B.S. Applied Geophysics Degree (*Fall 2025 and later*)

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

First Year

Fall

Course	Prerequisites	Credit
MA1160 Calculus with Technology 1		4
CH1150 University Chemistry 1	CH1151 *(Corequisite)*	3
CH1151 University Chemistry Lab 1	CH1150 *(Corequisite)*	1
PH1100 Physics 1 Lab	MA1160 *(Concurrent)*	1
GE1100 Geo Eng & Sci Orientation		1
UN1015 Composition		3
Essential Education - Activities for Well-Being and Success		1
Total		**14**

Spring

Course	Prerequisites	Credit
MA2160 Calculus with Technology 2	MA1160	4
PH1200 Physics Lab II	PH1100	1
PH2100 University Physics 1	MA1160, PH1100 *(Concurrent)*	3
GE2000 Understanding the Earth		3
Essential Education - Foundations in the Human World		3
Total		**14**

Second Year

Fall

Course	Prerequisites	Credit
GE2300 Mineral Science	CH1150/51	3
PH2200 University Physics 2	MA2160, PH2100, PH1200 *(Concurrent)*	3
GE2010 Intro to GIS		3
GE1200 Intro Data Sci/Earth Resc		1
MA2320 Elem Linera Algebra	MA1160	2
Essential Education - Communication Intensive		3
Total		**15**

Spring

Course	Prerequisites	Credit
MA3520 Elem Differential Equations	MA2160	2
GE2310 Intro to Petrology	GE2300	3
GE3050 Structural Geology	GE2000	3
Essential Education – Intercultural Competency (3000+)		3
Essential Education - Activities for Well-Being and Success		1
Total		**12**

Third Year

Fall

Course	Prerequisites	Credit
GE3100 Depositional Systems	GE2310, GE3050	3
GE3320 Earth History	GE2000	3
GE3010 Intro to Field Methods	GE2310, GE3050	1
MA2720 Statistical Methods		4
EC3400 Econ Decision Analysis	Junior Standing	3
Essential Education – Arts & Culture (3000+)		3
Total		**17**

Spring

Course	Prerequisites	Credit
GE3250 Computational Geoscience	MA1160	3
Free Elective		3
GE3040 Fundamentals of Geophysics	PH2200	3
PH2400 Univ Physics IV – W/MP	PH2200	3
Essential Education Experience (3000+)		3
Total		**15**

Summer

Course	Prerequisites	Credit
GE4091 Field Geology w/ Eng App	GE2310, GE3050, GE3010	5
GE4090 Field Geophysics	GE3040, GE3010	5
Total		**10**

Fourth Year

Fall

Course	Prerequisites	Credit
MA3160 Multivariable Calc w/ Tech	MA2160	4
Adv Geophysics Ele		3
Geology Approved Elective		3
Adv Geophysics Ele		3
Total		**13**

Spring

Course	Prerequisites	Credit
MA4515 Intro to Partial Diff EQ	MA3520	3
PH2300 Univ Physics III – F/Thermo	PH2100	2
Adv Geophysics Ele		3
Adv Geophysics Ele		3
Essential Education - Activities for Well-Being and Success		1
Total		**12**

Grand Total = 122 Credits

1. ***Essential Education Requirements:*** 24 total credits. Required courses are *UN1015-Composition* (3 credits), a *Foundations in the Human World* course (3 credits), a *Communication Intensive* course (3 credits), an *Arts & Culture* course (3 credits), an *Intercultural Competency* (3000+) course (3 credits), a *SHAPE* course (EC3400, 3 credits), an *Essential Education Experience* (3000+) course (3 credits), and 3 credits of *Activities for Well-being and Success*. The Essential Education and Activities for Well-Being list is available online at: https://www.mtu.edu/registrar/pdfs/essential-education-course-lists-2025-2026.pdf

2. ***Geology Approved Electives:*** 3 total credits.
   Any GE, PH, MA, or EE course 3000+ level that is not already required or counted elsewhere

3. ***Advanced Geophysics Electives:*** 12 total credits (Courses are 3 credits)
   - *GE4250* Fundamentals of Remote Sensing
   - *GE4530* Planetary Geology and Geophysics
   - *GE4560* Earthquake Seismology
   - *GE4600* Reflections Seismology
   - *GE4610* Formation Eval & Petroleum Eng
   - *GE4933* Special Topics in Geophysics
   - *GE4962* Independent Geophysics Research Project (w/ instructor permission)

4. ***Prerequisite*** (pre-req) course must be successfully completed ***PRIOR*** to taking the subsequent course.
   Concurrent Prerequisites (concurrent) may be taken at the same time, although it is not necessary if the prerequisite course is completed first.
   Required Corequisite (co-req) courses that ***MUST*** be taken together in the same semester.

5. ***Math:*** Students are placed into an initial math course based on ACT/SAT math score, the online ALEKS assessment, or a math placement exam score for credit (AP, IB, CLEP). MA1160 (4 credits) or MA1161 (5 credits) satisfy the Calculus 1 requirement. Linear Algebra and Differential Equations are offered as full semester courses for students taking these courses in separate semesters (MA2320 – Linear Algebra, MA3520 – Differential Equations). The Math department also teaches Linear Algebra and Differential Equations as accelerated courses. In the first half of a given semester MA2321 – Linear Algebra, and MA3521 – Differential Equations, in the second half of the same semester (registration must be for the same section number of both MA2321 and MA3521 in that semester). MA2320, MA2321, and MA2330 are all equivalent and are approved prerequisites for MA3520 or MA3521. MA3530 and 3560 are also equivalent to MA3520/3521. MA2710, 2720 and 3715 are all acceptable in place of MA3710.

6. ***Free Electives*****:** Any credits that are 1000-level or above are acceptable towards free elective credits.

7. ***Transfer, Advanced Placement, or study abroad courses*** are not included in credit hours used for GPA calculations. Transfer credit is awarded for Michigan Tech equivalent course work only if a grade of 'C' or better (2.00/4.00) or equivalent is earned at a transfer institution. Study abroad credit will be awarded based on passing a course according to equivalent international standards. Advanced Placement credit is awarded according to published AP Exam score standards (also IB and CLEP).

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