

Michigan Technological University – Department of Physics

Typical Schedule: BS Applied Physics Major (SPH)

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. Three units of Co-Curricular activities are also required.

Year 1 – Fall Semester

PH1160 Honors Physics I- Mechanics (4)
 PH1161 Intro to Experimental Physics I (1)
 MA1160/1 Calculus with Technology I (4-5)*
 CH1150 University Chemistry I (3)
 CH1151 University Chemistry Lab (1)
 [CH1153 University Chemistry Recitation (1)][†]
 UN1015 Composition (3)

Total Credits: 16-18

Year 1 – Spring Semester

PH1360 Honors Physics II (2)[‡]
 PH1361 Intro to Experimental Physics II (1)
 PH2300 Univ Phys III – Fluids & Thermal (2)[‡]
 MA2160 Calculus with Technology II (4)
 MA2320 or 2330 Elem./Intro. Linear Algebra (2-3)
 UN1025 Global Issues (3)
 Elective or Application elective (3)^{◇ #}

Total Credits: 15-18

Year 2 – Fall Semester

PH2020 Sci. Programming & Error Analysis (2)
 PH2260 Honors Physics III- Electricity & Magnetism (4)
 PH2261 Intro to Experimental Physics III (1)
 MA3530 Intro to Differential Equations (3)
 Gen Ed Critical & Creative Thinking or Social
 Responsibility & Ethical Reasoning core course (3)[§]
 Elective or Application elective (3)^{◇ #}
 Co-curricular (0.5-1)

Total Credits: 16.5-17

Year 2 – Spring Semester

PH2230 Electronics (4)
 PH2400 Univ Physics IV- Waves & Modern Phys. (3)
 MA3160 Multivariable Calculus (4)
 Gen Ed Critical & Creative Thinking or Social
 Responsibility & Ethical Reasoning core course (3)[§]
 Elective or Application elective (3)^{◇ #}
 Co-curricular (0-1)

Total Credits: 17-18

Year 3 – Fall Semester

PH3110 Theoretical Mechanics I (3)
 PH3210 Optics (3)
 PH3320 Methods of Theoretical Physics (3)
 Gen Ed HASS course (3)[§]
 Electives and/or Application electives (3-6)^{◇ #}
 Co-curricular (0-1)

Total Credits: 15-18

Year 3 – Spring Semester

PH3111 Theoretical Mechanics II or App. elective (3)^{◇ #}
 PH3300 Thermo & Statistical Physics (3)
 PH3410 Quantum Physics I (3)
 PH3480 Advanced Physics Laboratory (2)
 Gen Ed HASS course (3)[§]
 Elective or App. elective (3)^{◇ #}

Total Credits: 17

Year 4 – Fall Semester

PH3411 Quantum Physics II or App. elective (3)^{◇ #}
 PH4010 Senior Colloquium (1)
 PH4050 Qualitative Methods (1)
 PH4080 Senior Research I (3)
 PH4210 Electricity & Magnetism I (3)
 PH4390 Computational Methods in Physics (3)
 Gen Ed HASS 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)^{◇ #}
 Gen Ed HASS course (3)[§]
 Electives and/or Application electives (6)^{◇ #}
 Co-curricular (0.5-1)

Total Credits: 16.5-17

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

[†] Recommended but not required for students seeking more practice in chemistry problem solving

[‡] Half-Semester Course

[◇] 11 or 12 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 [General Education requirements](https://www.mtu.edu/registrar/faculty-staff/advisors/gen-ed/) see <https://www.mtu.edu/registrar/faculty-staff/advisors/gen-ed/>