General Education: Science, Technology, Engineering and Mathematics (STEM)
15 credits required: 4 credits (minimum) from Mathematics & 7 credits (minimum) from Science
2020-2021

Students must take a minimum of **15** credits in STEM following these requirements:

- A minimum of 4 credits are required from the Mathematics list
- Complete at least two courses in two different disciplines (different course prefixes) from the Science list
  - Minimum of 7 Science credits required
  - at least one of the Science courses must include or be taken with the accompanying laboratory
- No more than 4 credits from the Restricted STEM list may be counted toward the STEM requirement
- Some courses are on the STEM list and the HASS list, but each course can satisfy only one requirement

Some degree programs specify some or all STEM requirements; students should check with their academic advisor for specific requirements

Mathematics
- Minimum of 4 credits required

BUS2300	Quantitative Problem Solving	3
MA1020	Quantitative Literacy	4
MA1030	College Algebra I *and*	
MA1031	College Algebra II with Trigonometry	6
MA1032	Precalculus	4
MA1120	Single-Variable Calculus with Integrated Precalculus I	4
MA1135	Calculus for Life Sciences	4
MA1160	Calculus with Technology I	4
MA1161	Calculus Plus with Technology I	5
MA2720	Statistical Methods	4
PSY2720	Statistics for the Behavioral Sciences	4
SS4010	Social Statistics	3

Science
- At least two courses in two different disciplines are required; at least one must include or be taken with the accompanying laboratory
- Courses or course-groups satisfying the laboratory requirement are designated by an asterisk (*)
- Minimum of 7 credits required

BL1010*	General Biology I	4
BL1020*	General Biology II	4
	(applies to Science list if student receives transfer credit for a first-semester Biology course; applies to Restricted STEM list if taken at Michigan Tech)	
BL1040*	Principles of Biology	4
BL1100*	General Biology I (plus BL1110**)	4
BL1200*	General Biology II (plus BL1210**)	4
	(applies to Science list if student receives transfer credit for a first-semester Biology course; applies to Restricted STEM list if taken at Michigan Tech)	
BL1400*	Principles of Biology (plus BL1410**)	4
BL2010*	Anatomy & Physiology I (plus BL2011)	4
BL2160*	Botany	4
BL2940	Human Nutrition	3
BL3970	Current Health Issues	3
BL4090	Tropical Island Biology	2

Science cont'

CH1000	Introductory Chemistry	3
CH1112*	University Chemistry – Studio Lab I	5
CH1150*	University Chemistry I (plus CH1151/1153)	4/5
FW1035*	Wood Anatomy and Properties	4
FW2010*	Vegetation of North America	4
FW3075	Introduction to Biotechnology	3
FW3320	Fundamentals of Forest Genetics & Genomics	3
FW3330*	Soil Science	4
FW3610*	Ornithology	4
FW3620	Field Ornithology	1
FW4120	Tree Physiology	3
FW4128	Conservation Genetics	3
FW4220*	Wetlands	4
FW4240*	Mammalogy	4
FW4260*	Population Ecology	3
GE2000*	Understanding the Earth	3
KIP3100*	Exercise Assessment and Prescription	3
KIP3700*	Lifetime Fitness	3
PH1090*	The Physics Behind Music (plus PH1091**)	4
PH1110*	College Physics I (plus PH1111)	4
PH1140*	Applied College Physics I (plus PH1141)	4
PH1160*	Honors Physics I-Mechanics (plus PH1161 or PH1100)	5
PH1600*	Introductory Astronomy (plus PH1610**)	3
PH2100*	University Physics I-Mechanics (plus PH1100)	4
SS3221*	Archaeological Sciences (plus SS3222)	4

**This laboratory is optional with the associated course. If the laboratory is not taken, the associated course can count as a Science course, but it will not satisfy the laboratory portion of the requirement.

Restricted STEM
- No more than 4 credits
- No course may count in a degree audit toward both STEM and HASS requirements

BL1020	General Biology II	
BL1200	General Biology II (plus BL1210**)	4
CH1122	University Chemistry Studio Laboratory II ***	5
CH1160	University Chemistry II (plus CH1161/1163) ***	4/5
CMG1000	Introduction to Construction Management	3
CS1121	Introduction to Programming I	3
CS1122	Introduction to Programming II	3
CS1131	Accelerated Introduction to Programming ***	5
CS1142	Programming at the Hardware Software Interface	3
EC3002	Microeconomic Theory	3
EC4050	Game Theory/Strategic Behavior	3
EC4100	Mathematical Economics	3
EC4200	Econometrics	3
EET1120	Circuits I	4
EET1411	Basic Electronics	4
ENG1001	Engineering Problem Solving	2
ENG1003	Introduction to Computer Aided Drafting	1
ENG1100	Engineering Analysis	2
ENG1101	Engineering Analysis and Problem Solving	3
ENG1102	Engineering Modeling and Design	3
FA2701	Drafting for the Entertainment Industry	3

Restricted STEM cont'

FA4740	Transducer Theory	3
FA4741	Transducer Theory Lab	1
HU3700	Philosophy of Science	3
HU3701	Philosophy of Technology	3
KIP1500	Foundations of Kinesiology	3
MIS2100	Introduction to Business Programming	3
PH1210	College Physics II (plus PH1200)	4
PH1360	Honors Physics II (plus PH1361)	3
PSY3060	Physiological Psychology	3
SAT1700	Cyber Ethics	3
SS2050	Fundamentals of GIS	3
SS2200	Introduction to Archaeology	3
SS3210	Field Archaeology	var
SS3230	Archaeology of Industry	3
SS3250	Biological Anthropology	3
SS3510	History of American Technology	3
SS3511	History of Science in America	3
SS3580	Technology and Western Civilization	3
SS3820	Ethical, Legal, and Societal Implications (ELSI) of Nanotechnology	3
SS4009	Survey Methods	3
SS4050	GIS Applications for Social Science	3

***A maximum of 4 credits will count toward STEM requirements

Any course at the 2000-level or higher in the following STEM disciplines (with the exceptions of BE2100, CM3410, ENG2060, ENG3060, ENG4060, and ENG4070):
Biological Sciences (BL), Chemistry (CH), Computer Science (CS), Engineering (BE, CE, CEE, CM, EE, ENG, ENVE, GE, MEEM, MY, MSE, SSE), Forest Resources and Environmental Science (FW), Geological Sciences (GE), Kinesiology (KIP), Mathematics (MA), Physics (PH), Technology (EET, MET, SAT, SU, TE)

APPROVED TRANSFER COURSES
The following courses are available ONLY by transfer.

Mathematics

MA1XXX	Approved Transfer STEM Math Elective	var

Science

BL1XXX	Approved Transfer Science-Biology	var
BL2XXX	Approved Transfer Science-Biology	var
BLL1XXX*	Approved Transfer Lab Science-Biology	var
BLL2XXX*	Approved Transfer Lab Science-Biology	var
CH1XXX	Approved Transfer Science-Chemistry	var
CH2XXX	Approved Transfer Science-Chemistry	var
CHL1XXX*	Approved Transfer Lab Science-Chemistry	var
CHL2XXX*	Approved Transfer Lab Science-Chemistry)	var
FW1XXX	Approved Transfer Science-Forestry	var
FW2XXX	Approved Transfer Science-Forestry	var
FWL1XXX*	Approved Transfer Lab Science-Forestry	var
FWL2XXX*	Approved Transfer Lab Science-Forestry	var
GE1XXX	Approved Transfer Science-Geology/Mining	var
GE2XXX	Approved Transfer Science-Geology/Mining	var
GEL1XXX*	Approved Transfer Lab Science-Geology/Mining	var
GEL2XXX*	Approved Transfer-Lab Science-Geology/Mining	var
KIP1XXX	Approved Transfer Science-Kinesiology	var
KIP2XXX	Approved Transfer Science-Kinesiology	var
KIPL1XXX*	Approved Transfer Lab Science-Kinesiology	var
KIPL2XXX*	Approved Transfer Lab Science-Kinesiology	var
PH1XXX	Approved Transfer Science-Physics	var
PH2XXX	Approved Transfer Science-Physics	var
PHL1XXX*	Approved Transfer Lab Science-Physics	var
PHL2XXX*	Approved Transfer Lab Science-Physics	var
SCI1XXX	Approved Transfer Science	var
SCI2XXX	Approved Transfer Science	var
SCIL1XXX*	Approved Transfer Lab Science	var
SCIL2XXX*	Approved Transfer Lab Science	var

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