• **Required courses for a major in Physics.**

<table>
<thead>
<tr>
<th>CORE Requirements</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CORE 090 First Yr Exp.</td>
<td>1</td>
</tr>
<tr>
<td>CORE 100 Lib Arts Sem.</td>
<td>3</td>
</tr>
<tr>
<td>CORE 110 Effect Writ.</td>
<td>3</td>
</tr>
<tr>
<td>CORE 115/116 Oral Com.</td>
<td>3</td>
</tr>
<tr>
<td>CORE 131/133 Civilization</td>
<td>3</td>
</tr>
<tr>
<td>CORE 14x Forng. Lng/Cult</td>
<td>3</td>
</tr>
<tr>
<td>CORE 15x Soc. Sci.</td>
<td>3</td>
</tr>
<tr>
<td>CORE 16x Literature</td>
<td>3</td>
</tr>
<tr>
<td>CORE 17x The Arts</td>
<td>3</td>
</tr>
<tr>
<td>CORE 18x Amer. Studies</td>
<td>3</td>
</tr>
<tr>
<td>CORE 19x Global Studies</td>
<td>3</td>
</tr>
<tr>
<td>CORE 25x Syst. Theology</td>
<td>3</td>
</tr>
<tr>
<td>CORE 26x Mor. Theology</td>
<td>3</td>
</tr>
<tr>
<td>CORE 280 Philos. I</td>
<td>3</td>
</tr>
<tr>
<td>CORE 28x Philos. II</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits for CORE 43

<table>
<thead>
<tr>
<th>Major Requirements</th>
<th>Credits</th>
<th>Major Requirements</th>
<th>Credits</th>
<th>Secondary Education</th>
<th>Credits</th>
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<tbody>
<tr>
<td>PHYS 111</td>
<td>3</td>
<td>CHEM 113</td>
<td>3</td>
<td>EDUC 202</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 111L</td>
<td>1</td>
<td>CHEM 113L</td>
<td>1</td>
<td>EDUC 231</td>
<td>1</td>
</tr>
<tr>
<td>PHYS 112</td>
<td>3</td>
<td>CHEM 114</td>
<td>3</td>
<td>EDUC 235</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 112L</td>
<td>1</td>
<td>CHEM 114L</td>
<td>1</td>
<td>EDUC 240</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 231</td>
<td>3</td>
<td>MATH 129</td>
<td>4</td>
<td>EDUC 270</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 231L</td>
<td>1</td>
<td>MATH 130</td>
<td>4</td>
<td>EDUC 302</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 330</td>
<td>3</td>
<td>MATH 231</td>
<td>4</td>
<td>EDUC 305</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 350</td>
<td>3</td>
<td>MATH 237</td>
<td>3</td>
<td>EDUC 331</td>
<td>1</td>
</tr>
<tr>
<td>PHYS 371</td>
<td>3</td>
<td>MATH 238</td>
<td>3</td>
<td>EDUC 350</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 440</td>
<td>3</td>
<td></td>
<td></td>
<td>EDUC 366</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 490</td>
<td>2</td>
<td></td>
<td></td>
<td>EDUC 440</td>
<td>3</td>
</tr>
<tr>
<td>PHYS Elective</td>
<td>3</td>
<td></td>
<td></td>
<td>EDUC 467</td>
<td>7</td>
</tr>
<tr>
<td>PHYS Elective</td>
<td>3</td>
<td></td>
<td></td>
<td>EDUC 468</td>
<td>2</td>
</tr>
</tbody>
</table>

Total Credits for Major 58

Total Credits for Secondary Education 38

Total Credits Required for Graduation = 139

**Physics Electives** - In addition to the Major Sequence requirements, a Physics Major must also complete a minimum of two (2) upper-level PHYS courses numbered 231 or higher. Some elective courses have a required laboratory component.

<table>
<thead>
<tr>
<th>Physics Electives</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 241</td>
<td>PHYS 233</td>
<td>PHYS 372</td>
<td>PHYS 340</td>
<td></td>
</tr>
<tr>
<td>PHYS 242</td>
<td>PHYS 234</td>
<td>PHYS 320</td>
<td>PHYS 450</td>
<td></td>
</tr>
</tbody>
</table>

*Required for some 3+2 Engineering students

#Appropriate preparation courses for physics graduate programs

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1. Students are required to take CORE 150, CORE 180 **OR** CORE 190 to fulfill the Interdisciplinary CORE requirement.

- If a student takes CORE 150, then he/she should choose from 181 – 188 to fulfill the 18x requirement AND from 191 – 198 to fulfill the 19x requirement.
- If a student takes CORE 180, then he/she should choose from 151 – 158 to fulfill the 15x requirement AND from 191 – 198 to fulfill the 19x requirement.
- If a student takes CORE 190, then he/she should choose from 151 – 158 to fulfill the 15x requirement AND from 181 – 188 to fulfill the 18x requirement.


3. PAPA must be passed before taking EDUC 350.

**General Information:**
A student must earn a minimum of 120 credit hours to be awarded the baccalaureate degree. The number of credit hours required for graduation may be higher in certain major programs or if the student elects to pursue a second major.

Beyond the requirements of the Core Curriculum and of a student’s chosen major program, the balances of the credit hours required for graduation are “free electives.” Because of the CORE, Major, and Secondary Education requirements, there are no “Free Electives” for students majoring in Physics/Secondary Education.
- Use the information below as a guide when selecting courses.
- Refer to the reverse side when selecting major courses, major electives, core courses, and free electives when applicable.
- Consult your Academic Advisor prior to course registration.
- Refer to the King’s College Catalog and/or website for course titles and descriptions.
- Choose one course from each CORE category as listed on the reverse side.
  - CORE courses may be taken in any order approved by the academic advisor with the following conditions:
    - CORE 100 and CORE 110 should be taken in the first available semesters.
    - CORE 115 (or 116) should be taken within the first two years.
    - CORE 098, CORE 099, and/or CORE 110L, if required, will fulfill elective credits.
    - For students selecting a Foreign Language (CORE 14x), every effort should be made to register for that language in the first available semester at King’s.

### Suggested Sequence

<table>
<thead>
<tr>
<th>1st Year - Fall</th>
<th>cr.</th>
<th>1st Year - Spring</th>
<th>cr.</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 111 General Physics I</td>
<td>3</td>
<td>PHYS 112 General Physics II</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 111L General Physics I Lab</td>
<td>1</td>
<td>PHYS 112L General Physics II Lab</td>
<td>1</td>
</tr>
<tr>
<td>CHEM 113 General Chemistry I</td>
<td>3</td>
<td>CHEM 114 General Chemistry II</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 113L General Chemistry I Lab</td>
<td>1</td>
<td>CHEM 114L General Chemistry II Lab</td>
<td>1</td>
</tr>
<tr>
<td>MATH 129 Calculus I</td>
<td>4</td>
<td>MATH 130 Calculus II</td>
<td>4</td>
</tr>
<tr>
<td>CORE</td>
<td>3</td>
<td>CORE</td>
<td>3</td>
</tr>
<tr>
<td>CORE 090 First Year Experience</td>
<td>1</td>
<td>PAPA¹ (PAPA taken and passed)</td>
<td>15</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>2nd Year – Fall</th>
<th>2nd Year – Spring</th>
<th>cr.</th>
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</thead>
<tbody>
<tr>
<td>PHYS 231 Modern Physics</td>
<td>3</td>
<td>PHYS 330 Classical Mechanics</td>
</tr>
<tr>
<td>PHYS 231L Modern Physics Lab</td>
<td>1</td>
<td>EDUC 240¹ Sec. Multicult., Linguistic &amp; Inst. Meth.</td>
</tr>
<tr>
<td>MATH 231 Calculus III</td>
<td>4</td>
<td>EDUC 305¹ Assessment I</td>
</tr>
<tr>
<td>EDUC 202 Educ. Philos., Ethics, Issues &amp; Trends</td>
<td>3</td>
<td>CORE</td>
</tr>
<tr>
<td>EDUC 232 Sec. Development, Cognition, &amp; Learn.</td>
<td>3</td>
<td>CORE</td>
</tr>
<tr>
<td>EDUC 231 Technology Module I</td>
<td>1</td>
<td>CORE</td>
</tr>
<tr>
<td></td>
<td>15</td>
<td></td>
</tr>
</tbody>
</table>

Admission to Candidacy (Complete and return “Application for Teacher Education Program Candidacy” to Education Administrative Assistant no sooner than the completion of 48 credits and no later than 65 credits)

<table>
<thead>
<tr>
<th>3rd Year – Fall</th>
<th>3rd Year – Spring</th>
<th>cr.</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 350 Thermodynamics &amp; Stat. Mechanics</td>
<td>3</td>
<td>PHYS Elective</td>
</tr>
<tr>
<td>PHYS Elective</td>
<td>3</td>
<td>MATH 238 Differential Equations</td>
</tr>
<tr>
<td>MATH 237 Applied Linear Algebra</td>
<td>3</td>
<td>EDUC 270 Introduction to Special Education</td>
</tr>
<tr>
<td>EDUC 366² Meth. For Teaching Diverse Sec. Stud.</td>
<td>3</td>
<td>CORE</td>
</tr>
<tr>
<td>EDUC 331 Technology Module II</td>
<td>1</td>
<td>CORE</td>
</tr>
<tr>
<td>CORE</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>16</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>4th Year – Fall</th>
<th>4th Year – Spring</th>
<th>cr.</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 371 Electricity &amp; Magnetism I</td>
<td>3</td>
<td>PHYS 440 Quantum Mechanics</td>
</tr>
<tr>
<td>EDUC 302² Secondary Science Methods</td>
<td>3</td>
<td>PHYS 490 Senior Seminar</td>
</tr>
<tr>
<td>CORE</td>
<td>3</td>
<td>EDUC 350² Secondary Classroom Management</td>
</tr>
<tr>
<td>CORE</td>
<td>3</td>
<td>CORE</td>
</tr>
<tr>
<td>CORE</td>
<td>3</td>
<td>CORE</td>
</tr>
<tr>
<td></td>
<td>18</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>5th Year – Fall</th>
<th>cr.</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDUC 467²</td>
<td>7</td>
</tr>
<tr>
<td>EDUC 468²</td>
<td>2</td>
</tr>
<tr>
<td>EDUC 440</td>
<td>3</td>
</tr>
<tr>
<td>Take Praxis II</td>
<td>12</td>
</tr>
</tbody>
</table>

Students who wish to finish in four (4) years (including Student Teaching) MUST take summer courses.

**Total Credits Required for Graduation = 139**

**NOTE:** All Secondary Teacher Certification candidates must complete six credits of college level mathematics and six credits of college level English:

<table>
<thead>
<tr>
<th>Math Courses</th>
<th>MATH 129</th>
<th>MATH 130</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>English Courses</th>
<th>CORE 110</th>
<th>CORE 16</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The Pennsylvania Department of Education requires secondary teachers to have a degree in the content area for certification. Students seeking secondary certification must meet with his/her specific content area department for content area courses required for the degree. The Education Division is not responsible for content area or CORE courses for secondary certification candidates.