

**Course Listing and Curriculum Map for the Physics Major**

Requirements	Semester Course Number	Course Title	Semester Units	Quarter Equivalent Course Number	Quarter Credits	Notes	Relevant Learning Goals Achieved (see below)
<b>Prerequisite Courses:</b>							
Introductory Math	Math 1251	Calc I	5	Math 151	5	Semester sequence has same content as quarter sequence	2
	Math 1258	Calc II	5	Math 152	5		
				Math 153	5		
Upper Division Math	Math 2249	CalcIII	3	Math 254	5	Content of current 254	2
	Math 2431	LinAlg/DiffEq	3	Math 415	4	Some material from 415 and 568 (topics still under discussion)	2
				Math 568	3		
Computing	CSE 1211	Intro to C++	2	CSE 202	4	Same content	3
<b>Physics Core:</b>							
Introductory	Physics 1250/1250H	Mechanics, Thermal Physics, Waves	5	Physics 131/131H	5	Semester sequence has same content as quarter sequence	1,2
	Physics 1251/1251H	E&M, Optics, Modern Physics	5	Physics 132/132H	5		
				Physics 133/133H	5		
Intermediate	Physics 2300	Dynamics of Particles and Waves I	4	Physics 261	4	Semester sequence has same content as quarter sequence	1,2
	Physics 2301	Dynamics of Particles and Waves II	4	Physics 262	4		
				Physics 263	4		
	Physics 2095	Introductory Seminar	1	Physics 295	1	Same Content	6
Upper Division	Physics 5400/5400H	E&M I	4	Physics 555	4	Semester course has all of 555 and some of 656	1,2
				Physics 656	4		



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<b><u>Additional Required Courses, Advanced Physics Option</u></b>							
	Physics 5401H	E&M II	4	Physics 656	4	Semester course has some of 656 and all of 657	1,2
				Physics 657	4		
	Physics 5501H	Quantum II	4	Physics 632	4	Semester course has some of 632 and all of 633	1,2
				Physics 633	4		
	Physics 5600	Statistical Physics	4	Physics 621	4	Semester course has all of 621 and some of 622	1,2
				Physics 622	4		
	Physics 5300	Theoretical Mechanics	4	Physics 664	4	Enhanced content	1,2
<b><u>Additional Required Courses, Applied Physics Option</u></b>							
	1 Physics Elective From Above List		3	Elective	4	Same content	1,2
	15 Credit hours from Minor, Double Major		15		18	Enhanced content	7
<b><u>Additional Required Courses, Physics Teaching Option</u></b>							
	1 Physics Elective From Above List		3	Elective	3	Enhanced content	1,2
	Physics 5100		4	Physics 670	5	Enhanced content	7
	Bio 113		4	Bio 113	5	Enhanced content	7
	Earth Sci 110		3	Earth Sci 110	3	Same content	7
	Geog 520		3	Geog 520	3	Same content	7
	Astron 291		3	Astron 291	3	Same content	7
	Chem 121		5	Chem 121	5	Semester sequence has same content as quarter sequence	7
	Chem 122		5	Chem 122	5		
				Chem 123	5		

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<b><u>Additional Required Courses, Life Sciences Option</u></b>							
	<b>1 Physics Elective From Above List</b>		<b>3</b>	<b>Elective</b>	<b>4</b>	<b>Same content</b>	<b>1,2</b>
	<b>Bio 113</b>		<b>4</b>	<b>Bio 113</b>	<b>5</b>	<b>Enhanced content</b>	<b>7</b>
	<b>Bio 114</b>		<b>4</b>	<b>Bio 114</b>	<b>5</b>	<b>Enhanced content</b>	<b>7</b>
	<b>Chem 121</b>		<b>5</b>	<b>Chem 121</b>	<b>5</b>	<b>Semester sequence has same content as quarter sequence</b>	<b>7</b>
	<b>Chem 122</b>		<b>5</b>	<b>Chem 122</b>	<b>5</b>		
				<b>Chem 123</b>	<b>5</b>		
	<b>Chem 251</b>		<b>4</b>	<b>Chem 251</b>	<b>4</b>	<b>Semester sequence has same content as quarter sequence</b>	<b>7</b>
	<b>Chem 252</b>		<b>4</b>	<b>Chem 252</b>	<b>4</b>		
				<b>Chem 253</b>	<b>4</b>		
	<b>Chem 254</b>		<b>2</b>	<b>Chem 254</b>	<b>3</b>	<b>Same content</b>	
	<b>Chem 255</b>		<b>2</b>	<b>Chem 255</b>	<b>3</b>	<b>Same content</b>	<b>7</b>
<b>Learning Goal</b>	<b>1</b>	<b>Undergraduate Physics majors acquire a basic mastery of fundamental areas of physics, from classical mechanics, through electricity and magnetism, and finally to modern physics including quantum mechanics and relativity.</b>					
	<b>2</b>	<b>Undergraduate Physics majors develop powerful analytical and problem solving skills in areas involving both physics and mathematics.</b>					
	<b>3</b>	<b>Undergraduate Physics majors acquire a basic mastery of experimental physics</b>					
	<b>4</b>	<b>Undergraduate Physics majors acquire a basic mastery of data reduction and error analysis</b>					
	<b>5</b>	<b>Undergraduate Physics majors can effectively communicate their physical understanding both professionally and colloquially (orally and in writing).</b>					
	<b>6</b>	<b>Undergraduate majors are apprised of and encouraged to participate in academic research, industrial research and/or outreach activities which are consistent with their interest, ability and postgraduate plans.</b>					
	<b>7</b>	<b>Undergraduate majors acquire expertise relevant to their chosen program option</b>					