for course list.

Upper-Division Requirement

Students must complete a minimum 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.

Foreign Language

Visit www.kent.edu/catalog/foreign-languages for course list.

