

## 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. Exciting career opportunities exist in this field within government agencies, private sector consulting and engineering firms and non-profit organizations. 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 \(SQ\)](#) (4)

[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)

[SOS 433: Sustainable Water Use](#) (3)

### 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.

## Water Resources Certificate Course Planning Sheet

Prefix	Course Title	Hours	Pre-requisites	Offered
GLG 108/ SOS 182	Water Planet	4		S
GLG 327/ SOS 374	Earth's Critical Zone	3	All with a C or better: GLG 101 & 103 or SES 121 & 123; MAT 170 or 171 or 210 or 251 or 265 or 270; PHY 101 or 111 or 121 or 150 or CHM 101 or 107 or 113 or 114 or BIO 100 or 181 or 182 or 281 or 282. Credit is allowed for only GLG 327 or SOS 374	F
GLG 470	Hydrogeology	3		S
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	BIO 100, BIO 182, BIO 282, GLG 101, or SES 121 with C or better; CHM 101, 113, or 114 with C or better; Credit is allowed for only BIO 325 or CHM 385 or GLG 325	F
GLG 362	Geomorphology	3	GLG 101 or SES 121 with C or better; MAT 266 or 271 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
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
SOS 433	Sustainable Water Use	3		F

F=Fall; S=Spring