

# Associate in Science in Natural Science

## Type

Associate in Science

The Associate in Science in Natural Science is a transfer degree designed for students pursuing STEM-related educational and career goals. The courses are designed to prepare students to transfer into science programs at UH Mānoa, UH Hilo, and UH West O‘ahu.

The Associate in Science in Natural Science degree has four concentrations: Biological Sciences, Engineering, Physical Sciences, and Information and Communication Technology.

## Program Learning Outcomes

Upon successful completion of Associate in Science in Natural Science, students will be able to:

- Analyze data effectively using the most currently available technology
- Communicate scientific ideas and principles clearly and effectively
- Analyze and apply fundamental mathematical, physical, and chemical concepts and techniques to scientific issues
- Apply fundamental concepts and techniques in their chosen field of study, such as biology, chemistry, geology, engineering, etc.

## Graduation Requirements

The issuance of an AS degree requires that the student earn a grade point average (GPA) of 2.0 or higher for all courses applied towards the degree.

## Foundation Requirements: Written Communication (FW)

Item #	Title	Credits
ENG 100	Composition I	3

## Foundation Requirements: Global and Multicultural Perspectives (FG)

Required: Six (6) credits from two different groups

Item #	Title	Credits
	Global & Multicultural Perspectives (FG): Group A	
	Global & Multicultural Perspectives (FG): Group B	
	Global & Multicultural Perspectives (FG): Group C	

## Foundation Requirements: Quantitative Reasoning (FQ)

The requirement will be fulfilled by the MATH requirement in the concentration.

# Diversification Requirements

## Arts, Humanities and Literature (DA, DH, DL)

Required: Three (3) credits

## Social Sciences (DS)

Required: Three (3) credits

## Biological Sciences (DB)

Required for Physical Science, and Information and Communication Technology Concentrations: Three (3) credits

Item #	Title	Credits
	Arts (DA)	
	Humanities (DH)	
	Literature (DL)	
	Social Sciences (DS)	
	Biological Sciences (DB)	

# Elective Requirements: Natural Science Electives

Required for Biological Sciences and Physical Sciences Concentrations. Natural Science Electives are required in addition to the required Concentration courses (not required for Engineering, and Information and Communication Technology Concentrations).

Required: Six (6) credits of transfer-level Natural Sciences courses (DB, DP, DY) and/or any of the courses listed below:

Item #	Title	Credits
	Biological Sciences (DB)	
	Physical Sciences (DP)	
	Natural Sciences (DY)	
EE 160	Programming for Engineers	4
ICS 111	Introduction to Computer Science I	3
ICS 141	Discrete Mathematics for Computer Science I	3
ICS 211	Introduction to Computer Science II	3
ICS 241	Discrete Mathematics for Computer Science II	3
IS 130	CSI Hawaii: An Introduction to the Scientific Process Using Forensic Science	3
MATH 100	Survey of Mathematics	3
MATH 103	College Algebra	4
	MATH 115 or higher	3
SCI 295AL	Introduction to STEM Research in Algae	1-4
SCI 295AS	Introduction to STEM Research in Aerospace Science	1-3
SCI 295EN	Introduction to STEM Research in Engineering	1-3
SCI 295EP	Introduction to STEM Research in Ethnobotanical Pharmacognosy	1-4
SCI 295PB	Introduction to STEM Research in Plant Biotechnology	1-4
SCI 295V	Introduction to STEM Research	1-3

# Elective Requirements: General Electives

Transfer-level courses (100 and 200-level courses) in any field to achieve a total of 60 credits.

## Biological Sciences Concentration (24-25 credits)

For students pursuing the Biological Sciences Concentration, CHEM 161 fulfills the DP (Physical Science Diversification) for the Biological or Physical Sciences Diversification Requirements. The total credits required (24-25) will depend on which of these courses you choose: BIOL 265/L or BIOL 275/L or CHEM 272/L or PHYS 151/L.

Item #	Title	Credits
BIOL 171	Introduction to Biology I	3
BIOL 171L	Introduction to Biology I Lab	1
BIOL 172	Introduction to Biology II	3
BIOL 172L	Introduction to Biology II 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
MATH 241	Calculus I	4
	BIOL 265/L or BIOL 275/L or CHEM 272/L or PHYS 151/L	4

## Engineering Concentration (33-34 credits)

The Engineering Concentration is designed for students entering into engineering fields.

Students pursuing the Engineering Concentration do not have a Biological and Physical Sciences Diversification Requirement.

Item #	Title	Credits
CHEM 161	General Chemistry I	3
CHEM 161L	General Chemistry I Lab	1
CHEM 162	General Chemistry II	3
MATH 241	Calculus I	4
MATH 242	Calculus II	4
MATH 243	Calculus III	3
MATH 244	Calculus IV	3
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
	CE 270 or EE 160 or EE 211 or PHYS 274 or SCI 295EN	1-4

## Information and Computer Sciences Concentration (31 credits)

An Associate in Science in Natural Science with a Concentration in Information and Computer Sciences is a transfer degree designed for students interested in pursuing an academic study and career in fields related to computer science, including database design, website creation, and mobile applications.

Required for Physical Science, and Information and Communication Technology Concentrations: Three (3) credits

Item #	Title	Credits
MATH 241	Calculus I	4
MATH 242	Calculus II	4
ICS 111	Introduction to Computer Science I	3
ICS 141	Discrete Mathematics for Computer Science I	3
ICS 211	Introduction to Computer Science II	3
	ICS 212 or ICS 215	3
ICS 241	Discrete Mathematics for Computer Science II	3
	ICS Natural Science Electives	8-9

## Physical Sciences Concentration (24 credits)

Students pursuing the Physical Sciences concentration must take at least one Biological Science course (DB) as the Biological Sciences Diversification Requirements.

NOTE: On the Physics options, choose the lab courses that correspond to your chosen lecture courses. Students must take six (6) credits from the Natural Science Elective section above.

Item #	Title	Credits
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
MATH 241	Calculus I	4
MATH 242	Calculus II	4
	PHYS 151 or PHYS 170	3-4
	PHYS 151L or PHYS 170L	1
	PHYS 152 or PHYS 272	3
	PHYS 152L or PHYS 272L	1
	Total Credits	60