APPLIED SCIENCES – ASSOCIATE IN SCIENCE DEGREE

Top Code:

4999.00

The primary goal of this program is to prepare students for continued studies in any of the various STEM fields. Students who choose this area of emphasis will be prepared to pursue multidisciplinary programs of study at the university level. This area of emphasis provides a flexible curriculum for high-achieving students to study various areas of study in the Applied Sciences. The areas of study include: mathematics, engineering, physics, electronics, design technology, computer science, and computer information systems.

For students intending to transfer, courses identified for the area of emphasis fulfill major preparation requirements as demonstrated through ASSIST.org articulation. Select courses are based on ASSIST.org data for major preparation articulation with selected transfer institutions. Consult with a Counselor for specific information regarding the intended major at the college the student is choosing. Courses used to complete a student's area of emphasis can double count for general education just as they may for any other major. Although the associate degree recognizes the completion of lower division general education requirements, it does not guarantee admission to a specific campus in the CSU or UC system, nor does it guarantee admission to a specific major or a specific community college program. Some majors and schools require a higher GPA than is necessary for the associate degree. Students should meet with a Counselor to determine the lower division major preparation coursework in addition to which general education pattern is required for transfer or for community college programs.

Program Outcomes

- Analyze and evaluate concepts and problems from a multidisciplinary STEM point of view.
- Propose and communicate creative solutions to STEM problems through collaboration, leadership, and teamwork.
- Apply scientific thinking and use technology to resolve analytical problems.

Requirements for the Area of Emphasis

Courses must be completed with a grade of C or better. All courses must be numbered 001–099. Students must complete 18 units with at least 3 units in three of the areas listed below.

Code	Title	Units
Chemistry		
CHEM 001A	GENERAL CHEMISTRY AND CHEMICAL ANALYSIS I	5
CHEM 001B	GENERAL CHEMISTRY AND CHEMICAL ANALYSIS II	5
CHEM 022	INTRODUCTORY CHEMISTRY	4
Computer Studies		
CIS 012	INTRODUCTION TO PROGRAMMING USING PYTHON	3
CIS 014	C++ PROGRAMMING	3
CIS 016	JAVA PROGRAMMING	3
CS 001	INTRODUCTION TO COMPUTERS AND PROGRAMMING	3
CS 002	FUNDAMENTALS OF COMPUTER SCIENCE I	4
CS 003A	FUNDAMENTALS OF COMPUTER SCIENCE II (C++)	4
CS 003B	FUNDAMENTALS OF COMPUTER SCIENCE (JAVA)	4
CS 003C	FUNDAMENTALS OF COMPUTER SCIENCE (PYTHON)	4
CS 006	INTRODUCTION TO APPLIED LOGIC DESIGN	4
CS 008	FUNDAMENTALS OF COMPUTER SCIENCE III - DATA STRUCTURES	4
CS 018	UNIX SCRIPTING WITH BASH	4
CS 021	INTRODUCTION TO PROGRAMMING CONCEPTS AND METHODOLOGIES	3
CS 045	DISCRETE STRUCTURES WITH COMPUTER SCIENCE APPLICATIONS	5
CS 066	ASSEMBLY LANGUAGE PROGRAMMING FOR THE SCIENCES AND MATHEMATI	4
Engineering		
ENGR 001A	SURVEYING	3
ENGR 002	ENGINEERING GRAPHICS	3
ENGR 010	INTRODUCTION TO ENGINEERING	2
ENGR 011	STATICS	3
ENGR 012	DYNAMICS	3
ENGR 013	STRENGTH OF MATERIALS	3
ENGR 014	MATERIALS OF CONSTRUCTION	3
ENGR 015B	APPLIED MECHANICS	3
ENGR 016	ENGINEERING CIRCUITS	3
ENGR 016L	ENGINEERING CIRCUITS LABORATORY	1
ENGR 018	INTRODUCTION TO NUMERICAL ANALYSIS	3
Mathematics		
MATH 003	COLLEGE ALGEBRA FOR STEM	5
MATH 005A	SINGLE VARIABLE CALCULUS I	5
MATH 005AH	HONORS SINGLE VARIABLE CALCULUS I	5
MATH 005B	SINGLE VARIABLE CALCULUS II	5
MATH 005BH	HONORS SINGLE VARIABLE CALCULUS II	5
MATH 005C	MULTIVARIABLE CALCULUS	5
MATH 005CH	HONORS MULTIVARIABLE CALCULUS	5
MATH 008	PRECALCULUS TRIGONOMETRY	4
MATH 009	PRECALCULUS MATHEMATICS	6
MATH 010	LINEAR ALGEBRA AND APPLICATIONS	4
MATH 010H	HONORS LINEAR ALGEBRA AND APPLICATIONS	4
MATH 055	DIFFERENTIAL EQUATIONS	4
MATH 055H	HONORS DIFFERENTIAL EQUATIONS	4
Physics		

PHYS 002A	GENERAL PHYSICS I: MECHANICS AND THERMAL PHYSICS	4
PHYS 002B	GENERAL PHYSICS II: ELECTROMAGNETISM, OPTICS, AND MODERN PHYSICS	4
PHYS 008A	PHYSICS FOR SCIENTISTS AND ENGINEERS I: MECHANICS	5
PHYS 008B	PHYSICS FOR SCIENTISTS AND ENGINEERS II: WAVES, ELECTRICITY & MAGNETISM	5
PHYS 008C	PHYSICS FOR SCIENTISTS AND ENGINEERS III: THERMODYNAMICS, OPTICS, AND MODERN PHYSICS	5
Technology		
ELTN 015	COMPUTER AIDED ELECTRONIC DRAFTING	3
ELTN 031	CIRCUIT ANALYSIS	5
ELTN 032	DIGITAL AND CONTROL ELECTRONICS	4
DT 008A	INTRODUCTION TO DIGITAL DESIGN AND FABRICATION	3
DT 008B	INTERMEDIATE DIGITAL DESIGN AND FABRICATION	3

General Education Requirements for the Associate in Science Degree

- General Information (https://curriculum.pasadena.edu/academic-programs-leading-degree-certificate/)
- PCC Local Gen Ed (https://curriculum.pasadena.edu/academic-programs-leading-degree-certificate/#pcclocaltext)
- CSU Breadth (https://curriculum.pasadena.edu/academic-programs-leading-degree-certificate/#csubreadthtext)
- IGETC (https://curriculum.pasadena.edu/academic-programs-leading-degree-certificate/#igetctext)