# Michigan Technological University – Department of Physics Typical Schedule: BS Applied Physics Major (SAP)

**Note:** The following is intended to serve as a guide. This is not an official list of degree requirements. Adjustments may be required due to curriculum changes. Students are encouraged to discuss and review their schedules with their advisors.

#### Year 1 – Fall Semester

PH1160 Honors Physics I- Mechanics (4)

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)

## <u>Year 1 – Spring Semester</u>

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 World (3)

Elective or Application elective (3)<sup>\delta</sup>

**Total Credits: 15-18** 

#### Year 2 – Fall Semester

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)§

Elective or Application elective (3) <sup>6</sup>

Ess. Ed. Well-being (1) §

### Year 2 – Spring Semester

PH2230 Electronics (4)

PH2400 Univ Physics IV- Waves & Modern Phys. (3)

MA3160 Multivariable Calculus (4)

Ess. Ed. Distribution or Minor course (3) §

Elective or Application elective (3) <sup>6</sup>

Ess. Ed. Well-being (0-1) §

**Total Credits: 17-18** 

## <u>Year 3 – Fall Semester</u>

PH3110 Theoretical Mechanics I (3)

PH3210 Optics (3)

PH3320 Methods of Theoretical Physics (3)

Ess. Ed. Distribution or Minor course (3)

Electives and/or Application electives (3-6)<sup>\$\delta\$</sup>

Ess. Ed. Well-being (0-1) §

**Total Credits: 16** 

**Total Credits: 15-18** 

**Total Credits: 16-17** 

#### Year 3 – Spring Semester

PH3111 Theoretical Mechanics II or App. elective (3) <sup> $\phi$  #</sup>

PH3300 Thermo & Statistical Physics (3)

PH3410 Quantum Physics I (3)

PH3480 Advanced Physics Laboratory (2)

Ess. Ed. Distribution or Minor course (3) §

Elective or App. elective (3) <sup>\$\delta\$#</sup>

**Total Credits: 17** 

#### Year 4 – Fall Semester

PH3411 Quantum Physics II or App. elective (3)<sup>φ #</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)

Ess. Ed. Distribution or Minor course (3) §

**Total Credits: 17** 

### Year 4 – Spring Semester

PH4011 Senior Colloquium II (1)

PH4081 Senior Research II (3)

PH4211 Electricity & Magnetism II or App. Elect. (3)  $^{\phi\,\#}$ 

Ess. Ed. Distribution or Minor course (3)§

Electives and/or Application electives (6)<sup>\$\delta\$</sup>

Ess. Ed. Well-being (1) §

**Total Credits: 17** 

<sup>\*</sup> 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.

<sup>†</sup> Half-Semester Course

<sup>&</sup>lt;sup>⋄</sup> 12 or 13 total credits of free electives

<sup>&</sup>lt;sup>#</sup> 12 credits in approved application area or university minor. See your advisor for planning and approval.

<sup>&</sup>lt;sup>φ</sup> Only one of PH3111, PH3411, or PH4211 is required.

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