

## Astronomy and Astrophysics & Physics Double Major

### Sample Academic Plan for students beginning in Math 1152, 1181H, or 4181H

Year	Autumn Semester	Credit hours	Course Title	Spring Semester	Credit Hours	Course Title
1	ArtsSci 1100.10	1	Survey	Astron 1221 or CSE 122x <sup>^</sup> <b>Math 2153*</b> Physics 1271 <sup>%#</sup> World Lang. 2	3 <b>4</b> 5 4	Programming Req. see note below <b>Calculus III</b> Intro Physics II
	Astron 2895	1	Seminar			
	GenEd 1201	1	GE Launch Seminar			
	<b>Math 1152*</b>	<b>5</b>	<b>Calculus II</b>			
	Physics 1270 <sup>%</sup>	5	Intro Physics I			
	World Lang. 1	4				
	<b>Total Hours</b>	<b>17</b>				
2	Astron 2291	3	Intro Astrophysics I	Astron 2292 <b>Math 2568*</b> Physics 2301 <sup>#</sup> Physics 3700 Gen Ed Course	3 <b>3</b> 4 3 3	Intro Astrophysics II <b>Linear Algebra</b> Mechanics II Data Analysis Lab
	<b>Math 2415*</b>	<b>3</b>	<b>Differential Equations</b>			
	Physics 2095	1	Seminar			
	Physics 2300 <sup>#</sup>	4	Mechanics I			
	World Lang. 3	4				
	<b>Total Hours</b>	<b>15</b>				
	<b>Total Hours</b>	<b>16</b>				
3	Astron 3350	3	Methods of Observation	Physics 5400 Physics 5501 Gen Ed Course or Astron 5xxx <sup>&amp;</sup> Targeted Elective <sup>†</sup> Gen Ed Course	4 4 3 3 3	E&M Quantum Mechanics II See note below
	Physics 5500	4	Quantum Mechanics I			
	3rd Lab Course <sup>@</sup>	3				
	Gen Ed Course	3				
	Gen Ed Course	3				
	<b>Total Hours</b>	<b>16</b>				
	<b>Total Hours</b>	<b>17</b>				
4	Gen Ed Course or Astron 5xxx <sup>&amp;</sup>	3	See note below	Gen Ed Course or Astron 5xxx <sup>&amp;</sup> Targeted Elective <sup>†</sup> Targeted Elective <sup>†</sup> Gen Ed Course Gen Ed Course GenEd 4001	3 3 3 3 3 1	See note below
	Physics 5600	4	Statistical Mechanics			
	Physics 5700	3	Senior Lab			
	Targeted Elective <sup>†</sup>	3				
	Gen Ed Course	3				
	<b>Total Hours</b>	<b>16</b>				
	<b>Total Hours</b>	<b>16</b>				

**Degree Hours**      **129** (121 minimum required)

Courses in YELLOW are only offered in the term shown (i.e., offered in Autumn only or in Spring only)

NOTE: this is **only one of many** possible ways to move through the curriculum. Consult with an academic advisor to develop and refine an academic plan that is appropriate for you.

Details on symbols (\* % ^ # @ & †) and a breakdown of which courses count toward each major to satisfy university rules can be found on the next page.

**Students beginning in Math 1181H or Math 4181H will follow a similar plan:**

**If starting in Math 1181H**, replace Math 1152 in Autumn Year 1 with Math 1181H (5 cr.) and replace Math 2153 in Spring Year 1 with Math 2182H (5 cr.).

**If starting in Math 4181H**, replace Math 1152 in Autumn Year 1 with Math 4181H (5 cr.) and replace Math 2153 in Spring Year 1 with Math 4182H (5 cr.). Students on this path may optionally take Math 5520H as well - replace Math 2415 + one Gen Ed Course in Autumn Year 2 with Math 5520H (5 cr.) and replace Math 2568 in Spring Year 2 with one Gen Ed Course (3 cr.)

Astro only		Both Majors		Physics Only	
Astron 2291	3	Physics 2300	4	Physics 2095	1
Astron 2292	3	Physics 2301	4	3rd Lab Course	3
Astron 2895	1	Physics 3700	3	Physics 5700	3
Astron 3350	3	Physics 5400	4	Targeted Elective†	3
Astron 5xxx	3	Physics 5500	4	Targeted Elective†	3
Math 2415	3	Physics 5501 or 5401H	4	Targeted Elective†	3
Math 2568	3			Targeted Elective†	3
Physics 5600	4				
<b>Total</b>	<b>23</b>	<b>Total</b>	<b>23</b>	<b>Total</b>	<b>19</b>

\*This "standard" calculus sequence has many acceptable variations. Consult with your academic advisor if you have already taken or wish to take a different set of courses.

‰Physics 1270-1271 is a version of the introductory Physics courses specifically intended for Physics and Astro majors. The Physics 1250-1251, 1250H-1251H, 1260-1261, and 1270-1271 series are all considered to be equivalent. Physics 1250 and 1251 are offered year-round (Autumn Spring, Summer), but the others are only offered once per year in Autumn-Spring.

^ Astronomy 1221 (Astronomy Data Analysis), CSE 1222 (C++), CSE 1223 (Java), or CSE 1224 (Python). Students who have changed majors from Engineering may substitute Engr 1221 or Engr 1281H.

# Physics 1271, 2300, and 2301 each require a grade of C+ or higher to move on in major coursework.

@3rd Lab Requirement can be satisfied by Physics 4700 (Electronics Lab), Physics 5680 (Big Data Analytics in Physics), or Physics 5810 (Computational Physics). 4700 is offered every Autumn and Spring; 5680 is offered Autumn only; 5810 is offered Spring only and is 4 credits instead of 3.

&Only one Astron 5xxx course is required: 5205 (Planetary Science) is offered in odd-year Springs; 5681 (Stellar Evolution) is offered in even-year Springs; 5682 (Cosmology) is offered every Autumn.

†Targeted Electives are courses not counting toward any other major, minor, certificate, or GE requirement that are graded A-E and are 2000-level or higher. Full details can be found here:

<https://physics.osu.edu/applied-physics-option-electives>