

# Aerospace Option Program

## Type

Academic Subject Certificate

The Aerospace Option Program (AOP) is designed to assist undergraduate students interested in pursuing aerospace science and engineering careers—especially in the fields of astronomy, astronautics, aeronautics and atmosphericology. Through AOP, students may add an aerospace designation to their own major while earning an official University of Hawai'i Certificate, which is registered on their transcript. AOP emphasizes experiential, hands-on learning by applying traditional STEM coursework to real-world, project-based research and internships. AOP is managed through Windward CC's Center for Aerospace Education in affiliation with the Hawai'i Space Grant Consortium.

For information about the program, contact the Windward CC AOP coordinator at 808-236-9111, email [ciotti@hawaii.edu](mailto:ciotti@hawaii.edu), or visit the website: <https://windward.hawaii.edu/aerospace-option-program/>.

After completing this program, graduates will be able to:

- Identify, formulate and solve complex engineering problems by applying principles of engineering, science and mathematics.
- Conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.
- Function effectively on teams that establish goals, plan tasks, meet deadlines, and analyze risk and uncertainty.
- Communicate with strong verbal and written skills when presenting and writing engineering and scientific reports both to the professional and layman audience.
- Utilize fundamental STEM skills to advance in their educational studies and successfully compete for technical, engineering and science positions in the local, national and global workforce.

## Required Courses (Total Credits: 1)

Students are required to design and engage in an aerospace-related research project. This capstone requirement may be fulfilled in one of two ways:

- SCI 295EN: Introduction to STEM Research in Engineering (1 credit)
- SCI 295AS: Introduction to STEM Research in Aerospace Science (1 credit).

During this capstone course the student must be engaged in an aerospace or engineering research project conducted under the auspices of Hawaii Space Grant Consortium or similar aerospace-related granting agency. The student is required to make a presentation of his/her project at a public venue such as the HSGC Fellowship Symposium.

Item #	Title	Credits
SCI 295EN	Introduction to STEM Research in Engineering	1-3
SCI 295AS	Introduction to STEM Research in Aerospace Science	1-3

# Elective Courses (minimum of 12 credits from the following elective courses)

## RESTRICTIONS for Elective Courses:

- Any number of the following astronomy courses may be applied to the 12-credit elective minimum:  
ASTR 110; ASTR 110L; ASTR 170; ASTR 180; ASTR 181; ASTR 250; ASTR 250L; ASTR 281
- Any number of the following physics courses may be applied to the 12-credit elective minimum with the specified restrictions:  
PHYS 151 or PHYS 170; PHYS 151L or PHYS 170L; PHYS 152 or PHYS 272; PHYS 152L or PHYS 272L; PHYS 274
- Any number of the following engineering courses maybe applied to the 12-credit elective minimum:  
CE270; EE211
- No more than two of the following ICS courses may be applied to the 12-credit elective minimum with the specified restrictions:  
ICS 111; ICS 211; ICS 212 or EE 160; ICS 215
- No more than three of the following chemistry and geoscience courses may be applied to the 12-credit elective minimum with the specified restrictions:  
CHEM 151 or CHEM 161; CHEM 151L or CHEM 161L; CHEM 162; CHEM 162L; ATMO 101; EARTH 101; EARTH 101L

Item #	Title	Credits
ASTR 110	Survey of Astronomy	3
ASTR 110L	Survey of Astronomy Lab	1
ASTR 170	Introduction to Rocketry	3
ASTR 180	Planetary Astronomy	3
ASTR 181	Stellar Astronomy	3
ASTR 250	Observational Astronomy	3
ASTR 250L	Observational Astronomy Lab	1
ASTR 281	Space Explorations	3
ATMO 101	Introduction to Weather and Climate	3
CE 270	Applied Mechanics I	3
CHEM 151	Elementary Survey of Chemistry	3
CHEM 151L	Elementary Survey of Chemistry Lab	1
CHEM 161	General Chemistry I	3
CHEM 161L	General Chemistry I Lab	1
CHEM 162	General Chemistry II	3
CHEM 162L	General Chemistry II Lab	1
EE 160	Programming for Engineers	4
EE 211	Basic Circuit Analysis I	4
EARTH 101	Introduction to Geology	3
EARTH 101L	Introduction to Geology Lab	1
ICS 111	Introduction to Computer Science I	3
ICS 211	Introduction to Computer Science II	3
ICS 212	Program Structure	3
ICS 215	Introduction to Scripting	3
PHYS 151	College Physics I	3
PHYS 151L	College Physics I Lab	1

PHYS 152	College Physics II	3
PHYS 152L	College Physics II Lab	1
PHYS 170	General Physics I	4
PHYS 170L	General Physics I Lab	1
PHYS 272	General Physics II	3
PHYS 272L	General Physics II Lab	1
PHYS 274	General Physics III	3
<b>Total Credits</b>		<b>13</b>