

## SALES AND CUSTOMER SERVICE PROFESSIONAL



### CERTIFICATE OF PROFICIENCY

#### CAREER/TECHNICAL (MAJOR CODE: 02175)

Designed for students desiring to enter or refresh their skills in the field of sales and customer service. Provides training that is required for employment in businesses, institutions, and organizations of all types and that can help present employees to take advantage of opportunities to upgrade to higher level positions.

#### Program Student Learning Outcome Statement:

- Student will present ideas clearly and persuasively with the goal of selling a product, service, or idea.
- Student will interact with people of diverse ethnic and socio-economic backgrounds in providing quality customer service with the goal of retaining and building good relationships with customers, clients, and co-workers.

BUS 96	Customer Service and Communication Techniques	1
BUS 134	eBusiness I: Principles of Electronic Commerce (3) OR	3
BUS 191	Creating and Managing a Virtual Office (3)	
BUS 139	Consumer Retailing and Merchandising	1
BUS 144	Advertising and Promotional Strategy	1
BUS 147	Successful Selling Techniques	1
LDR 148	Business Presentation Skills—Bilingual (Spanish/English) (2) OR	2
LDR 149	Business Presentation Skills (2)	
BUS 210	Business English	3
<b>Total units</b>		<b>12</b>

## BUSINESS MANAGEMENT

### SCHOOL OF BUSINESS AND TECHNOLOGY

**DEAN:** Mink Stavenga, DBA, Office 470K, 619-482-6569

**FACULTY:** Yvonne Lucas, M.B.A.; Frank Paiano, M.B.A.;  
Elisabeth Shapiro, J.D.; Gail Stockin, M.A.

**DEPARTMENT CHAIR:** Elisabeth Shapiro, J.D.

#### GENERAL DESCRIPTION

Study in this area explores management theories, history, principles, and contemporary practices utilized in our increasingly global business environment. The program encompasses a variety of specialized areas including management, marketing, financial services, entrepreneurship, leadership and supervision, eBusiness, human resources, international trade, and community development.

#### CAREER OPTIONS

Below is a sample of the career options available for the business management or related major. Most require an associate degree, some require a bachelor's or graduate-level degree: administrator, manager, human resources, small business owner/operator, supervisor, office manager, and insurance professional. Many entry-level employment opportunities are available in retail or wholesale sales, business offices, financial institutions, schools, colleges, and local, state, and federal government.

#### DEGREE/CERTIFICATE OPTIONS

#### MAJOR CODE

##### Associate in Science Degree: Career/Technical

eBusiness	02456
Entrepreneurship and Small Business	01156
Business Management	A1151

##### Certificates of Achievement

eBusiness—Intermediate	A2457
Entrepreneurship and Small Business—Intermediate	A1155
Financial and Investment—Services Specialty	B2027
Management Specialty	A1153
Social Marketing Emphasis	A2113

##### Certificates of Proficiency

eBusiness—Basic	A2444
Entrepreneurship and Small Business—Basic Management—Basic	A2442 01152

##### Entrepreneurship Education

Automotive Technology Emphasis	02192
Event and Convention Planning Emphasis	02968
Landscape Construction Emphasis	02193
Recording Arts Emphasis	02194
Web Design Emphasis	02339

Consult with a counselor to develop a Student Education Plan (SEP), which lists the courses necessary to achieve your academic goal.

## ASSOCIATE IN SCIENCE DEGREE

### EBUSINESS



#### ASSOCIATE IN SCIENCE DEGREE

##### CAREER/TECHNICAL (MAJOR CODE: 02456)

Designed to prepare students to work in the dynamic field of electronic business and commerce. The associate degree provides students with a broad range of the business knowledge and technical skills required to be competitive in the job market in the field of eBusiness.

#### Program Student Learning Outcome Statement:

- Students will be able to develop appropriate written professional communications for the intended business audience.



ACCT 12	Computerized Accounting (3) OR	3-4
ACCT 102	Principles of Accounting II—Managerial (4)	
BUS 120	Introduction to Business OR	3
BUS 121	Financial Planning and Money Management	
BUS 136	Diverse Workforce Management and Communication (2) OR	2-3
BUS 152	Human Relations in Organizations (3)	
BUS 150	Principles of Management (3) OR	3
BUS 177	Principles of International Business (3)	
BUS 183	Business Mathematics	3
CIS 133	Advanced Microcomputer Spreadsheets Software (1) OR	1
CIS 134	Microcomputer Database Software—Access (1)	
LDR 148	Business Presentation Skills— Bilingual (English/Spanish) (2) OR	2
LDR 149	Business Presentation Skills (2)	
<b>Plus the courses required for the eBusiness—Emphasis certificate</b>		<b>19</b>
<b>Total units</b>		<b>36-38</b>

To earn an associate degree, additional general education and graduation requirements must be completed. See page 64.

*The program below is undergoing modification and the modification will be placed into an addendum upon Chancellor's Office approval - see your counselor for further information and visit the college website under <http://www.swccd.edu/catalog> link for the latest addenda updates.*

## ENTREPRENEURSHIP AND SMALL BUSINESS

**ASSOCIATE IN SCIENCE DEGREE CAREER/TECHNICAL (MAJOR CODE: 01156)**  
Designed for both prospective and current owners or managers of a small business. Emphasizes opportunities available in San Diego County for entrepreneurs and provides training in all aspects of the development of a successful small business enterprise.

**Program Student Learning Outcome Statement:**

- Students will describe and summarize an entrepreneur solution by creating a small business opportunity.

ACCT 12	Computerized Accounting	3
BUS 121	Financial Planning and Money Management	3

BUS 150	Principles of Management (3) OR	3
BUS 177	Principles of International Business (3)	
BUS 152	Human Relations in Organizations (3) OR	2-3
BUS 136	Diverse Workforce Management and Communication (2)	
BUS 183	Business Mathematics	3
CIS 133	Advanced Microcomputer Spreadsheet Software (1) OR	1
CIS 134	Microcomputer Database Software—Access (1)	
LDR 148	Business Presentation Skills— Bilingual (English/Spanish) (2) OR	2
LDR 149	Business Presentation Skills (2)	
LDR 151	Human Resources and Labor Relations	3
<b>Plus the required courses for the Entrepreneurship and Small Business—Intermediate certificate</b>		<b>30-35</b>
<b>Total units</b>		<b>50-56</b>

To earn an associate degree, additional general education and graduation requirements must be completed. See page 64.

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## BUSINESS MANAGEMENT

**ASSOCIATE IN SCIENCE DEGREE CAREER/TECHNICAL (MAJOR CODE: A1151)**  
Designed to provide students with key concepts in business management, including the areas of administration, management, marketing, finance, entrepreneurship, supervision, banking, small business, merchandising, international trade, accounting, ebusiness and information systems. Explores the theories, history, principles, skills, practices, laws, ethics, and technologies governing the increasingly global business environment.

**Program Student Learning Outcome Statement:**

- Summarize measures that can be taken by individuals and organizations to correct organizational problems.

**GAINFUL EMPLOYMENT:**  
The U.S. Department of Education requires colleges to disclose a variety of information for any financial aid eligible program that "prepares students for gainful employment in a recognized occupation."



Students who complete this program will have acquired the necessary analytical tools to successfully secure gainful employment in the field of study.

For more information regarding the data provided for this program and what it means to you as a student, please feel free to visit our SWC Gainful Employment website at: [www.swccd.edu/gainfulemployment](http://www.swccd.edu/gainfulemployment).

ACCT 101	Principles of Accounting I	4
BUS 140	Business Law/The Legal Environment of Business	3
BUS 211	Communication in Business and Industry (3) OR	3
BUS 212	Business Communication (3)	
BUS 290	Work Experience in Business I	2-4

**Plus completion of one of the following specialty certificates 20**  
(Management Specialty)  
(Financial and Investment Services Specialty)

**Total units 32-34**

To earn an associate degree, additional general education and graduation requirements must be completed. See page 64.

## CERTIFICATES

### EBUSINESS: BASIC

#### CERTIFICATE OF PROFICIENCY

##### CAREER/TECHNICAL (MAJOR CODE: A2444)

Designed to introduce students to the field of electronic commerce with a focus on the business and organizational aspects of the field.

##### Program Student Learning Outcome Statement:

- Students will describe and summarize ebusiness solutions to solve and determine current and future business requirements.

BUS 134	eBusiness I: Principles of Electronic Commerce	3
BUS 143	eStrategic Business Planning	2
CIS 101	Introduction to Computers and Information Processing (4) OR	1-4
CL 120	Computer Literacy (1)	
CIS/LIB 151	Research Using the Internet	1

**Total units 7-10**

**Recommended Electives:** BUS 148, 149.

## EBUSINESS: INTERMEDIATE



#### CERTIFICATE OF ACHIEVEMENT

##### CAREER/TECHNICAL (MAJOR CODE: A2457)

Designed to prepare students to work in the dynamic field of electronic business and commerce. Builds upon the combined knowledge and technical skills students have acquired in creating and maintaining a strong business presence on the Web.

##### Program Student Learning Outcome Statement:

- Students will describe and summarize ebusiness solutions to solve and determine current and future business requirements.

#### GAINFUL EMPLOYMENT:

The U.S. Department of Education requires colleges to disclose a variety of information for any financial aid eligible program that "prepares students for gainful employment in a recognized occupation."

Students who complete this program will have acquired the necessary analytical tools to successfully secure gainful employment in the field of study.

For more information regarding the data provided for this program and what it means to you as a student, please feel free to visit our SWC Gainful Employment website at: [www.swccd.edu/gainfulemployment](http://www.swccd.edu/gainfulemployment).

#### REQUIRED CORE (9 UNITS):

BUS 134	eBusiness I: Principles of Electronic Commerce	3
BUS 143	eStrategic Business Planning	2
CIS 162	Web Site Universal Design	2
CIS 255	Web Search Engine Visibility	2

#### Plus the required courses for the Business Management—

##### Basic Certificate:

BUS 120	Introduction to Business	3
BUS 142	Business Ethics---Corporate and Personal	1
BUS 150	Principles of Management	3
BUS 152	Human Relations in Organizations	3

**Total units 19**

## ENTREPRENEURSHIP AND SMALL BUSINESS: BASIC



#### CERTIFICATE OF PROFICIENCY

##### CAREER/TECHNICAL (MAJOR CODE: A2442)

Designed for both the prospective and the current owner/manager of a small business. Emphasizes basic concepts in bookkeeping, law, and operations management for a small business, as well as the advertising and selling of products and services.



**Program Student Learning Outcome Statement:**

- Students will describe and summarize entrepreneur business solutions to solve and determine current and future small business opportunities.

BUS 143	eStrategic Business Planning	2
BUS 148	Developing and Starting a New Business	3
BUS 149	Entrepreneurship Operating and Managing a Small Business	3
CIS/LIB 151	Research Using the Internet	1
CL 120	Computer Literacy (1) OR	1-4
CIS 101	Introduction to Computers and Information Processing (4)	
LDR 152	Business Innovation and Creativity	1
LEGL 272	Business Organizations	2
<b>Total units</b>		<b>13-16</b>

## ENTREPRENEURSHIP AND SMALL BUSINESS: INTERMEDIATE


**CERTIFICATE OF ACHIEVEMENT****CAREER/TECHNICAL (MAJOR CODE: A1155)**

Designed for both prospective and current owners or managers of a small business. Emphasizes further development of skills learned in the basic program to enhance the concepts of bookkeeping, law, small business operations management, and the promotion and sale of products and/or services.

**Program Student Learning Outcome Statement:**

- Students will describe and summarize entrepreneur business solutions in creating a small business opportunity.

**GAINFUL EMPLOYMENT:**

The U.S. Department of Education requires colleges to disclose a variety of information for any financial aid eligible program that "prepares students for gainful employment in a recognized occupation."

Students who complete this program will have acquired the necessary analytical tools to successfully secure gainful employment in the field of study.

For more information regarding the data provided for this program and what it means to you as a student, please feel free to visit our SWC Gainful Employment website at: [www.swccd.edu/gainfulemployment](http://www.swccd.edu/gainfulemployment).

**REQUIRED CORE (9 UNITS):**

BUS 143	eStrategic Business Planning	2
BUS 145	Financial Management for Small Business	1
BUS 148	Developing and Starting a New Business	3
BUS 149	Entrepreneurship Operating and Managing a Small Business	3

**Plus the required courses for the Management- Basic Certificate (10 units):**

BUS 120	Introduction to Business	3
BUS 142	Business Ethics---Corporate and Personal	1
BUS 150	Principles of Management	3
BUS 152	Human Relations in Organizations	3
<b>Total units</b>		<b>19</b>

**Note:** It is recommended that students complete the Entrepreneurship and Small Business—Basic certificate plus half of the courses required for the Entrepreneurship and Small Business—Intermediate program prior to enrolling in BUS 290-293.

## FINANCIAL AND INVESTMENT SERVICES SPECIALTY

**CERTIFICATE OF ACHIEVEMENT****CAREER/TECHNICAL (MAJOR CODE: B2027)**

Designed to provide students with a basic understanding of financial services and investments which is required for a wide variety of positions in the financial services industry. Covers banking services, including loans, deposit accounts, lines of credit, sales or inventory financing, certificates of deposit, cash management, and mutual funds as well as investment principles, including markets, stock and bonds, investment funds, and insurance investments.

**Program Student Learning Outcome Statement:**

- Student will demonstrate the ability to present and explain the important risk versus reward characteristics of the major investment asset types.

BUS 121	Financial Planning and Money Management	3
BUS 123	Introduction to Investments	3
BUS 145	Financial Management for Small Business	1
BUS 183	Business Mathematics	3

**Plus the required courses for the Business Management—Basic 10**

**Total units** **20**

## MANAGEMENT: BASIC

**CERTIFICATE OF PROFICIENCY****CAREER/TECHNICAL (MAJOR CODE: 01152)**

Designed to provide students with the basic concepts and practices of business management: including an introductory class which provides a broad understanding of key components to the study of business and additional course work on marketing, finance, entrepreneurship, supervision, leadership, human relations, motivation, international business, accounting, and ethics.



**Program Student Learning Outcome Statement:**

- Integrate basic management theories into supervisory and management functions.

BUS 120	Introduction to Business	3
BUS 142	Business Ethics—Corporate Personal	1
BUS 152	Human Relations in Organizations	3
BUS 150	Principles of Management	3
<b>Total units</b>		<b>10</b>

**MANAGEMENT SPECIALTY****CERTIFICATE OF ACHIEVEMENT****CAREER/TECHNICAL (MAJOR CODE: A1153)**

Designed to provide students with continued study in key concepts and practices of business management, including marketing, leadership, entrepreneurship, supervision, banking, small business, merchandising, international trade, accounting, and information systems.

**Program Student Learning Outcome Statement:**

- Summarize measures that can be taken by individuals and organizations to correct organizational problems.

**GAINFUL EMPLOYMENT:**

The U.S. Department of Education requires colleges to disclose a variety of information for any financial aid eligible program that "prepares students for gainful employment in a recognized occupation.

Students who complete this program will have acquired the necessary analytical tools to successfully secure gainful employment in the field of study.

For more information regarding the data provided for this program and what it means to you as a student, please feel free to visit our SWC Gainful Employment website at: [www.swccd.edu/gainfulemployment](http://www.swccd.edu/gainfulemployment).

BUS 129	Multimedia Presentations—PowerPoint	1
BUS 151	Principles of Operations Management	3
BUS 239	Project Management	3
LDR 150	Leadership and Supervision	3

**Plus the required courses for the Business Management—Basic 10**

<b>Total units</b>	<b>20</b>
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**Note:** It is recommended that students complete the Management—Basic certificate program plus half of the courses required for the Management—Intermediate certificate program prior to enrolling in BUS 290–293.

**SOCIAL MARKETING EMPHASIS****CERTIFICATE OF ACHIEVEMENT****CAREER/TECHICAL (MAJOR CODE: A2113)****PROGRAM DESCRIPTION:**

This program combines business skills in marketing, advertising, and communication with technical skills in social media and e-commerce. Students gain a working knowledge of techniques to increase and optimize business-oriented Web traffic in various social media venues, including Facebook, LinkedIn, Twitter, and other emerging social media and e-commerce platforms.

**Program Student Learning Outcome Statement:**

- Students will be able to develop appropriate written communication for the intended business audience.

**GAINFUL EMPLOYMENT:**

The U.S. Department of Education requires colleges to disclose a variety of information for any financial aid eligible program that "prepares students for gainful employment in a recognized occupation. Students who complete this program will have acquired the necessary analytical tools to successfully secure gainful employment in the field of study.

For more information regarding the data provided for this program and what it means to you as a student, please feel free to visit our SWC Gainful Employment website at: [www.swccd.edu/gainfulemployment](http://www.swccd.edu/gainfulemployment).

**REQUIRED CORE (10 units):**

BUS 174	Introduction to Marketing and Social Media Practices	3
CIS 151	Research Using the Internet	1
CIS 152	Using HTML and CSS to Create Web Pages	2
CIS 162	Web Site Universal Design	2
CIS 255	Web Search Engine Visibility	2

**Plus the required courses for the Management – Basic Certificate (10 units):**

BUS 120	Introduction to Business	3
BUS 142	Business Ethics---Corporate and Personal	1
BUS 150	Principles of Management	3
BUS 152	Human Relations in Organizations	3

<b>Total units</b>	<b>20</b>
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## ENTREPRENEURSHIP EDUCATION

### CAREER/TECHNICAL

Prepares students with the understanding of entrepreneurship and small business management which includes developing, planning, organizing, and operating. Provides students interested in self-employment and those working within small firms with the knowledge and skills to foster small business. Entrepreneurship training contributes to the student's financial independence, career success, and the world's economy. Linking entrepreneurship education with program specific areas, prepares students from a wide spectrum of disciplines with the practical tools to build and maintain small businesses or to work successfully within a small business.

### COMMON CORE

Complete the Common Core classes listed below plus at least one emphasis from pages 151-153.

BUS 143	eStrategic Business Planning	2
BUS 145	Financial Management for Small Business	1
BUS 148	Developing and Starting a New Business	3
BUS 149	Entrepreneurship Operating and Managing a Small Business	3
<b>Total units</b>		<b>9</b>

### PLUS COMPLETION OF ONE OF THE FOLLOWING CERTIFICATES OF EMPHASIS:

- Automotive Technology
- Event and Convention Planning
- Landscape Construction
- Recording Arts
- Web Designer

## AUTOMOTIVE TECHNOLOGY EMPHASIS

### CERTIFICATE OF PROFICIENCY

#### CAREER/TECHNICAL (MAJOR CODE: 02192)

Prepares students for self-employment and work within small companies in the business aspects of the automotive industry. Builds on their industry education in automotive repair. Expands their education in entrepreneurship and small business management. Contributes to the student's financial independence, career success, and the world's economy. Prepares them to own businesses in the automotive industry or for positions in business management, sales, and customer service.

### Program Student Learning Outcome Statement:

- Students will be able to professionally communicate their business ideas and values to the appropriate business audience.
- Students will be able to examine diverse populations and understand how businesses respond to the different populations with customized business strategies.
- Students will be able to develop and implement a business plan by conducting research in the appropriate specialty area and identify the target market, competition, industry standards, and financial projections.

AT 101	Introduction to Basic Automotive Service	3
AT 102	Automotive Science and Basic Mechanics	3
<b>Plus the Common Core courses for Entrepreneur Education</b>		<b>9</b>
<b>Total units</b>		<b>15</b>

## EVENT AND CONVENTION PLANNING EMPHASIS

### CERTIFICATE OF PROFICIENCY

#### CAREER/TECHNICAL (MAJOR CODE: 02968)

Prepares students for self-employment and work within small businesses in the dynamic hospitality industry. Builds on their industry education in event and convention planning, event marketing, and corporate project management. Expands their education in entrepreneurship and small business management. Contributes to the student's financial independence, career success, and the world's economy. Prepares them for private practice or for key roles within event management firms.

### Program Student Learning Outcome Statement:

- Students will be able to professionally communicate their business ideas and values to the appropriate business audience.
- Students will be able to examine diverse populations and understand how businesses respond to the different populations with customized business strategies.
- Students will be able to develop and implement a business plan by conducting research in the appropriate specialty area and identify the target market, competition, industry standards, and financial projections.





EVNT 154	Introduction to Event and Convention Planning	3
EVNT 155	Event Marketing (3) OR	3
EVNT 157	Corporate Event Project Management (3)	
<b>Plus the Common Core courses for Entrepreneur Education</b>		<b>9</b>
<b>Total units</b>		<b>15</b>

## LANDSCAPE CONSTRUCTION EMPHASIS

### CERTIFICATE OF PROFICIENCY

#### CAREER/TECHNICAL (MAJOR CODE: 02193)

Prepares students for self-employment and work within small businesses in the landscape industry. Builds on their industry education in project estimating, sprinkler system repair, and working with concrete, masonry, and wood. Expands their education in entrepreneurship and small business management. Contributes to the student's financial independence, career success, and the world's economy. Prepares them to work for others and after passing the state contractor's examination, to own their own landscape construction business.

#### Program Student Learning Outcome Statement:

- Certificate students will be able to professionally communicate their business ideas and values to the appropriate business audience.
- Certificate students will be able to examine diverse populations and work appropriately with clients, co-workers, and suppliers.
- Certificate students will be able to develop and implement a business plan by conducting research in the appropriate specialty area and identify the target market, competition, industry standards, and financial projections.

LNT 91	Sprinkler System Maintenance: Sprinklers, Pipes, and Backflow Devices	1
LNT 92	Sprinkler System Maintenance: Valves and Wiring	1
LNT 125	Landscape Construction: Concrete and Masonry Skills	1
LNT 126	Landscape Construction: Fence, Deck, and Lumber Skills	1
LNT 127	Landscape Construction: Sprinkler Installation	1
LNT 131	Landscape Contracting and Estimating	3
<b>Plus the Common Core courses for Entrepreneur Education</b>		<b>9</b>
<b>Total units</b>		<b>17</b>

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## RECORDING ARTS EMPHASIS

### CERTIFICATE OF PROFICIENCY

#### CAREER/TECHNICAL (MAJOR CODE: 02194)

Prepares students for self-employment and work within small businesses in the dynamic entertainment industry. Builds on their recording industry technical education in recording arts and recording techniques. Expands their education in entrepreneurship and small business management. Contributes to the student's financial independence, career success, and the world's economy. Prepares them for business ownership or key roles within the audio recording and sound mixing fields.

#### Program Student Learning Outcome Statement:

- Students will be able to professionally communicate their business ideas and values to the appropriate business audience.
- Students will be able to examine diverse populations and understand how businesses respond to the different populations with customized business strategies.
- Students will be able to develop and implement a business plan by conducting research in the appropriate specialty area and identify the target market, competition, industry standards, and financial projections.

MUS 150/RA&T 110	Music Business/Career Overview	3
MUS 151/TELE 151/RA&T 120	Recording Techniques	3
MUS 152	Advanced Recording Techniques	2
<b>Plus the Common Core courses for Entrepreneur Education</b>		<b>9</b>
<b>Total units</b>		<b>17</b>

## WEB DESIGNER EMPHASIS

### CERTIFICATE OF PROFICIENCY

#### CAREER/TECHNICAL (MAJOR CODE: 02339)

Prepares students for self-employment and work in small businesses in any industry that relies on websites for marketing. Builds on



their industry education in web design and usability. Expands their education in entrepreneurship and small business management. Contributes to the student's financial independence, career success, and the world's economy. Prepares them for business ownership and key roles in web design or maintenance positions.

#### Program Student Learning Outcome Statement:

- Students will be able to professionally communicate their business ideas and values to the appropriate business audience.
- Students will be able to examine diverse populations and understand how businesses respond to the different populations with customized business strategies.
- Students will be able to develop and implement a business plan by conducting research in the appropriate specialty area and identify the target market, competition, industry standards, and financial projections.

CIS 123	Web Publishing With Dreamweaver	6
CIS 162	Website Universal Design	2
<b>Plus the Common Core courses for Entrepreneur Education</b>		<b>9</b>
<b>Total units</b>		<b>17</b>

# CHEMISTRY

## SCHOOL OF MATHEMATICS, SCIENCE, AND ENGINEERING

**DEAN:** Michael Odu, Ph.D., Office 215A, 619-482-6344

**FACULTY:** David R. Brown, Ph.D.; David Hecht, Ph.D.;  
Tinh-Alfredo V. Khuong, Ph.D.; Joann Um, Ph.D.

**DEPARTMENT CHAIR:** Jeffrey Veal, Ph.D.

### GENERAL DESCRIPTION

Chemistry is a physical science that focuses on the composition, structural properties, reaction of substances, and the means by which matter is converted from one form to another. This discipline explores the fundamentals of organic and inorganic matter, chemical structure and reactivity, qualitative and quantitative analyses, laboratory procedures that include strong emphasis on modern instrumental methods, research methodologies, and quantum mechanics.

### CAREER OPTIONS

Below is a sample of the career options available to the chemistry major. A few require an associate in science degree, some require a bachelor's degree, and most require a graduate-level degree: high school or college teacher, analytical chemist, biochemist, polymer chemist, medical doctor, dentist, laboratory technician, and technical sales representative. Entry-level career opportunities are available in biotechnology, biomedical instrumentation, diagnostics, immunochemistry, pharmaceuticals, basic research, and environmental control agencies.

### DEGREE/CERTIFICATE OPTIONS

### MAJOR CODE

#### Associate in Science Degree: Transfer Preparation

Chemistry

01530

Consult with a counselor to develop a Student Education Plan (SEP), which lists the courses necessary to achieve your academic goal.

**Note:** See also *Pharmaceutical and Laboratory Science*, page 302.

#### Websites for chemistry majors:

**SDSU:** <http://www.chemistry.sdsu.edu>

**UCSD:** <http://www.chemistry.ucsd.edu>

**CSU, San Marcos:** <http://www.csusm.edu/chemistry>

**Articulation:** <http://www.assist.org>

## ASSOCIATE IN SCIENCE DEGREE

### CHEMISTRY



#### ASSOCIATE IN SCIENCE DEGREE TRANSFER PREPARATION \* (MAJOR CODE: 01530)

Chemistry is the study of the composition of matter, its structure, and the means by which it is converted from one form to another. Related to chemistry is molecular biology. Students interested in matter as it applies to life should also take courses in the life sciences. Most courses require mathematics prerequisites. Placement is determined by the Mathematics Assessment Process, which should be taken before registration. It is essential that students start with mathematics during the first semester.

Chemistry majors are advised to give priority to lower-division requirements for the major as they are prerequisites for most upper division courses. Only as many general education courses should be taken as can be included in the 70-unit transfer limitation, and these must be chosen with care to insure that they fit into the general education pattern at the transfer institution.

#### Program Student Learning Outcome Statement:

- Solve quantitative chemistry problems and demonstrate reasoning clearly and completely.

### FIRST SEMESTER \*\*

CHEM 200	General Chemistry I	5
MATH 250	Analytic Geometry and Calculus I	5

### SECOND SEMESTER

CHEM 210	General Chemistry II	5
MATH 251	Analytic Geometry and Calculus II	4
PHYS 270	Principles of Physics I	3
PHYS 271	Principles of Physics Laboratory I	1

