

## BS Applied Physics (SAP) Degree

*This is not an official list of degree requirements. Adjustments may be required due to curriculum changes.*

### First Year

Fall

Course	Prerequisite	Credit
PH1160 Honors Physics I- Mechanics		3
PH1161 Intro to Experimental Physics 1		1
PH1162 Intro to Physics Seminar		1
MA1160/1 Calculus with Technology I		4-5*
CH1150 University Chemistry I		3
CH1151 University Chemistry Lab		1
UN1015 Composition		3
<b>Total</b>		<b>16-17</b>

Spring

Course	Prerequisite	Credit
PH1360 Honors Physics II		2 <sup>†</sup>
PH1361 Intro to Experimental Physics II		1
PH2300 Univ Phys III – Fluids & Thermal		2 <sup>†</sup>
MA2160 Calculus with Technology II		4
MA2320 or 2330 Elem./Intro. Linear Algebra		2-3
Ess. Ed. Foundations of the Human		3
<b>Total</b>		<b>14-15</b>

### Second Year

Fall

Course	Prerequisite	Credit
PH2021 Intro to Programming in Physics		1
PH2260 Honors Physics III- Electricity & Magnetism		4
PH2261 Intro to Experimental Physics III		1
MA3530 Intro to Differential Equations		3
Ess. Ed. Distribution or Minor course		3 <sup>§</sup>
Elective or Application elective		3 <sup>¶</sup>
<b>Total</b>		<b>15</b>

Spring

Course	Prerequisite	Credit
PH2230 Electronics		4
PH2400 Univ Physics IV- Waves & Modern Phys.		3
MA3160 Multivariable Calculus		4
Ess. Ed. Distribution or Minor course		3 <sup>§</sup>
Ess. Ed. Well-being		1 <sup>§</sup>
<b>Total</b>		<b>15</b>

### Third Year

Fall

Course	Prerequisite	Credit
PH3110 Theoretical Mechanics I		3
PH3210 Optics		3
PH3320 Methods of Theoretical Physics		3
Ess. Ed. Distribution or Minor course		3
Elective or Application elective		3
Ess. Ed. Well-being		1
<b>Total</b>		<b>16</b>

Spring

Course	Prerequisite	Credit
PH3111 Theoretical Mechanics II or App. elective		3 <sup>¶</sup>
PH3300 Thermo & Statistical Physics		3
PH3410 Quantum Physics I		3
PH3480 Advanced Physics Laboratory		2
Ess. Ed. Distribution or Minor course		3 <sup>§</sup>
Elective or Application elective		3 <sup>¶</sup>
<b>Total</b>		<b>17</b>

### Fourth Year

Fall

Course	Prerequisite	Credit
PH3411 Quantum Physics II or App. elective		3 <sup>¶</sup>
PH4010 Senior Colloquium		1
PH4050 Qualitative Methods		1
PH4080 Senior Research I		3
PH4210 Electricity & Magnetism I		3
PH4390 Computational Methods in Physics		3
<b>Total</b>		<b>14</b>

Spring

Course	Prerequisite	Credit
PH4011 Senior Colloquium II		1
PH4081 Senior Research II		3
PH4211 Electricity & Magnetism II or App. Elect.		3 <sup>¶</sup>
Ess. Ed. Distribution or Minor course		3 <sup>§</sup>
Elective or Application elective		3 <sup>¶</sup>
Ess. Ed. Well-being		1
<b>Total</b>		<b>14</b>

**Grand Total = 121-123 Credits**

\* Physics majors are expected to be calculus ready upon entering this program. Students who are placed in MA1032 should contact Dr. John Jaszczak (jaszczak@mtu.edu) or Dr. Katrina Black (keblack@mtu.edu) to discuss several options.

‡ Half-Semester Course

◊ 4 to 6 total credits of free electives

# 12 credits in approved application area or university minor. See your advisor for planning and approval.

° Only one of PH3111, PH3411, or PH4211 is required.

§ For [Essential Education requirements](https://www.mtu.edu/registrar/essential-education/program-requirements/) see <https://www.mtu.edu/registrar/essential-education/program-requirements/>