School of Earth and Space Exploration
Arizona State University

Catalog Year: 2025-2026

Requirements for the Certificate in Water Resources

The certificate program in water resources prepares undergraduate students in topics related to hydrologic science and their application to water resources management. The sequence of classes offered through the certificate program build from a foundation in geological sciences up to water policy and design aspects of hydrology, as selected by the student.

The certificate requires a minimum of 16 credit hours. At least 12 credit hours must be completed in upper-division coursework and at least nine credit hours must be completed at ASU. At least six upper-division hours in the certificate must be completed in courses offered by The College of Liberal Arts and Sciences. A grade of "C" (2.00 on a 4.00 scale) or higher is required for each course used to fulfill a certificate requirement.

Required Courses – 10 credit hours

GLG 108 / SOS 182: Water Planet (4) (SQ Maroon/SCIT Gold)
GLG 327 / SOS 374: Earth's Critical Zone (3)
GLG 470: Hydrogeology (3)

Electives (choose two) – 6 credit hours

CEE 441: Water Resources Engineering (3)
GLG 325 / BIO 325 / CHM 385: Oceanography (3)
GLG 362: Geomorphology (3)
GLG 471: Hydrology (3)
GLG 481: Geochemistry (3)
GLG 489: Field Geochemistry (3)
GLG 330 / SEA 330: Digital Blue Planet (3) (QTRS Gold)
SEA 394: Fluid Dynamics

Enrollment Requirements

A student pursuing an undergraduate certificate must be enrolled as a degree-seeking student at ASU. Undergraduate certificates are not awarded prior to the award of an undergraduate degree. A student already holding an undergraduate degree may pursue an undergraduate certificate as a nondegree-seeking graduate student.

Depending on a student's undergraduate program of study, prerequisite courses may be needed in order to complete the requirements of this certificate.

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Water Resources Certificate Course Planning Sheet

Prefix	Course Title	Hours	Pre-requisites	Offered
GLG 108/ SOS 182	Water Planet	4	Credit is allowed for only GLG 108 or SOS 182	S/SS
GLG 327/ SOS 374	Earth's Critical Zone	3	All with C or better: CHM 101 or higher or PHY 101 or higher; both GLG 101 and 103, or both SES 121 and 123, or SES 225; MAT 170, 171, 210, 251, 265, or 270. Credit is allowed for only GLG 327 or SOS 374	F
GLG 470	Hydrogeology	3		F
Elective courses, choose 2 from:				
CEE 441	Water Resources Engineering	3	Civil Engineering BSE major or Environmental Engineering BSE major; CEE 341 with C or better	S
GLG 325/ BIO 325/ CHM 385	Oceanography	3	All with C or better: BIO 100, BIO 182, BIO 282, SES 220, SES 225, or both GLG 101 & 103, or both SES 121 & 123; CHM 101, 113, 114, 117, or both CHM 107 & 108; Credit is allowed for only BIO 325 or CHM 385 or GLG 325	F
GLG 362	Geomorphology	3	GLG 101, GLG 110, or SES 121 with C or better; MAT 170 with C or better	F
GLG 471	Hydrology	3	CEE 341 or MEE 340 or GLG 362 with C or better; Credit is allowed for only CEE 440 or CEE 545 or CEE 598 (Hydrology) or GLG 471 or GLG 490 (Hydrology)	F/S
GLG 481	Geochemistry	3	BCH 341, CHM 341, CHM 346, or GLG 321 with C or better; Credit is allowed for only CHM 481 or GLG 481	F/S
GLG 489	Field Geochemistry	3	CHM 302, GLG 321, or GLG 481 with C or better; ENG 101, 105, or 107 with C or better; Credit is allowed for only CHM 489 or GLG 489	S*
GLG 330/ SEA 330	Digital Blue Planet	3	Minimum 45 hours; Credit is allowed for only GLG 330 or SEA 330	F*
SEA 394	Fluid Dynamics	3		F*

*Courses with an asterisk may not be offered every year

F=Fall; S=Spring; SS=Summer session

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Updated 4/15/25 by KWallace