

The BS degree in Earth and Space Exploration, Concentration in Astrobiology & Biogeosciences requires the following core courses (26 units)

SES 100 Introduction to Exploration (3)	SES 311 Essentials of Astrobiology (3)
¹ SES 121 Earth, Solar Sys., and Universe I (3)	GLG 321 Mineralogy (3)
¹ SES 122 Earth, Solar Sys., and Universe II (3)	GLG 481 Geochemistry (3)
¹ SES 123 Earth, Solar Sys., and Univ. Lab I (1)	SES 410 Senior Exploration Project I (3)
¹ SES 124 Earth, Solar Sys., and Univ. Lab II (1)	SES 411 Senior Exploration Project II (3)

¹ A combination of introductory GLG and AST may be substituted for SES 121-124 with advisor approval. Students must consult with a SESE advisor for the approved combinations.

In addition, 6 units of upper division electives from AST/GLG/SES topics are required. Select electives from the following or substitute with advisor approval:

SES 350 Eng Syst & Exp Prob Solving (3)	GLG 490 Topics in GLG: Remote Sensing (3)
GLG 404 Fund. Of Planetary Sci (3)	GLG 490 Field Geochemistry (3)
GLG 430 Paleontology (3)	GLG 490/581 Isotope Geochemistry (3)
GLG 435 Sedimentology (3)	AST 321 Intro Planet. and Stellar Astro. (3)
GLG 460 Astrobiology (3)	BIO 320 Fundamentals of Ecology (3)
GLG 461 Geomicrobiology (3)	BIO 340 General Genetics (3)
GLG 485 Meteorites and Cosmochemistry (3)	BIO 345 Organic Evolution (3)

Required courses in other related fields include the following (33 units):

BIO 181 General Biology I (4)
BIO 182 General Biology II (4)
CHM 113 General Chemistry I SQ (4)
CHM 116 General Chemistry II SQ (4)
MAT 265 Calculus for Engineers I (3) or MAT270 Calc with Analytic Geometry I (4)
MAT 266 Calculus for Engineers II (3) or MAT271 Calc with Analytic Geometry II (4)
MAT 267 Calculus for Engineers III (3) or MAT272 Calc with Analytic Geometry III (4)
PHY 121 University Physics I: Mechanics SQ¹ (3)
PHY 122 University Physics Laboratory I SQ¹ (1)
PHY 131 University Physics II: Electricity and Magnetism SQ² (3)
PHY 132 University Physics Laboratory II SQ² (1)

¹Both PHY 121 and 122 must be taken to secure SQ credit.

²Both PHY 131 and 132 must be taken to secure SQ credit.

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 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**