# 2023 - 2024 Major Map
## Applied Physics, BS

**School/College:** College of Integrative Sciences and Arts

**LSAPHYBS**

<table>
<thead>
<tr>
<th>Term 1 0 - 13 Credit Hours Critical course signified by 1</th>
<th>Hours</th>
<th>Minimum Grade</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAT 265: Calculus for Engineers I (MA)</td>
<td>3</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>ASU 101-CLS: The ASU Experience</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ENG 101 or ENG 102: First-Year Composition OR</td>
<td>3</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>ENG 105: Advanced First-Year Composition OR</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Humanities, Arts and Design (HU)</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social-Behavioral Sciences (SB)</td>
<td>3</td>
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</table>

**Term hours subtotal:** 13

<table>
<thead>
<tr>
<th>Term 2 13 - 28 Credit Hours Critical course signified by 1</th>
<th>Hours</th>
<th>Minimum Grade</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAT 266: Calculus for Engineers II (MA)</td>
<td>3</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>PHY 121: University Physics I: Mechanics (SQ) AND PHY 122: University Physics Laboratory I (SQ)</td>
<td>4</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>ENG 101 or ENG 102: First-Year Composition OR</td>
<td>3</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>ENG 105: Advanced First-Year Composition OR</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ENG 107 or ENG 108: First-Year Composition</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Humanities, Arts and Design (HU)</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Elective</td>
<td>2</td>
<td></td>
<td></td>
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<tr>
<td>Complete ENG 101 OR ENG 105 OR ENG 107 course(s).</td>
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</table>

**Term hours subtotal:** 15

<table>
<thead>
<tr>
<th>Term 3 28 - 44 Credit Hours Critical course signified by 1</th>
<th>Hours</th>
<th>Minimum Grade</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAT 267: Calculus for Engineers III (MA)</td>
<td>3</td>
<td>C</td>
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</tr>
<tr>
<td>PHY 131: University Physics II: Electricity and Magnetism (SQ) AND PHY 132: University Physics Laboratory II (SQ)</td>
<td>4</td>
<td>C</td>
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</tr>
<tr>
<td>Global Awareness (G)</td>
<td>3</td>
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</tr>
<tr>
<td>Social-Behavioral Sciences (SB)</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Elective</td>
<td>3</td>
<td></td>
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</tr>
<tr>
<td>Complete Mathematics (MA) requirement.</td>
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</table>

**Term hours subtotal:** 16

<table>
<thead>
<tr>
<th>Term 4 44 - 60 Credit Hours Critical course signified by 1</th>
<th>Hours</th>
<th>Minimum Grade</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHY 201: Mathematical Methods in Physics I (CS)</td>
<td>3</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>PHY 252: Physics III (SQ)</td>
<td>4</td>
<td>C</td>
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</tr>
<tr>
<td>Historical Awareness (H)</td>
<td>3</td>
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</tr>
</tbody>
</table>
### Upper Division Applied Physics Electives

**Complete 9 Credit Hours**

- MAT 343: Applied Linear Algebra
- PHY 333: Electronic Circuits and Measurements
- PHY 361: Introductory Modern Physics
- PHY 416: Quantum Physics III

### Literacy and Critical Inquiry (L)

- Elective

<table>
<thead>
<tr>
<th>Term 5 60 - 75 Credit Hours</th>
<th>Necessary course signified by</th>
<th>Hours</th>
<th>Minimum Grade</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHY 302: Mathematical Methods in Physics II</td>
<td>3</td>
<td>C</td>
<td></td>
<td>• Connect with faculty to seek opportunities for research.</td>
</tr>
<tr>
<td>PHY 314: Quantum Physics I</td>
<td>3</td>
<td>C</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Upper Division Applied Physics Electives</td>
<td>3</td>
<td>C</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Upper Division Humanities, Arts and Design (HU) OR Upper Division Social-Behavioral Sciences (SB)</td>
<td>3</td>
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</tr>
<tr>
<td>Cultural Diversity in the U.S. (C)</td>
<td>3</td>
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</tr>
</tbody>
</table>

Term hours subtotal: **16**

### Term 6 75 - 90 Credit Hours

- PHY 315: Quantum Physics II
- Upper Division Applied Physics Electives
- Elective
- Complete Cultural Diversity in the U.S. (C) AND Global Awareness (G) AND Historical Awareness (H) course(s).

<table>
<thead>
<tr>
<th>Term 6 75 - 90 Credit Hours</th>
<th>Necessary course signified by</th>
<th>Hours</th>
<th>Minimum Grade</th>
<th>Notes</th>
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</thead>
<tbody>
<tr>
<td>PHY 315: Quantum Physics II</td>
<td>3</td>
<td>C</td>
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</tr>
<tr>
<td>Upper Division Applied Physics Electives</td>
<td>3</td>
<td>C</td>
<td></td>
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</tr>
<tr>
<td>Elective</td>
<td>9</td>
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</tbody>
</table>

Term hours subtotal: **15**

### Term 7 90 - 105 Credit Hours

- PHY 331: Principles of Modern Electromagnetism
- PHY 460: Numerical Methods in Modern Physics
- PHY 321: Vector Mechanics and Vibration
- Upper Division Applied Physics Electives
- Upper Division Elective

<table>
<thead>
<tr>
<th>Term 7 90 - 105 Credit Hours</th>
<th>Necessary course signified by</th>
<th>Hours</th>
<th>Minimum Grade</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHY 331: Principles of Modern Electromagnetism</td>
<td>3</td>
<td>C</td>
<td></td>
<td>• Gather professional references.</td>
</tr>
<tr>
<td>PHY 460: Numerical Methods in Modern Physics</td>
<td>3</td>
<td>C</td>
<td></td>
<td>• Apply for full-time career opportunities.</td>
</tr>
<tr>
<td>PHY 321: Vector Mechanics and Vibration</td>
<td>3</td>
<td>C</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Upper Division Applied Physics Electives</td>
<td>3</td>
<td>C</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Upper Division Elective</td>
<td>3</td>
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</tbody>
</table>

Term hours subtotal: **15**

### Term 8 105 - 120 Credit Hours

- PHY 444: Fundamentals of Nanoscience
- PHY 484: Internship OR Upper Division Elective
- PHY 499: Individualized Instruction
- Upper Division Literacy and Critical Inquiry (L)
- Elective

<table>
<thead>
<tr>
<th>Term 8 105 - 120 Credit Hours</th>
<th>Necessary course signified by</th>
<th>Hours</th>
<th>Minimum Grade</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHY 444: Fundamentals of Nanoscience</td>
<td>3</td>
<td>C</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PHY 484: Internship OR Upper Division Elective</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PHY 499: Individualized Instruction</td>
<td>3</td>
<td>C</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Upper Division Literacy and Critical Inquiry (L)</td>
<td>3</td>
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<td></td>
</tr>
<tr>
<td>Elective</td>
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<td></td>
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</tbody>
</table>

Term hours subtotal: **15**

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**Hide Course List(s)/Track Group(s)**

- Upper Division Applied Physics Electives (Complete 9 Credit Hours)
- MAT 343: Applied Linear Algebra
- PHY 333: Electronic Circuits and Measurements
- PHY 361: Introductory Modern Physics
- PHY 416: Quantum Physics III
Notes:

- First-Year Composition: All students are placed in ENG 101 unless submission of SAT, ACT, Accuplacer, IELTS, or TOEFL score, or college-level transfer credit or test credit equivalent to ASU's first-year composition course(s), determine otherwise. Students on Polytechnic, Downtown Phoenix and West Campuses are encouraged to complete the Directed Self-Placement survey to choose the first-year composition option they believe best suits their needs. Visit: https://cisa.asu.edu/DSP
- Mathematics Placement Assessment score determines placement in first mathematics course.
- Students must complete a minimum of 12 credit hours of PHY courses offered by the College of Integrative Sciences and Arts. At least six of these 12 credits must be upper-division.

General University Requirements Legend

General Studies Core Requirements:

- Literacy and Critical Inquiry (L)
- Mathematical Studies (MA)
- Computer/Statistics/Quantitative Applications (CS)
- Humanities, Arts and Design (HU)
- Social-Behavioral Sciences (SB)
- Natural Science - Quantitative (SQ)
- Natural Science - General (SG)

General Studies Awareness Requirements:

- Cultural Diversity in the U.S. (C)
- Global Awareness (G)
- Historical Awareness (H)

First-Year Composition

General Studies designations listed next to courses on the major map were valid for the 2023 - 2024 academic year. Please refer to the course catalog for current General Studies designations at time of class registration. General Studies credit is applied according to the designation the course carries at the time the class is taken.