

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

| Critical | Course Subject and Title | Credit Hours | Min. Grade | Major GPA | Attribute | Notes |
|------------------------------------|---|--------------|----------------|-----------|-----------|-------|
| Semester One [14 Credits] | | | | | | |
| ! | MATH 12002 Analytic Geometry and Calculus I | 5 | | ■ | KMC | |
| ! | PHY 12000 Introductory Physics Seminar | 1 | | ■ | ELR | |
| | US 10097 Destination Kent State: First Year Experience ¹ | 1 | | | | |
| | Foreign Language ² | 4 - 5 | | | | |
| | Kent Core Requirement | 3 | | | | |
| Semester Two [14 Credits] | | | | | | |
| ! | MATH 12003 Analytic Geometry and Calculus II | 5 | | ■ | | |
| ! | PHY 23101 General University Physics I | 5 | | ■ | KBS | |
| | Foreign Language ² | 4 - 5 | | | | |
| Semester Three [15 Credits] | | | | | | |
| ! | MATH 32051 Mathematical Methods in the Physical Sciences I | 4 | | ■ | | |
| ! | PHY 23102 General University Physics II | 5 | | ■ | KBS | |
| | Foreign Language ² | 3 - 5 | | | | |
| | College General Requirements ³ | 3 | | | | |
| Semester Four [16 Credits] | | | | | | |
| ! | MATH 32052 Mathematical Methods in the Physical Sciences II | 4 | | ■ | | |
| ! | PHY 36001 Introductory Modern Physics | 3 | | ■ | | |
| | Foreign Language ² | 3 - 5 | | | | |
| | Kent Core Requirement | 3 | | | | |
| | Kent Core Requirement | 3 | | | | |
| Semester Five [15 Credits] | | | | | | |
| ! | PHY 30020 Intermediate Physics Laboratory | 2 | C ⁴ | ■ | WIC | |
| ! | PHY 35101 Classical Mechanics | 4 | | ■ | | |
| ! | PHY 36002 Applications of Modern Physics | 3 | | ■ | | |
| | Kent Core Requirement | 3 | | | | |
| | College General Requirements ³ | 3 | | | | |
| Semester Six [15 Credits] | | | | | | |
| | Physics 3/4xxxx electives ⁵ | 3 | | ■ | | |
| | Kent Core Requirement | 3 | | | | |
| | Kent Core Requirement | 3 | | | | |
| | Kent Core Requirement | 3 | | | | |
| | General Electives ⁶ | 3 | | | | |
| Semester Seven [15 Credits] | | | | | | |
| ! | PHY 40020 Advanced Physics Laboratory | 2 | C ⁴ | ■ | WIC | |
| ! | PHY 45201 Electromagnetic Theory | 4 | | ■ | | |
| | Kent Core Requirement | 3 | | | | |
| | Kent Core Requirement | 3 | | | | |
| | General Electives ⁶ | 3 | | | | |
| Semester Eight [16 Credits] | | | | | | |
| | Physics 3/4xxxx electives ⁵ | 5 | | ■ | | |
| | General Electives ⁶ | 11 | | | | |

Graduation Requirements Summary

| Minimum Total Hours | Minimum Upper-Division Hours 30000 – 40000 level course | Minimum Kent Core Hours | Minimum | |
|---------------------|--|-------------------------|-----------|-------------|
| | | | Major GPA | Overall GPA |
| 120 | 42 | 36 | 2.000 | 2.000 |

1. US 10097 is not required of transfer students with 25 credits (excluding College Credit Plus and dual-enrollment) or students age 21+ at time of admission.

2. Fulfills College General Requirement.

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.
- 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 (CRIM), Political Science (POL), Psychology (PSYC) or Sociology (SOC). The course may not be from the student's major.
4. A minimum C grade must be earned in either PHY 30020 or PHY 40020 to fulfill writing-intensive requirement.
5. Physics 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. Credit is not granted for both the PHY 13001/PHY 13002 and the PHY 23101/PHY 23102 series.
6. Minimum 8 upper-division credit hours. Credits required depend on meeting minimum 120 credit hours and minimum 42 upper-division credit hours

Note:

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 21431 Frontiers in Astronomy Laboratory (1)

PHY 21040 Physics in The Entertainment and the Arts (3)

PHY 21041 Physics in The Entertainment and the Arts Laboratory (1)

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:

- a. Intermediate I and II of the same language
- b. Elementary I and II of a second language
- c. Any combination of two courses from the following list:
 - i. Intermediate I of the same language
 - ii. MCLS 10001 Introduction to Structural Concepts for Language Students
 - iii. MCLS 20000 Global Literacy and Cultural Awareness
 - iv. MCLS 20091 Seminar: Global Literacy Case Studies
 - v. MCLS 21417 Multiculturalism in Today's Germany
 - vi. MCLS 22217 Diversity in Today's Russia
 - vii. MCLS 23217 The Francophone Experience
 - viii. MCLS 28404 The Latin American Experience
 - ix. MCLS 28405 The Spanish Experience

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 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 remaining hours with general electives.

University Requirements: Bachelor's degree-seeking students must meet Kent Core (general education requirements), diversity, writing-intensive and experiential learning requirements. For more information about these requirements, please read the following sections in the University Catalog: Kent Core – www.kent.edu/catalog/kent-core; Diversity Course Requirement – www.kent.edu/catalog/diversity; Writing-Intensive Course Requirement – www.kent.edu/catalog/wic; Experiential Learning Requirement – www.kent.edu/catalog/elr.

Attribute Legend: **DD** Diversity–Domestic; **DG** Diversity–Global; **ELR** Experiential Learning; **KAD** Kent Core Additional; **KBS** Kent Core Basic Sciences; **KCM** Kent Core Composition; **KFA** Kent Core Fine Arts; **KHU** Kent Core Humanities; **KMC** Kent Core Mathematics and Critical Reasoning; **KSS** Kent Core Social Sciences; **WIC** Writing Intensive