

2024 - 2025 Certificate Map

Energy and Sustainability

School/College: [College of Global Futures](#)

Location: [Downtown Phoenix](#), [Polytechnic](#), [Tempe](#)

Program Requirements

The certificate in energy and sustainability consists of 15 credit hours, at least 12 of which must be upper division.

Students must earn a grade of "C" or better in all courses. A minimum GPA of 2.50 is required for all courses completed in the certificate.

Required Core Courses -- 9 credit hours

[SOS 171 / GCU 171: The Thread of Energy \(SUST OR G\)](#) (3)

[SOS 314: Basic Energy Science](#) or [SOS 324: Sustainable Energy Technology and Systems](#) (3)

[SOS 315: Energy Policy](#) (3)

Energy Elective Courses -- 6 credit hours

[BME 494: Bioenergy and Microbial Biotechnology](#) (3)

[CEE 361: Introduction to Environmental Engineering](#) (4)

[CHE 469: Air Quality Engineering](#) (3)

[CHE 473: Fuel Cells and Biofuel Cells](#) (3)

[CHE 478: Biomass Energy Conversion Technology](#) (3)

[CHM 494: Solar Energy Conversion](#) (3)

[CON 448: Sustainable Construction](#) (3)

[EEE 465: Photovoltaic Energy Conversion](#) (3)

[EEE 471: Power System Analysis](#) (3)

[EEE 498: Lithium-Ion Battery Technlgy Automtve Electrifactn](#) (3)

[EGR 476: Microgrid Design and Operation](#) (3)

[EVE 354: Materials in the Environment](#) (4)

[GCU 364: Energy in the Global Arena](#) (3)

[GCU 442: Geographical Analysis of Transportation \(SB\)](#) (3)

[GLG 304: Minerals, Energy, and Society](#) (3)

[JUS 332: Politics of Energy Policy and Justice](#) (3)

[JUS 444: Environment and Justice \(L & C\)](#) (3)

[MAE 494: Energy Efficiency](#) (3)

PHY 498: The Science of Sustainable Energy (3)
PUP 430: Transportation Planning and the Environment (3)
SOS 323: Sustainable Urban Dynamics (3)
SOS 373: Minerals, Energy, and Society (3)
STS 317: Science, Technology, and Global Engagement (SB & G) (3)
STS 332: Global Issues in Science and Technology (SB) (3)

394, 494 and 498 courses must be taken with the specific course title/topic indicated above.

Energy elective courses are not limited to courses from this list only. Other courses on energy may be offered (special topics, etc.). Students may request to have those approved as an elective for this certificate by submitting a College of Global Futures undergraduate standards petition:

https://students.asu.edu/College_Standards_Petitions. Completed petitions may be submitted directly to cgfadvising@asu.edu.

Some energy elective courses are more technical in nature, which may require additional math and science knowledge or prerequisites.

Prerequisite courses may be needed in order to complete the requirements of this certificate.