CHEMISTRY
Associate of Science

General Education Core for Associate of Science (See Page 127)	27
NOTE: Math requirement must be MATH 188	
Lab Science Requirement included in Chemistry-core classes	
Additional Mathematics: MATH 189 Calculus II	**4**

Chemistry – Core classes		**32**
CHEM 111	General Chemistry I	4
CHEM 112	General Chemistry II	4
CHEM 251	Organic Chemistry I	4
CHEM 252	Organic Chemistry II	4
CHEM 281	Analytical Chemistry	5
PHYS 215	Engineering Physics I	4
PHYS 216	Engineering Physics II	4
COSC 116	Spreadsheeting **OR**	
COSC 118	Computer Programming Fundamentals I with C++	3

Choose one Math or Science Elective:	**4**
Mathematics (MATH 268 Calculus III **OR** MATH 251 Statistics)	
Biology (BIOL 121 Introductory Biology I **OR** BIOL 224 Microbiology)	
Geology (GEOL 110 Introduction to Geology **OR** GEOL 270 Mineralogy)	
Physics (PHYS 217 Engineering Physics III)	
Chemistry (CHEM 299 Chemistry Special Topics)	
Total credit hours required for this degree	**67**

COMPUTER SCIENCE
Associate of Science

The Computer Science Associate of Science degree is designed for students interested in software design and programming. Those wishing to transfer to a baccalaureate granting institution and pursue a degree program are strongly encouraged to check with their advisor and carefully coordinate their coursework at San Juan College with the requirements of the transfer institution. The rigorous nature of this degree fulfills the expectations at the baccalaureate level. This degree also begins prospective computing professors and/or research students on their path leading to graduate degrees. Consider taking a foreign language at San Juan College if your intended transfer institution has such a requirement. These courses will be in addition to the requirements listed below.

Prerequisite courses must be completed prior to the courses listed below (e.g., MATH 160 and 180 prior to MATH 188). In general, however, it is suggested that students complete the New Mexico Transfer Module as outlined below. Student must earn a grade of C or higher in all COSC courses for the course to count toward a degree.

General Education Core for Associate of Science (See Page 127)	27
NOTE: Math requirement must be MATH 188	
ENGL 211 or ENGL 218 requirement - Must take ENGL 211	
Lab Science Requirement included in Chemistry core classes	
Additional Mathematics	**7**
MATH 189 Calculus II	4
MATH 231 Discrete Mathematics	3

Computer Science – Core classes		**32**
COSC 118	Computer Programming Fundamentals I with C++ **	3
COSC 190	Database Concepts and Principles	3
COSC 218	Computer Programming Fundamentals II with C++	3
COSC 236	UNIX	3
COSC 240	Java Programming	3
COSC 243	Web Programming on UNIX Systems	3
COSC 262	Data Structures with C++	3
COSC 270	Windows GUI Programming	3
PHYS 211	General Physics I ***	4
PHYS 212	General Physics II ***	4
	Total credit hours required for this degree	**66**

** You need to be able to use a computer, type, create documents, save files, etc. before taking COSC 118. If your computing skills are low you should take COSC 097 concurrently.

*** Read the current catalog of your intended transfer degree institution to take the most appropriate laboratory science courses. Any San Juan College approved laboratory science course may be substituted as deemed appropriate by your computer science advisor. This course also satisfies General Education laboratory science requirement. For information about NM Tech go to **www.nmt.edu,** NMSU **www.nmsu.edu** and Fort Lewis **www.fortlewis.edu.**

Object-oriented Computer Programming Certificate

The Object-Oriented Computer Programming certificate is designed for students interested in computer programming. The object-oriented language C++ is covered in great depth for console and Windows GUI Programming as well as treating the standard Template Library (STL) and Microsoft Foundation Classes (MFC).

		Credits
COSC 118	Computer Programming Fundamentals I with C++	3
COSC 218	Computer Programming Fundamentals II with C++	3
COSC 262	Data Structures with C++	3
COSC 270	Windows GUI Programming	3
	Total credit hours	**12**

Continued on next page

Web Programming Certificate

The Web Programming Certificate provides a strong background with plenty of hands-on experience in structured, procedural, and object-oriented programming languages. The latest versions of C++, Java, and Perl are covered.

		Credits
COSC 118	Computer Programming Fundamentals I with C++	3
COSC 190	Database Concepts and Principles	3
COSC 202	Web Development I	3
COSC 203	Web Development II	3
COSC 218	Computer Programming Fundamentals II with C++	3
COSC 236	UNIX	3
COSC 240	Java Programming	3
COSC 243	Web Programming on UNIX Systems	3
	Total Credit Hours	**24**

ENGINEERING
Associate of Science

It is suggested that students complete the degree as outlined and consider the additional courses accepted through the New Mexico Engineering Transfer Module (see details below degree requirements).

Students must have a minimum 2.0 grade point average and a grade of C or better in any of the courses required for transfer.

Communications		**Credits**
ENGL 111	Freshman Composition	3
ENGL 211	Advanced Composition	3
	Total Communications	**6**
Mathematics		**Credits**
MATH 188	Calculus I	4
MATH 189	Calculus II	4
MATH 268	Calculus III	4
MATH 282	Differential Equations	4
	Total Mathematics	**16**
Social and Behavioral Science:		**Credits**
	Select one course: For appropriate courses see Page 127	3
	Total Social/Behavioral Science	**3**
Humanities and Fine Arts:		**Credits**
	Select one course: For appropriate courses see Page 127	3
	Total Humanities/Fine Arts	**3**
Engineering – Core classes:		**Credits**
CHEM 111	General Chemistry I	4
CHEM 112	General Chemistry II	4
COSC 118	Computer Programming Fundamentals I with C++	3