Michigan Technological University

Minor in Astrophysics

Program Code: SPHA, Academic Year 2020-21

Department of Physics

Total Credits Required: 18

Required Courses: 5 to 6 credits

Course	Credits
PH 1600 Introductory Astronomy (2)	
PH 2400 University Physics IV - Waves and Modern Physics (3)	

Upper-Level Elective Courses: minimum 9 credits

Select at least two of the following three astrophysics courses:

Course	Credits
PH 4610 Stellar Astrophysics (3)	
PH 4620 Galactic Astrophysics (3)	
PH 4630 Particle Astrophysics (3)	

Select additional upper-level courses below to bring total credits at the 3000- level or higher to 9:

Course	Credits
EE 3160 Signals and Systems (3)	
EE 3190 Optical Sensing and Imaging (3)	
EE 4252 Digital Signal Processing and its Applications (4)	
MA 3710 Engineering Statistics* (3)	
FW 4540 Remote Sensing of the Environment (3) **OR** GE 4250 Fundamentals of Remote Sensing (3)	
PH 4640 Fundamentals of Atmospheric Science (3)	
PH 5610 High Energy Astrophysics (2)	

Other Elective Courses

Course	Credits
PH 1500 Extraordinary Concepts in Physics (2)	
MA 2720 Statistical Methods* (4)	

**Students may not count both MA2720 and MA3710*

Courses listed in this minor have the following prerequisites (shown in parenthesis). Concurrency is illustrated by the letter C: EE4252 (EE3160), GE4250 (PH2200 and MA2160), MA2720 (MA1020 or MA1032 or MA1031), MA3710 (MA2160), PH2400 (PH2200 or PH2260), PH4610 (PH1600 and (PH1360 or PH2400) and (MA3520 or MA3521 or MA3530 or MA3560)), PH4620 (PH1600 and (PH1360 or PH2400) and (MA3520 or MA3521 or MA3530 or MA3560)), PH4630 (PH2400 and (MA3520 or MA3530)), PH4640 ((PH2200 or PH2260) and (PH1360 or PH2300) and MA3160 and (MA3520 or MA3521 or MA3530 or MA3560))