

The BS degree in Earth and Space Exploration with a concentration in Astrophysics requires the following core courses (33 credits):

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| ¹ SES 121 Earth, Solar Sys, & Univ I (3) | AST 421 Astrophysics I (3) |
| ¹ SES 123 Earth, Solar Sys, & Univ Lab I (1) | AST 422 Astrophysics II (3) |
| ¹ SES 126 Exploration of the Universe (3) | AST 498 Astrophysics Seminar (1) ² |
| ¹ SES 128 Exploration of the Universe Lab (1) | PHY 314 Quantum Physics I (3) |
| SES 230: Coding for Exploration (CS) (3) | SES 410 Senior Exploration Project I (3) |
| AST 321 Intro Planetary & Stellar Astro. (3) | SES 411 Senior Exploration Project II (3) |
| AST 322 Intro Galactic & Extragalactic Astro. (3) | |

¹For Arizona community college transfer students: AST 111 and AST 112 can be substituted for SES 121/123 and SES 126/128

²We will also accept AST 394: Astrophysics Research Seminar

In addition, ONE Upper-division SES/AST/GLG/PHY Elective (3 credits). Suggested courses include:

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| GLG 404 Fundamentals of Planetary Geology (3) | PHY 315 Quantum Physics II (3) |
| PHY 302 Mathematical Methods in Physics II (3) | PHY 361 Introductory Modern Physics (3) |
| PHY 310 Classical Particles, Fields & Matter I (3) | PHY 441 Statistical and Thermal Physics (3) |
| PHY 311 Classical Particles, Fields & Matter II (3) | SES 311 Essentials of Astrobiology (3) |
| PHY 312 Mechanics and Electromagnetism (3) | SES 350 Eng Syst & Exp Problem Solving (3) |

Required courses in other related fields include the following (30 credits):

MAT 270 Calculus with Analytic Geometry I (4)*
 MAT 271 Calculus with Analytic Geometry II (4)*
 MAT 272 Calculus with Analytic Geometry III (4)*
 MAT 275 Modern Differential Equations (3)
 PHY 150 Physics I (SQ) (4)**
 PHY 151 Physics II (SQ) (4)**
 PHY 201 Mathematical Methods in Physics (CS) (3)
 PHY 252 Physics III (SQ) (4)

*SESE will accept Calculus for Engineers I, II and III (MAT 265/266/267) as alternatives although MAT 270/271/272 are encouraged.

**SESE will accept PHY 121/122 and PHY 131/132 as alternatives although PHY 150 and PHY 151 are encouraged.

IMPORTANT NOTES:

- **Students must receive C's or better in all of the above courses in order for them to count toward the major.**
- **The major map for the student's catalog year represents the official catalog for the degree.**
- **Substitutions for any of the requirements above must be approved by a SESE advisor and the student must notify the advisor if substitutions or other requirements are not showing up on the DARS correctly.**