

**B.S. DEGREE in PHYSICS+**  
**Specialized Curriculum in Astronomy and Astrophysics**  
**Iowa State University**

Semester 1	Freshman Year	Semester 2	
Critical Thinking and Comm. - Engl 150	3	<b>Intro to Class. Physics II – Phys 242</b>	5
<b>Introductory Seminar - Phys 199</b>	R	<b>Calculus III - Math 265</b>	4
<b>Intro to Classical Physics I – Phys 241</b>	5	Social Science Choice	3
<b>Calculus II – Math 166</b>	4	Natural Science, e.g. General Chemistry I - Chem 177+177L	5
Arts&Humanities + IP prespective*	3		
Library Instruction – Lib 160	1		
	<u>16</u>		<u>17</u>

Semester 1	Sophomore Year	Semester 2	
WOVE Composition - Engl 250	3	<b>Intro to Modern Physics II – Phys 322</b>	3
<b>Intro to Modern Physics I – Phys 321</b>	3	<b>Intro Lab in Mod Phys II – Phys 322L</b>	1
<b>Intro Lab in Mod Phys I - Phys 321L</b>	1	<b>Classical Mechanics - Phys 361</b>	3
<b>Elementary Differential Equations and Laplace Transforms – Math 267</b>	4	<b>Introduction to Partial Differential Equations - Math 385</b>	3
<b>Stars, Galaxies, and Cosmology - Astro 150<sup>3</sup></b>	3	Social Science Choice	3
Humanities choice	3	Humanities Choice	3
	<u>17</u>		<u>16</u>

Semester 1	Junior Year	Semester 2	
<b>Intermediate Mechanics - Phys 362</b>	3	<b>Thermal Physics – Phys 304</b>	3
<b>Electricity and Magnet. I - Phys 364</b>	3	<b>Electricity and Magnet. II – Phys 365</b>	3
<b>Introduction to Solar System Astronomy - Astro 342<sup>3</sup></b>	3	English Proficiency Requirement - Engl 302, 305, 309 or 314	3
<b>Matrix/Lin. Algebra – Math 207/317</b>	3(4)	<b>Introduction to Astrophysics - Astro 346<sup>3</sup></b>	3
Foreign Language (or Elective)	4(3)	Foreign Language (or Elective)	4(3)
	<u>16</u>		<u>16(15)</u>

Semester 1	Senior Year	Semester 2	
<b>Electronics - Phys 310</b>	4	Intermediate Laboratory – Phys 311 <sup>1</sup>	2
<b>Quantum Mechanics – Phys 480</b>	3	Modern Optics – Phys 496 <sup>2</sup>	3
Elective	3	Applied Quantum Mechanics – Phys 481 <sup>2</sup>	3
<b>Astronomy Laboratory - Astro 344L<sup>1,3</sup></b>	3	Humanities Choice	3
Social Science Choice	3	<b>Astrophysical Cosmology - Astro 405<sup>3</sup></b>	3
	<u>16</u>		<u>14</u>

\* Students should choose a course that satisfy both Arts& Humanities and International Prospective requirements

<sup>1</sup> Students must earn a minimum of two laboratory credits from Phys 311, 311T, 450L, 470L, Astro 344L or 450L.

<sup>2</sup> Recommended but not required. Students must earn 3 credits from Phys 421, 422, 432, 461, 481, 496, 511, 526, 528, 531, 534, 541

<sup>3</sup> Recommended for an Astro minor

Students in all ISU majors must complete a three-credit course in U.S. diversity, a three-credit course in international perspectives, 9 credits in Social Science course, 8 credits in Natural Science courses and 12 credits in Arts and Humanities courses.

LAS majors require a minimum of 120 credits, including a minimum of 45 credits at the 300/400 level. You must also complete the LAS foreign language requirement.