

# FULTON-MONTGOMERY COMMUNITY COLLEGE

Johnstown, New York 12095-3790  
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A Unit of the  
State University of New York  
Sponsored by the Counties of  
Fulton and Montgomery

1999-2001

Visit us on the World Wide Web at <http://fmcc.suny.edu>  
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*Fulton-Montgomery Community College is an equal opportunity, affirmative action institution. Programs and services at Fulton-Montgomery Community College are open to all without regard to sex, race, color, national origin or disability.*

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**ACADEMIC PROGRAMS BY DEGREE/CERTIFICATE AWARDED  
AND ONE-PLUS-ONE JOINT AGREEMENTS**

Fulton-Montgomery Community College's programs include Liberal Arts, Career, and Certificates. Also listed are One-plus-One agreements. These programs are listed here along with the Higher Education General Information Survey (HEGIS) classification and the State University of New York Application Processing Center's (APC) codes. Enrollment in other than registered or otherwise approved programs may jeopardize a student's eligibility for certain student aid awards.

	HEGIS	APC
<b>FULTON-MONTGOMERY COMMUNITY COLLEGE</b>	0765	.....77
<b>A.A. DEGREE PROGRAMS</b>	<b>DEGREE</b>	<b>HEGIS.....APC</b>
Liberal Arts & Sciences: General Studies .....	A.A.	5649.00 .....0250
Liberal Arts & Sciences: Humanities .....	A.A.	5649.00 .....0201
Liberal Arts & Sciences: Social Sciences.....	A.A.	5649.00 .....0212
Fine Arts .....	A.A.	5610.00 .....0664
<b>A.S. DEGREE PROGRAMS</b>		
Business: Business Administration .....	A.S.	5004.00 .....0671
Computer Science.....	A.S.	5101.00 .....0532
Engineering Science .....	A.S.	5609.00 .....0530
Liberal Arts & Sciences: Mathematics.....	A.S.	5617.00 .....0221
Liberal Arts & Sciences: Mathematics/Science.....	A.S.	5649.00 .....0645
Liberal Arts & Sciences: Science.....	A.S.	5649.00 .....0220
Health, Physical Education & Recreation Studies .....	A.S.	5299.30 .....1130
Environmental Studies.....	A.S.	5499.00 .....1016
<b>A.A.S. DEGREE PROGRAM - TECHNOLOGIES</b>		
Automotive Technology .....	A.A.S.	5306.00 .....0525
Construction Technology.....	A.A.S.	5317.00 .....0540
Electrical Technology.....	A.A.S.	5310.00 .....0555
Multimedia .....	A.A.S.	5008.00 .....1388
Natural Resources Conservation .....	A.A.S.	5499.00 .....0617
Visual Communications Technology:		
Graphic Arts Printing.....	A.A.S.	5012.00 .....0677
<b>A.A.S. DEGREE PROGRAM - BUSINESS</b>		
Business: Accounting .....	A.A.S.	5002.00 .....0630
Business: Business Administration .....	A.A.S.	5004.00 .....0632
Computer Information Systems.....	A.A.S.	5103.00 .....0581
Office Technology: Administrative .....	A.A.S.	5005.00 .....0625
Office Technology: Word/Information Processing.....	A.A.S.	5005.00 .....0694
<b>A.A.S. DEGREE PROGRAM - PUBLIC AFFAIRS AND SERVICES</b>		
Crafts Management .....	A.A.S.	5012.00 .....0417
Criminal Justice .....	A.A.S.	5505.00 .....0640
Early Childhood.....	A.A.S.	5503.00 .....0605
Food Service Administration.....	A.A.S.	5404.00 .....0570
Human Services .....	A.A.S.	5501.00 .....0604
Undergraduate Nursing .....	A.A.S.	5208.10 .....0622

## A.O.S. DEGREE PROGRAMS

Individual Studies .....	A.O.S.	5699.00.....	0688
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## CERTIFICATE PROGRAMS (One Year)

Automotive Mechanics .....	Certificate	5306.00.....	0926
Criminal Justice .....	Certificate	5505.00.....	0047
Desktop Publishing: Digital Typesetting.....	Certificate	5008.00.....	1094
Early Childhood .....	Certificate	5503.00.....	0968
Electronics .....	Certificate	5510.00.....	1061
General Education .....	Certificate	5699.00.....	0985
Human Services .....	Certificate	5501.00.....	0949
Individual Studies .....	Certificate	5699.00.....	0987
Medical Information Processing .....	Certificate	5214.00.....	0045
Multimedia .....	Certificate	5008.00.....	1389
Office Technology: Clerical .....	Certificate	5005.00.....	0935
Office Technology: Word/Information Processing ...	Certificate	5005.00.....	0996
Quantity Food Production .....	Certificate	5404.00.....	0044
Secretarial Studies .....	Certificate	5005.00.....	0927

## 1-YEAR, PLUS 1-YEAR AGREEMENTS

SUNY FMCC + SUNY Canton  
*Degree awarded by SUNY Canton*

Industrial Technology .....	A.A.S.
Mortuary Science .....	A.A.S.

SUNY FMCC + SUNY Cobleskill  
*Degree awarded by SUNY Cobleskill*

Biological Technology .....	A.A.S.
Chemical Technology .....	A.A.S.
Floriculture .....	A.A.S.
Public Health Technology: Environmental Health .....	A.A.S.
Science Laboratory Technology: Histotechnology .....	A.A.S.

SUNY FMCC + SUNY College of Environmental Science & Forestry  
*Degree awarded by SUNY College of Environmental Science & Forestry*

Forest Technology .....	A.A.S.
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## ACADEMIC PROGRAM REQUIREMENTS

Note: In some programs, requirements are listed as categories of courses. The specific courses that comprise each category are listed below.

**BUSINESS** - includes courses in Accounting (BU), Computer Information Systems (CS), Economics (EC), Keyboarding (Computer) (BU, OT), Legal Assisting (LE), Office Technology (OT), Medical Office Technology (OT, ME) and Business Administration (BU)

**COMPUTER INFORMATION SYSTEMS** - includes courses in Computer Information Systems (CS)

**EARLY CHILDHOOD EDUCATION** - includes courses in Education (ED)

**HEALTH, PHYSICAL EDUCATION & RECREATION** - includes courses in Health (HE) and Physical Education (PE)

**HUMAN DEVELOPMENT** - includes courses in Human Development (HD)

**HUMAN SERVICES** - includes courses in Human Services (HS)

**HUMANITIES** - includes courses in Art (AR), Communications (CO), English (EN), Modern Foreign Language (FL), Music (MU), Philosophy (HU), and Theater (TH)

**MATHEMATICS** - includes courses in Mathematics (MA)

**NURSING** - includes courses in Nursing (NU)

**PHYSICAL EDUCATION** - includes courses in Physical Education (PE)

**SCIENCE** - includes courses in Biology (BI, SC), Chemistry (CH, SC), Engineering (ES), Geology (SC), Introductory Sciences (SC), Physics (PH, SC)

**SOCIAL SCIENCE** - includes courses in History (SS), Political Science (SS), Psychology (SS), Sociology (SS)

**TECHNOLOGY** - includes courses in Automotive (AT), Computer (TC), Construction (CT), Criminal Justice (CJ), Electricity and Electronics (EL), Food Service Administration (FS), Hotel Management (HA), Mechanical Drawing/Drafting (MD), Multimedia (MM), Natural Resources Conservation (NR), Photography (ER), Surveying (SU), Visual Communications (GA)

**AUTOMOTIVE TECHNOLOGY (A.A.S.)**  
**APC — 0525**

Automotive Technology Program is designed to prepare students who, in addition to being knowledgeable in their chosen field, will have a basic background in the Arts and Sciences. Students in this program are expected to provide their own safety footwear, limited hand tools, and other personal items appropriate for automotive laboratory classes.

**FIRST YEAR**

*First Semester*

AT 121 Intro. to Automotive Function**.....	3
AT 122 Theory of Intern. Comb. Engines**.....	3
AT 124 Automotive Electrical Systems.....	3
SC 161 Intro. to Physics I.....	3
Mathematics*.....	3-4
	15-16

*Second Semester*

EN 103 English I.....	3
AT 123 Intern. Comb. Engine Supp. Sys.**.....	3
SC 162 Intro. to Physics II.....	3
Mathematics or Elective*.....	3-4
Social Science Elective.....	3
Microcomputers.....	2
	17-18

**SECOND YEAR**

*First Semester*

EN 104 English II <u>or</u>	
EN 127 Technical English.....	3
AT 225 Automotive Chassis Systems**.....	3
Electives.....	6
Social Science Elective.....	3
Physical Education.....	1
	16

*Second Semester*

AT 226 Power Trains — Des. Fea. & Anal.....	3
AT 227 Electronic Engine & Chassis Anal.**.....	3
AT 228 Consumer Relations & Services.....	3
Electives.....	6
Physical Education.....	1
	16

\*Math placement depending upon preparation, competence at level of MA 142 or higher required.

\*\*Course meets at the Vo-Tec Center. Students make own transportation arrangements.

Suggested Electives: BU 101, 103, EL 125, MA 144, MD 171.

Minimum of 64 semester hours required for graduation, including 2 hours of physical education.

## AUTOMOTIVE MECHANICS (Certificate)

### APC — 0926

This one-year Automotive Mechanics Certificate Program is designed to provide students with concentrated skill training for immediate employment. However, all credits can be applied toward an Associate's degree.

Emphasis is on practical hands-on experience in all aspects of automotive mechanics including engines, support systems, electrical systems, chassis, and power train. Customer relations are also stressed. Modern electronic equipment is used in highly individualized laboratory projects. Advanced placement and credit for prior learning in school and on the job are possible. Students in this program are expected to provide their own safety footwear, limited hand tools, and other personal items appropriate for automotive laboratory classes.

Graduates may be employed as mechanics helpers, mechanics, and related careers. Jobs are available in small shops, dealerships, and automotive repair chain stores.

#### *First Semester*

AT 121 Introduction to Automotive Function* .....	3
AT 122 Theory of Internal Combustion Engines* .....	3
AT 124 Automotive Electrical Systems .....	3
AT 225 Automotive Chassis Systems* .....	3
Elective .....	3
	<u>15</u>

#### *Second Semester*

AT 123 Internal Combustion Engine Support Systems* .....	3
AT 226 Power Trains-Design Features & Analysis* .....	3
AT 227 Electronic Engine & Chassis Analysis* .....	3
AT 228 Consumer Relations & Services .....	3
Elective** .....	3
Microcomputers .....	2
	<u>18</u>

\*Course meets at the Vo-Tec Center. Students make own transportation arrangements.

\*\*Business course recommended.

Minimum of 32 semester hours required to complete this program.

**BUSINESS: ACCOUNTING (A.A.S.)**  
**APC — 0630**

The accounting program provides the basic principles and procedures which are readily applicable to the problems students will meet in the business world of accountants and cost analyst trainees in numerous areas such as industry, finance, insurance, banking and government on the junior-management level.

**FIRST YEAR**

*First Semester*

EN 103 English I.....	3
BU 101 Principles of Business.....	3
BU 103 Mathematics of Business Finance.....	3
BU 121 Principles of Accounting I.....	4
Microcomputers .....	3
	16

*Second Semester*

EN 104 English II.....	3
BU 122 Principles of Accounting II.....	4
EC 180 Intro. to Economics* .....	3
Social Science Elective.....	3-4
Mathematics Elective .....	4
	16-17

**SECOND YEAR**

*First Semester*

BU 221 Intermediate Accounting I.....	4
BU 171 Business Law I or	
BU 172 Business Law II .....	3
BU 224 Cost Accounting .....	3
Elective** .....	3
Elective** .....	3
Physical Education.....	1
	17

*Second Semester*

BU 222 Intermediate Accounting II.....	4
Science Elective.....	3-4
Liberal Arts Elective .....	3
Electives** .....	4
Physical Education .....	1
	15-16

\*EC 281, 282 strongly recommended for transfer students.

\*\*Suggested Electives: BU, MA, CS

Minimum of 64 semester hours required to complete the program, which must include a minimum of 15 semester hours of accounting courses. There is a minimum of 20 semester hours from liberal arts and sciences which must include EN 103, 104; 3 semester hours in the social sciences; 3 semester hours of mathematics other than business mathematics; 3 semester hours of science; 3 semester hours in economics, and an additional course in the liberal arts and sciences. Two semester hours of physical education are also required. EC 282 and EC 283 are strongly recommended for transfer students.



**BUSINESS: BUSINESS ADMINISTRATION (A.A.S.)**  
**APC — 0632**

The Business Administration Program is designed to provide an exposure to various areas of business-related operations. It allows for Business electives in Sales/Retailing, Mid-Management, or General Finance. The program provides a foundation for middle management positions in the field of insurance, retailing, banking, civil service, finance, sales, or administrative management in various types of organizations.

**FIRST YEAR**

*First Semester*

EN 103 English I .....	3
BU 101 Principles of Business .....	3
BU 103 Mathematics of Business Finance .....	3
BU 121 Principles of Accounting I .....	4
Microcomputers .....	2
	<u>15</u>

*Second Semester*

EN 104 English II .....	3
BU 122 Principles of Accounting II .....	4
Social Science Elective .....	3
Mathematics Elective .....	3-4
Elective** .....	3
	<u>16-17</u>

**SECOND YEAR**

*First Semester*

EC 180 Intro. to Economics .....	3
Science Elective .....	3
BU Electives* .....	6
Elective** .....	3
Physical Education .....	1
	<u>16</u>

*Second Semester*

Liberal Arts Elective .....	3
BU Electives* .....	6
Electives** .....	7
Physical Education .....	1
	<u>17</u>

\*Students interested in pursuing a career in Sales/Retailing, General Finance, or Management should work closely with an academic advisor.

\*\*Minimum of 64 semester hours required to complete this program, which must include a minimum of 20 semester hours in liberal arts and sciences (this includes those specified above), plus physical education.

American Institute of Banking students should work closely with an academic advisor in selecting courses after submitting AIB course work for advanced placement and/or credit.

Students planning to transfer should select their liberal arts and sciences to meet the requirements of the four-year institutions, which they plan to attend. EC 282 and 283 are strongly recommended. Also see A.S. program.

**BUSINESS: BUSINESS ADMINISTRATION (A.S.)**  
**APC — 0671**

This program is designed to prepare students to transfer to a four-year institution to complete a baccalaureate degree in business. The flexibility of this program permits students to meet the requirements of their intended transfer institutions.

Students transferring to four-year institutions may specialize there in a particular field such as finance, marketing, business management, or business education.

**FIRST YEAR**

*First Semester*

EN 103 English I.....	3
BU 121 Principles of Accounting I.....	4
EC 282 Macro Economics.....	3
MA 160 Statistics.....	3
Social Science Elective.....	3
	<u>16</u>

*Second Semester*

EN 104 English II.....	3
EC 283 Micro Economics.....	3
BU 122 Principles of Accounting II.....	4
Math Elective**.....	3-4
Liberal Arts Elective*.....	3
	<u>16-17</u>

**SECOND YEAR**

*First Semester*

BU 171 Business Law I.....	3
CIS Elective.....	3
Business Elective.....	3
Liberal Arts Elective*.....	3
Science Elective.....	3-4
Physical Education.....	1
	<u>16-17</u>

*Second Semester*

BU 261 Managerial Accounting.....	3
Liberal Arts Elective*.....	3
Elective***.....	7
Physical Education.....	1
	<u>14</u>

\*SS 281, 291, 183-4, and 283-4 or EN 132 recommended

\*\*MA 154 Pre-calculus math level or higher (many colleges require Calculus)

\*\*\*Business courses are recommended, including CS 104; however, some credits may need to be Liberal Arts for 30-credit total.

Minimum of 62 semester hours required to complete this program.

Business and other electives should be chosen on the basis of the requirements of the four-year institution to which transfer is anticipated. BU 172 recommended for accounting transfer majors.

**COMPUTER INFORMATION SYSTEMS (A.A.S.)**  
**APC — 0581**

This curriculum is structured along the lines of career interests and job skills required by students who plan to enter the field of computer information systems.

The course work emphasizes practical problem solving skills, the use of computers, information technology and written and oral communication skills to achieve a well-rounded computer information systems background.

Graduates will have sufficient knowledge to function as information system specialists who will be able to implement and modify a computer information system using application software packages, write program modules using a business or procedural language, and install and support maintenance of computer hardware and software in a standalone or networked environment.

**FIRST YEAR**

*First Semester*

EN 103 English I.....	3
CS 104 Microcomputer Productivity I or .....	2
CS 106 Microcomputer Productivity II	
CS 115 Intro to Computer Logic.....	3
Liberal Arts Elective .....	3
MA 151 or higher .....	3-4
Physical Education .....	<u>1</u>
	15-16

*Second Semester*

EN 104 English II .....	3
CS 121 Programming COBOL .....	3
CS 140 Computerized Info. Sys. Mgt .....	3
CS 160 Database Design & Mgt.....	3
BU 121 Accounting I .....	<u>4</u>
	16

**SECOND YEAR**

*First Semester*

CS 233 Adv. Programming Techniques.....	3
CS 240 Systems Operations I: PC.....	3
CS 235 Systems Analysis.....	3
Social Science Elective.....	3
Elective* .....	3-4
Physical Education .....	<u>1</u>
	16-17

*Second Semester*

CS 236 Systems Design & Implementation ...	3
CS 125 Computer Programming C++ .....	3
CS 241 Sys. Oper. II: Multi-user Environment	3
CS 289 Prof. Development Seminar .....	2
Science Elective.....	3-4
Elective** .....	<u>3</u>
	17-18

\*BU 122, 137 or CS 202 required

\*\*May be required to be Liberal Arts Elective in order to meet Liberal Arts Requirement. If not, BU or CS elective is recommended.

**COMPUTER SCIENCE (A.S.)**  
**APC — 0532**

The two-year Computer Science Program is designed for students who plan to transfer and continue their studies in programs leading to the Bachelor's degree or who plan to seek immediate employment. The program emphasizes a theoretical understanding of computers in combination with business or procedural languages and applications.

**FIRST YEAR**

*First Semester*

EN 103 English I.....	3
CS 115 Intro to Computer Logic .....	3
CS 104 Microcomputer Productivity I or .....	2
CS 106 Microcomputer Productivity II .....	4
MA 157 A. Geo. & Calculus I.....	4
Science Elective.....	3-4
	15-16

*Second Semester*

EN 104 English II.....	3
CS 121 Programming COBOL**.....	3
MA 158 A. Geo. & Calculus II.....	4
Electives*.....	3
Science Elective.....	3-4
	16-17

**SECOND YEAR**

*First Semester*

CS 233 Adv Programming Techniques .....	3
CS 235 Systems Analysis .....	3
MA 257 A. Geo. & Calculus III or	
Mathematics Elective**.....	3-4
Physical Education.....	1
Social Science Elective .....	3
Electives* .....	3
	16-17

*Second Semester*

CS 113 Programming Assembler.....	3
Electives** .....	9-10
Social Science Elective.....	3
Physical Education.....	1
	16-17

\*Refer to transfer institution requirements.

\*\*Students interested in pursuing a career in mathematical and scientific applications should work closely with an academic advisor in selecting courses under the Computer Science program. Also, refer to transfer institution requirements.

Minimum of thirty credits of liberal arts required.

Recommended electives include: BU 101, 121, 122, 141, 152, 160, 179, EC 282, 283, EL 232, 236, CS 120, 122, 124, 125, 129, 160, 202, MA 160.

## CONSTRUCTION TECHNOLOGY (A.A.S.)

### APC — 0540

The Construction Technology curriculum is designed to prepare technicians to secure gainful employment with electrical, plumbing, carpentry, masonry contractors, engineers, architects, public works departments, and material manufacturers. The technical education offered in this curriculum contains a well-designed balance of theories and laboratory studies, providing a graduate with a broad knowledge of the construction field. Students in this program are expected to provide their own safety footwear, limited hand tools and personal items appropriate for construction technology laboratory classes.

### FIRST YEAR

#### First Semester

EN 103 English I.....	3
CT 121 Bldg Trades & Cons Materials.....	3
CT 124 Blueprint Reading.....	1
MD 171 Engineering Graphics.....	3
Mathematics*.....	3-4
Microcomputers.....	2
	15-16

#### Second Semester

EN 104 English II or	
EN 127 Technical English.....	3
CT 122 Light Frame I**.....	3
CT 225 Masonry, Concrete & Steel**.....	3
CT 230 Principles of Soils.....	3
Math or Elective*.....	3-4
Social Science Elective*.....	3
	18-19

### SECOND YEAR

#### First Semester

CT 123 Light Frame II**.....	3
CT 226 Plumbing & Climate Control.....	3
CT 229 Electrical Wiring**.....	3
SC 161 Intro. to Physics I*.....	3
Elective*.....	3
Physical Education.....	1
	16

#### Second Semester

CT 228 Estimating.....	3
SU 101 Surveying.....	3
MD 180 Architectural Drafting.....	3
Social Science Elective.....	3
Elective*.....	3
Physical Education.....	1
	16

\*Math placement depending upon preparation, competence at level of MA 142 or higher required.

\*\*Course meets at sites other than main campus. Students make own transportation arrangements.

Suggested Electives: BU101, 103, 121, 171, EN101, MA144, 151, EL125, CT243, 245, 250.

Minimum of 65 semester hours required for graduation, including 2 hours of physical education.

**CRAFTS MANAGEMENT (A.A.S.)**  
**APC — 0417**

The Crafts Management program is designed for students who wish to learn how to design, produce, and sell quality craft products. This program also provides the flexibility to allow students to transfer to baccalaureate degree programs in related fields. This program will meet the needs of the student that desires to achieve the background necessary to begin their own business in any artistic venture, i.e., craft shop, pottery shop, print-making shop, etc.

**FIRST YEAR**

*First Semester*

EN 103 English I.....	3
AR 210 Drawing I.....	3
AR 150 2D Design.....	3
Social Sciences Elective.....	3
Science Elective.....	3-4
Physical Education.....	1
	<u>16-17</u>

*Second Semester*

EN 104 English II.....	3
AR 211 Drawing II.....	3
AR 160 3D Design.....	3
BU 103 Math of Business Finance.....	3
Social Science Elective.....	3
Physical Education.....	1
	<u>16</u>

**SECOND YEAR**

*First Semester*

BU 121 Accounting.....	3
Elective*.....	3
Elective*.....	3
Mathematics Elective.....	3-4
Elective**.....	3
	<u>15-16</u>

*Second Semester*

BU 165 Small Business Management.....	3
BU 171 Business Law.....	3
Elective*.....	3
Elective*.....	3
Elective.....	3
	<u>15</u>

\*Four Electives must be selected from the following: AR 100, 200, 220, 221, 275, 300, ER 101, 102.

\*\*Suggested Elective: BU 137, 140, or 141.

Minimum of 62 semester hours required to complete this program.

**CRIMINAL JUSTICE (A.A.S.)**  
**APC — 0640**

This program is designed to prepare students for careers with federal, state, county and local enforcement organizations. The courses are concerned with fulfilling the educational needs of students, both male and female, aiding them in becoming efficient and knowledgeable criminal justice personnel. The program is open, as well, to those who are currently employed in law enforcement.

**STUDENTS PLEASE NOTE:** Many criminal justice agencies require applicants to meet qualifying entrance requirements. Students pursuing careers in these agencies should be aware of conditions that may disqualify applicants for employment based on health, physical conditions, or character.

**FIRST YEAR**

*First Semester*

EN 103 English I .....	3
CJ 103 Criminal Law I .....	3
CJ 106 Intro. to Criminal Justice.....	3
SS 281 Intro. to Sociology .....	3
Science* .....	<u>3-4</u>
	15-16

*Second Semester*

EN 104 English II .....	3
CJ 104 Criminal Law II .....	3
CJ 105 Fund. of Criminal Investigation.....	3
SS 291 General Psychology .....	3
Mathematics (MA 160 suggested) .....	<u>3-4</u>
Microcomputers .....	<u>2</u>
	17-18

**SECOND YEAR**

*First Semester*

EN 132 Speech .....	3
CJ 109 Criminology .....	3
CJ 112 Intro. to Police Org. & Mgt. ....	3
CJ Elective.....	3
Elective** .....	<u>3-4</u>
Physical Education .....	<u>1</u>
	16-17

*Second Semester*

CJ 107 Police Community Relations .....	3
CJ 111 Intro. to Public Administration.....	3
HU 258 Ethics or Liberal Arts Elective .....	3
Social Science Elective .....	3
Elective* .....	3
Physical Education .....	<u>1</u>
	16

\*SC 130 suggested

\*\*Recommended Electives: CJ 108, 113, 121, 260, 299.

Minimum of 64 semester hours required for graduation, including 2 hours of physical education and a minimum of 3 hours of science.

**CRIMINAL JUSTICE (Certificate)**  
**APC — 0047**

This program leads to a certificate in Criminal Justice and is designed to prepare students to become members of the municipal, county, and state police forces, as well as Federal Protection Officer, United States Marshal, campus security guard, correctional officer, institutional guard, youth-aid worker, social worker and other positions in the criminal justice system. The program is open, as well, to those who are currently employed in law enforcement. Below is a suggested sequence of the courses required for this certificate.

*First Semester*

EN 103 English I.....	3
CJ 103 Criminal Law I.....	3
CJ 106 Intro. to Law Enforcement & Criminal Justice.....	3
CJ 112 Intro. to Police Organization & Management.....	3
SS 291 General Psychology.....	3
Microcomputers.....	<u>2</u>
	17

*Second Semester*

EN 104 English II.....	3
CJ 104 Criminal Law II.....	3
CJ 105 Principles of Criminal Investigation.....	3
CJ 107 Police-Community Relations <u>or</u>	
CJ 108 Intro. to Juvenile Delinquency.....	3
SS 281 Intro. to Sociology.....	3
Mathematics (Strongly Suggested MA 160 Statistics).....	<u>3-4</u>
	18-19

Minimum of 35 semester hours required to complete this program.



**EARLY CHILDHOOD (A.A.S.)**  
**APC — 0605**

This program is designed for students who plan to seek employment as teacher-caregivers at institutions and agencies serving young children.

In addition to providing for the student's own intellectual and personal development, the course work under this program provides a broad understanding of the psychological, emotional, intellectual, and developmental needs of children and the skills necessary for meeting those needs. Graduates may find employment opportunities with various types of institutions and agencies serving young children - Child Care Centers, Nursery Schools, Pre-Kindergarten Programs, Head Start, Day Camps, Recreational Centers, and Social Service Agencies serving children.

**FIRST YEAR**

*First Semester*

EN 103 English I .....	3
ED 171 Intro. to Early Childhood Ed. ....	3
SS 291 General Psychology .....	3
Mathematics or Science* .....	3-4
Elective** .....	3
Physical Education .....	1
	16-17

*Second Semester*

EN 104 English II .....	3
ED 180 Safety, Health, & Nutrition .....	3
ED 185 Early Childhood Curriculum .....	3
SS 298 Child Development .....	3
Mathematics or Science* .....	3-4
Physical Education .....	1
	16-17

**SECOND YEAR**

*First Semester*

SS 281 Sociology .....	3
ED 298 Early Childhood Internship .....	4
ED Elective*** .....	3
Humanities Elective** .....	3
Elective** .....	3
	16

*Second Semester*

ED Elective*** .....	3
ED 299 Early Childhood Internship .....	4
Humanities or Social Science** .....	3
Mathematics or Science* .....	3-4
Elective** .....	3
	16-17

\*Must include at least 3 semester hours of Mathematics and at least 3 semester hours of Science.

\*\*Recommended electives:

Humanities: FL 143, 144, 243, 244

Social Science: SS 292, 294

Open electives: HE 135, 136, HD 221, HS 251

\*\*\*ED Electives: ED 225, 250, 275, 280.

Minimum of 64 semester hours required to complete this program.

**EARLY CHILDHOOD (Certificate)**  
**APC — 0968**

The Early Childhood certificate program is designed for those who want to learn the skills and develop the attitudes that are needed for entry-level positions at institutions and agencies serving young children and for in-service personnel who want to upgrade their skills, but do not want to undertake many of the supporting academic courses required for the two-year Associate in Applied Science degree. The program is flexible so that the students may choose the courses and field experiences that are most appropriate to their interests and career goals.

*Summer Session*

ED 171 Intro. to Early Childhood Education .....	3
SS 291 General Psychology* .....	<u>3</u>
	6

*First Semester*

EN 103 English I.....	3
ED 185 Early Childhood Curriculum.....	3
ED 298 Early Childhood Internship.....	4
SS 298 Child Development* .....	<u>3</u>
	13

*Second Semester*

ED 180 Safety, Health & Nutrition in Early Childhood .....	3
ED Elective**.....	3
ED Elective**.....	3
ED 299 Early Childhood Internship.....	<u>4</u>
	13

\*Students may take EN 103 during the summer, SS 291 during the first semester and 298 during the second semester.

\*\*ED Electives: ED 225, 250, 275, 280

Minimum of 32 semester hours required to complete this program.

**ELECTRICAL TECHNOLOGY (A.A.S.)**  
**APC — 0555**

This program is designed for those students who plan to seek employment after two years at Fulton-Montgomery Community College as engineering technicians, electrical draftsmen, lab assistants and service technicians. The program also prepares students for transfer into Bachelor of Technology programs. An interest in electricity and electronics and a degree of manual dexterity are assets. Students in this program may be required to provide their own electronic calculators and small hand tools.

**Prerequisite:** High school algebra. Trigonometry and physics are recommended. If a student's math-science level of competence does not equal or exceed the prerequisite, that student should consider a pre-technology course of study.

**FIRST YEAR**

*First Semester*

EN 103 English I.....	3
EL 125 Electric Circuit Analysis I.....	4
EL 127 Instrumentation.....	2
MA 161 Math for Elec. Tech. I <u>or</u>	
MA 157 A. Geo & Calculus I.....	4
SC 161 Intro. to Physics I <u>or</u>	
PH 171 Physics I.....	3-4
Microcomputers.....	<u>2</u>
	18-19

*Second Semester*

EN 104 English II <u>or</u>	
EN 127 Technical English.....	3
EL 232 Digital Electronics.....	3
MA 162 Math for Elec. Tech. II <u>or</u>	
MA 158 A. Geo. & Calculus II.....	4
SC 162 Intro. to Physics II <u>or</u>	
PH 172 Physics II.....	3-4
Physical Education.....	<u>1</u>
	14-15

**SECOND YEAR**

*First Semester*

EL 126 Electric Circuit Analysis II.....	4
EL 229 Electronics I.....	5
EL 231 Electrical Machines.....	3
EL 236 Intro. to Microcomputers.....	4
MD 176 Electrical Graphics.....	<u>3</u>
	19

*Second Semester*

EL 230 Electronics II.....	5
EL 234 Telecommunications.....	3
EL 235 Industrial Electronics & Robotics.....	3
Social Science Electives.....	6
Physical Education.....	<u>1</u>
	18

Students planning to transfer should see an advisor for appropriate course selection. The following courses are recommended by most four-year institutions: MA 157, 158, PH 171, 172, and Computer Programming as available.

Minimum of 69 semester hours required for graduation, including 2 hours of physical education.

**ELECTRONICS (Certificate)**  
**APC — 1061**

This program is designed to prepare students for the technical training necessary for entry level employment or further education in the electronics and telecommunications fields. The program provides a technical training foundation in many aspects of the electronics industry including telecommunications, industrial, instrumentation, and computer-aided design.

*First Semester*

EL 125 Electric Circuit Analysis I.....	4
EL 127 Instrumentation.....	2
EL 129 Fiber Optics Technology.....	3
Math*.....	4
Microcomputers.....	2
	<u>15</u>

*Second Semester*

EL 232 Digital Electronics.....	3
Electrical Elective.....	3-5
EL 234 Telecommunications.....	3
TC 229 Electronics for Computer Technology.....	4
	<u>14-16</u>

\*MA 142 or higher; MA 161 recommended

Electives include: EL courses, MD 174

Minimum of 29 semester hours required to complete this program.

## ENGINEERING SCIENCE (A.S.)

### APC — 0530

The Engineering Science Program closely parallels the first two years of the four-year college and university program in engineering. This fact enables graduates of the program to transfer, at the junior level, to such institutions and to specialize in any field of engineering. The strong emphasis placed on mathematics and physics also makes the Engineering Science Program the most appropriate course of study for those who wish to transfer and continue their studies in physics and applied mathematics.

Interest and motivation of the student are of paramount importance for succeeding in the program. A strong background in high school mathematics and physics is recommended for entrance to the program.

#### FIRST YEAR

##### *First Semester*

EN 103 English I .....	3
PH 171 Physics I .....	4
MA 157 A. Geo. & Calculus I .....	4
CH 173 Chemistry I .....	4
Physical Education .....	1
	<u>16</u>

##### *Second Semester*

EN 104 English II .....	3
PH 172 Physics II .....	4
MA 158 A. Geo. & Calculus II .....	4
CH 174 Chemistry II or Elective* .....	3-4
CS 125 Computer Programming (C++)** .....	3
	17-18

#### SECOND YEAR

##### *First Semester*

ES 235 Mechanics: Statics .....	3
ES 251 Materials Science .....	3
PH 271 Physics III .....	4
MA 257 A. Geo & Calculus III .....	4
Social Science Elective*** .....	3
Physical Education .....	1
	<u>18</u>

##### *Second Semester*

EN 236 Mechanics: Dynamics .....	3
ES 281 Electric & Electronic Circuits .....	4
MA 258 Differential Equations .....	4
MA 259 Linear Algebra or Elective* .....	3-4
Social Science Elective*** .....	3
	17-18

\*If two electives are chosen, at least one must be from the following: MD171, 174, BI171, BI173, BI181-182. It is strongly recommended that students planning to transfer to a four-year institution take MA 259.

\*\*May be postponed until the second year.

\*\*\*May be taken during the first year.

Students are advised to select electives that are appropriate to the field of engineering in which they plan to major and that meet the requirements of the college to which they plan to transfer.

Minimum of 68 semester hours required to complete this program.

## ENVIRONMENTAL STUDIES (A.S.) APC — 1016

This program is designed for students who plan to transfer and continue their studies leading to Bachelor's degree in any branch of Environmental Studies. Preparation for the professional field of Environmental Studies leading to a variety of careers in industry, government, research or teaching can be initiated with this program.

### FIRST YEAR

#### *First Semester*

EN 103 English I.....	3
BI 171 Modern Biology.....	4
CH 173 Fund. of Chemistry I.....	4
SC 181 Intro. Environmental Science.....	3
Physical Education.....	1
	15

#### *Second Semester*

EN 104 English II.....	3
BI 172 Plant Biology <i>or</i>	
BI 173 Animal Biology <i>or</i>	
SC 143 Earth Systems*.....	3-4
CH 174 Fund. of Chemistry II.....	4
MA 157 A. Geo. & Calculus I.....	4
Physical Education.....	1
	15-16

### SECOND YEAR

#### *First Semester*

MA 160 Statistics <i>or</i>	
MA 158 A. Geo. & Calculus II*.....	3-4
PH 171 Physics I.....	4
CH 221 Organic Chemistry I.....	4
Social Science Elective.....	3
Elective**.....	3
	17-18

#### *Second Semester*

BI 176 Ecology.....	3
PH 172 Physics II <i>or</i>	
SC 131 Environmental Physics*.....	3-4
Social Science Elective.....	3
Electives**.....	6
	15-16

\*Students are advised to select courses, in consultation with Environmental Studies program faculty, to meet the requirements of the transfer institution.

\*\*Suggested Electives: MA 158, 160, PH 172, SC 131, CH 222, BI 172, 173, SC 143, 144, HU 258, NR 241, 242, 250, SS 383, EC 180

Minimum of 62 semester hours required to complete this program.

**FINE ARTS (A.A.)**  
**APC — 0664**

This program is designed for students who wish to transfer and continue their studies in Fine Arts leading to the Bachelor's degree, or for students seeking immediate employment. The opportunity is provided to develop basic concepts and skills in a wide variety of media while concentrating on the field of Art.

**FIRST YEAR**

<i>First Semester</i>	<i>Second Semester</i>
EN 103 English I..... 3	EN 104 English II..... 3
AR 210 Drawing I..... 3	AR 211 Drawing II..... 3
AR 150 2D Design..... 3	AR 160 3D Design..... 3
Social Science Elective..... 3	Social Science Elective..... 3
Science Elective..... 3-4	Mathematics Elective..... 3-4
Physical Education..... 1	Physical Education..... 1
16-17	16-17

**SECOND YEAR**

<i>First Semester</i>	<i>Second Semester</i>
AR 220 Painting..... 3	AR 300 Art Seminar..... 3
Humanities Elective..... 3	Social Science Elective..... 3
Math or Science Elective..... 3-4	Art Elective**..... 3
Art Elective**..... 3	Electives*..... 6
Elective*..... 3	15
15-16	

\*Electives should be selected to conform to the program requirements of the college or university to which the student plans to transfer.

\*\*Art electives may be selected from the following: AR 101, 102, 200, 221, 230, 275; GA 110, 124, 125, CO 254.

Minimum of 62 semester hours required to complete this program.

## FOOD SERVICE ADMINISTRATION (A.A.S.)

### APC — 0570

The Food Service Administration curriculum is a Hospitality Management Program designed to develop technical competence and prepare students for supervisory positions in the hospitality, restaurant industries. It allows for career electives in Restaurant Management, Diet and Nutrition or, Hotel/Motel Administration. As the third largest industry in the world, food service is still growing. The need for skilled management increases as technology increases. This program is the first step to a challenging job in a recession-proof industry.

#### FIRST YEAR

##### *First Semester*

EN 103 English I.....	3
FS 101 Intro. to Food Service.....	1
FS 111 Intro. to Safety & Sanitation.....	2
FS 122 Food Preparation I.....	3
HE 121 Nutrition.....	3
SC 139 Intro. to Biology I <i>or</i>	
SC 170 Intro. Chemistry I <i>or</i>	
BI 171 Modern Biology <i>or</i>	
BI 181 Anatomy & Physiology I.....	3-4
	15-16

##### *Second Semester*

EN 104 English II <i>or</i>	
EN 127 Technical English.....	3
FS 123 Food Purchasing.....	3
FS 124 Food Preparation II.....	3
BU 103 Math of Business Finance.....	3
HE 125 Advanced Nutrition <i>or</i>	
Liberal Arts Elective.....	3
Microcomputers.....	2
	17

#### SECOND YEAR

##### *First Semester*

FS 225 Cost Control.....	3
FS 224 Service and Hospitality Management.....	3
Social Science Elective.....	3
Career Electives or Seminar.....	6
Physical Education.....	1
	16

##### *Second Semester*

FS 227 Food Service Organization & Management.....	3
FS 248, 258, 268, or 240, 280 Seminar.....	3
FS 298 Internship.....	3
Career Elective.....	3
Liberal Arts Elective.....	3
Physical Education.....	1
	16

-Students interested in pursuing a career in Restaurant Management, Culinary Foods, Nutrition & Diet Therapy, or Hotel/Motel Administration should work closely with an academic advisor.

-Course may meet at site other than main campus. Students make own transportation arrangements. Students are required to purchase and maintain supportive utensils and clothing.

Recommended Electives: BU101, 122, 171, 153, 140, 137, FS126, 226, MA150, 160, SC131, 172, BI181, 182.

-Culinary courses are approved by the American Culinary Federation.

-Students completing courses also receive a certificate from the National Restaurant Association and may apply courses toward the Management Development Diploma of the NR A.

Minimum of 64 semester hours required for graduation, including 2 hours of physical education, plus 20 semester hours of Liberal Arts.



**QUANTITY FOOD PRODUCTION (Certificate)**  
**APC — 0044**

This program leads to a certificate in Quantity Food Production at the end of one year. It is designed to provide students with concentrated skill training for immediate employment. However, all credits can be applied toward an Associates degree.

Emphasis is on practical hands-on experience in food selection and preparation, purchasing, cost control, hospitality management, and nutrition. An internship in the food industry is required.

Students will be prepared for positions in all areas of quantity foods: preparation, receiving, operations, purchasing and service. Graduates may be employed by owner-operated restaurants, chain restaurants, contractual food service companies, and other agencies associated with the production of food.

**CERTIFICATE CORE**

*First Semester*

FS 101 Introduction to Food Service .....	1
FS 111 Introduction to Safety & Sanitation .....	2
FS 122 Food Preparation I .....	3
FS 225 Food & Beverage Cost Control .....	3
FS 224 Service & Hospitality Management .....	3
	12-15

*Second Semester*

FS 123 Food Purchasing .....	3
FS 124 Food Preparation II .....	3
FS 298-299 Internship* .....	3+3
Microcomputers .....	2
FS Elective or Seminar* .....	0-3
Elective** .....	3
	17

\*Students taking three semester hours of FS 298 Internship must take a three-semester-hour FS elective for a total of six credits.

\*\*Suggested electives: FS 226, 227, 240, 248, 258, 268, 280, HA 160, HA 175, HE 121, or FS 299, BU 101, 122, EN 103.

Culinary Courses are approved by the American Culinary Federation.

Minimum of 29 semester hours required to complete this program.

**GENERAL EDUCATION (Certificate)**  
**APC — 0985**

The General Education curriculum is a one-year program leading to a certificate of completion. This program may be useful to the student who wishes to strengthen an academic background before embarking on a program of study leading to the Associate degree. It also offers the student with limited or unsettled educational goals the opportunity for a year of broadly based study and exploration. A minimum of 27 semester hours must be completed.

*First Semester*

EN 101 Critical Reading and Thinking .....	3
EN 102 Introduction to Writing* .....	3
MA 147 Algebra or MA 150 Survey of Mathematics .....	3-4
HD 100 Studies of the Person .....	3
Physical Education .....	1
Exploratory Elective – Technical, Vocational, Liberal Arts .....	<u>2-4</u>
	15-18

*Second Semester*

English Elective .....	3
Exploratory Electives – Business & Technology, Liberal Arts & Sciences .....	<u>9-12</u>
	12-15

\*Students may take more advanced courses with approval.

## HEALTH, PHYSICAL EDUCATION AND RECREATION STUDIES (A.S.)

### APC – 1130

This program is designed for students who plan to transfer and continue their studies in health, physical education, recreation and related fields. Preparation for a variety of careers such as the teaching professions, athletic training/sports medicine, coaching, fitness consultant, recreation/sports management, sports administration, physical therapist and occupational therapist may be initiated with this program.

#### FIRST YEAR

<i>First Semester</i>	<i>Second Semester</i>
EN 103 English I ..... 3	EN 104 English II ..... 3
PE 201 Intro. to H.P.E.R. .... 3	PE 250 Series or Elective* ..... 2-4
PE Activity ..... 1	PE Activity ..... 1
HE 135 Personal Health ..... 3	HE 136 Safety & First Aid ..... 3
SS 291 General Psychology ..... 3	Social Science Elective ..... 3
Science or Math Elective ..... 3-4	Science or Math Elective ..... 3-4
16-17	15-18

#### SECOND YEAR

<i>First Semester</i>	<i>Second Semester</i>
PE 250 Series or HE 235 Community Health or Elective* ..... 2-4	PE Activities or HE Elective or Elective* ..... 3
BI 181 Anatomy & Physiology** ..... 4	BI 182 Anatomy & Physiology II** ..... 4
Social Science Elective ..... 3	Elective ..... 3
Humanities Elective ..... 3	Humanities Elective ..... 3
Elective ..... 3-4	Elective ..... 3-4
15-18	16-17

\*If electives are chosen, two must be from the following: MA 154, 157, 160, HD 221.

\*\*May be taken during the first year.

A minimum of 62 credits are required to complete this program. Students may, based on their career goals and requirements of the transfer institution, prepare for transfer to upper-division majors in Physical Education, Health, Recreation Studies, or Exercise Studies by selecting appropriate elective courses as indicated below.

**PHYSICAL EDUCATION** Two PE 250 series courses, one aquatics course, four additional PE activity credits and EN 132.

**HEALTH** HE 235, 121, 237.

**RECREATION STUDIES** MA 160, EN 132, HD 221 and four PE activity credits, Social Science Electives: SS 281, 383. Additional Electives from Art, Music, Theater, EC 281, 282, CO 220, 231 suggested.

**EXERCISE STUDIES** MA 160, CH 173-174, PH 171-172, HD 221, HE 121, EN 132

Students interested in pursuing a career in physical therapy or occupational therapy should work closely with an academic advisor in selecting courses under the Health, Physical Education and Recreation Studies program in order to be able to transfer, at the junior level, to such a program at four-year colleges.

## HONORS PROGRAM

### Program Description

The Honors program is designed to meet the needs of those students who, because of high academic ability, preparation and motivation, are ready to undertake rigorous and challenging academic work that exceeds those offered in regular courses. The program provides the kinds of academic challenges that will enable students to develop to their fullest potential. The program includes special Honors courses and an Honors Option within regular courses. The program enriches rather than accelerates the learning process. Those successfully completing all the Honors Program requirements will have their transcripts stamped "Honors Concentration Degree."

### Admission Criteria

For admission to the Honors Program, a student must meet the following requirements: submit a letter of application to the academic dean for admission to the Honors Program and one academic letter of reference supporting the student's candidacy for the Honors Program; approval of the Honors Program Committee.

### Program Requirements

Requirements for all Honors Concentration Degrees: admittance into the Honors Program; Honors English II; two Honors courses or two courses with the Honors Options from different academic divisions; the Honors Seminar; 3.5 cumulative grade point average; satisfaction of all the requirements for one of the following degrees:

- A.A. in Humanities
- A.A. in Social Science
- A.A. in General Studies
- A.S. in Mathematics
- A.S. in Science
- A.S. in Mathematics and Science
- A.S. in Business Administration
- A.S. in Computer Science
- A.S. in Environmental Studies

**HUMAN SERVICES (A.A.S.)**

**APC — 0604**

The Human Services program is designed to prepare students for the helping profession. The program is appropriate for current agency employees seeking to upgrade their skills and for students preparing for future careers as human service workers. The program combines academic course work with human service field experience through internships. This approach prepares students to move directly into employment upon graduation. The program is flexible so that students may choose courses and field work experience in accordance with their area of interest and particular career goals.

This program also is appropriate for students planning to transfer to four-year human service related programs. Students planning to transfer to a Baccalaureate Social Work program, however, may want to consider the A.A. degree program in Social Science.

**FIRST YEAR**

*First Semester*

EN 103 English I .....	3
SS 291 General Psychology .....	3
SS 281 Intro to Sociology .....	3
SC 135 Introduction to Biology <u>or</u>	
SC 137 Human Biology <u>or</u>	
BI 181 Anatomy & Physiology I .....	3-4
HS 110 Intro to Human Services .....	3
Physical Education .....	1
	16-17

*Second Semester*

EN 104 English II <u>or</u>	
EN 127 Technical English .....	3
HS 111 Human Service Interventions .....	3
SS 297 Developmental Psychology .....	3
Elective* .....	3
Human Services Elective** .....	3
Physical Education .....	1
	16

**SECOND YEAR**

*First Semester*

HS 298 Human Services Internship .....	4
MA 160 Statistics <u>or</u>	
Math Elective .....	3-4
Elective* .....	3
Human Service Elective** .....	3
Psychology/Sociology Elective*** .....	3
	16-17

*Second Semester*

HS 299 Human Services Internship .....	4
HD 221 Human Rel. & Group Dynamics .....	3
Psychology/Sociology Elective*** .....	3
Elective* .....	3
Elective* .....	3
	16

\*Suggested Electives: Foreign Languages, Early Childhood Education, Health Education, Criminal Justice, HU 258, SS 280, 282, 283, 284, 382, EC 180.

\*\*Two from the following Human Service Electives required: HS 211, 231, 243, 251, 265

\*\*\*Two from the following Psychology/Sociology Electives required: SS 292, 264, 294, 298, 384, 386, 387, 285, 290 (with approval).

-MA 160 Statistics recommended.

-Minimum of 64 semester hours required for graduation.

-Students planning to transfer to four-year programs are advised to select the electives based on the requirements of their transfer institutions.

**HUMAN SERVICES (Certificate)**  
**APC — 0949**

The Human Services Certificate program is designed for those who want to learn the skills and attitudes that are needed for work within a human service agency, but who do not want to undertake the supporting academic course work required for the two year degree. The program is flexible so that students may choose courses and field work experience in accordance with their area of interest and particular career goals.

*Summer Session*

EN 099 if needed	3
EN 103 English I.....	3
HS 110 Introduction to Human Services.....	3
	<hr/> 6

*First Semester*

EN 104 English II or EN 127 Technical English.....	3
HS 111 Human Service Interventions.....	3
HS 298 Human Services Internship.....	4
SS 291 General Psychology.....	3
	<hr/> 13

*Second Semester*

Human Services Elective*.....	3
Human Services Elective*.....	3
HS 299 Human Services Internship.....	4
SS 297 Developmental Psychology.....	3
	<hr/> 13

\*Human Services Electives: HS 211, 231, 243, 251, 265

Minimum of 32 semester hours required to complete this program.

## **INDIVIDUAL STUDIES: Associate in Occupational Studies (A.O.S.)**

Individual Studies can be of two types:

- One-year certificate (24-36 credits) APC - 0987
- Two-year degree (A.O.S.) (60-62 credits) APC - 0688

Individual Studies will be designed to provide specialized study for students with clearly identified career goals or special educational needs, which cannot be met by existing programs. Specific studies will be developed individually by the student and a faculty mentor committee.

Individual studies can include regular courses, independent and directed study, fieldwork, prior educational experience, and prior work experience. Distribution of credits in these areas will follow existing college policy. In addition, at least half of the credits must be directly related to the student's career goal or special educational needs.

Procedures for the development of individual studies are as follows: consultation with the faculty mentors to review the student's academic background and career and educational goals, development of a detailed proposal in which the proposed individual study and its relationship to the student's career goals or special educational needs are described, approval by mentors, and approval by the Dean of Business and Technology or Dean of Arts and Sciences.

The purpose of individual studies is to provide greater curriculum flexibility, breadth, and depth in response to individual student career objectives or special educational needs which cannot be met by existing programs, to provide opportunity for students to explore fields at the College before making a more definite educational choice, to provide greater advanced placement opportunity, and to provide for articulated study which encourage individuals to return to college for short term updating or retraining (one-semester) as well as for additional specialization provided by the one-year certificate and two-year degree.

For further information contact the Admissions Office.

**INDIVIDUAL STUDIES: Collaborative Career Learning (A.O.S.)****APC - 0688**

This two-year degree program is an individualized sequence of study which can combine COCAL certificate study with additional study in career related areas. AOS COCAL cannot duplicate existing business and technology programs. An Associate in Occupational Studies degree can be achieved upon completion of a minimum of 60 credits.\*

The following is an example of a COCAL sequence of course requirements:

**COMPUTER-AIDED DRAFTING (CAD)***FIRST YEAR***First Semester**

CL 191 .....	8
Math by advisement** .....	4
MD 171 Engineering Graphics .....	3
MD 174 Computer-Aided Drafting .....	3
	18

**Second Semester**

CL 192 .....	8
CL 200 Professional Career Preparation .....	1
Math by advisement** .....	4
CS 104 Microcomputer Productivity I .....	2
	15

**SECOND YEAR****First Semester**

CL 193 .....	8
EN 103 English I .....	3
Electives .....	3-4
	14-15

**Second Semester**

CL 194 .....	8
MD 180 Architectural Drawing .....	3
Electives .....	3-4
	14-15

CL 191, 192, 193 & 194 each entails 180 hours of hands-on, off-campus learning.

\*Related electives must include all applicable recommended electives in the COCAL certificate program and additional business, technology, and liberal arts and sciences courses as approved by the faculty mentor committee and the Dean of Business & Technology.

\*\*Math placement depending upon preparation, competence at level of MA 150 or higher required upon program completion.



**INDIVIDUAL STUDIES: Collaborative Career Learning (Certificate)**  
**APC – 0987**

In this innovative approach to career learning, students learn career skills in fields in which jobs are available locally. Although similar to cooperative education and internship programs, COCAL requires that students learn basic career skills at job sites without pay. Students learn from practicing professionals who follow competency guidelines prescribed by the College and based on Dictionary of Occupational Titles specifications, national competency catalogs, and employer input. Students combine collaborative career learning with 12-18 credits of related college course work to earn a one-year certificate in Individual Studies.

Students include dislocated workers, displaced homemakers, young high school graduates interested in "hands-on" learning and immediate employment, as well as students interested in career exploration prior to committing themselves to four years of college. The primary goal of COCAL is employment upon graduation. Enrollment is competitive.

The following is an example of a COCAL sequence of course requirements:

**PHLEBOTOMIST**

*First Semester*

CL 191 .....	8
BI 181 Anatomy and Physiology I .....	4
HE 136 First Aid .....	3
OT 283 Medical Terminology.....	3
	18

*Second Semester*

CL 192 .....	8
CL 200 Professional Career Preparation.....	1
BI 182 Anatomy & Physiology II.....	4
Approved Electives .....	3-4
	16-17

CL 191, 192, 193 & 194 each entails 180 hours of hands-on, off-campus learning.

Program Total 34-35 credits

Approved Electives: BI 282, HD 221, SC 137, SC 170

A partial listing of Collaborative Career Learning fields which have led to an Individual Studies Certificate: Accounting Clerk, Banking, Computer Operator, Dental Assistant, Floral Design/Retail Management, Electrical Repair, Insurance Office Assistant, CNC Machine Operator, Medical Assistant, Medical Records Clerk, Pharmacy Technician, Phlebotomist, Physical Therapy Aide, Printing/Graphic Arts, Microcomputer Maintenance, Veterinary Assistant, Retail Management, and Travel. (May change from semester to semester.)

**LIBERAL ARTS AND SCIENCES: GENERAL STUDIES (A.A.)**  
**APC — 0250**

This program is a university-parallel program designed for students who intend to transfer to a four-year institution. This program can be used either by students who are unsure of their plans and need maximum flexibility to explore their options or by students who wish to develop their curriculum within the requirements of the four-year institution to which they intend to transfer.

This program will also be appropriate for students who plan to transfer to a four-year college to pursue the baccalaureate degree in journalism, theater, communications, public relations, or to pursue teacher certification.

**FIRST YEAR**

*First Semester*

EN 103 English I.....	3
Social Science Elective .....	3
Mathematics Elective.....	3-4
Liberal Arts Elective* .....	3
Elective .....	3
Physical Education.....	1
	16-17

*Second Semester*

EN 104 English II.....	3
Social Science Elective.....	3
Science Elective.....	3-4
Liberal Arts Elective*.....	3
Elective.....	3
Physical Education.....	1
	16-17

**SECOND YEAR**

*First Semester*

Humanities Elective.....	3
Math or Science Elective.....	3-4
Liberal Arts Electives* .....	6
Elective .....	3
	15-16

*Second Semester*

Humanities Elective.....	3
Social Science Elective.....	3
Liberal Arts Electives* .....	6
Electives .....	3
	15

Mathematics elective should be MA 150 or higher.

\*Liberal Arts electives should be selected so as to produce a balance among the areas of Humanities, Social Sciences, and Math/Science.

Students interested in pursuing a career in communications, theater, early childhood education, elementary/secondary education, or special education should work closely with an academic advisor in selecting courses under the General Studies program in order to transfer to programs at four-year colleges at the junior level.

Minimum of 62 semester hours required to complete this program.

**LIBERAL ARTS AND SCIENCES: HUMANITIES (A.A.)**  
**APC — 0201**

This program is designed primarily for those students who plan to transfer to four-year colleges in programs leading to Bachelor's degree in English, Foreign Languages, Theater, Communications, Philosophy, or in other related fields.

**FIRST YEAR**

*First Semester*

EN 103 English I .....	3
SS 183 Western Civilization I <u>or</u>	
SS 283 American History I .....	3
Foreign Language* .....	3
Mathematics <u>or</u> Science .....	3-4
Elective .....	3
Physical Education .....	1
	16-17

*Second Semester*

EN 104 English II .....	3
SS 184 Western Civilization II <u>or</u>	
SS 284 American History II .....	3
Foreign Language* .....	3
Mathematics <u>or</u> Science .....	3-4
Elective .....	3
Physical Education .....	1
	16-17

**SECOND YEAR**

*First Semester*

Literature Elective .....	3
Social Science Elective .....	3
Elective .....	3
Mathematics <u>or</u> Science .....	3-4
Humanities Elective** .....	3
	15-16

*Second Semester*

Literature Elective .....	3
Social Science Elective .....	3
Elective .....	3
Mathematics <u>or</u> Science .....	3-4
Humanities Elective** .....	3
	15-16

\*At least two courses at the intermediate level in a foreign language are recommended.

\*\*Include courses with AR, HU, MU, or TH designators.

Minimum of 62 semester hours required to complete this program. All students must complete a minimum of 6 semester hours in Mathematics (at MA 150 or higher) and six semester hours in Science. Students are advised to select the electives based on the requirements of their transfer institutions. Students are advised to take microcomputer applications courses recommended by the Humanities faculty, as additional electives.

Students may, based on their area of interest and requirements of the transfer institution, develop Advisement Tracks in English, Foreign Language, Theater, or Communications. Recommended Advisement track courses are given below.

**ENGLISH:** Literature Electives, Humanities Electives, and Electives from: EN 231-232, 233-234, 235, 239, 245, 257, 200, 132

**COMMUNICATIONS:** Humanities Electives, Social Science Electives, Electives from: EN 132, AR 150, CO 171, 220, 231, 254, 264, SS 291, 281, 282

**FOREIGN LANGUAGE:** Minimum 12 semester hours in a foreign language, including two courses at the intermediate level or higher. Literature Electives: EN 231-232; Social Science Elective: SS 294, 297

**THEATER:** Humanities Electives and Electives: TH 101, 105, 201, 202, MU 101, 102, 201, EN 132, 245

**LIBERAL ARTS AND SCIENCES: MATHEMATICS (A.S.)**  
**APC — 0221**

This program is designed for students who plan to transfer and continue their studies in mathematics leading to a Bachelor's degree. Preparation for the professional field of mathematics leading to a variety of careers in industry, government, research, or teaching can be initiated with this program.

**FIRST YEAR**

*First Semester*

EN 103 English I.....	3
MA 157 A. Geo. & Calculus I*.....	4
Foreign Language.....	3
Science**.....	4
Physical Education.....	1
	15

*Second Semester*

EN 104 English II.....	3
MA 158 A. Geo. & Calculus II.....	4
Foreign Language.....	3
Science**.....	4
Physical Education.....	1
	15

**SECOND YEAR**

*First Semester*

MA 257 A. Geo. & Calculus III.....	4
Science**.....	3-4
Humanities Elective.....	3
CS Elective***.....	3
Social Science Elective.....	3
	16-17

*Second Semester*

MA 258 Differential Equations.....	4
MA 259 Linear Algebra.....	3
Science**.....	3-4
Humanities Elective.....	3
Social Science Elective.....	3
	16-17

\*Prerequisite courses available.

\*\*PH 171-172 and two additional science courses with ES, PH, CH, and/or BI designations required.

\*\*\*One computer programming course such as CS 120, 124, 125 or equivalent required.

Minimum of 62 semester hours required for graduation. Students are advised to select the electives based on the requirements of their transfer institutions.

**LIBERAL ARTS AND SCIENCES: MATHEMATICS AND SCIENCE (A.S.)**  
**APC — 0645**

This program is designed for students who plan to transfer and continue their studies in programs leading to Bachelor's degree with particular emphasis on advanced study in the sciences and mathematics. Preparation for the professional fields of mathematics, the sciences, medicine and dentistry as well as teaching science and mathematics on the elementary and secondary levels can be initiated with this program.

**FIRST YEAR**

*First Semester*

EN 103 English I .....	3
Social Science Elective* .....	3
Foreign Language .....	3
Mathematics** .....	3-4
Science*** .....	3-4
Physical Education .....	1
	<u>16-18</u>

*Second Semester*

EN 104 English II .....	3
Social Science Elective* .....	3
Foreign Language .....	3
Mathematics** .....	3-4
Science*** .....	3-4
Physical Education .....	1
	<u>16-18</u>

**SECOND YEAR**

*First Semester*

Mathematics** .....	3-4
Science*** .....	3-4
Elective .....	3
Electives .....	6
	<u>15-17</u>

*Second Semester*

Mathematics** .....	3-4
Science .....	3-4
Elective .....	3
Electives .....	6
	<u>15-17</u>

\*Social Science elective may be postponed until the second year.

\*\*MA 151 or higher.

\*\*\*Courses with BI, CH, ES, PH and/or SC designators except SC 121.

All students must complete 12 semester hours of Humanities (EN 103, 104, and six semester hours of foreign language), six semester hours of social science, four mathematics courses, four science courses, and two semester hours of physical education, and additional electives to total 62 semester hours. At least 30 semester hours must be selected from the liberal arts and sciences. Twelve semester hours of foreign languages are recommended.

**LIBERAL ARTS AND SCIENCES: SCIENCE (A.S.)**  
**APC — 0220**

This program is designed for students who plan to transfer and continue their studies in any branch of science leading to a Bachelor's degree. Preparation for the professions in biological sciences, physical sciences, medicine, dentistry, and education for a career in industry, research, or teaching can be initiated with this program.

**FIRST YEAR**

*First Semester*

EN 103 English I.....	3
Social Science Elective*.....	3
Foreign Language.....	3
Mathematics**.....	3-4
Science***.....	3-4
Physical Education.....	1
	16-18

*Second Semester*

EN 104 English II.....	3
Social Science Elective*.....	3
Foreign Language.....	3
Mathematics**.....	3-4
Science***.....	3-4
Physical Education.....	1
	16-18

**SECOND YEAR**

*First Semester*

Mathematics**.....	3-4
Science***.....	3-4
Science***.....	3-4
Humanities Elective.....	3
Elective****.....	2
	15-18

*Second Semester*

Mathematics**.....	3-4
Science***.....	3-4
Humanities Elective.....	3
Electives.....	6
	15-17

\*Social Science elective may be postponed until the second year.

\*\*Math courses must be selected from the following: MA154, 157, 158, 160, 257, 258, 259.

\*\*\*At least four science courses must be those with BI, CH, ES and/or PH designators.

\*\*\*\*A computer-programming course is recommended.

Students may, based on their area of interest and requirements of the transfer institution, develop Advisement Tracks in Biology, Chemistry, Pharmacy, Pre-med, or Physics. Recommended Advisement Track courses are given below.

**BIOLOGY:** BI 171, 172, 173, 176; CH 173, 174; MA 154, 157, 158, 160

**PHYSICS:** PH 171, 172, 271; ES 236 or 281; CH 173, 174; MA 157, 158, 257, 258. Suggested Electives: CS 120, 123 or 125; MA 259

**CHEMISTRY:** CH 173, 174; PH 171, 172; BI 171; MA 157, 158, 160, 257. Suggested Elective: MA 258

**PRE-MED/PHARMACY:** BI 171, 173; CH 173, 174, 221, 222; PH 171, 172; MA 154, 157, 158, 160. Suggested Electives: BI 181, 182, 282

Minimum of 62 semester hours required for graduation. Students are advised to select the electives based on the requirements of their transfer institutions. Students are also advised to take, as additional electives, microcomputer applications courses recommended by their science faculty.

**LIBERAL ARTS AND SCIENCES: SOCIAL SCIENCE (A.A.)**  
**APC — 0212**

This program is designed primarily for students who plan to transfer to four year colleges to pursue their studies in any branch of Social and Behavioral Sciences including history, political science, pre-law, public affairs, sociology, psychology, and counseling.

**FIRST YEAR**

*First Semester*

EN 103 English I .....	3
Social Science Elective* .....	3
Foreign Language .....	3
Mathematics or Science .....	3-4
Elective .....	3-4
Physical Education .....	1
	16-18

*Second Semester*

EN 104 English II .....	3
Social Science Elective* .....	3
Foreign Language .....	3
Mathematics or Science .....	3-4
Elective .....	3-4
Physical Education .....	1
	16-18

**SECOND YEAR**

*First Semester*

Literature Elective .....	3
Social Science Elective* .....	3
Elective .....	3
Mathematics or Science .....	3-4
Social Science Elective .....	3
	15-16

*Second Semester*

Literature Elective .....	3
Social Science Elective* .....	3
Elective .....	3
Mathematics or Science .....	3-4
Social Science Elective .....	3
	15-16

Mathematics must be MA 150 or higher (MA 160 recommended). Students are encouraged to take twelve semester hours of a foreign language.

\*Two courses must be from History and/or Political Science; two courses must be from Psychology and/or Sociology.

Minimum of 62 semester hours required to complete this program. All students must complete a minimum of six semester hours in Mathematics and 6 semester hours in Science. Students are advised to select the electives based on the requirements of their transfer institutions. Students are advised to take, as additional electives, microcomputer applications courses recommended by the Social Science faculty.

Students may, based on their area of interest and requirements of the transfer institution, develop Advisement Tracks in History, Political Science/Public Affairs, Psychology, or Sociology. Recommended Advisement Track courses are given below.

**HISTORY:** Social Science should include: SS 183-184, 283-284. Literature Elective: EN 231-232 or 233-234. Suggested Electives: EC 282-283.

**POLITICAL SCIENCE/PUBLIC AFFAIRS:** Social Science should include: SS 283-284, 282, and 278 or 382. Literature Elective: EN 231-232 or 233-234. Math Elective: MA 160. Suggested Electives: EC 282-283.

**PSYCHOLOGY:** Social Science Elective: SS 291, 292, 297, 281. Math Elective: MA 160. Science Elective: SC 135 or BI 171, and SC 139 or BI 173. Suggested Elective: FL 143-144, 243-244.

**SOCIOLOGY:** Select three Sociology courses from: SS 281, 264, 294, 386, 387, 382. Select three Social Science courses from: SS 183-184, 283-284, 293, 291, 282. Literature Elective: EN 231-232 or 233-234. Math Elective: MA 160.

**MULTIMEDIA TECHNOLOGY (A.A.S.)**

**APC – 1140**

Multimedia is the blending of text, images, and sound into a product designed to instruct, entertain, or inform. Multimedia works are evident as CD-ROM, laser disc, Internet, virtual reality, and software products. The multimedia program is designed to instruct students on how to use the technology required to create multimedia works.

**FIRST YEAR**

*First Semester*

EN 103 English I.....	3
CS 104 Microcomputer Productivity I .....	2
GA 101 Intro to Graphic Communications .....	3
AR 150 Two Dimensional Design .....	3
MM 101 Multimedia Technology I.....	3
Mathematics*.....	<u>3-4</u>
	17-18

*Second Semester*

EN 104 English II.....	3
MD 174 Computer-Aided Design .....	3
GA 104 Desktop Publishing Systems .....	3
Social Science.....	3
MM102 Multimedia Technology II.....	3
Physical Education.....	<u>1</u>
	16

**SECOND YEAR**

*First Semester*

GA 124 QuarkXpress™.....	3
Electives .....	6
CO 254 Video Production .....	3
MM 201 Multimedia Development I .....	3
Physical Education.....	<u>1</u>
	16

*Second Semester*

GA 125 Adobe Photoshop™.....	3
Elective.....	3
MM 202 Multimedia Development II .....	3
Social Science.....	3
Science .....	<u>3-4</u>
	15-16

\*Mathematics placement dependent upon preparation, competence at level of MA 142 or higher required.



**MULTIMEDIA TECHNOLOGY (CERTIFICATE)****APC – 0740**

Multimedia is the blending of text, images, and sound into a product designed to instruct, entertain, or inform. Multimedia works are evident as CD-ROM, laser disc, Internet, virtual reality, and software products. The multimedia certificate trains the student in the fundamentals of producing multimedia works.

*First Semester*

MM 101 Multimedia Technology I.....	3
GA 101 Introduction to Graphic Communications .....	3
CS 104 Microcomputer Personal Productivity I.....	2
AR 150 Two Dimensional Design.....	3
CO 254 Video Production.....	3
Elective.....	3
	17

*Second Semester*

MM 102 Multimedia Technology II.....	3
GA 125 Adobe Photoshop™ .....	3
MD 174 Computer Aided Design.....	3
GA 104 Desktop Publishing Systems.....	3
Elective.....	3
	15

**NATURAL RESOURCES CONSERVATION (A.A.S.)**

APC — 0617

The Natural Resources Conservation curriculum is designed to provide students with the educational background required to actively seek employment from government and private agencies in the areas of lands, parks and wildlife management. The program can also provide the flexibility to allow students to transfer to baccalaureate degree programs in conservation.

The SUNY College of Environmental Science and Forestry, and the SUNY College at Plattsburgh provide upper division transfer programs in Environmental and Resource Management. In addition, Haywood Technical College (Clyde, North Carolina) provides the following certificate programs: Sawyer, Saw Filer, and Lumber Specialists. Students planning to transfer to these institutions must consult with their advisor.

**FIRST YEAR**

*First Semester*

EN 103 English I.....	3
NR 223 Forest Management I** .....	3
SC 131 Environmental Physics.....	3
SC 135 Introduction to Biology <u>or</u>	
BI 171 Modern Biology*** .....	3-4
Mathematics <u>or</u> Elective* .....	3-4
	15-17

*Second Semester*

EN 104 English II <u>or</u>	
EN 127 Technical English.....	3
NR 224 Forest Management II** .....	3
SC 170 Introduction to Chemistry <u>or</u>	
CH 173 Fundamentals of Chemistry I.....	3-4
Mathematics .....	4
SC 143 Earth Systems <u>or</u>	
BI 172 Plant Biology <u>or</u>	
BI 173 Animal Biology*** .....	3-4
Microcomputers.....	2
	18-20

**SECOND YEAR**

*First Semester*

NR 126 Principles of Soil & Water** .....	3
NR 241 Water Resource Mgt: I** .....	3
Elective*** .....	3
Mathematics .....	3-4
Social Science Elective**** .....	3
Physical Education.....	1
	16-17

*Second Semester*

NR 242 Water Resource Mgt. II** .....	3
NR 250 Solid & Hazardous Waste.....	3
BI 176 Ecology .....	3
SU 101 Surveying.....	3
Social Science Elective**** .....	3
Physical Education.....	1
	16

\*Math placement depending upon preparation; Math elective must be MA 142 or higher (but not MA 147 or MA 150). MA 151, 154, or 160 recommended for transfer.

\*\*Classes may meet at sites other than main campus. Students make own transportation arrangements.

\*\*\*BI 171, BI 172, BI 173, CH 173 recommended for transfer.

\*\*\*\*SS 282 Recommended

Minimum of 65 semester hours required to complete this program.

**NURSING (A.A.S.) (UNDERGRADUATE NURSING)**  
**APC — 0622**

The Nursing Science Program offers a four-semester curriculum, which provides a balance of Liberal Arts, Sciences and Nursing as illustrated below. The nursing courses assist students in gaining knowledge, attitudes, and skills essential to nursing practice in a variety of settings. Graduates of this program are prepared to take the NCLEX examination for licensure as a Registered Professional Nurse (R.N.) Successful completion of the licensing examination qualifies the graduate to assume a beginning staff nurse position in a hospital/agency.

**Prerequisites:** High School Biology or equivalent, Algebra and Chemistry are required. Students are required to carry their own liability insurance. A medical examination with appropriate immunizations is required annually. All students must be certified in adult and pediatric cardiopulmonary resuscitation (CPR) prior to admission to the program.

The Office of Admissions accepts applications on a year-round basis. Processing of applications requires a minimum of thirty days. Non-matriculated nursing students are not allowed to register for nursing courses.

**FIRST YEAR**

<i>First Semester</i>	<i>Second Semester</i>
NU 105 Nursing Science I* .....7	EN 103 English I .....3
BI 181 Anatomy & Physiology I .....4	NU 106 Nursing Science II* .....7
SS 291 General Psychology .....3	BI 182 Anatomy & Physiology II .....4
Physical Education .....1	SS 297 Developmental Psychology .....3
15	Physical Education .....1
	18

**SECOND YEAR**

<i>First Semester</i>	<i>Second Semester</i>
NU 205 Nursing Science III* .....9	NU 206 Nursing Science IV* .....9
BI 282 Microbiology.....4	NU 207 Pharmacology .....3
EN 104 English II .....3	SS 281 Sociology .....3
16	Elective .....3
	18

\*To qualify for the next sequential nursing course, the student must earn a grade of "C" or higher in nursing courses and pass the clinical laboratory. Students are expected to provide uniforms to wear in laboratory periods. Clinical hours may vary within clinical courses based on restrictions set by affiliating agencies. Some courses meet at sites other than the main campus. Students must make their own transportation arrangements. All fees for standardized tests taken in the course of study will be the responsibility of the student.

Minimum of 67 semester hours required for graduation, including 2 hours of physical education.

A three-week preceptorship is required for graduation and is included in NU 206.

**OFFICE TECHNOLOGY: ADMINISTRATIVE (A.A.S.)**  
**APC — 0625**

The Office Technology: Administrative Program provides the necessary foundation for positions as administrative assistants, secretaries, stenographers, and receptionists in support positions in computerized offices in business, government, and industry. Courses may be elected in Medical, Legal, or Desktop Publishing.

**FIRST YEAR**

*First Semester*

EN 103 English I.....	3
OT 131 Beginning Shorthand <u>or</u> Electives .....	5
OT 134 Intermediate Keyboarding* .....	3
Mathematics <u>or</u> Science** .....	3-4
Microcomputers*** .....	2
	16-17

*Second Semester*

OT 183 Intermediate Shorthand.....	4
OT 239 Intro. to Office Sys. & Tech. ....	3
OT 134 Intermediate Keyboarding*.....	0-3
BU 137 Business Communications .....	3
Social Science Elective.....	3
Business Elective .....	3
	16-19

**SECOND YEAR**

*First Semester*

OT 233 Advanced Shorthand <u>or</u> Career Electives** .....	3-4
OT 235 Admin. Support Procedures I.....	3
OT 240 Word Processing Applications I.....	3
Career Electives** .....	3
Liberal Arts Elective.....	3
Physical Education.....	1
	16-17

*Second Semester*

OT 236 Admin. Support Procedures II <u>or</u> Career Electives*.....	3
OT 230 Machine Transcription .....	3
Career Electives** .....	3
Liberal Arts Electives.....	7-8
Physical Education.....	1
	17-18

\*Depending on preparation-completion of OT 134 required for graduation.

\*\*Students interested in pursuing a career in Legal, Medical, or Desktop Publishing, should work closely with an academic advisor in selecting courses under the Office Technology: Administrative program.

\*\*\*CS 104 OR CS 106 depending on preparation.

Minimum of 65 semester hours required for graduation, including 20 semester hours of liberal arts and science courses in addition to two semester hours of physical education.

**OFFICE TECHNOLOGY: WORD/INFORMATION PROCESSING (A.A.S.)**  
**APC — 0694**

The Office Technology: Word/Information Processing Program provides the necessary foundation for positions in offices with modern computer-oriented, word/information processing systems in business, government, and industry.

Program prerequisite: OT 133 Beginning Keyboarding or equivalent.

**FIRST YEAR**

*First Semester*

EN 103 English I.....	3
OT 133 Beginning Keyboarding or	
OT 134 Intermediate Keyboarding*	3
OT 239 Intro. to Office Sys. & Tech.....	3
Microcomputers***.....	2
Business Elective.....	3
Physical Education.....	<u>1</u>
	15

*Second Semester*

English Elective.....	3
BU 137 Business Communications.....	3
OT 134 Intermediate Keyboarding*	3
OT 240 Word Processing Applications I.....	3
Liberal Arts Electives.....	6
Physical Education.....	<u>1</u>
	16-19

**SECOND YEAR**

*First Semester*

OT 230 Machine Transcription.....	3
OT 235 Admin. Support Procedures I.....	3
OT 241 Word Processing Applications II.....	3
HD 221 Human Rel. & Group Dynamics.....	3
Mathematics or Science.....	<u>3-4</u>
	15-16

*Second Semester*

OT 236 Admin. Support Procedures II.....	3
OT 249 Word Processing Practicum or	
BU 299 Internship.....	3
OT 259 Office Systems Supervision.....	3
Electives**.....	6
Social Science Elective.....	<u>3</u>
	17-18

\*Depending on preparation OT 133 Beginning Keyboarding may be required--completion of OT 134 is required for graduation.

\*\*Suggested Electives: CS Elective, GA 104.

\*\*\*CS 104 or CS 106 depending on preparation.

Minimum of 63 semester hours (66 if OT 133 needed) required to complete this program.

**OFFICE TECHNOLOGY: WORD/INFORMATION PROCESSING (Certificate)**  
**APC — 0996**

This program leads to a certificate as a word/information-processing operator at the end of one year. It prepares students for positions as word/information operators in automated offices in business, industry, and government. Most courses in the program can be used to meet the requirements for an Associate in Applied Science degree.

Program prerequisite: OT 133 Beginning Keyboarding, or equivalent.

*First Semester*

OT 134 Intermediate Keyboarding*	3
OT 235 Administrative Support Procedures I	3
OT 239 Intro. to Office Systems & Technology	3
Microcomputers**	2
Business Elective	3
	14

*Second Semester*

OT 230 Machine Transcription	3
OT 236 Administrative Support Procedures II	3
OT 240 Word Processing Applications I	3
BU 137 Business Communications	3
Business Elective	3
	15

*Summer Term or Third Semester*

OT 241 Word Processing Applications II	3
	3

\*A student must have completed OT 133 or equivalent.

\*\*CS 104 or CS 106 depending on preparation.

Minimum of 32 semester hours (35 hours if a student is required to complete OT 133 in preparation for OT 134) required to complete this program.

**MEDICAL INFORMATION PROCESSING (Certificate)**  
**APC — 0045**

The one-year Medical Information Processing Certificate program is designed to provide students with concentrated skill training for immediate employment. However, all credits can be applied toward an Associate Degree.

Emphasis is on practical hands-on experience in medical terminology, medical transcription, and medical administrative support procedures, as well as basic office skills. The instructor uses an individualized audio-visual instructional program.

Graduates may be employed as medical records aides, medical transcribers, medical word processing specialists, medical office support personnel, and related careers. Jobs are available in hospitals, medical clinics, physician's offices, government agencies, and other health and related agencies. Evening and summer registration required.

Program Prerequisite: OT 133 or equivalent.

*First Semester*

OT 134 Intermediate Keyboarding*	3
OT 235 Administrative Support Procedures I.....	3
OT 283 Medical Terminology.....	3
OT 285 Medical Administrative Support Procedures .....	3
Elective** .....	3
Microcomputers***.....	2
	<u>17</u>

*Second Semester*

BU 137 Business Communications.....	3
OT 287 Medical Transcription I.....	3
ME 284 Medical Insurance .....	3
Elective** .....	3
	<u>12</u>

*Summer Term*

OT 288 Medical Transcription II .....	3
	<u>3</u>

\*Program Prerequisite: OT 133 or equivalent.

\*\*Suggested Electives: OT 239, 240, CS 160, HU 258, HE 136, 235, HD 221, BI 181, 182, ME 286.

\*\*\*CS 104 or CS 106 depending on preparation.

Minimum of 32 semester hours (35 if OT 133 is needed) required to complete this program.

**SECRETARIAL STUDIES (Certificate)**  
**APC — 0927**

This program is open to all students who have had two years of satisfactory high school training in shorthand, or its equivalent. This program leads to a certificate in secretarial studies at the end of one year. Students completing the program are qualified to accept positions as secretaries, stenographers, and receptionists in business, government and industry. All courses included in this program may be transferred to the Office Technology: Administrative Degree program.

*First Semester*

OT 134 Intermediate Keyboarding* .....	3
OT 233 Advanced Shorthand.....	4
OT 235 Administrative Support Procedures.....	3
Business Electives .....	<u>6</u>
	16

*Second Semester*

OT 230 Machine Transcription .....	3
OT 236 Administrative Support Procedures.....	3
OT 239 Intro. to Office Systems & Technology .....	3
BU 137 Business Communications.....	3
Microcomputers** .....	2
Business Elective.....	<u>3</u>
	17

\*Must have completed OT 133 or equivalent.

\*\*CS 104 or CS 106 depending on preparation.

Minimum of 33 semester hours (36 if OT 133 is needed) required to complete this program.



## VISUAL COMMUNICATIONS TECHNOLOGY: GRAPHIC ARTS PRINTING (A.A.S.) APC — 0677

The Visual Communications Technology curriculum is designed to prepare students to seek employment as entry level electronic prepress computer operators, page layout artists, web designers and printing production technicians. The market for employment is the advertising, newspaper, commercial printing, magazine, graphic communications and book publishing industries. Emphasis is directed toward acquiring contemporary job skills and knowledge in the areas of traditional photography, digital cameras, layout and design, web page design, presentation design, desktop publishing, digital technology and desktop scanning. Other specialty areas include in-plant printing, graphic arts supplies, paper sales, customer service and the allied industries.

Special focus is on the training and development of computer skills using a networked Macintosh® and PC platform supplemented with industry standard software. Laser, inkjet printing and color copy systems are used to demonstrate emerging and growing technologies. In addition, traditional halftoning, color reproduction, film assembly, offset platemaking, presswork, finishing and related areas are taught.

The Visual Communications Technology program provides a solid technical and graphic design foundation useful for direct employment or transfer to higher education.

### FIRST YEAR

#### *First Semester*

EN 103 English I.....	3
GA 101 Intro. to Graphic Comm. Technology	3
AR 150 Basic Design .....	3
ER 101 Principles of Photography.....	3
Keyboarding/Microcomputers* .....	3
Physical Education.....	<u>1</u>
	16

#### *Second Semester*

EN 104 English II or	
EN 127 Technical English.....	3
Mathematics** .....	3-4
GA 103 Graphic Comm & Elect Publishing....	3
GA 104 Comp. & Desktop Publishing Sys .....	3
Elective.....	3
Physical Education.....	<u>1</u>
	16-17

### SECOND YEAR

#### *First Semester*

GA 205 Graphic Arts Layout & Design .....	3
GA 206 Electronic Prepress Production .....	3
SC 170 Intro to Chemistry.....	3
Elective .....	3
Social Science Elective .....	<u>3</u>
	15

#### *Second Semester*

GA 207 Entrepreneurship & Management .....	3
ER 102 Advanced Photography.....	3
SC 162 Physics .....	3
Elective.....	5-6
Social Science Elective.....	<u>3</u>
	17-18

\*Three credits of course work to be selected from BU100, 113, 123, OT133, CS101, 104, 106.

\*\*Mathematics placement dependent upon preparation, competence at level of MA142 or higher required.

Suggested electives: BU140, 141, 165, 170, GA102, 110, 121, 122, 124, 125, 201, 208, 209, 210, CO171, ART60, 210, 211.

Minimum of 64 semester hours required for graduation, including 2 hours of physical education.

**DESKTOP PUBLISHING: DIGITAL TYPESETTING (Certificate)**  
**APC — 1094**

Desktop Publishing/Digital Typesetting is a one-year certificate program designed to provide contemporary skills and knowledge of desktop publishing computers and printing systems. It combines basic graphic communications courses with complementary keyboarding and microcomputer modules to teach skills necessary for employment. This program will provide the training needed to gain entry-level positions in the publishing, advertising, commercial printing, and newspaper industries. Macintosh® and PC platforms are supplemented with industry standard software and scanning equipment.

*First Semester*

EN 103 English I.....	3
GA 101 Introduction to Graphic Communications .....	3
ER 101 Principles of Photography.....	3
BU 100 Computer Keyboarding.....	1
CS 104 Microcomputer Personal Productivity I.....	2
CS 101 Microcomputer Application: Word Processing.....	1
CO 171 Intro. Mass Communications <u>or</u>	
CO 200 Public Relations (Option).....	3
	16

*Second Semester*

GA 103 Graphic Communications & Electronic Publishing.....	3
GA 104 Composition & Desktop Publishing Systems .....	3
BU 170 Principles of Advertising.....	3
CS Elective* .....	3
Mathematics (142 <u>or</u> Higher) .....	3-4
	15-16

Minimum of 31 semester hours required to complete this program.

## ONE-PLUS-ONE TRANSFER DEGREE PROGRAMS

In cooperation with the State University Colleges of Technology at Canton and at Cobleskill, and with the College of Environmental Science and Forestry, Fulton-Montgomery Community College offers "one-plus-one" programs in the following areas:

*with SUNY Canton:*

Industrial Technology

Mortuary Science

*with SUNY College of Environmental Science & Forestry:*

Forest Technology

*with SUNY Cobleskill:*

Biological Technology

Chemical Technology

Floriculture

Public Health Technology: Environmental Health

Science Laboratory Technology: Histotechnology

A student in a one-plus-one program spends the first year at Fulton-Montgomery taking courses prescribed for the program. Upon successful completion of this first year (minimum of 1.75 average), the student is guaranteed transfer into the program at Canton, Cobleskill or Forestry for the final year of the program and the award of the Associate degree. A second application is necessary during the first year (except Forest Technology, which requires admission by SUNY ES&F before starting at FMCC).

**ONE-PLUS-ONE: CHEMICAL TECHNOLOGY (A.A.S.)**  
**APC — 0535**

An agreement with SUNY Cobleskill enables FMCC to offer the first half of this program. Upon successful completion of the first year courses below, acceptance will be granted to SUNY Cobleskill. The degree will not be awarded by FMCC; it will be awarded by SUNY Cobleskill upon successful completion of this program.

**FIRST YEAR — FULTON-MONTGOMERY COMMUNITY COLLEGE**

*First Semester*

EN 103 English I.....	3
CH 173 Fund. of Chemistry I.....	4
Mathematics*.....	3-4
Elective.....	2-3
Social Science Elective.....	3
Physical Education.....	<u>1</u>
	16-18

*Second Semester*

EN 127 Technical English <u>or</u>	
EN 104 English II.....	3
CH 174 Fund. of Chemistry II.....	4
Mathematics*.....	3-4
Social Science Elective.....	3
Elective.....	3
Physical Education.....	<u>1</u>
	17-18

**SECOND YEAR — SUNY COBLESKILL**

*First Semester*

CHEM 231 Organic Chemistry I.....	4
CHEM 241 Quantitative Analysis.....	4
Specialization Electives**.....	<u>2-4</u>
	16-18

*Second Semester*

CHEM 232 Organic Chemistry II.....	4
CHEM 244 Instr. Analysis.....	4
CHEM 130 Computer Applications in Nat. Science <u>or</u>	
COMP 150.....	3
Specialization Electives**.....	4
Electives.....	<u>0-2</u>
	15-17

\*Mathematics placement dependent upon preparation, competence in intermediate algebra required.

\*\*Courses chosen from biology, chemistry, physics, math, computer information systems or physical science.

Minimum of 66 semester hours required to complete this program. Thirty-three semester hours to be completed on the Cobleskill campus.

**ONE-PLUS-ONE: FLORICULTURE (A.A.S.)****APC — 0643**

An agreement with SUNY Cobleskill enables FMCC to offer the first half of this program. Upon successful completion of the first year courses below, acceptance will be granted to SUNY Cobleskill. The degree will not be awarded by FMCC; it will be awarded by SUNY Cobleskill upon successful completion of this program.

**FIRST YEAR — FULTON-MONTGOMERY COMMUNITY COLLEGE***First Semester*

EN 103 English I.....	3
BI 171 Modern Biology.....	4
Social Science Elective .....	3
Electives .....	6
Physical Education.....	<u>1</u>
	17

*Second Semester*

EN 127 Technical English or	
EN 104 English II.....	3
BI 172 Plant Biology.....	4
Social Science Elective.....	3
Electives .....	6
Physical Education .....	<u>1</u>
	17

**SECOND YEAR — SUNY COBLESKILL***First Semester*

OH 111 Floral Design I .....	3
OH 131 Floriculture .....	3
PH 113 Plant Science Laboratory Techniques .	1
PH 141 Nursery Management I .....	3
PH 181 Plant Pathology .....	3
OH 200-210 Plant Science Occupational	
Experiences.....	1
OH 251 Greenhouse Management.....	<u>3</u>
	17

*Second Semester*

OH 172 Flower Shop Management .....	3
OH 186 Entomology.....	3
PH 114 Plant Science Laboratory Techniques. .	1
OH 212 Floral Design II .....	3
OH 200-210 Plant Science Occupational	
Experiences .....	1
PH 232 Floriculture II .....	3
AG 111 Intro. to Soil Science.....	<u>3</u>
	17

Minimum of 68 semester hours required to complete this program.

**ONE-PLUS-ONE: FOREST TECHNOLOGY (A.A.S.)**  
**APC — 0620**

An agreement with the SUNY College of Environmental Science and Forestry enables FMCC to offer the first half of this program. Upon successful completion of the first year courses below, acceptance will be granted to the SUNY College of Environmental Science and Forestry. The degree will not be awarded by FMCC; it will be awarded by the SUNY College of Environmental Science and Forestry upon successful completion of this program.

**FIRST YEAR — FULTON-MONTGOMERY COMMUNITY COLLEGE**

*First Semester*

EN 103 English I .....	3
BI 171 Modern Biology <i>or</i>	
SC 135 Intro. Biology .....	3-4
EC 180 Intro. to Economics .....	3
Mathematics* .....	3-4
Elective .....	3
	15-17

*Second Semester*

EN 104 English II .....	3
BI 172 Plant Biology <i>or</i>	
BI 173 Animal Biology <i>or</i>	
SC 139 Intro. Biology .....	3-4
Mathematics* .....	3-4
Electives .....	6
	15-17

**SECOND YEAR — RANGER SCHOOL**  
**WANAKENA CAMPUS**

Courses in area of specialization.

\*Mathematics placement dependent upon preparation; competence in algebra and trigonometry, or higher mathematics required.

Concurrent application to Fulton-Montgomery and to the SUNY College of Environmental Science and Forestry is required. Decisions on admission to the Forest Technology program are rendered by the SUNY College of Environmental Science and Forestry.

**ONE-PLUS-ONE: INDUSTRIAL TECHNOLOGY (A.A.S.)  
APC — 0583**

An agreement with SUNY Canton enables FMCC to offer the first half of this program. Upon successful completion of the first year courses below, acceptance will be granted to SUNY Canton. The degree will not be awarded by FMCC; it will be awarded by SUNY Canton upon successful completion of this program.

**FIRST YEAR — FULTON-MONTGOMERY COMMUNITY COLLEGE**

*First Semester*

EN 103 English I.....	3
PH 171 Physics I.....	4
EL 125 Electricity.....	4
MA 151 Inter. Algebra or MA 142 Technical Mathematics.....	4
MD 171 Engineering Graphics.....	3
Physical Education.....	1
	<u>19</u>

*Second Semester*

EN 104 English II, or EN 127 Technical English .....	3
PH 172 Physics II .....	4
EL 126 Electricity .....	4
MA 154 Mathematics or MA 151 Intermediate Algebra.....	4
Physical Education .....	1
	<u>16</u>

**SECOND YEAR — SUNY CANTON**

*First Semester*

30310 Strength of Materials .....	4
40614 Basic Calculus.....	4
Technical Electives*.....	8
	<u>16</u>

*Second Semester*

30421 Electronics.....	4
30621 Fluid Power Systems.....	4
Social Science.....	3
Technical Electives* .....	5-6
	<u>16-17</u>

\*Technical Electives:

30604 Manufacturing Processes I  
30202 Automotive Welding  
30303 Elementary Surveying  
30304 Construction I  
30624 Shop Practice  
30605 Engineering Drawing II  
30607 Manufacturing Processes II  
30307 Construction Drafting  
30306 Hydraulics

30117 Introduction to Alternate Energy  
30108 Plumbing Design  
30314 Project Management  
30614 Work Simplification & Measurement  
30118 Active & Passive Energy Systems I  
30619 Quality Control  
30620 Production Planning  
30119 Active & Passive Energy Systems II  
30002 Computer Applications

64 semester hours required to complete this program.

**ONE-PLUS-ONE: MORTUARY SCIENCE (A.A.S.)**  
**APC — 0599**

An agreement with SUNY Canton enables FMCC to offer the first half of this program. Upon successful completion of the first year courses below, acceptance will be granted to SUNY Canton. The degree will not be awarded by FMCC; it will be awarded by SUNY Canton upon successful completion of this program.

**FIRST YEAR — FULTON-MONTGOMERY COMMUNITY COLLEGE**

*First Semester*

EN 103 English I.....	3
BU 101 Principles of Business.....	3
BU 171 Business Law.....	3
SS 291 General Psychology.....	3
BI 181 Anatomy & Physiology I.....	4
	<u>16</u>

*Second Semester*

EN 104 English II or	
EN 132 Speech.....	3
BI 182 Anatomy & Physiology II.....	4
BU 121 Accounting I.....	4
BU 165 Small Business Management.....	3
Introductory level computer course.....	3
Physical Education.....	1
	<u>18</u>

**SECOND YEAR — SUNY CANTON**

*First Semester*

105011 Funeral Traditions: Past & Present.....	3
105120 Funeral Home Management.....	3
105110 Embalming & Aseptic Techniques.....	4
102109 Pathology.....	3
410070 Sociology of Death and Dying.....	3
	<u>16</u>

*Second Semester*

10504 Clin. Theory, Pract. & San. II.....	4
10506 Senior Seminar.....	3
10508 Restorative Art.....	4
10509 Mort. Hyg. & San. Science.....	3
Social Science Elective.....	3
	<u>17</u>

*Summer*

10507 Clinical Practicum.....	2
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Minimum of 69 semester hours required to complete this program.



**ONE-PLUS-ONE: PUBLIC HEALTH TECHNOLOGY:  
ENVIRONMENTAL HEALTH (A.A.S.)  
APC — 0624**

An agreement with SUNY Cobleskill enables FMCC to offer the first half of this program. Upon successful completion of the first year courses below, acceptance will be granted to SUNY Cobleskill. The degree will not be awarded by FMCC; it will be awarded by SUNY Cobleskill upon successful completion of this program.

**FIRST YEAR — FULTON-MONTGOMERY COMMUNITY COLLEGE**

*First Semester*

EN 103 English I.....	3
CH 173 Fundamentals of Chemistry I.....	4
BI 171 Modern Biology.....	4
Mathematics*.....	3-4
Physical Education.....	<u>1</u>
	15-16

*Second Semester*

EN 127 Technical English <i>or</i>	
EN 104 English II.....	3
CH 174 Fundamentals of Chemistry II.....	4
BI 173 Animal Biology.....	4
BI 282 Microbiology.....	4
Mathematics*.....	<u>3-4</u>
	18-19

**SECOND YEAR — SUNY COBLESKILL**

*First Semester*

ENHT 207 Milk and Food Sanitation.....	3
PHYS 111 <i>or</i>	
PHYS 211 Physics I.....	4
ENHT 109 Water Supply.....	3
SOSC, PSYC, <i>or</i> HIST Elective.....	3
Electives.....	<u>3-4</u>
	16-17

*Second Semester*

ENHT 101 Intro. to Environmental Health ..	3
SOSC, PSYC, <i>or</i> HIST.....	3
Electives.....	9-10
PHED Physical Education.....	<u>1</u>
	16-17

\*Mathematics placement dependent upon preparation, competence at level of MA 154 or higher required.

Minimum of 66 semester hours required to complete this program. Thirty-three semester hours to be completed on the Cobleskill campus.

**ONE-PLUS-ONE: BIOLOGICAL TECHNOLOGY (A.A.S.)**  
**APC — 0614**

An agreement with SUNY Cobleskill enables FMCC to offer the first half of this program. Upon successful completion of the first year courses below, acceptance will be granted to SUNY Cobleskill. The degree will not be awarded by FMCC; it will be awarded by SUNY Cobleskill upon successful completion of this program.

**FIRST YEAR — FULTON-MONTGOMERY COMMUNITY COLLEGE**

*First Semester*

EN 103 English I .....	3
CH 173 Fundamentals Of Chemistry I.....	4
BI 171 Modern Biology .....	4
Mathematics (MA 154 suggested) .....	3-4
Physical Education .....	1
	<u>15-16</u>

*Second Semester*

EN 104 English II <i>or</i>	
EN 127 Technical English .....	3
CH 174 Fundamentals of Chemistry II.....	4
BI 173 Animal Biology .....	4
Mathematics (MA 160 suggested) .....	3-4
SS Elective .....	3
	<u>17-18</u>

**SECOND YEAR — SUNY COBLESKILL**

*First Semester*

BIOL 219 Microbiology .....	4
SOSC, PSYC, <i>or</i> HIST Electives.....	3
Specialization Electives* .....	6
Electives .....	3-5
	<u>16-18</u>

*Second Semester*

CHEM 244 Instrumental Analysis <i>or</i>	
BIOL 264 Adv. Biological Methods.....	3-4
PHED Physical Education .....	1
BIOL 158 Human Physiology <i>or</i>	
BIOL 117 Botany II <i>or</i>	
BIOL 136 Vert. Biology .....	3
Specialization Elective* .....	3
Electives.....	5-7
	<u>16-18</u>

\*Specialization Electives: 8-9 semester hours of courses with BIOL, CHEM, ENHT, MATH, or PHYS numbers offered on the Cobleskill campus other than BIOL 111-112, CHEM 111-112, CHEM 121-122, BIOL 158, BIOL 117, BIOL 136, BIOL 264, CHEM 244 or their equivalents at FMCC. Students must take a minimum of eight semester hours of specialization elective (nine semester hours will be required of students who take BIOL 264).

Minimum of 66 semester hours required to complete this program. Thirty-three semester hours to be completed on the Cobleskill campus.

## ONE-PLUS-ONE: SCIENCE LABORATORY TECHNOLOGY: HISTOTECHNOLOGY (A.A.S.) APC — 0600

An agreement with SUNY Cobleskill enables FMCC to offer the first half of this program. Upon successful completion of the first year courses below, acceptance will be granted to SUNY Cobleskill. The degree will not be awarded by FMCC; it will be awarded by SUNY Cobleskill upon successful completion of this program.

### FIRST YEAR — FULTON MONTGOMERY COMMUNITY COLLEGE

#### *First Semester*

EN 103 English I.....	3
CH 173 Fundamentals of Chemistry I.....	4
BI 171 Modern Biology.....	4
Mathematics* .....	3-4
Physical Education.....	<u>1</u>
	15-16

#### *Second Semester*

EN 127 Technical English or EN104 English II3	4
CH 174 Fundamentals of Chemistry II.....	4
BI 173 Animal Biology.....	4
Mathematics* .....	3-4
Electives** .....	3
Physical Education .....	<u>1</u>
	18-19

### SECOND YEAR — SUNY COBLESKILL

#### *First Semester*

BIOL 251 Vertebrate Histology.....	3
BIOL 259 Vertebrate Anatomy.....	3
SOSC, PSYC, or HIST .....	3
BIOL 114 Med. Orient. ....	1
Science Elective*** .....	4
Electives .....	<u>3</u>
	17

#### *Second Semester*

BIOL 158 Human Physiology.....	3
BIOL 268 Microtechniques .....	3
BIOL 255 Animal Pathology.....	2
SOSC, PSYC, or HIST .....	3
Electives .....	<u>5</u>
	16

#### *Summer Semester*

BIOL 275 Supervised Clinical Experience in Histotechnology (twelve weeks)**** .....	4
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\*Mathematics placement dependent upon preparation, competence of level of MA 154 or higher required.

\*\*May be Microbiology

\*\*\*Science Elective: Any BIOL, CHEM, ENHT, MATH, or PHYS course. Suggested electives include: Organic Chemistry, Microbiology, Advanced Biological Techniques, Biochemistry, Medical Laboratory Practice, and Instrumental Analysis.

\*\*\*\*Completion of this course is required in order to take the American Society of Clinical Pathology Registry Examination for Histologic Technician. BIOL 275 is not a degree requirement but may be applied toward the degree credits. If that is done, the degree will be received in August.

Minimum of 66 semester hours required to complete this program. Thirty-three semester hours to have be completed on the Cobleskill campus.

## COURSE DESCRIPTIONS

**GENERAL NOTE:** All courses described in this catalog are regularly offered unless noted as follows: F — fall semester only; WI — intersession/winter term only; S — spring semester only; SU — summer session only.\* The College reserves the right to cancel any course when the enrollment is insufficient to support the course. The right is also reserved not to offer a course if resources become unavailable or if the course has been dropped from the curriculum since the last printing of the catalog.

Courses are listed in alphabetical order by title. An index of page numbers is found in the back of this book.

\*s.h. means semester hours.

### Non-Credit Laboratory Courses

The purpose of these labs is to provide supplementary instruction for students who desire it on a non-credit basis. Fees are covered as part of credit tuition and/or lab fees.

**C001 Computer Laboratory Non-Credit**  
This course has been designed to provide supervised hands-on computer experience for those students enrolled in data processing and mathematics courses requiring understanding of computer operation and use of computer terminals. *Hours vary according to student needs.*

**C002 MTL Center Non-Credit**  
This course is designed to provide instructional support for those students enrolled in secretarial science and word processing courses and to provide alternate instructional experiences for those who wish to learn independently. *Hours vary according to student needs.*

**C003 Nursing Laboratory Non-Credit**  
This course has been designed to provide instructional support for those students enrolled in nursing courses and to provide alternate instructional experiences for those who wish to learn independently. *Hours vary according to student needs.*

**C004 Mathematics Laboratory Non-Credit**  
This course has been designed to provide remedial assistance in mathematics for students

planning to enroll or currently enrolled in any of the traditional mathematics courses offered at the College. *Hours vary according to student needs.*

**C005 Accounting Laboratory Non-Credit**  
This course has been designed to provide remedial support experiences for those students enrolled in traditional accounting courses, and to provide alternative experiences for those who wish to learn independently to update their vocational skills in accounting. *Hours vary according to student needs.*

**C006 Study Skills Laboratory Non-Credit**  
Students work independently under the supervision of the instructor, who set up an individualized remedial program to enhance the student's study skills and college-level performance. *Hours vary according to student needs.*

**C007 Electricity Laboratory Non-Credit**  
This course has been designed to provide hands-on electric circuitry experience for those students enrolled in electrical programs that require additional work in electricity. *Hours vary according to student needs.*

**C008 Academic Software Skills Non-Credit**  
This course has been designed to provide academic computing skill experience for those students enrolled in Career/Liberal Arts & Science programs that require additional work with various software packages. *Hours vary according to student needs.*

### English as a Second Language Intensive English (EF) Intensive English Language Program

Fulton-Montgomery Community College offers a full-time non-credit Intensive English as a Second Language (ESL) Program for students who need to improve their language ability before beginning full-time study in a college degree program. The ESL Language Program is also intended for those who want to study English for career or social purposes. Students are given instruction in listening, reading, writing and speaking skills as well as American culture studies. A free placement exam is required before enrollment. Courses are presented either in monthly modules or semester blocks and enrollment is on a rolling admission basis. For more information contact the Office of International Student & ESL Programs.

All ESL courses beginning with the EF prefix are non-credit/credit-equivalent remedial courses and may be used to meet credit requirements of any athletic, enrollment, financial aid and immigration requirements. However, they cannot be used as electives towards graduation and may not be substituted for any English requirement of any curricula. Students seeking to meet these requirements are required to be matriculated into a degree program and have a pre-filed program of study form completed prior to enrollment. Tuition charged for credit-equivalent hour courses are consistent with credit hour charges.

The core courses of the Intensive English Language Program include the following four skill areas: **Listening Skills, Reading Skills, Writing Skills, and Speaking Skills.** Courses are available in multiple language proficiency levels. Each course has 75 hours of intensive language classroom instruction; 3 credit-equivalent hours. Advice and recommendation of the ESL faculty may also allow students allowed to enroll in credit-bearing courses related to their academic goals.

#### Listening Skills

Practice in aural comprehension, sound discrimination, vocabulary building, and comprehension of main ideas and inferences. Related reading, writing and note-taking activities. This course may lead to further English language studies at higher levels or be repeated, depending on the progress of the student. *Credit-Equivalent hours: 3.*

#### Reading Skills

Practice in comprehension of basic written communication, simple descriptive and narrative texts to more advanced academic materials, study skills, and expository writing. Dictionary usage, vocabulary expansion. Related writing and speaking activities. This course may lead to further English language studies at higher levels or be repeated, depending on the progress of the student. *Credit-Equivalent hours: 3.*

#### Writing Skills

Written reinforcement of grammatical concepts and basic writing tasks and handwriting improvement to the development of written communication skills in preparation for college expository and argumentative composition. Composition from sentence level activities to the paragraph and short essay levels. Integration of related skills. This course may lead to further English language studies at higher levels or be repeated, depending on the progress of the student. *Credit-Equivalent hours: 3.*

#### Speaking Skills

Development from simple speaking skills to skills for conversational and academic contexts. Practice in exposition, guided discussion and debate. Related listening, reading and writing activities as well as note-taking and academic study skills. This course may lead to further English language studies at higher levels or be repeated, depending on the progress of the student. *Credit-Equivalent hours: 3.*

The English as a Second Language (ESL) Program offers students several additional non-credit options for language study.

### Orientation to American Culture

Assistance through lecture/workshop/ field trip and guest speaker series in adjusting to life and studies at FMCC and the surrounding community, and in understanding specific and broader aspects of American culture. Mandatory for all incoming full-time international students. *Credit-Equivalent hours: 6.*

Professional ESL courses are unique short-term four week courses offered throughout the year to working adult international business persons, educators and other professionals who wish to further develop their professional English skills. Emphasis is on developing communication and problem solving skills through real-life contexts.

ESL for the Workplace is a course taught on-site for area business and companies to provide their employees with the necessary basic oral and written communication skills needed to be fully productive members of today's work force. Hours of instruction vary depending on the needs of both the employees and the employers.

Learn and Fun ESL is a short-term summer program geared specifically for young adult learners who have traveled to the United States for a combination study/tour visit. Students study English in the morning and visit area museums and cultural spots and/or participate in activities of interest in the afternoon.

### Vocational ESL I

This course is designed to offer instruction for the student who speaks English as a Second Language in order to bridge the language barrier that can limit education and training opportunities, restrict employability, and impact the personal lives of individuals. Comprehensive instruction is provided in speaking/listening development and in basic reading and writing; it uses language and educational materials directly related to the world of work and careers. Life skill topics such as parenting, child care, crime awareness and prevention, and community involvement is also being presented. *Hours of class per week: 10. Credit-Equivalent hours: 6.*

### Vocational ESL II

This course continues the instruction of Vocational ESL I. It emphasizes language skills and topics related to career exploration. Subjects to be presented include: what to consider when choosing a career, career exploration, The job market and future outlook, potential earnings the work environment/how to bridge cultural gaps, education and training opportunities, and career assessment. *Hours of class per week: 10. Credit-Equivalent hours: 6.*

### Art

#### AR 100 Studio Art

3 s.h.

A beginner's course designed to introduce the student to a variety of basic art media and visual aesthetic principles. The course focuses on developing self-expression through the media of design, drawing, painting, printmaking, and sculpture, as well as on evaluating art through class critiques. *Hours of class per week: 4.*

#### AR 101 Art History I

F 3 s.h.

Introduction to the history of art. A survey of world painting, sculpture, and architecture from prehistoric times to the Renaissance. The course emphasizes stylistic developments and appreciation of man's aesthetic achievements. Presentation combines lecture, text, and visual materials. *Hours of class per week: 3.*

#### AR 102 Art History II

S 3 s.h.

A continuing introductory course to the History of Art. This course surveys world painting, sculpture, and architecture, from the Renaissance to the present. *Prerequisite: None (AR 101 recommended). Hours of class per week: 3.*

#### AR 150 Two-Dimensional Design

F 3 s.h.

An introduction to the elements and principles of two-dimensional design. The course focuses on visual design as a language to be explored through aesthetic creative problems. Topics include organization, balance, contrast, rhythm, texture, visual movement, and color theory. *Hours of class per week: 4.*

**AR 160 Three-Dimensional Design** S 3 s.h.  
 An introduction to the elements and principles of three-dimensional design necessary to produce aesthetic solutions in a wide variety of forms and media. The course covers basic technical and conceptual issues through the use of wood, plaster, metal, clay, and found materials. It focuses on form and function as they relate to sculpture, architecture, and product design. The course also covers the evaluation and analysis of a designed form.  
*Hours of class per week: 4.*

**AR 200 Printmaking I** F 3 s.h.  
 An introduction to basic printmaking techniques. Topics include intaglio printmaking (etching and engraving), the relief print (woodcut and linoleum cut), mono and collagraph printmaking. Students develop the conceptual and technical skills needed to produce original prints. The course stresses the development of appropriate attitudes towards quality, organization, and self-discipline along with growth in creative expression. *Prerequisite: AR 100 or 210.*  
*Hours of class per week: 4.*

**AR 210 Drawing I** 3 s.h.  
 A preliminary course that emphasizes the technical and creative skills necessary to make drawings as visual language. The course emphasizes the development of visual composition. It covers line, value, gesture, volume, and perspective, drawing from observation and non-observed subjects.  
*Hours of class per week: 4.*

**AR 211 Drawing II** 3 s.h.  
 An exploration of drawing using a wider variety of media, with emphasis on creative personal expression. Topics include the development of expressive composition, content and technique, drawing from both non-observed and observed subjects.  
*Prerequisite: AR 210 or permission of instructor.*  
*Hours of class per week: 4.*

**AR 220 Painting I** F 3 s.h.  
 An exploration to expand awareness of painting as a means of visual thinking and communication. The course stresses such basic concepts as composition, color theory, texture, value, form, and content. It also emphasizes the variety of techniques available and personal creative solutions to specific painting problems. *Prerequisite: None (AR 210 recommended).* *Hours of class per week: 4.*

**AR 221 Painting II** S 3 s.h.  
 A continuation of the exploration of aesthetic concepts, composition, techniques, and expressive methods used in painting. The course encourages individuals to further develop the technical skill and creativity in the medium of painting. *Prerequisite: AR 210 or permission of the instructor.* *Hours of class per week: 4.*

**AR 230 Watercolor Painting** 3 s.h.  
 An introduction to watercolor painting focusing on basic concepts, techniques, and materials needed to produce creative works in a watercolor medium. The course emphasizes developing composition through the use of basic visual design elements such as visual movement, value, texture, balance, and color theory. It explores the creative process through a variety of visual problems derived from both observed and subjective sources. *Prerequisite: None (AR 210 recommended).* *Hours of class per week: 4.*

**AR 245 Introduction to Sculpture** 3 s.h.  
The study and exploration of historical and contemporary materials and techniques used in producing sculpture. Students will work with a variety of methods including subtractive and additive processes. Topics will include form, balance, emphasis, rhythm, texture and color. No prerequisites, but AR160 and AR150 would be highly recommended. Materials charge required. *Hours of class per week: 4*

**AR 275 Ceramics I** 3 s.h.  
A general course in pottery using a variety of forming techniques, including hand-building techniques, slab, wheel throwing, and ceramic sculpture. It covers concepts relating to clay, glazes, slips, aesthetic and functional form, and firing techniques. Students are required to furnish their own clay. *Hours of class per week: 4*

**AR 276 Ceramics II** 3 s.h.  
Building upon basic skills learned in AR275 this course is a further exploration of ceramic materials, processes and artistic creation in clay. Through studio problems, as well as discussions dealing with glaze formulations and applications, students will deepen their understanding of the ceramic medium and its expressive possibilities. Technical firing methods will be covered including oxidation, reduction and raku processes. *Prerequisites: AR 275 or permission of instructor. Hours of class per week: 4*

**AR 300 Fine Arts Seminar** S 3 s.h.  
The course allows the student opportunity to develop professional presentation and career skills for employment, college transfer, and exhibition opportunities. It focuses on the development of aesthetic judgment and familiarization with past and current art trends. Topics include portfolios, resumes, presentations, and business matters of concern to artists. *Hours of class per week: 4.*

### Automotive Technology

Automotive Technology courses may meet at sites other than the main campus. Students must make their own transportation arrangements.

Students may need special clothing or equipment in addition to texts. Details are provided by the instructor.

**AT 121 Introduction to Automotive Function** F 3 s.h.  
A basic course dealing with the construction, principles of operation, and identification of chassis units and support components. Consideration is given to tool identification, shop safety, methods of operation, special tools, automotive terminology, publications, and basic welding (arc and oxyacetylene). *Hours of class per week: 2. Hours of lab per week: 2.*

**AT 122 Theory of Internal Combustion Engines** F 3 s.h.  
Investigates the basic principles of internal combustion engines, cycles, engine types, construction, and services. Compression condition, noise identification, and internal engine condition analysis is studied through lab experience with elementary diagnostics instruments. *Hours of class per week: 2. Hours of lab per week: 3.*

**AT 123 Internal Combustion Engine Support Systems** S 3 s.h.  
Study of the lubrication, cooling, carburation, and emission systems of the internal combustion engine. Experience is gained in the laboratory with test equipment and the infrared unit. *Prerequisites: AT 121, 122, SC 161, or permission of instructor. Hours of class per week: 2. Hours of lab per week: 3.*

**AT 124 Automotive Electrical Systems** F 3 s.h.  
Application of the principles of electricity to the design, operation, service and repair of automotive electrical starting, lighting, generating and ignition systems. *Prerequisites: AT 121, 122, completion of concurrent registration in SC 162, or permission of instructor. Hours of class per week: 3. Hours of lab per week: 3.*



**AT 225 Automotive Chassis Systems F 3 s.h.**

A more advanced study of steering and suspension designs, including rear suspension, front-end geometry, tire design features and service, and standard and power disc and drum brake systems including basic air conditioning.

*Prerequisites:* AT 121, SC 162, or permission of instructor. *Hours of class per week:* 2. *Hours of lab per week:* 3.

**AT 226 Power-Trains — Design Features & Analysis S 3 s.h.**

Investigation of the automotive power train. Topics considered include clutches, standard transmission design, automatic transmission designs, drive lines, conventional and limited slip differentials, and axle and wheel bearing requirements. Laboratory experience with special transmission tools, measuring devices, and special pressing equipment is included.

*Prerequisites:* AT 121, SC 162, completion of concurrent registration in AT 225, or permission of instructor. *Hours of class per week:* 2. *Hours of lab per week:* 3.

**AT 227 Electronic Engine & Chassis Analysis S 3 s.h.**

Trouble-shooting through the use of the Sun 947 Engine Tester. The topics of scope pattern interpretation and dynamometer application and function is studied.

*Prerequisites:* AT 123, 124, 225, 226, SC 162, or permission of instructor. *Hours of class per week:* 2. *Hours of lab per week:* 3.

**AT 228 Consumer Relations & Services S 3 s.h.**

The focus of this course will be dealing with the concepts of wholesale and retail operation as they relate to automotive service manager-customer relations, factory representation-dealer relations, and inspection and service for customer comforts. The experience will include field observation of service manager operation and factory warranty function and how it relates to the dealership service technician. *Hours of class per week:* 3.

**Biology****BI 171 Modern Biology F 4 s.h.**

A course in general biological principles relating cell structure to function. Topics discussed include the origin and evolution of life; biochemistry; energetics; the molecular basis of cell metabolism; principles of heredity and the genetic control of cell activity; cell division; the homeostatic regulation of the cell environment. Physiological processes at the organismic level are analyzed and correlated with the simpler manifestations at the cell level. The course emphasizes modern research, the nature and philosophy of science, and the art of experimentation as carried on concurrently in the laboratory portion of the course. *Hours of class per week:* 3. *Hours of lab per week:* 3.

**BI 172 Plant Biology S 4 s.h.**

An introduction to the structure, functions, and development of seed plants, followed by a survey of the diversity and economic significance of the plant kingdom. The organs of plants are studied in relation to their morphogenesis, functional interaction, and special physiological roles. These plant organs are also studied in relation to their interaction with environmental factors such as air and soil. The major plant groups, from the algae through the angiosperms, are studied. The course considers the interactions of the plants in each of these groups with respect to such concepts as energy flow, competition, parasitism, plant succession, and biome composition. It places major emphasis on basic concepts of population genetics and evolution. *Prerequisite:* BI 171 or permission of instructor. *Hours of class per week:* 3. *Hours of lab per week:* 3.

**BI 173 Animal Biology** S 4 s.h.  
 An evolutionary survey of the animals, from protozoa through chordata. Physiological systems are studied, with a focus on general performance and comparative differences among animal groups. The course examines the roles of ecosystem niches and adaptive potential, so that the student becomes aware of the evolutionary significance of the structures studied. It also emphasizes relationships among organisms, with a special focus on impacts on and by humans. *Prerequisite: BI 171 or permission of instructor. Hours of class per week: 3. Hours of lab per week: 3.*

**BI 176 Ecology** S 3 s.h.  
 A study of the interrelationship between living systems and their physical environment. The course emphasizes the understanding of different ecosystems, their balance and dynamics. It stresses man's role as a member of the biosphere. *Prerequisite: SC 135 or BI 171 or permission of instructor. Hours of class per week: 3. Field trips are taken.*

**BI 181 Anatomy & Physiology I** F 4 s.h.  
**BI 182 Anatomy & Physiology II** S 4 s.h.  
 A two-semester course exploring the human body as an integrated complex of systems. It explores fundamental concepts of biology, chemistry, and physics as aids to understanding the physiology of systems. Study of structure and function of each organ system, with emphasis on interrelationships. Special emphasis on cellular physiology, cellular reproduction, fluid and electrolyte balance, acid-base balance and stress as it affects endocrine and neurophysiology. *Hours of class per week: 3. Hours of lab per week: 3.*

**BI 282 Microbiology** F 4 s.h.  
 This course explores the morphology, physiology, and ecology of the major groups of microorganisms. It emphasizes recent developments in the field of disease, immunology, and clinical applications. The laboratory illustrates techniques in identification, culturing, and isolation of microbes as well as modern applications of microbiology. *Prerequisite: BI 171 or SC 135 (BI 181 recommended) or permission of instructor. Hours of class per week: 3. Hours of lab per week: 3.*

**Business: Business Administration,  
 Accounting, Keyboarding**

**Business Administration**

**BU 101 Principles of Business** 3 s.h.  
 An introductory course to the diverse world of business, its structure, its operations and its impact upon each of us as employees, as consumers, as individuals, and as members of society. The course acquaints the student with major disciplines of business, such as management, marketing, finance, human resource management and production management, from which the student may choose a career core for future study and training. The course uses case studies and computerized and manual business games. *Hours of class per week: 3.*

**BU 103 Mathematics of Business  
 Finance** 3 s.h.  
 A review of the basic fundamentals and use of shortcut operations in arithmetic computations. The course stresses the use of the hand-held calculator. Instruction in financial topics dealing with bank loans, interest, credit cards, bank reconciliation, property taxes, payroll, inventory, depreciation, trade and cash discounts, partial payments, markup and markdown, and present value. If time permits, an introduction to financial statement analysis. *Hours of class per week: 3.*

**BU 137 Business Communications** 3 s.h.  
 Emphasis on composing various types of business communications in a clear and concise manner while maintaining readers' goodwill. The course also includes a review of grammar and mechanics of writing, spelling, and some public speaking. *Prerequisite: None. (OT 133 or equivalent recommended). Hours of class per week: 3.*

**BU 140 Salesmanship** 3 s.h.  
 A comprehensive treatment of professional salesmanship, including an analysis of consumer types and buying motives, the approach and development of sales strategy. Students are required to make sales presentations in role-playing situations. The course places equal emphasis selling consumer and industrial products. *Hours of class per week: 3.*

**BU 141 Marketing** 3 s.h.  
 An analysis of the principles, methods, trends and problems existing in marketing. A study of the distribution function of middlemen, their movements of goods and marketing policies, with some discussion of marketing research. *Prerequisite: BU 101. Hours of class per week: 3.*

**BU 151 Human Resources Management** 3 s.h.  
 An introduction to fundamentals of constructive personnel practices and techniques. The course emphasizes knowledge of the theories of human behavior necessary to implement Human Resource policies dealing with recruitment selection, maintenance and development of human resources. *Hours of class per week: 3.*

**BU 152 Operations Production Management** 3 s.h.  
 The objective of the course is to promote a broad view of production/operations management using both descriptive and analytical material. It blends descriptions of production areas and the problems involved with analytical approaches. *Prerequisite: BU 101. Hours of class per week: 3.*

**BU 153 Supervision** 3 s.h.  
 Study of the supervisor, key person in a company's chain of command. Supervisory role as perceived by superiors, subordinates, and peers. Study of the skills, attitudes and aptitudes necessary for effective supervision. Emphasis on practical solutions to employer-employee problems within supervisor's authority and responsibility. The course uses lecture, case discussion, and role-playing instructional techniques. *Prerequisite: BU 101. Hours of class per week: 3.*

**BU 160 Introduction to Finance** 3 s.h.  
 The course introduces the student to the role of finance in modern business operations, providing a survey of both internal and external financial requirements and transactions handled primarily by mid-management personnel. *Prerequisite: BU 121. Hours of class per week: 3.*

**BU 164 Credit Administration** 3 s.h.  
 A course designed to train students for possible careers in credit management, introducing them to the actual problems of granting credit as faced by institutions such as banks, finance companies, and other lending institutions. *Hours of class per week: 3.*

**BU 165 Small Business Management** 3 s.h.  
 The course provides essential concepts of starting and operating a small business. Topics covered include initial procedures in starting a small business, record keeping, financing, labor/tax laws, promotion techniques, profit planning/cost control, inventory control, credit policies, sources of information, and franchise operations. *Prerequisite: Not open to first-semester students except with permission of instructor. Hours of class per week: 3.*

**BU 170 Advertising** 3 s.h.  
 A survey of the advertising field, policies, procedures, and practices in planning and preparing various types of advertisements and selecting media. *Hours of class per week: 3.*

**BU 171 Business Law I** 3 s.h.  
 A course designed to familiarize the student with the law as it affects business personnel and social activities. A study of basic legal principles and procedures--in addition to such topics as the origin and kinds of law, the law of contracts, sales, commercial paper--and of agency and employment provides the student with an understanding of the rights and duties of individuals and businesses. Approach used includes case and text analyses and discussion. *Hours of class per week: 3.*

**BU 172 Business Law II** 3 s.h.  
 The course presents an in-depth treatment of areas such as agency and employment, partnerships, corporations, and commercial paper. It stresses career-oriented content related to entrepreneurship, civil service, and professional exams. *Hours of class per week: 3.*

**BU 179 Principles of Management** 3 s.h.  
 The course deals with the basic principles of management with applications to both entry-level positions and middle managers. It covers principles such as the nature and role of the manager, the decision-making process, and the traditional management functions of planning, organizing, leading and controlling. *Hours of class per week: 3.*

**BU 201 Principles of International Trade** S 3 s.h.  
 A study of the basic concepts and theory pertaining to international business, including cultural aspects, developed and developing countries, international trade strategies, and economic integration. The course touches on international marketing, management, financing, production and transportation to acquaint the student with various areas of international business. *Prerequisites: BU 101, EC 180, or permission of instructor. Hours of class per week: 3.*

**BU 243 Retail Management** S 3 s.h.  
 A study of the principles and problems in the management of retail operations covering organization, store planning, selecting locations, customer services, merchandising policies, stock levels, and purchasing procedures. *Prerequisite: BU 101. Hours of class per week: 3.*

**BU 262 Introduction to Investments** 3 s.h.  
 Course presents a wide variety of investment vehicles including stocks, bonds, and mutual funds. Topics embrace: the environment in which financial decisions are made, time value of money; bond and stock valuation; the capital asset pricing model; ratio analysis of financial statements; financial forecasting; corporate capital structure, and leverage. Also considered are economic factors, financial and investment analysis, risk examination, the calculation of investment return, and the long-term nature of financial decisions. The case analysis section introduces the portfolio construction and management process wherein the student is required to recommend investment vehicles appropriate to the client's needs, resources, and financial goals. *Hours of class per week: 3.*

**BU 295 Supervised Projects in Free Enterprise** 3 s.h.  
 The class operates as a business. Together, the students and the instructor develop a business plan that becomes an operating tool to help them manage their business and work toward its success. Putting a business plan together and writing down specifics provides students with the opportunity to evaluate their business in its entirety so that they can proceed toward the plan's implementation. *Prerequisites: six hours of business courses from the following list: BU 140, 141, 151, 153, 165, 170, 179, 243, and/or permission of instructor. Hours of class per week: 3.*

**BU 298-299 Business Internship** 1-4 s.h.  
The Business Internship serves as a structure for the awarding of credit for prearranged academically applicable work experiences. Students who have satisfactorily completed relevant business courses may be placed with an approved agency on a part-time basis. Participation requires the approval of a Business Instructor and the appropriate Academic Dean. Evaluation of the student's performance is the responsibility of the instructor. A maximum of eight (8) semester hours of credit may be earned by any one student. *Prerequisites: Previous business relevant coursework, approval of instructor and dean. Hours of class per week: 1-4.*

### Accounting

**BU 121 Accounting I** 4 s.h.  
First half of a one-year course introducing accounting theory. Theory of debit and credit; accounts and special journals; the accounting cycle; accounting for notes and interest, accrued items, receivable, inventories, and plant assets; preparation of financial statements. Emphasis is on sole proprietorship. *Hours of class per week: 4.*

**BU 122 Accounting II** 4 s.h.  
A continuation of BU 121. Accounting for partnerships and corporations; control systems for departments; manufacturing; analysis of statements and data. *Prerequisite: BU 121. Hours of class per week: 4.*

**BU 125 Office Accounting** S 3 s.h.  
The course covers a full accounting cycle for a sole proprietorship service business. It includes a section where the students apply these accounting principles to a professional enterprise. The second section of the course concentrates on bank accounts, cash funds, and payroll accounting. It requires a practice set for an attorney that involves all of these concepts. *Hours of class per week: 3.*

**BU 221 Intermediate Accounting I** F 4 s.h.  
The course emphasizes corporate accounting and analyzes major classification of items found in financial statements, including cash, investments, receivables, and inventories. *Prerequisite: BU 122. Hours of class per week: 4.*

**BU 222 Intermediate Accounting II** S 4 s.h.  
A continuation of the studies in BU 221, including analysis of liabilities, stockholders' equity, land, buildings, and equipment. *Prerequisite: BU 221. Hours of class per week: 4.*

**BU 224 Cost Accounting** F 3 s.h.  
Accounting for direct labor, materials, and factory overhead under both on-job-order costing and process costing. Standard cost principles and procedures; budgeting and direct decision-making is among other topics covered. *Prerequisite: BU 122. Hours of class per week: 3.*

**BU 225 Federal Income Taxes** S 3 s.h.  
The course studies federal and state income tax laws and regulations. It covers taxable income, inclusions and exclusions, capital gains and losses, deductions and other topics. The course provides practice in preparation of income tax returns and emphasizes individual returns. *Prerequisite: BU 121 or permission of instructor. Hours of class per week: 3.*

**BU 229 Seminar in Accounting** WI 3 s.h.  
Reading and research on approved topics of special interest to the student. Written reports and oral presentations required. This course serves as an elective in the Accounting curriculum. *Prerequisite: Nine semester hours in Accounting. Hours of class per week: 3.*

**BU 261 Managerial Accounting** 3 s.h.  
A course devoted to the use, rather than the construction, of accounting records and statements. Topics covered are analysis and interpretation of financial data, flow of funds, cost concepts and applications, budget, and decision-making. *Prerequisite: BU 122 or permission of instructor. Hours of class per week: 3.*

### Keyboarding

#### BU 100 Computer Keyboarding I 1 s.h.

This course is designed to teach basic keyboarding skills necessary to equip students to enter a variety of fields such as Computer Science, Data Processing, Accounting, or any business occupation that uses a keyboard to input information. Its purpose is to develop touch-keyboarding skills accurately and quickly and to develop an understanding of the concepts used in keyboarding operations for inputting and retrieving information on a computer. *Hours of class per semester: 15.*

#### BU 200 Computer Keyboarding II S 2 s.h.

The course prepares students to produce useful business documents for personal and business use. It emphasizes formatting memoranda, personal business letters, business letters in block, modified block and indented styles with open and mixed punctuation, and simple tabulations. It also includes drills for speed building. *Prerequisite: BU 100 or permission of instructor. Hours of class per week: 2.*

### Chemistry

(See also SC 170, 171)

#### CH 173 Fundamentals of Chemistry I F 4 s.h.

CH 174 Fundamentals of Chemistry II S 4 s.h.  
This course provides a comprehensive introduction to fundamental chemical principles. Topics include scientific notation, dimensional analysis, thermochemistry, atomic theory, periodicity, bonding, states of matter, solutions, electrochemistry, thermodynamics, kinetics, nuclear chemistry, and a brief introduction to organic chemistry. *Hours of class per week: 3. Hours of lab per week: 3.*

#### CH 221 Organic Chemistry I F 4 s.h.

#### CH 222 Organic Chemistry II S 4 s.h.

An integrated course examining the structure, synthesis and reactions of aliphatic and aromatic organic compounds and stressing the underlying principles of reaction mechanisms, kinetics, stereochemistry and detection techniques. The second half of the course (CH 222) is a continuation of the first half and includes the study of fats, carbohydrates, proteins and nucleic acids. The laboratory is designed to familiarize the student with basic techniques of organic chemistry including extractions, crystallization, distillation and chromatography, and the application of these techniques to qualitative analysis and synthesis. *Prerequisites: CH 173-174. Hours of class per week: 3. Hours of lab per week: 3.*

### Criminal Justice

#### CJ 103 Criminal Law I F 3 s.h.

A survey of the history and philosophy of criminal law; the scope, purpose, definition and classification of modern criminal law; offenses against the person, property offenses; and a discussion of the relationship between the Constitutional rights of the individual and the protection of society. *Hours of class per week: 3.*

#### CJ 104 Criminal Law II S 3 s.h.

Comprehensive analysis of the rules of evidence and criminal procedural law; judicial notice, presumption, real and circumstantial evidence, burden of proof, provide of court and jury, documentary evidence, hearsay, confessions and admissions; laws of arrest; search and seizure. *Prerequisite: CJ 103. Hours of class per week: 3.*

**CJ 105 Principles of Criminal Investigation**

S 3 s.h.

An analysis of the nature and purpose of criminal investigation. Discussion includes various methods of investigation, the interview, the interrogation of witnesses and suspects, collection and preservation of evidence, use of informants, techniques of surveillance and special investigation techniques, methods used in police science laboratory, ballistics, documents, serology, photography, and related forensic services. *Hours of class per week: 3.*

**CJ 106 Introduction to Law Enforcement & Criminal Justice**

F 3 s.h.

A survey of the historical and philosophical development of law enforcement; analysis of the court system; the criminal justice process; constitutional limitations placed upon the criminal justice system. The course emphasizes the interrelationship between these agencies and future trends in law enforcement. *Hours of class per week: 3.*

**CJ 107 Police-Community Relations**

S 3 s.h.

Survey of the numerous and complex factors involved in the area of human rights. Topics covered include controlling racial prejudice in the community; the role of police as professionals; and examination of prejudice and discrimination and their effects and implications for police in a changing society. The course surveys the history and development of civil rights and liberties. *Hours of class per week: 3.*

**CJ 108 Introduction to Juvenile Delinquency**

S 3 s.h.

A consideration of the methods and philosophy of the juvenile court system, police programs for the prevention and control of juvenile delinquency, and the role of various social work agencies in the care and treatment of juveniles. Special attention given to police techniques used in handling juveniles, with special emphasis on the use of existing community resources. The course examines prevailing professional philosophy, existing law, public policy, and knowledge of current delinquent behavior theories. *Hours of class per week: 3.*

**CJ 109 Criminology**

F 3 s.h.

A survey of the nature and scope of prevalent forms of criminology. The course considers the major theories of criminal conduct drawn from psychological, social and cultural modes of explanation. It includes a discussion of various classifications and topologies and the role of crime statistics, as well as the relevance of these factors for understanding, prevention, control and prediction. *Hours of class per week: 3.*

**CJ 111 Introduction to Public Administration**

S 3 s.h.

A study of the theory and basic principles of public administration in the United States, including discussions related to the development, organization, functions, and problems of national, state, and local administration. *Hours of class per week: 3.*

**CJ 112 Introduction to Police Organization & Management**

F 3 s.h.

The principles of administration and management as they apply to law enforcement agencies. A study of police organizational structure, responsibilities, and inter-relationships; an analysis of staff-line relationships and functions within the context of a police environment. Analysis of the functions of specialized units within police organizations, including police planning and research, patrol operations, internal affairs, and public relations. Principles of personnel management and supervision; police labor relations; consideration of alternative and comparative models of law enforcement organizations; the elements of organized crime and impact on police operations and management. *Hours of class per week: 3.*

**CJ 113 Private Sector Issues** 3 s.h.  
 This course is designed to familiarize the student with the legal and historical aspects of private sector police. Special attention will be given to the differences between public and private sector police. Principles and practices related to internal loss prevention will be covered. The legal and ethical responsibilities of private sector police in relation to issues of safety and health. *Hours of class per week: 3.*

**CJ 121 Introduction to Corrections** 3 s.h.  
 A course designed to expose the student to the history of, and theories behind, various types of correctional programs. The corrections field is comprised of many areas. The course explores the continuum of correctional services from probation to community corrections to institutional facilities, both the function of the facility and the inmate subculture, through parole. Further, the course addresses basic philosophical issues in corrections and focuses on the relationship between system goals and the needs of society. *Hours of class per week: 3.*

**CJ 260 Criminal Prosecution Seminar** 3 s.h.  
 A practical, realistic, simulated prosecution of a hypothetical criminal case, from investigation through arrest, arraignment, pre-trial hearings, trial and appeal. Students are required to engage in the same discretionary decision-making as practiced by Police, Prosecutors and the Courts. The class prepares documents used in the prosecutorial process, including search warrants and their supporting affidavits, arrest and charging documents, pre-trial motion and answering papers, and basic appellate arguments. Students engage in courtroom testimony and presentation of evidence through role-playing in simulated hearings. *Prerequisites: CJ 103, 104, 105, permission of instructor. Hours of class per week: 3.*

**CJ 298-299 Criminal Justice Internship** 1-4 s.h.  
 The Criminal Justice Internship serves as a structure for the awarding of credit for prearranged academically applicable work experiences. Students who have satisfactorily completed relevant criminal justice courses may be placed with an approved agency on a part-time basis. Participation requires the approval of a Criminal Justice Instructor and the appropriate Academic Dean. Evaluation of the student's performance is the responsibility of the instructor. A maximum of eight (8) semester hours of credit may be earned by any one student. *Prerequisites: Previous criminal justice relevant coursework, approval of instructor and Dean. Hours of class per week: To Be Announced.*

#### Collaborative Career Learning (COCAL)

**CL 191 Collaborative Career Learning I** 8 s.h.  
**CL 192 Collaborative Career Learning II** 8 s.h.  
 These courses provide a structured approach to specialized individual career orientation, training, and development. Competency objectives are identified as a basis for learning. Local business and industry sites are used as classroom/ laboratories. A college COCAL coordinator monitors and evaluates students with industry personnel. Areas of career study are limited to those areas not offered by the College in traditional curricula. *Prerequisite: Enrollment in Collaborative Career Learning. Co-requisite: Six to nine credits of on-campus study related to career area. Hours of class per week: 12 at business & industry site.*



**CL 193 Collaborative Career Learning III** 8 s.h.

**CL 194 Collaborative Career Learning IV** 8 s.h.

These courses are designed for students who, because of changes in the job market, or individual career goals, need "re-careering" in a structured environment. Competency objectives are identified as a basis for learning. Local business and industry sites are used as classroom/laboratories. A college COCAL coordinator monitors and evaluates students with industry personnel. Areas of career study are limited to those areas not offered by the College in traditional curricula. *Prerequisites: CL 191-192, enrollment in Collaborative Career Learning Program. Co-requisite: Six to nine credits of on-campus study related to career area. Hours of class per week: 12 at business & industry site.*

**CL 199 Professional Career Preparation I** 1 s.h.

Students are provided with material to assist them in the career decision-making process. Through self-assessment inventories, students identify their interests, skills, work-related values, and experiences. Careers are explored by researching occupations career paths and organizations. Emphasis is on employment fields appropriate to background and preparation for students' COCAL training experience. *Prerequisite: Concurrent registration in CL 191 or permission of instructor. Hours of class per week: 3 (5 wks).*

**CL 200 Professional Career Preparation II** 1 s.h.

Students are presented with material that provides a better understanding of successful career preparation. Emphasis is on employment for students who are training in fields where entry-level job skills have been identified locally. Content includes practical aspects of the job search. Human Relations as it relates to career development is discussed. *Prerequisite: CL 199 or permission of instructor. Hours of class per week: 3.*

## Communications

**CO 171 Introduction to Mass Communications** F 3 s.h.

An introduction to mass communication theory and production, covering development trends and issues and film media. The course also includes a critical examination of the media's impact on society. Guest speakers and hands-on experiences increase students' awareness of employment expectations and opportunities in the field. *Hours of class per week: 3.*

**CO 181 Writing for the Mass Media** 3 s.h.

The student will be introduced to the principles and practices of writing for the various media. Through writing exercises, students will learn to analyze the audience to be reached and determine the appropriate writing style to be used. The course covers the writing process, guidelines for good writing, word usage, grammar, spelling, bias, databases, and editing. *Prerequisite(s): EN 103, CO 171 desirable. Hours of class per week: 3*

**CO 220 Introduction to Public Relations** S 3 s.h.

The student is introduced to the principles, history and practice of public relations and develops an understanding of the processes that influence public opinion. This course covers the ethics and responsibilities of the practitioner to the media and the public, as well as the available public relations tools and resources. *Prerequisites: EN 103, CO 171 or permission of instructor. Hours of class per week: 3.*

**CO 231 Journalism** S 3 s.h.

A study of the principles and practices of journalism, with special emphasis on print journalism. The course examines critically the question of what constitutes the news, the techniques of newsgathering, news and feature writing, news editing, and ethical questions faced by journalists. *Prerequisites: EN 103, CO 171 or permission of the instructor. Hours of class per week: 3.*

**CO 254 Television Production** F 3 s.h.  
Theoretical and practical exploration of design and production techniques for the video as a medium of communication. Students gain experience in video production by working in the studio, in the field, and at the control console in the College's Telecommunications Center. *Hours of class per week: 3.*

**CO 264 Advanced Television Production** S 3 s.h.  
Expanding on the basic video skills learned in CO 254, students produce and direct video programs. Content focuses on individual performance, as well as scripting, pre-production planning, taping, and post-production. *Prerequisites: CO 254 (CO 171 & EN 103 recommended).* *Hours of class per week: 3.*

### Computer Information Systems

**CS 101 Microcomputer Application: Word Processing** I 1 s.h.  
Students are taught the most commonly used word processing features on PCs in the Windows environment. Emphasis is on performing word processing applications from previously created documents rather than keyboarding skills. *Prerequisites: Keyboarding pre-test to demonstrate skill in the touch system, CS 104 or equivalent, or permission of instructor.* *Hours of class per semester: 15. Additional computer hours as needed.*

**CS 104 Microcomputer Personal Productivity I** 2 s.h.  
The course provides an introduction to microcomputers and end-user system/application software. The microcomputer is demonstrated as a tool to support other academic or professional disciplines. Topics include operating system, word processing, spreadsheet, and database software. The course emphasizes familiarization with computer components and the operation of the overall microcomputer system. *Prerequisite: Keyboarding knowledge; high school Course I or MA 147 suggested.* *Hours of class per week: 2. Hours of lab per week: 1. Additional computer hours as needed.*

**CS 106 Microcomputer Personal Productivity II** S 2 s.h.  
The course offers additional experience with end-user application software. The microcomputer is demonstrated as a tool to support other academic or professional disciplines. Topics include spreadsheet, database, and presentation software, and multimedia applications with web page development. *Prerequisites: Experience with current microcomputer operating system and word processing software; completion of high school Course I or MA 147 suggested.* *Hours of class per week: 2. Hours of lab per week: 1. Additional computer hours as needed.*

**CS 113 Programming Assembler Language** 3 s.h.  
The course introduces concepts of Assembler Language including hardware, software, flowcharting, documentation, and programming. Through text samples and business-type programming assignments, it covers the following operations or techniques: Basic Input and Output Operations, Comparing, Addition, Multiplication, Division, Use of Work Areas, Control Macros, Heading and Print Overflow. This basic foundation should provide the student with the ability to use assembly language more effectively in appropriate applications and also to use and understand the technical manuals supplied by computer manufacturers. *Prerequisite: CS 115 or equivalent work experience.* *Hours of class per week: 3. Additional computer hours as needed.*

**CS 115 Introduction to Computer Logic** F 3 s.h.  
The course presents logic tools used by computer programmers in the program development process. It emphasizes symbolic representation of algorithms. It uses sequence structures, selection structures and repetition structures to develop all problem-solving algorithms. The course is taught language-

independent in order to emphasize problem solving rather than computer language syntax. It also covers commonly used data structures (variables, constants, arrays, files,) operators (assignment, math Boolean, relational) and logic techniques (sorting, file updating).

*Prerequisites: Completion of high school Course III or completion of or concurrent registration in MA 151; completion of or concurrent registration in CS 104 or CS 106. Hours of class per week: 3. Additional computer hours as needed.*

### CS 120 Computer Programming (FORTRAN) 3 s.h.

Use of the computer for mathematical problem solving and report generation. The course is problem oriented and utilizes FORTRAN programming language. Laboratory exercises on the College computer.

*Prerequisite: CS 115 or permission of instructor. Hours of class per week: 3. Additional computer hours as needed.*

### CS 121 Computer Programming (COBOL) 3 s.h.

Students write computer programs for business applications using a high level language (COBOL). The course emphasizes techniques to write, modify, test, and validate programs, as well as interpret design specifications.

*Prerequisite: CS 115 or permission of instructor. Hours of class per week: 3. Additional computer hours as needed.*

### CS 122 Computer Programming (RPG) 3 s.h.

Use of the computer to produce standard business reports. The course is problem oriented and uses Report Program Generator as its programming language. Laboratory exercises on the College computer. Emphasis on report generation and programming procedures.

*Prerequisite: Completion of concurrent registration in CS 115 or permission of instructor. Hours of class per week: 3. Additional computer hours as needed.*

### CS 124 Computer Programming (PASCAL) 3 s.h.

Use of a microcomputer for instruction in programming techniques with this high-level language. Emphasis on problem-solving techniques, anti-bugging, debugging as used in the program development cycle. In general, the course covers concepts common to all computer languages. It also demonstrates interactive programming. *Prerequisite: Prior programming course and/or experience in FORTRAN or COBOL or RPG or BASIC. Hours of class per week: 3. Additional computer hours as needed.*

### CS 125 Computer Programming C++ 3 s.h.

Students write computer programs for software engineering applications using a high-level language (C++). The course emphasizes techniques to write, modify, test, and validate programs, as well as interpret design specifications. Other topics include data objects, expressions functions, libraries, control structures and pointers.

*Prerequisite: CS 115 or permission of instructor. Hours of class per week: 3. Additional computer hours as needed.*

### CS 129 Visual Basic Programming 3 s.h.

This course teaches the basics of visual programming with Visual Basic. This course is for all levels of programmers who wish to apply their knowledge in an object-oriented, event driven environment. Topics include:

Visual Basic development environment, fundamentals of event-driven programming, controls, and Visual Basic Syntax. Advanced topics include accessing databases, creating menus, creating executable applications, debugging and error handling. *Prerequisite: CS 115. Hours of class per week: 3. Additional computer hours as needed.*

**CS 140 Computerized Information Systems Management** 3 s.h.

The course exposes students to the management of electronic information within an organization. It emphasizes the evaluation of computer products, peripherals and new technology. It discusses structuring computer access and training within the organization and developing operating, emergency and security procedures, as well as the jobs and job functions within the information department. Students are required to read current computer periodicals and to discuss current industry trends, including the professional standards of conduct. *Prerequisite: CS 104 or CS 106. Hours of class per week: 3. Additional computer hours as needed.*

**CS 160 Database Design & Management** 3 s.h.

The course expands on introductory database concepts and explores more powerful applications of database design and management. Students design files, including sequential, indexed sequential and random structures using database software and maintain data dictionaries. Through hands-on experience, students master concepts in report generation and presentation, creation of on screen formats, database views and queries. Students become familiar with database programming and the program Text Editor. Students are required to use the microcomputer lab to complete various assigned programs. *Prerequisite: CS 104 or CS 106. Hours of class per week: 3. Additional computer hours as needed.*

**CS 202 Advanced Spreadsheets** 3 s.h.

The course expands on introductory concepts and explores more powerful applications of electronic spreadsheets. Through hands-on experience, students master concepts in data management, such as data retrieval, data conditionals and data presentation. Students are required to use the microcomputer lab to complete various projects assigned. *Prerequisite: CS 104 or CS 106. Hours of class per week: 3. Additional computer hours as needed.*

**CS 233 Advanced Programming Techniques** 3 s.h.

Students develop computer programs for business applications using a high-level language (COBOL). The course emphasizes program design/structure, documentation, test case development, performance analysis, and maintenance. It incorporates file manipulation, transaction processing, editing. *Prerequisite: CS 121. Hours of class per week: 3. Additional computer hours as needed.*

**CS 235 Systems Analysis** 3 s.h.

The course presents methods and techniques that a systems analyst uses to analyze computer information systems. It emphasizes organization, personnel, procedures, files, documents, and equipment that make up an information system. Students analyze a case-study system using written and oral techniques. *Prerequisite: Prior programming course or CS 160 or programming experience or 4GL data base experience. Hours of class per week: 3. Additional computer hours as needed.*

**CS 236 Systems Design & Implementation** 3 s.h.

The course presents methods and techniques that a systems analyst uses to design and implement computer information systems. It emphasizes project management and scheduling, system development, implementation, training, and evaluation. Students design, implement and evaluate a case-study system using written and oral techniques. *Prerequisites: CS 235. Hours of class per week: 3. Additional computer hours as needed.*

**CS 240 Systems Operation I: PC** 3 s.h.

The course provides a hands-on introduction to PC hardware setup and software installation. It demonstrates methods for end-user, diagnostic evaluation using commercially available software packages. It emphasizes the tasks of unpacking, assembling, activating, utilizing and securing a PC system. *Prerequisites: CS 104 or CS 106. Hours of class per week: 2. Hours of lab per week: 2 consecutive hours. Additional computer hours as needed.*

**CS 241 Systems Operation II: Multi-User Environment** 3 s.h.

The course enables students to identify hardware and software problems of multi-user information systems, determine system solutions, and provide replacements and modifications. Installing and configuring the hardware and software on a local area network of personal computers is an integral part of the course. Students are required to make backups and use utility software. Students become proficient with a mainframe operating system, networking software and linking integrated workstations and data communications through "hands-on" experiences. *Prerequisite: CS 240. Hours of class per week: 2. Hours of lab per week: 2 consecutive hours. Additional computer hours as needed.*

**CS 289 Professional Development Seminar** 2 s.h.

This capstone course surveys the current and anticipated opportunities of a career in Computer Information Systems through a variety of methods that may include on-site experiences, field surveys, professional publications, and trade shows. Through documented self-assessment, students identify educational strengths and weaknesses and determine formal and informal methods for further professional growth and development. Students are expected to investigate and present a professional topic review. *Prerequisite: CS 235. Hours of class per week: 2 consecutive hours. Additional computer hours as needed.*

**Construction**

Construction Technology courses may meet at sites other than the main campus. Students must make their own transportation arrangements.

Students may need special clothing or equipment in addition to texts. Details are provided by the instructor.

**CT 121 Introduction to Building Trades & Construction Materials** F 3 s.h.

A basic course in construction materials and methods. It studies timber, steel, masonry, concrete, and other materials used in construction, as well as construction methods to acquaint the student with field practices. *Hours of class per week: 3.*

**CT 122 Light Frame Construction I** S 3 s.h.  
A study of construction materials, practices, equipment and terminology relating specifically to light frame construction. The course includes forming and building codes for general structural components from foundations through rough framing. *Prerequisite: Concurrent registration in CT 121. Hours of class per week: 2. Hours of lab per week: 3.*

**CT 123 Light Frame Construction II** F 3 s.h.  
The course emphasizes roof covering, exterior trim, insulation, exterior siding, interior trim, flooring, and layout of porches and garages. Lab experiences must be successfully completed. *Prerequisites: CT 121, 122. Hours of class per week: 2. Hours of lab per week: 3.*

**CT 124 Blueprint Reading** F 1 s.h.  
The course emphasizes working drawings; blueprints, and the symbols, notations, and scaling that accompany blueprint information. Students also learn the variation, the purpose of structure, the architectural progress set forth in blueprints and finally learn to obtain trade information by accurately reading and thoroughly understanding a set of blueprints. *Hours of class per semester: 15.*

**CT 225 Masonry, Concrete & Steel Construction** S 3 s.h.  
A study of construction, materials, practices, equipment and terminology relating specifically to non-wood structural components in light frame and light commercial construction. General structural components include foundations, unit masonry construction, reinforcing steel, and applicable building costs. *Prerequisite: CT 121. Hours of class per week: 2. Hours of lab per week: 3.*

**CT 226 Plumbing & Climate****Control** F 3 s.h.

A basic course in plumbing and climate control, including use of tools, basic lead working, steam and hot water heating, water distribution, venting drainage, and general installation, maintenance, and repair.

*Prerequisites:* CT 121, 122, 124. *Hours of class per week:* 2. *Hours of lab per week:* 3.

**CT 228 Construction Estimating** S 3 s.h.

A study of the elements of cost of construction. The course includes analysis of procedures in recording quantity take off, labor factors and overhead; use of check lists, cost records, summaries and working drawings; bidding practices of the construction industry; subcontracts; critical path method.

*Prerequisites:* CT 121, 122, 124. *Hours of class per week:* 3.

**CT 229 Electrical Wiring I** F 3 s.h.

A course dealing with installation of wiring, including armored cable, wiremold, and Romex; installation of wiring boxes, light fixtures, rigid metal conduit and electrical metallic tubing and connectors, and wiring such systems.

*Prerequisite:* None (EL 125 recommended or permission of instructor). *Hours of class per week:* 2. *Hours of lab per week:* 3.

**CT 230 Principles of Soils** S 3 s.h.

A study of the principles of erosion control, surface drainage and subsurface drainage. The course considers soil genesis, composition, classification, physical and chemical characteristics in relation to soil moisture, fertility and management. It encompasses all problems related to construction.

*Hours of class per week:* 2. *Hours of lab per semester:* 2.

**CT 243 Advanced Carpentry Custom****Building** S 3 s.h.

A course designed to meet the needs of individuals interested in developing advanced carpentry skills. It builds upon the cognitive and practical skills developed in CT 122. Topics include types of wood: characteristics and applications; joinery: mitering, dadoing, dovetail, rabbit; equipment: table saw, power miter, router table, and planer; custom built-in units; custom molding; stains and finishes; and trends.

*Prerequisite:* CT 122. *Hours of class per week:* 2. *Hours of lab per week:* 3.

**CT 245 Masonry/Bricklaying** F 3 s.h.

A course designed to meet the needs of students enrolled in the CT program and in the Masonry one-year certificate program who are interested in developing both cognitive and practical skills beyond the basics offered in CT 225.

Topics covered: bricklaying as an occupation, building with brick, layout, structural and pattern bonds, leads, piers, arches and other openings, and fireplace construction.

*Prerequisite:* CT 225. *Hours of class per week:* 2. *Hours of lab per week:* 3.

**CT 246 Plumbing & Climate****Control II** S 3 s.h.

An in-depth study of the design, layout and construction of plumbing, heating and cooling systems. Units of instruction include plumbing systems for single-family housing, multi-family and commercial plumbing systems, individual and community waste treatment, hot-air heating systems, duct work and sheet-metal layout, hot-water heating systems, heat loss and unit sizing, air conditioning systems, ventilation systems, environmental concerns, and equipment for a safer environment.

*Prerequisite:* CT 226. *Hours of class per week:* 2. *Hours of lab per week:* 3.

**CT 249 Electrical Wiring II** 3 s.h.  
A follow-up to Electrical Wiring I with more emphasis on applying the National Electrical Code and using the code book and other sources to help solve problems such as those found on national tests for electricians and electrical inspectors. Special emphasis given to solving electrical problems and issues encountered by certified electricians and electrical inspectors. *Prerequisite: CT 229. Hours of class per week: 2. Hours of lab per week: 3.*

**CT 250 Construction Management** 3 s.h.  
A course designed to meet the needs of individuals who aspire to management positions. Topics include job descriptions and responsibilities, job site safety, job organization and sequencing, contracts, subcontracts, scheduling, critical path method, dealing with labor and subcontractors, record keeping, and relationships with regulating agencies. *Prerequisites: CT 121, 122, 124, 225 or equivalent. Hours of class per week: 3.*

#### Directed Study (See also Independent Study)

**DS 291-294 Directed Study** 1-4 s.h.  
Directed Study affords students the opportunity to study a course already listed in the College catalog but not scheduled during the particular semester. Participation requires the sponsorship of the appropriate instructor and approval of the appropriate Dean. A student taking the Directed Study is expected to confer regularly with the instructor and meet all the requirements of the course. *Hours of class per week: To Be Arranged.*

#### Economics

**EC 180 Introduction to Economics** 3 s.h.  
A course designed around topics and problems that emphasize the individual's participation in the economy, both as consumer and supplier of productive resources, and the private and public institutions through which economizing is accomplished. Basic economic concepts are introduced where necessary to explain economic activity. Special attention in discussion sessions to topics such as

employment and unemployment, poverty and affluence, education and opportunities, incomes and costs of living. *Hours of class per week: 3.*

**EC 282 Macroeconomics** 3 s.h.  
An analysis of aggregate economic behavior with application to the dynamic present-day economy. A study in detail of macroeconomic fluctuations of the business cycle with special emphasis on the income-expenditure theory of cycles and trends, forecasting, high level of employment and international trade. The course reviews monetary resources and economic growth policies. *Prerequisite: sophomore status or permission of instructor. Hours of class per week: 3.*

**EC 283 Microeconomics** 3 s.h.  
An analysis of economic theory coupled with practical applications related to the consumer and the individual firm. The course considers concepts of a more technical nature relative to price, distribution, production, costs and indifference curves under various market conditions. *Prerequisites: EC 282, or permission of instructor. Hours of class per week: 3.*

#### Early Childhood Education

**ED 110 Introduction to Education for Teacher Assistants** 3 s.h.  
An introductory course designed to meet the needs of those who want to work in elementary and secondary schools as teacher assistants. The course acquaints students with the organization of American public education, major issues in elementary and secondary education today, and important regulations as they affect classroom teaching. It also attempts to generate an awareness of the basic legal issues in American public education. Not credited toward any degree or certificate ED course requirement. *Hours of class per week: 3.*

**ED 111 Education Theory & Practice for Teaching Assistants** 3 s.h.

A second-level course designed to aid the teaching assistant in theory and practice. It uses a theory-into-practice approach to explore the following areas: assertive discipline; effective teaching; interpersonal relations; effective communications; collaborative learning; stress management; informal structures; effective schools. Not credited toward any degree or certificate ED course requirement. *Prerequisite: ED 110. Hours of class per week: 3.*

**ED 171 Introduction to Early Childhood Education** 3 s.h.

This course presents information and theory regarding developmentally appropriate practice for children from birth to eight years. It emphasizes developing the student's understanding of the importance of creating an effective learning environment; advancing physical and intellectual competence; supporting social and emotional development; establishing relationships with families; and maintaining a commitment to professionalism. Attention is given to skills needed in a variety of program settings, including Head Start, child care, pre-kindergarten, nursery schools and first through third grades. *Hours of class per week: 3.*

**ED 180 Safety, Health & Nutrition in Early Childhood** 3 s.h.

The course addresses basic issues of safety, health, and nutrition in early childhood. It covers such topics as maintaining a safe and healthy environment, appropriate immunizations, recognizing signs of illness and controlling communicable diseases in early childhood settings. The course includes documenting and reporting child abuse and maltreatment, and it stresses policy development supporting safe and healthy practice in early childhood programs. In addition, the course addresses factors that help promote and maintain the health and well being of the individual working with young children. *Prerequisite: ED 171. Hours of class per week: 3.*

**ED 185 Early Childhood Curriculum** 3 s.h.

This course is designed to develop and foster a creative and holistic approach to teaching young children in early childhood settings. Using literature, music & movement, science, art, block, and cooking activities, the student explores the potential of varied teaching/learning techniques for supporting a child's total development. Students work in teams to develop lesson plans and conduct learning activities. *Hours of class per week: 3.*

**ED 225 Arts & Crafts for Early Childhood Education** F 3 s.h.

This course presents materials and techniques for promoting creative artistic development in young children. It explores a variety of art activities. Students gain hands-on experience in the artistic media and the use of art materials. Activities relate to the principles of child development, enhance creativity, and support all areas of the curriculum. *Prerequisites: ED 171, 185, or permission of instructor. Hours of class per week: 3.*

**ED 250 Music for Early Childhood Education** S 3 s.h.

This course addresses the musical disposition of young children and presents developmentally appropriate instructional techniques for supporting them. It emphasizes helping children develop listening, singing, and beat competency by providing planned and spontaneous musical experiences. The course also covers musical concepts such as melody, rhythm, and form, along with movement activities. *Prerequisites: ED 171, 185, or permission of instructor. Hours of class per week: 3.*



**ED 275 Children's Literature** 3 s.h.

A survey of all forms of children's literature and a study of a variety of materials relating to the development of literacy in children. Students carry out critical study and evaluation of many children's books in the areas of fiction, non-fiction and poetry. The course examines criteria for the selection of children's books for pleasure, enrichment of curriculum areas, and child development. It also examines appropriate presentation techniques. *Prerequisites: ED 171, 185, EN 103. Hours of class per week: 3.*

**ED 280 Introduction to Young Children with Special Needs** 3 s.h.

An introductory course designed to meet the needs of pre-professionals and professionals in early childhood who work with special needs children. The course presents a practical approach to the identification of special needs children, strategies and practices to inclusion in formal and informal settings, and a review of resources available to professionals and parents. *Prerequisites: None (SS 298 recommended). Hours of class per week: 3.*

**ED 298-299 Early Childhood Internship** 4 s.h.

Early Childhood internship is designed to provide work and learning experience in the field of early childhood education. Individual field experience is developed with community agencies and institutions. In addition, interns spend one hour per week in a seminar session where they reflect on their field experiences and integrate the insights they have achieved in their fieldwork. *Prerequisites: ED 171, 185, or permission of instructor and Dean. Hours of class per week: 1 + additional hours to be arranged.*

## Electricity and Electronics

**EL 125 Electric Circuit Analysis I** F 4 s.h.

The first course offered in both the Electrical and Computer Technology curriculums. The course investigates the fundamental concepts of voltage, current, and power as applied to both DC and AC circuits and introduces Mesh, Nodal and Thevenin's Theorem as applied only to resistive circuits. It studies the nature of resistance, inductance, and

capacitance. It reveals the use of basic electronics devices such as diodes, transistors, and simple integrated circuits through hands-on laboratory experiments. The course also develops competencies in electronic tests, measurement methods, and troubleshooting techniques. It introduces digital logic topics such as truth tables and basic logical devices, surveys career paths in electronics, and develops basic computer skills needed for circuit simulation. *Prerequisites: Math Course I. Two-year degree students should also be enrolled in MA 161 or 157. Hours of class per week: 3. Hours of lab per week: 2. Hours of recitation per week: 1.*

**EL 126 Electric Circuit Analysis II** F 4 s.h.

A continuation of EL 125 where analysis methods such as Superposition, Mesh, Nodal, Thevenin's Theorem, and Norton's Theorem are applied to DC, AC, and mixed source electronics circuits. The course studies concepts of power factor, power factor correction, and maximum power transfer. It uses computer simulation using PSPICE and Design Center software to understand circuit transient response and to measure the effects of component tolerance variation and frequency change. It presents many laboratory investigations into resonant circuits and basic filter circuits. Students are trained to use linear integrated circuits as active filters. *Prerequisites: EL 125. Co-requisite: MA 162 or 158. Hours of class per week: 3. Hours of lab per week: 2. Hours of recitation per week: 1.*

**EL 127 Instrumentation** F 2 s.h.

The course introduces students to a more detailed study of the test instruments used in all fields of electronics. It places specific emphasis on the utility of the oscilloscope, electronic meters, signal generators, and component testing instruments. It also conducts a generalized study of the internal circuitry of these devices and of measurement error, both human and mechanical. It also introduces students to standards, transducers, frequency counters, chart recorders and computer aided measurements. *Prerequisites: EL 125, enrollment in EL 126. Hours of class per week: 1. Hours of lab per week: 2.*

**EL 229 Electronics I** F 5 s.h.

An introduction to the theory, design and application of circuits used in the electronics field. Specific areas of study include diodes, rectifiers, filters, regulators, transistor characteristics, h-parameters, transistor bias, small and large signal amplifiers. *Prerequisites: EL 125, 127. Hours of class per week: 4. Hours of lab per week: 3.*

**EL 230 Electronics II** S 5 s.h.

The course delves deeper into the material developed in EL 229 and investigates additional circuit concepts. It studies the high and low frequency response of amplifiers, using Bode diagrams. Other topics include feedback, oscillators, switching circuits, op amps, and the field effect transistor. In addition, it introduces waveform analysis using the frequency domain. *Prerequisite: EL 229. Hours of class per week: 4. Hours of lab per week: 3.*

**EL 231 Electric Machines** F 3 s.h.

A course concerned with construction and operational characteristics and testing procedures of rotating machinery including both AC and DC motors and generators. It also studies the transformer and the basic principles of operation of associated circuitry, including speed controllers and starting devices, for these machines, as well as power ratings on this type of equipment. It studies both single phase and polyphase machinery as related to their efficiencies and utility. *Prerequisite: EL 125. Hours of class per week: 2. Hours of lab per week: 3.*

**EL 232 Digital Electronics** S 3 s.h.

The course introduces Boolean logic and the devices necessary to produce digital computing circuitry. It covers such fundamentals as AND, OR, NOT, NAND, and NOR logic through more complex devices such as flip-flops, one-shots, RAM and ROM. Digital circuits studied include counters and shift registers. It uses analytical techniques to design efficient combinational and sequential circuits and places strong emphasis on design skills. *Prerequisite: EL 125 or permission of instructor. Hours of class per week: 2. Hours of lab per week: 3.*

**EL 234 Telecommunications** S 3 s.h.

The course introduces the theory governing electronic communication elements and discusses the various systems used to accomplish communication tasks. Theories covered include radio wave propagation, antennas, transmission lines, fiber optics, and modulation techniques. Systems studied include AM & FM transmitters and receivers, telephone and data communications. *Prerequisites: EL 125. Hours of class per week: 3.*

**EL 235 Industrial Electronics & Robotics** S 3 s.h.

Students study the theory and operation of semi-conductor devices and systems used in industrial controls including fundamentals and applications of robotics. They become familiar with and are able to troubleshoot and repair controls containing semiconductor devices such as SCRs, photoelectric devices, timing circuits, UJT's, speed controls for DC motors, and controls for AC motors and lighting systems. The course includes sensing mechanisms, programming, interfacing and other industrial applications of robotic units. These items are assembled and tested for performance in lab. *Prerequisite: EL 125. Hours of class per week: 2. Hours of lab per week: 3.*

**EL 236 Introduction to Microcomputers** F 4 s.h.

The course provides an understanding of microprocessor computer architecture. Students learn the hardware and programming details of an 8-bit microprocessor system. Topics include microprocessor system organization, registers, memory, addressing; machine language programming, interrupts and interfacing. Additional topics include memory technologies, memory system interfacing and programmable logic devices (PLD's). *Prerequisite: EL 232 or equivalent. Hours of class per week: 3. Hours of lab per week: 3.*

## English

**EN 098 Reading Skills** 3 I.C.\*  
 This course includes techniques designed to improve comprehension, vocabulary, and critical reading. Various learning strategies are discussed to help students learn how to learn. Lab work centers around computer-assisted instruction designed to improve students' reading ability in content areas. *Hours of class per week: 3. \*3 Institutional (non-degree) credits.*

**EN 099 Basic English** 3 I.C.\*  
 This course teaches the fundamentals of writing and may be a prerequisite for further study of composition for some students. It includes a study of grammar and composition with emphasis on the fundamental principles of writing. The course assists students in their ability to write clear and concise sentences and to construct effective paragraphs. *Hours of class per week: 3. \*3 Institutional (non-degree) credits.*

**EN 101 Critical Reading and Thinking** 3 s.h.  
 This course emphasizes the processes of analysis, synthesis, and application as they relate to reading, writing, and problem solving. It stresses various strategies dealing with reading and thinking, such as making inferences, constructing and evaluating arguments, recognizing bias and propaganda, identifying patterns of organization, and reasoning critically. *Prerequisite: Satisfactory results in EN 098 or on the reading placement test. Hours of class per week: 3.*

**EN 102 Introduction to Writing** 3 s.h.  
 Students review the components of grammar and the development of the paragraph. The course then provides intensive work in the development of short essays. It emphasizes the writing process, with special attention to methods of organizing, revising, and editing. *Prerequisite: Satisfactory results in EN 099 or on the English placement test. Hours of class per week: 3.*

**EN 103 English I** 3 s.h.  
 This course is designed to improve written and oral communication skills. Students learn to write specific types of essays that are coherent and grammatically and mechanically correct. They also participate in a group discussion and/or oral presentation. The course also covers research techniques and procedures for documenting sources. *Prerequisite: Satisfactory results in EN 102 or on the English placement test. Hours of class per week: 3.*

**EN 104 English II** 3 s.h.  
 Students expand on the communication skills learned in EN 103. The written and oral assignments focus on students' understanding, research, and interpretation of such literary genres as short stories, poetry, and drama. *Prerequisite: EN 103. Hours of class per week: 3.*

**EN 127 Technical English** S 3 s.h.  
 A study of the problems of organizing, writing, and presenting technical subject matter and materials, with emphasis on description, process, abstract, technical reports and manuals. The course provides instruction and practice in technical writing and reporting. *Prerequisite: EN 103 (Students in the technologies may take EN 127 in lieu of EN 104; other students may take EN 127 as an HU elective course.) Hours of class per week: 3.*

**EN 128 Honors English II** S 3 s.h.  
 This course develops the writing and speaking skills of those students whose backgrounds enable them to function in an intense and independently organized study of the arts and sciences. Among other assignments, students prepare an oral and a written presentation on some aspect of the creative process. In any program, this course may be used to meet the requirement of EN 104. Either EN 104 or 128, but **not** both, may be credited toward a degree or certificate. *Prerequisite: EN 103, permission of instructor. Hours of class per week: 3.*

**EN 132 Speech** 3 s.h.  
The course aims to enrich the student's ability to communicate. It introduces the student to the forms of public speaking and affords the opportunity to practice both the formal and informal deliveries of speech. Individual expression and creativity are still the main tenets of this course. The student prepares critical evaluations and also works with panel and discussion groups. *Hours of class per week: 3.*

**EN 200 Short Story** S 3 s.h.  
A survey of the development of the short story from its origins in the oral tradition to its present form. Through the students' readings and discussions of a wide variety of 19th- and 20th-century short stories, the course emphasizes the artistic development of this literary genre. Course work includes critical papers and group presentations. *Prerequisite: EN 103 (104 recommended). Hours of class per week: 3.*

**EN 231 Masterpieces of World Literature I** F 3 s.h.  
The course surveys world literature from the Greek and Roman classics through the Renaissance. Readings include such representative authors as Homer, Sophocles, Plato, Virgil, Dante, and Chaucer. *Prerequisite: EN 103 (104 recommended). Hours of class per week: 3.*

**EN 232 Masterpieces of World Literature II** S 3 s.h.  
The course surveys world literature from the 17th century to the present. Readings include such representative authors as Voltaire, Flaubert, Tolstoy, Woolf, Mann, and Achebe. *Prerequisite: EN 103 (104 recommended). Hours of class per week: 3.*

**EN 233 American Literature I** F 3 s.h.  
A survey of American Literature from the Puritan period to the mid-Nineteenth Century. *Prerequisite: EN 103 (104 recommended). Hours of class per week: 3.*

**EN 234 American Literature II** S 3 s.h.  
A survey of American Literature from the mid-Nineteenth Century to the present. *Prerequisite: EN 103 (104 recommended). Hours of class per week: 3.*

**EN 235 Modern Drama** S 3 s.h.  
An introduction to modern drama as literature, with emphasis on such movements as naturalism, expressionism, and theater of the absurd. Readings include such representative European authors as Ibsen, Strindberg, Chekhov, Pirandello, Lorca, and Ionesco, and American playwrights such as O'Neill, Miller, and Williams. Some attention is also paid to non-Western drama. The course develops appreciation of the plays through class discussion and a required critical paper. Students see a current dramatic production. *Prerequisite: EN 103 (104 recommended). Hours of class per week: 3.*

**EN 239 The Modern Novel** S 3 s.h.  
The course involves the study, discussion, and analysis of the novel as a genre and of representative works by leading 20th-Century novelists. *Prerequisite: EN 103 (104 recommended). Hours of class per week: 3.*

**EN 245 World Drama** S 3 s.h.  
An examination of major dramas from the Greeks to the late nineteenth century, with consideration of their literary, theatrical, and socio-cultural values. Readings include representative plays from the following periods and movements: Classical Greece and Rome; the Middle Ages; the Renaissance; Neo-Classicism; the Restoration; Romanticism; Realism. Genres include tragedy, comedy, melodrama; farce, and various hybrids. *Prerequisite: EN 103 (104 recommended). Hours of class per week: 3.*

**EN 257 Creative Writing** S 3 s.h.  
Instruction and practice in the various avenues of creative written expression. Poetry, drama, novel, short story, and other literary forms are investigated, but primary emphasis is placed on the students' development of their writing abilities along the lines of their particular interests and needs. Creative work is encouraged through regular individual conferences. *Prerequisite: EN 104. Hours of class per week: 3.*

**EN 290 Special Topics in Literature** 3 s.h.  
An examination of a topic, theme, author, genre, period, or literary tradition not covered extensively in other English courses. Topics vary with each offering. Specific topics are announced before pre-registration. The course may be repeated for credit, but prior topics may not be repeated for additional credit. *Prerequisite: EN 104. Hours of class per week: 3.*

### Photography

**ER 101 Principles of Photography** F 3 s.h.  
This course is a hands-on photo course that teaches basic operation of a 35 mm cameras, films, exposure, composition, lighting, filters, lenses, flash, black & white negative developing, and printing techniques. This course includes lab time to develop photos taken during assignments. Students are encouraged to obtain a 35-mm adjustable SLR camera, however, a camera is provided to students without one. *Hours of class per week: 2. Hours of lab per week: 3. Students are required to provide their own film and darkroom supplies.*

**ER 102 Advanced Photography** S 3 s.h.  
This course builds on the previous (ER 101) principles. Students are taught techniques on composition, studio lighting, advanced darkroom techniques, print retouching, and print mounting. Computer demonstrations are included to introduce students to electronic imaging techniques. This course includes lab time to develop photos taken during assignments. Students are encouraged to have a 35mm adjustable SLR camera, however a

camera is provided to students without one. *Prerequisite: ER 101. Hours of class per week: 2. Hours of lab per week: 3. Students are required to provide their own film and darkroom supplies.*

### Educational Resources

**ER 110 Science of Library & Information Research** S 1 s.h.  
This course is designed to provide the student with the basic information literacy skills needed to successfully research a college-level term paper. Included are locating book and periodical information in both paper and electronic formats and research using the World Wide Web. The methods used are lecture, assignment, and hands-on use of materials and equipment. Students will prepare a formal bibliography in a standard format as a course project. *Hours of class per week: 3 for five weeks.*

**ER 111 Research Practicum** S 1 s.h.  
The bibliographic and research techniques examined in ER 110 are expanded by the student. Guidance is provided in the step-by-step process of researching and writing a term paper. *Prerequisite: ER 110. Hours of class per week: 3 for five weeks.*

### Engineering

**ES 235 Mechanics: Statics** F 3 s.h.  
A course designed for sophomore engineering, mathematics, and physics majors. It presents the principles of statics of particles and rigid bodies and indicates the general methods of applying them to the solution of varied engineering problems and develops the analytical ability of the student. Topics covered are vector algebra; forces and equilibrium; structures, plane and space trusses, frames and machines; centroids of lines, areas, and volumes; flexible cables, beams with distributed loads; friction; area moments of inertia and mass moments of inertia. *Prerequisites: PH 171, MA 157, and completion of or concurrent registration in MA 158. Hours of class per week: 3.*

**ES 236 Mechanics: Dynamics** S 3 s.h.

A course designed for sophomore engineering, mathematics, and physics majors. It presents the principles of dynamics of particles and rigid bodies and indicates the general methods of applying them to the solution of varied engineering problems and develops the analytical ability of the student. Topics covered are equations of motion, rectilinear and curvilinear motion, motion relative to translating and rotating axes; work and energy; impulse and momentum; central force motion; simple harmonic motion, damped oscillations and forced oscillations. *Prerequisites: PH 171, MA 157-158. Hours of class per week: 3.*

**ES 251 Materials Science** F 3 s.h.

This is a first course in materials science and engineering for Engineering Science majors. The emphasis of the course is on the relationships between structure of solids and their physical properties. Topics covered include atomic and molecular structure, phase equilibria, microstructures, deformation and fracture, materials treatments and processes, metals, ceramics, polymers and composites, electrical and magnetic properties, and materials performance. *Prerequisites: PH 171, CH 173. Hours of class per week: 3.*

**ES 281 Electric & Electronic Circuits** S 4 s.h.

A course on the analysis of linear and nonlinear circuits, designed for engineering and physics majors. Topics covered are Ohm's law, Kirchoff's laws, superposition principle, mesh analysis, modal analysis, Thevenin's theorem, Norton's theorem, maximum power transfer; inductance and capacitance; response of first and second order systems — natural response, steady state response and complete response; average and rms values, phaser, impedance, complex power, series and parallel resonant circuits; complex frequency, transfer functions, poles and zeroes; characteristics of diodes and transistors and operational amplifiers. *Prerequisites: PH 172, concurrent registration in MA 258. Hours of class per week: 3. Hours of lab per week: 3.*

**Modern Foreign Languages****FL 141 Elementary French I** F 3 s.h.**FL 142 Elementary French II** S 3 s.h.

A beginner's course covering the fundamentals of oral comprehension, oral expression, and grammar. Readings in French familiarize the student with the civilization of France. *Hours of class per week: 3.*

**FL 143 Elementary Spanish I** 3 s.h.**FL 144 Elementary Spanish II** 3 s.h.

A beginner's course, covering the fundamentals of oral comprehension, oral expression, and grammar. Readings in Spanish introduce the student to the Hispanic World and serve as a basis for conversations. *Hours of class per week: 3.*

**FL 147 Elementary German I** F 3 s.h.**FL 148 Elementary German II** S 3 s.h.

A beginner's course stressing the conversational approach to the language. Essential grammar and culture are studied and composition is introduced. *Hours of class per week: 3.*

**FL 241 Intermediate French I** F 3 s.h.**FL 242 Intermediate French II** S 3 s.h.

This intermediate course develops the comprehension and use of the spoken language and addresses the grammar, composition, and cultural aspects of the language. Reading texts are chosen to enable the student to converse in idiomatic French and to awaken interest in French literature and culture. *Prerequisite: FL 142. Hours of class per week: 3.*

**FL 243 Intermediate Spanish I** F 3 s.h.**FL 244 Intermediate Spanish II** S 3 s.h.

This intermediate course develops the comprehension and use of the spoken language and addresses the grammar, composition, and cultural aspects of the language. Readings in Spanish introduce the student to Hispanic life and literature. *Prerequisite: FL 144. Hours of class per week: 3.*

**FL 343 Spanish Conversation & Composition** 3 s.h.  
 A course designed to help students express themselves in idiomatic Spanish. Emphasis on vocabulary used in everyday situations. Grammar is reviewed as needed to facilitate oral and written communication. Assigned readings assist the student in learning the expressions necessary for communication. *Prerequisite: FL 244 or equivalent. Hours of class per week: 3.*

**FL 344 Readings in Spanish** 3 s.h.  
 This is not a sequential course. It includes a variety of readings in Spanish from works of representative authors. Class discussion focuses on the analysis of assigned readings to give students a general basis for more specific work in literature and to help them understand articles in Spanish publications. Oral expression is stressed. *Prerequisite: FL 244 or equivalent. Hours of class per week: 3.*

#### Food Service Administration

Courses may meet at sites other than the main campus. Students must make their own transportation arrangements. Students may need special clothing and equipment in addition to textbooks. Details are provided by the instructor.

**FS 101 Introduction to Food Service** 1 s.h.  
 A basic course introducing the students to the world of Food Service. The course includes a definition of all styles of food service establishments including schools, hospitals, fine dining, quick serve, cafes, military feeding and more. It includes a history of food service and modern day trends. The course investigates job titles and job opportunities. Students are introduced to the definition and responsibilities of each food service department such as purchasing, production, service management, menu planning, etc. Included is a tour of Food Service operations and students are required to write a five page paper. Participation in food service events may be required. *Hours of class per week: 3 (5 wks).*

**FS 111 Introduction to Food Service - Safety & Sanitation** 2 s.h.  
 A comprehensive course teaching the principles of safety and sanitation to be used in Food Service establishments. Included is information on personal hygiene, cleaning, safe food preparation, bacteria growth, foodborne illnesses, safe dining service, safe food storage procedures, the control of pests, coping with inspections, etc. Students successfully completing the course receive a certificate from the National Restaurant Association. *Hours of class per week: 3 (10 wks).*

**FS 122 Food Preparation I** F 3 s.h.  
 An introduction into the fundamental skills required for proper food preparation, storage and selection. The relationship between proper preparation and storage and nutritional value is emphasized. Students are taught principles of food preparation of meats, stocks, sauces, yeast breads, vegetable, fruits, dairy products, etc. Students prepare food for special events on campus. This course utilizes lecture, demonstration, and laboratory work. *Hours of class per week: 2. Hours of lab per week: 3.*

**FS 123 Food Purchasing** S 3 s.h. *WINE AT ONE*  
 Techniques for quality food purchasing for profit and nonprofit services. Specifications and standards of quality, grades, methods of purchase are emphasized for each category of food. A study is made of modern food processing and the purchasing of convenience foods. *Hours of class per week: 3.*

**FS 124 Food Preparation II** S 3 s.h.  
 The course is designed to emphasize the unique requirements related to producing quantity food in a palatable fashion. Students are taught principles of the preparation of soups, poultry, appetizers, pastry, fish, starch, and foreign cuisine's. Emphasis is placed on such problems as bulk food production, menu making, cost evaluation, sanitation, and safety as they apply to quantity food production. Food is prepared for special events on campus. *Prerequisite: FS 122 or permission of instructor. Hours of class per week: 2. Hours of lab per week: 3.*

**FS 126 Dietary Therapy** S 3 s.h.  
The course develops a relationship between health needs and specialized diets. Emphasis is placed on relating specific nutritional requirements for a variety of special dietetic needs. *Prerequisites: HE 121, 125, or permission of instructor. Hours of class per week: 3. Hours of lab per week: 3.*

**FS 224 Service and Hospitality Management** F 3 s.h.  
This course is designed to emphasize the unique requirements of hospitality management such as "Front-of-House" hospitality standards for dining room supervision, banquet and hotel/motel operations. Service methods and techniques are emphasized. Content area includes: wait staff service, table setting, beverage service, sales control, art of selling, managing the dining room, menu design and planning, customer service, etc. Each student plans and manages a special event. *Prerequisites: None (FS 101, 111, 122 recommended). Hours of class per week: 3.*

**FS 225 Food and Beverage Cost Control** F 3 s.h.  
Cash control methods relative to the menu, production, control, purchasing, receiving, inventory control, and profit and non-profit food service systems. Understanding of profit, loss and sales is emphasized. Course includes the use of computers. *Prerequisites: FS 122 (123 recommended). Hours of class per week: 3.*

**FS 226 Fundamentals of Baking & Pastry** 3 s.h.  
Baking fundamentals, approach to making breads, cakes, puff and French pastry, and fancy desserts. The course uses much "hands-on" practices to increase student skills. *Prerequisite: FS 122 or permission of instructor. Hours of class per week: 2. Hours of lab per week: 3.*

**FS 227 Food Service Organization & Management** S 3 s.h.  
Course designed to give food service majors the basic understanding necessary to organize a food service operation. Emphasis is placed on budgetary management, cost equivalence, and employee management. Using skills taught in previous FS courses, this advanced management course emphasizes practical applications of sound business practices. *Prerequisites: FS 101, 111, 122. Hours of class per week: 3.*

**FS 240 Bar & Beverage Management** S 3 s.h.  
This is an introductory course in bar & beverage management in the Food Service Industry. Topics include identification of alcoholic and non-alcoholic beverages, control of beverages, bartending techniques and customer relations and service. Emphasis is placed on bar management within the guidelines of legal and moral demands, to include management areas of personnel, compensation and benefits, bar storage, budgeting and pricing for profit, inventory, legal restrictions, liabilities, licensing, and cost control. Students participate off campus. Students are not restricted by age. *Hours of class per week: 3.*

**FS 248 Seminar - Food Catering** S 2 s.h.  
An introductory course to the catering of food service functions and bar service. Techniques for successful catering are covered, such as contracts, equipment, menus, presentation, personnel, costs and extras. Basic bar service is taught. Previous service experience recommended. Off-campus participation required. *Hours of class per week: 2. Hours of lab per week: 2.*

**FS 258 Seminar — Personal Nutrition & Restaurants** S 1 s.h.  
This course investigates the customer's need for healthier foods and the restaurant's responsibility to serve it. Students apply basic nutritional principles to the preparation of food and the planning of menus in a restaurant. By preparing a personal nutrition plan, students will understand the importance of eating right. Course includes methods to modify existing recipes to cut down fat, salt,



yet maintain nutrients. This practical course introduces new menu ideas and methods to increase sales through healthier choices. Techniques to educate the customer are taught. The course includes computer use. *Hours of class per week: 2 (5 wks). Hours of lab per week: 3 (5 wks).*

**FS 268 Seminar – Menu & Merchandising** S 1 s.h.  
The course investigates the methods of increasing food sales through menus, menu planning, and food merchandising. Students study various menus and prepare samples. Food is prepared as part of menu planning and to develop merchandising skills. Each student presents a food demonstration to the class. Additional lab time may be needed. Previous food preparation skill recommended. *Hours of class per week: 2 (5 wks). Hours of lab per week: 3 (5 wks).*

**FS 280 Seminar – Current Issues** S 1 s.h.  
This course investigates current issues in the Food Service Industry and current trends. Subject matter varies as issues demand. Present issues might include employee turnover, surviving in a recession, the computer and its use, methods of cash control, etc. Students are required to research a topic and present information. *Hours of class per week: 2. Hours of lab per week: 3.*

**FS 298-299 Quantity Food Internship** S 3-6 s.h.  
This course is the practical application of skills learned in food Service Classes. It involves an arranged schedule of work either in the College's Food Service Lab or at an off-campus quantity food operation. It is designed to offer the students direct involvement in an "on-the-job" situation. *Prerequisites: FS 101, 111, 122, 224, 225. Hours of class per week: one-hour discussion, 10-12 or 15-20 hours on the job.*

## Visual Communications (Graphic Arts)

### GA 101 Introduction to Graphic Communications Technology

F 3 s.h.

An introduction and orientation to the graphic communications industry to include the history of printing, publishing, advertising and allied industries. The course emphasis is directed toward the lithographic printing process with an overview of screen printing, flexography and gravure reproduction. Production methods, substrates and product knowledge is emphasized. Students learn basic principles and applications of the offset printing process to include hands-on-training in: copy preparation, desktop publishing software, Macintosh® and PC computers and reproduction photography. Other areas include film assembly, proofing, and platemaking. Paint software applications are taught to introduce desktop publishing concepts, and the Macintosh® operating system. *Hours of class per week: 2. Hours of lab per week: 3.*

### GA 102 Web Page Design

2 s.h.

Web Page Design introduces graphic arts students to the world wide web and provides artistic and technical training on how a web page is created and designed. Using page-authoring software, students build and preview text, images and links. Students learn how to apply standard HTML formats without typing HTML codes. In addition, basic flatbed scanning techniques are applied to scan and apply graphic file formats acceptable for viewing on the World Wide Web. Adobe® web-authoring software is used to coincide with Adobe® graphic arts software used throughout the Visual Communications Technology Program. Macintosh® and PC. *Prerequisite: GA 101, Macintosh or Windows knowledge, or instructor's approval. Hours of class per week: 1. Hours of lab per week: 2.*

### GA 103 Graphic Communications & Electronic Publishing

S 3 s.h.

Advanced Graphic Communications builds on the principles and practices learned in GA 101. The course focuses on practical skills in halftone reproduction using densitometry,

manual and automated vertical cameras. Students learn manual and electronic imaging techniques to include: posterization, duotones, film assembly, electronic imposition and color proofing. Offset press principles, imposition and finishing are reviewed. Designs are created using Macintosh® computers, flat bed scanners, page make-up software, and laser printers and imagesetting equipment. The traditional film assemblies to new electronic image generating techniques are taught to familiarize students with past, present and future trade practices. QuarkXPress™ software is introduced. *Prerequisite: GA 101. Macintosh or Windows knowledge, or instructor's approval. Hours of class per week: 2. Hours of lab per week: 3.*

**GA 104 Composition & Desktop Publishing Systems** S 3 s.h.

An introduction to electronic publishing and digital typesetting using PageMaker™ software. This course builds on previous technical concepts learned. The course emphasizes the function of typefaces, type identification, point sizes, copyediting, proofreading, and setting up desktop files, style sheets, column guides, and trouble shooting, and editing skills. Computer use, memory requirements, file management, scanning, file formats, and imagesetting equipment are discussed. Students learn image-generating techniques used in advertising, newspaper and the commercial printing sector of the industry. Students gain practical skills in desktop publishing and design using the Macintosh® computer. Software applications include Adobe PageMaker™. *Prerequisite: GA 101 or Enrollment in Word Processing Certificate program. Hours of class per week: 2. Hours of lab per week: 3.*

**GA 110 Designing with Freehand®** 3 s.h.

This course defines and explores the power and accuracy of illustration and design software. Conceptual ideas can be developed through the use of page layout and design tools. This program is used by graphic arts professionals for combining creative artwork, graphics and text into camera ready artwork. The course introduces various floating palettes such as the toolbox, type palettes, styles palette, drawing

tools and editing paths. Course projects include logo design and ad layouts. *Hours of class per week: 1. Hours of lab per week: 3.*

**GA 121 Basic Offset Press Principles & Practices** S 3 s.h.

Introduction to safe practical setup and operation of offset duplicators, and supplies. The course features theory, practice, and hands-on duplicator training emphasizing: offset lithography, product knowledge, introduction to inks, paper, additive plates, subtractive plates, electrostatic masters, offset moisture systems, fountain solutions, pH balance, and printing blankets. Students learn standards needed to produce quality black and white line and halftone copy. Safety, problem solving and basic maintenance is emphasized. *Hours of class per week: 2. Hours of lab per week: 2.*

**GA 122 Advanced Offset Press Techniques** F 3 s.h.

This course is designed to increase understanding and knowledge of the offset color reproduction process. Introduction to the theory, principles and practices of two-and four-color reproduction is emphasized. The course is structured to provide students the opportunity to safely operate duplication equipment in a multi-color sequence. The course focuses on: form roll and related pressures, ink tack, rubber base inks, oil based inks, coated, uncoated papers, trouble shooting techniques, wet trap, and identification of standards needed to produce quality color reproductions. Safety and basic press maintenance is emphasized. *Prerequisite: GA 121. Hours of class per week: 2. Hours of lab per week: 2.*

**GA 124 DTP Using QuarkXpress™** S 3 s.h.

This course is designed to provide students with hands on training in basic and intermediate desktop publishing techniques using QuarkXpress™ software. Students gain experience by developing desktop publishing skills in the areas of typography, color, page layout and printing techniques. Through learning modules and course projects, students learn file management, setting preferences, working with master pages, creating style

sheets, and setting tabs, proofing and editing skills. Black & white, color scanning techniques and high-resolution imagesetting equipment and color copying systems are also discussed and utilized throughout the course work. *Prerequisite: GA 104 or permission of instructor. Hours of class per week: 2. Hours of lab per week: 2.*

**GA 125 Adobe Photoshop™ 3 s.h.**  
 Adobe PhotoShop™ is a powerful pixel-based image manipulation program. The program features a wide range of image editing tools for adjusting black and white, color photos and artwork. The versatility of the program allows the home or office computer operator, graphic artists, photographers, illustrators, and service bureau personnel an opportunity to add a creative enhancement to an image by using its special effects features. This course is for beginners to intermediate users who want to become familiar with the program and its tools. The topics and training include toolbox identification and importing images from a photo C.D., cropping and rotating images. Use of special effects and special program filters is included. These applications are performed using the Apple® Macintosh and the PC platform. *Hours of class per week: 2. Hours of lab per week: 2.*

**GA 201 Digital Photography & Design 3 s.h.**  
 This course emphasizes technology, design and the terminology of digital photography. Students learn how to use electronic photography as a way to think visually. The use of digital cameras and electronic tools to alter and manipulate graphic images and photos is emphasized. Computers, pixel based software and scanners increase technological understanding of digital photography. Students develop new approaches to design using digital technology and traditional design principles. Photo restoration, lighting, composition, balance, and special effects are introduced to enhance and stimulate visual creativity. *Prerequisite: GA101, 125, ER101, Macintosh PC experience or permission of instructor. Hours of class per week: 2. Hours of lab per week: 2.*

**GA 205 Graphic Arts Layout & Design 3 s.h.**

This course approaches the planning and design aspects of creating complete manual and electronic mechanicals. Emphasis is directed toward designing single and multi-color publications produced in advertising agencies, newspaper firms, in-plant printing facilities and commercial printing plants. Practical principles and applications for designing to printing equipment specifications are stressed. Job planning techniques using dummy's, thumbnail concepts and design principles are developed. Mechanicals are produced electronically with desktop publishing software. Impositions and proofing techniques are required. Artwork and type are created manually, or by computer. Offset reproduction, paper specifications, sizes, uses and ink relationships are taught. *Hours of class per week: 2. Hours of lab per week: 2.*

**GA 206 Electronic Prepress Production 3 s.h.**

An in-depth study of graphic reproduction in relation to problem-solving techniques. Emphasis is directed toward lithography: photography, color proofing, and imposition techniques. Hands-on practice involving the use of electronic production equipment in a quality control environment is emphasized. Students use a variety of electronic software and equipment to achieve acceptable designs for reproduction. This course is also supplemented with actual plant tours to enhance learning of production methods in the printing and publishing industry. Desktop publishing skills are enhanced by the advanced desktop publishing skills taught. Designing with Adobe Illustrator™ emphasized. *Prerequisites: GA 101, GA 103, Macintosh®, PC experience or permission of instructor. Hours of class per week: 2. Hours of lab per week: 2.*

**GA 207 Graphic Arts Entrepreneurship & Management** 3 s.h.

This course is designed to develop knowledge and skills in the area of organizational communication and management. The emphasis is directed toward the printing, publishing and freelance environments to include the topics of plant and studio layout, the balance sheet, wage policies, inventory control, equipment costing, and leasing and customer service. Technical and practical hands-on skills include advanced scanning, desktop publishing skills. Desktop and presentation software is used to develop electronic portfolios. This course is designed to stimulate students to develop useful skills for entrepreneurship in the printing and publishing industry. Time management, job preparation, and portfolio organization is stressed. PowerPoint™ software is used.

*Prerequisites: GA 101, GA 103, GA 104, Macintosh®, PC experience or permission of instructor. Hours of class per week: 2. Hours of lab per week: 2.*

**GA 208 Graphic Design For Publications** 3 s.h.

This course builds on basic design principles and practices. It focuses on the intermediate desktop publishing skills and software uses intermediate and advanced. Students learn to approach publication design using a systematic and organized design method. The use of templates, grids, style sheets and various software applications allow for formal and informal explorations of ideas and concepts. Typography, color, graphic images, photos and the relationships to the overall publication design are incorporated in the conceptual process. Creative design solution for graphic communications and print media technologies is emphasized. Macintosh® and PC platform.

*Prerequisites: GA 101, 104, 103, 205 or permission of instructor. Hours of class per week: 2. Hours of lab per week: 2.*

**GA 209 Newspaper Design** 3 s.h.

This course provides a foundation for building a newspaper. An overview of the workflow through the daily newspaper is emphasized. Students learn to design and compare standard and tabloid formats. An emphasis is placed on

column width, typography, pica measurements, text, graphics, and photo placement. Specialized newspaper computer software is used for designing advertisements. Problem solving skills are linked to fundamental newspaper production and printing processes. The course is supplemented with a newspaper plant tour.

*Prerequisites: GA 101, 104, or permission of instructor. Hours of class per week: 2. Hours of lab per week: 2.*

**GA 210 Color Reproduction and Imaging** 3 s.h.

This course provides an in-depth overview of color theory principles and practices. The correlation between electronic prepress software, color imaging systems and output devices are reviewed. Advanced troubleshooting techniques are taught in conjunction with large file formats and CD ROM images. Color viewing standards, monitor and printer calibration is emphasized. Color proofing systems, imaging software and color output devices are used to measure and compare original file data to actual originals. Students learn quality control and large file management. *Prerequisites: GA 101, 103, 104, 125 or permission of instructor. Hours of class per week: 2. Hours of lab per week: 2.*

**Hotel Management**

**HA 160 Hotel, Motel & Resort Promotion** S 3 s.h.

This course introduces students to all types of hospitality promotion. Students learn market planning techniques, advertising, and public relations selling to conventions and groups, methods of increasing sales and managing bookings. Students perform hands-on projects in market research, promotions, events, booking and sales. Emphasis is placed on service enhancement techniques. *Hours of class per week: 3.*

### HA 175 Hotel & Motel Operations & Administration F 3 s.h.

This course gives students experience in the basics of hotel operations. Content includes the Basics of the Hotel Business, the organization of the hotel structure and staff, front office procedures, reservations, housekeeping, financial reports and customer relations. Students participate at a local hotel. *Hours of class per week: 3.*

### Human Development

#### HD 100 Studies of the Person 3 s.h.

This interdisciplinary course offers students an opportunity to increase their self-understanding and move toward full development of their personal potential as they explore the question of what it means to be a fully functioning human being. Course content is drawn from a variety of academic disciplines and is organized around issues of psychological development, such as 1. Identity (Finding answers to the question, "Who Am I?"); 2. Connectedness (Relationship with other people and the environment); 3. Power (Exercising control over one's life). Topics include Self-Actualization and the Fully Functioning Person. Values and Lifestyles, Assertiveness Training, Life Passages, Man in Nature, Management of Stress, and Interpersonal Relationships. *Hours of class per week: 3.*

#### HD 166 Foundations of Leadership 3 s.h.

This class explores models, issues and principles involved in leadership. The evolution of leadership styles will be examined, with emphasis on contemporary theory. Current trends in thinking regarding leadership will be discussed. Topics include historical views of leadership, contemporary leadership theory, popular approaches to leadership, the relationship of leaders and followers, and skills of the leader. *Hours of class per week: 3.*

#### HD 221 Human Relations & Group Dynamics 3 s.h.

A course designed to assist students in acquiring knowledge and skills that enable them to communicate more effectively with other people, individually and in small groups. Learning activities include role-playing and human relations skill training exercises as well as film and lecture presentations on theories of interpersonal communication. Topics include obstacles to communication, attending behavior, listening skills, communication skills, conflict management, systems theory, gender differences, and family dynamics, leadership, group roles, group norms and pressures. This course also contains a unit on Transactional Analysis. *Hours of class per week: 3.*

#### HD 250 Stress & Its Management: A Psychosocial Perspective 3 s.h.

The course focuses on theoretical and applied aspects of stress and its management. It includes physical and psychological ramifications of the stress response, and an examination of the literature regarding personal, cultural, societal, medical, vocational, and environmental implications of stress. It discusses the development of the needs/values systems and its relationship to the stress response and introduces selected stress reduction techniques. *Hours of class per week: 3.*

### Health

#### HE 121 Nutrition 3 s.h.

A study of the basic nutritional needs required for the maintenance of active health. Special emphasis on relating nutritional needs to specific menu planning. *Hours of class per week: 3.*

#### HE 125 Advanced Nutrition S 3 s.h.

An understanding of the nature of and relationship between nutritional requirements and the nutritive value found in foods. Emphasis on food storage and preparation as they pertain to the maintenance of a high nutrient value. The course stresses vitamin and mineral deficiency diseases. *Prerequisite: HE 121. Hours of class per week: 3.*

**HE 135 Personal Health** 3 s.h.  
 A course dealing with the application of scientific principles of effective, healthful living. Topics include critical areas of health, the causes and effects of health problems, and the practical application of this knowledge toward positive action. The course covers drugs as well as environmental health, family hygiene, mental health, and social diseases. *Hours of class per week: 3.*

**HE 136 First Aid & Safety** 3 s.h.  
 A course granting National Safety Council: First Aid (Level III) and CPR Certification, and New York State Education Department First Aid & CPR Certification for Coaches, following satisfactory completion. The course emphasizes safety with discussion of accident causation and prevention in recreation, home, and community. *Hours of class per week: 3.*

**HE 235 Community Health** 3 s.h.  
 A detailed investigation of communicable diseases includes definition, transmission, and control in respect to prevention of disease and promotion of health. Organized public health activities as conducted by local, state, national and international agencies. An introduction to air and water pollution control, including effects and sources of pollution. Field trips are arranged. *Hours of class per week: 3.*

**HE 237 Human Sexuality** 3 s.h.  
 An examination of sexual development, with a view toward patterns that are self-actualizing. Some of the areas of study are human sexuality as one expression of our personality, functions of the anatomy involved in reproduction and sexuality, birth control, family planning, pregnancy and childbirth, STD's, HIV, coercive behavior, courtship, relationship, marriage, parenthood, and sexuality through the life cycle. *Hours of class per week: 3.*

**HE 337 Advanced Seminar in Human Sexuality** 3 s.h.  
 A seminar providing presentation, detailed investigation, and concentrated discussion of selected contemporary issues and topics in human sexuality. Emphasis on student involvement in topic selection, research and experimental investigation. Topic selection based on student interest and selected current controversial areas of sexuality. *Prerequisite: HE 237. Hours of class per week: 3.*

### Human Services

Human Services courses are not credited toward Social Science requirements but may be used for elective Liberal Arts credit.

**HS 099 Human Services Forum** 1 I.C.\*  
 A course designed to help develop the necessary academic, personal, and social skills needed as Human Services majors and as workers in the field of Human Services. The course does not satisfy graduation requirements. *Hours of class per week: 1. \*1 Institutional (non-degree) credit.*

**HS 110 Introduction to Human Services** 3 s.h.  
 This course offers students a general introduction to the field of human services. It defines the present-day structure of the Human Services field as it fits within the broader context of human service professions. The historical evolution of the helping profession provides a background from which to view current social problems. The course discusses the education and training structure as it relates to the development of practical skills, knowledge, and values necessary for successful human service work. It also discusses theoretical concepts that have determined a variety of intervention strategies to meet a vast assortment of client needs. Students study basic topics, beginning with the concept of human needs, which have dictated the shape of the existing network of agencies and services. Self-awareness opportunities encourage students to appraise their suitability to the field. *Hours of class per week: 3.*

**HS 111 Human Service Interventions** 3 s.h.  
This course emphasizes the role of the person in the environment and covers the following topics: the helping relationship, observation skills, reporting and recording procedures, effective interviewing techniques, the transition from interview to counseling, problem-solving techniques, the importance of values and ethical standards, as well as issues of diversity and culture. *Hours of class per week: 3.*

**HS 211 Problems of Substance Use Disorders** 3 s.h.  
This course introduces students to the subjects of drug and alcohol—their use, misuse, and abuse. It takes a multidimensional approach, reviewing the historical, social, legal, biological, pharmacological, and psychological aspects of the topic. The course emphasizes the problems that arise from their legal and illegal use. Students are encouraged to think critically and examine personal beliefs and values regarding drug and alcohol use or abuse. In addition, attention is given to methods of prevention and treatment. *Prerequisite: SS 291. Hours of class per week: 3.*

**HS 231 Introduction to Gerontology** 3 s.h.  
This course provides a broad-based introduction to the study of human aging. The elderly are considered from several perspectives, including the biological, psychological, sociological, political, and economic. Students explore historical events and current trends in the graying of America. The course highlights individual activities and community services that enhance and improve the quality of life for the older person. *Prerequisite: SS 297. Hours of class per week: 3.*

**HS 243 Family Violence Issues** 3 s.h.  
The course examines the phenomenon of violence as it may occur throughout the course of family life. It covers the following topics: child abuse/neglect, including sexual, physical, and emotional abuse; domestic violence or spousal assault; elder abuse. It also examines reporting considerations and discusses the prevention, assessment, and treatment of violent families. It identifies legal and cultural issues. *Prerequisite: SS 281 (291, 294 recommended). Hours of class per week: 3.*

**HS 251 Introduction to Developmental Disabilities** 3 s.h.  
The course provides an introduction to the nature and assessment of developmental disabilities and the skills necessary for working with them. It includes a study of the psychological needs and adjustments required by those with physical, mental, and emotional handicaps. The course identifies and analyzes resources and services available for the developmentally disabled in our area. *Prerequisites: HS 110, concurrent registration in SS 297. Hours of class per week: 3.*

**HS 265 Mental Health Services** 3 s.h.  
This course is designed to equip students with the concepts, terms, and structures of the mental health field. A psychosocial approach focuses on individual mental health needs; community mental health providers, and the role of the paraprofessional. Topics include the identification of mental disorders, current therapy approaches, the use of psychotropic medication, legal issues, ethical and cultural considerations, and appropriate attending skills for mental health workers. *Prerequisites: HS 110 (SS 291, 292 recommended). Hours of class per week: 3.*

**HS 298-299 Human Services Internship I & II** 4 s.h.  
 Human Services Internship is designed to provide individualized work and learning experiences in the field of human services. Interns spend 10 to 12 hours per week over the course of the semester in a community human service agency. In addition, interns spend one hour per week in a seminar session where they may reflect on their field experiences and integrate the insights they have achieved in their fieldwork. These sessions develop helping skills including sensitivity, empathy, attending, and questioning, confrontation and problem solving. They also address goal setting, case management, and case planning and client assessment. *Prerequisites: HS 110, approval of HS program coordinator or Dean. Hours of class per week: 1 + additional hours to be arranged.*

#### Humanities: Philosophy and Religion

(See also Art, Communications, English, Modern Foreign Languages, Music, Theater)

**HU 250 Introduction to Philosophy** F 3 s.h.  
 An introduction to fundamental philosophical problems in some of the basic divisions of philosophy — metaphysics, epistemology, ethics, political philosophy, and philosophy of religion. The course includes the arguments of several major philosophers. It emphasizes the development of critical thinking — i.e., "doing philosophy" — in addition to studying philosophical issues. *Hours of class per week: 3.*

**HU 258 Ethics** S 3 s.h.  
 An introduction to the basic ethical theories and their applications to human behavior and choices. Students study and compare non-normative theories such as subjectivism and relativism, and normative theories such as utilitarianism, deontology, virtue theories, natural law, natural rights, and Platonism. *Hours of class per week: 3.*

**HU 266 Ancient Philosophers** F 3 s.h.  
 A historical survey of the foundations of Western philosophical thought as developed in selected philosophers of the ancient period, including the Pre-Socratics, Plato, and Aristotle, and concluding with the medieval philosopher Aquinas. The course addresses the issue of the rise of the scientific tradition in ancient philosophy vs. the mythological treatment of cosmological issues prior to the Pre-Socratics. *Prerequisite: None (HU 250 recommended). Hours of class per week: 3.*

**HU 267 Modern Philosophers** S 3 s.h.  
 An introduction to philosophers and philosophic problems from Descartes to the contemporary period. The course emphasizes the historical development of such ideas and movements as rationalism, empiricism, pragmatism, and analytic philosophy. Problems range from the mind-body dualism of Descartes to how we justify knowledge. This course shows how consideration of philosophical problems relates to our everyday lives and influences scientific investigation and social/ethical concerns. *Prerequisite: HU 250 or 266. Hours of class per week: 3.*

**HU 271 Comparative Religions** S 3 s.h.  
 A survey of world religions, major and minor, past and present, from both Eastern and Western cultures. The course traces the historical development of religion through the mythologies of Egypt, Greece, etc., as well as the historical progression of the Semitic religions: Judaism — Christianity — Islam. The course emphasizes similarities and differences among the various religions but also deals with the influence of religion on science, art, politics, etc., and their influence on religion. *Hours of class per week: 3.*



**HU 290 Special Topics in the Humanities**

3 s.h.

An interdisciplinary course that examines a subject not covered extensively in other Humanities courses. Topics vary with each offering but generally involve multicultural perspectives. Specific topics are announced before pre-registration. The course may be repeated for credit, but prior topics may not be repeated for additional credit. *Prerequisite: EN 104. Hours of class per week: 3.*

**Honors Program****ID 291 Honors Seminar**

S 3 s.h.

An interdisciplinary seminar involving extensive review of the literature and in-depth examination of the global, national, and local relevance of the issues under consideration. Emphasis is on the general background reading, preparation, and discussions of the topic in philosophical, historical, social, technological, or scientific terms. By this approach, students gain insight into the multidisciplinary nature of the topic. This format allows close communication and interaction between a small group of students and an experienced group of faculty. *Prerequisites: sophomore status in the Honors Program OR Completion of at least 30 s.h. of Liberal Arts and Sciences with a grade point average of 3.2, approval from the Dean of Arts and Sciences. Hours of class per week: 3.*

**Internships****IN 291-294 Internship**

1-4 s.h.

This course serves as a structure for the awarding of credit for prearranged academically applicable work experiences. Students who have satisfactorily completed relevant courses may be placed with an approved agency on a part-time basis. Participation requires the approval of a College instructor and the appropriate Dean. Evaluation of the student's performance is the responsibility of the instructor. A maximum of eight (8) semester hours of credit may be earned by any one student. *Prerequisite: Previous relevant course work. Hours of class per week: to be arranged.*

**Independent Study  
(See also Directed Study)****IS 291-294 Independent Study**

1-4 s.h.

The course affords students the opportunity to investigate in-depth areas not available in existing courses. Provided they obtain the sponsorship of a faculty member and the permission of the Dean, students may submit proposals contracting to undertake from one to four semester hours of independent study in approved areas. Students accepted for independent study are expected to confer regularly with their mentors and to demonstrate satisfactory proficiency in the particular area of study they have proposed to investigate. *Hours: To Be Arranged.*

**Legal Assisting****LE 101 Introduction to Legal Assisting**

3 s.h.

An introduction to the role of the legal assistant, including ethical and professional practice standards applicable to all law office personnel. Units include an overview of law and legal systems, the relationship between Federal and State courts systems, and an overview of paralegal skills. *Hours of class per week: 3.*

**LE 102 Legal Research & Writing**

3 s.h.

The basic principles of legal research and writing style and techniques are presented. Units include sources of law, citations, researching cases and statutes, and writing legal briefs. Students are introduced to the use of computer-assisted legal research (CALR), including WESTLAW. *Prerequisites: LE 101, EN 125, CS 104 or permission of instructor. Hours of class per week: 3.*

**LE 201 Real Estate**

3 s.h.

This course includes a study of the substantial law of real estate and the related procedural and practical aspects such as landlord-tenant proceedings, title searching, real estate closing, etc. Drafting problems involving various legal instruments; special research projects related to the subject matter; and a study of the system of recording and search of public documents is included. *Prerequisite: LE 101 or equivalent. Hours of class per week: 3.*

**LE 227 Estates & Trusts** 3 s.h.  
 This course covers estates, powers and trust, intestacy and probate, and the preparation of wills. A study of laws applicable to each as well as the organization and jurisdiction of the appropriate probate court is included. A detailed analysis of the administration of estates and a review of estate and inheritance taxes is covered. *Prerequisite: LE 101 or Equivalent. Hours of class per week: 3.*

### Mathematics

**MA 099 Basic Mathematics** 4 I.C.\*  
 A developmental course in arithmetic skills. The course prepares students for college-level mathematics. Topics include whole numbers and the place value system; verbal problems; exponents; square roots; primes; factoring; L.C.M.; fractions; decimals; metric system; discount, profit and interest; mensuration, perimeter and circumference; area and volume. This course does not satisfy graduation requirements. *Hours of class per week: 4. \*Institutional (non-degree) credits*

**MA 142 Technical Mathematics** 4 s.h.  
 A first course for most students in Automotive, Construction, Natural Resources, and Visual Communications Technologies. Topics include review of signed numbers and operations, exponents, algebraic fractions, calculator usage, the metric system, perimeter/area/volume, triangle trigonometry, law of sines and cosines, surveying applications, and dimensional analysis. Not credited toward the A.S. or A.A. degree mathematics requirements. *Hours of class per week: 4.*

**MA 147 Algebra** 4 s.h.  
 A modern approach to introductory algebra. This course is designed for students who have a limited mathematics background. Topics include sets and number systems; operations; exponents; polynomials and rational expressions; first-degree equations; graphs; verbal problems. Not credited toward the Associate Degree mathematics requirements. *Hours of class per week: 4.*

**MA 150 Survey of Mathematics I** 3 s.h.  
 An overview of mathematics for the non-science student. Topics include elementary symbolic logic, introductory set theory, numeration systems, number bases, modular arithmetic, and properties of abstract mathematical systems. Not open to students who have credit for Intermediate Algebra, MA 151, Math 11 or Course III. Not credited toward the A.S. degree in Math/Science or Engineering Science but may be used for elective credit. *Hours of class per week: 3.*

**MA 151 Intermediate Algebra for College Students** 4 s.h.  
 A course designed for students who have had only a minimum of high school mathematics and who wish to enroll later in any of the following courses: MA 154, MA 160. Topics include properties of real numbers; polynomials and rational expressions; equations, exponents and radicals; functions and graphs, simultaneous systems, logarithms. *Prerequisite: MA 147 or one year of high-school algebra. Not open to students who have credit for Math 11 or Course III. Hours of class per week: 4.*

**MA 154 Pre-calculus Mathematics** 4 s.h.  
 Background material for the study of the calculus. Topics include logic, sets and proof; relations, functions, and graphs; inequalities and absolute value; exponential and logarithmic functions; circular functions and topics from trigonometry; complex numbers; synthetic division and solution of polynomial equations. *Prerequisite: Intermediate Algebra, MA 151, Math 11, Course 3, or permission of instructor. Hours of class per week: 4.*

**MA 157 Analytic Geometry & Calculus I** 4 s.h.

First course in a sequence of four courses covering topics from the calculus, analytic geometry, differential equations and advanced areas. Primarily for mathematics or science majors, although qualified students from other fields are encouraged to elect the course. Topics include functions; limits; continuity; asymptotes; differentiation of rational, polynomial and trigonometric functions; curve sketching; antidifferentiation; Riemann sums; the Fundamental Theorem; integration by substitution; applications. *Prerequisite: MA 154 or 3 years of high-school mathematics and permission of instructor. Hours of class per week: 4.*

**MA 158 Analytic Geometry & Calculus II** 4 s.h.

A continuation of MA 157. Topics include the differentiation and integration of logarithmic, exponential, inverse trigonometric, and hyperbolic functions; areas; volumes; integration techniques; approximations; improper integrals; infinite series; Taylor polynomials; tests for convergence/divergence; applications. *Prerequisite: MA 157. Hours of class per week: 4.*

**MA 160 Statistics** 3 s.h.

A course designed to give a foundation in statistics for students in Business, Social Science, Education, Humanities, or Computer Information Systems who are planning to transfer to a four-year program. Topics include descriptive statistics; counting principles and probability; binomial, hypergeometric, and normal distributions; hypothesis testing using the normal curve; linear regression; correlation; analysis of variance; chi-square tests. *Prerequisites: Intermediate Algebra, MA 151, Math 11, Course 3, or permission of instructor. Hours of class per week: 3.*

**MA 161 Mathematics for Electrical Technology I** F 4 s.h.

This course develops fundamental mathematical skills needed for students of the Electrical Technology curriculum. Topics include basic arithmetic skills and calculator usage; algebraic manipulation; ratio; proportions; quadratics; logarithmic and exponential functions; right triangle trigonometry. Application of these topics to the field of electricity is stressed throughout the course. *Prerequisites: High-school algebra (1 year) or MA 147 and concurrent registration in EL 125, or permission of instructor. Hours of class per week: 4.*

**MA 162 Mathematics for Electrical Technology II** S 4 s.h.

A continuation of MA 161. Topics include applied trigonometry, sine waves; vectors; phasers; computer number systems; Boolean algebra; mathematics of polyphase systems; an introduction to differential and integral calculus. *Prerequisites: MA 161 or permission of instructor, concurrent registration in EL 126. Hours of class per week: 4.*

**MA 257 Analytic Geometry & Calculus III** F 4 s.h.

A continuation of MA 158. Topics include conic section; parametric equations; polar equations; arc length; vector differentiation and integration; tangent and normal vectors; multivariate differentiation and integration in several coordinate systems; line integrals; applications including lines, planes, areas, volumes, mass, and moments. *Prerequisite: MA 158. Hours of class per week: 4.*

**MA 258 Differential Equations** S 4 s.h.

Topics include definitions and properties of differential equations; differential equations of first degree and order; applications, Bernoulli's equation, linear independence; general solutions to homogeneous and nonhomogeneous equations; differential operators; auxiliary equations; the LaPlace transformation and its inverse; series solutions about ordinary and singular points. *Prerequisite: MA 257. Hours of class per week: 4.*

**MA 259 Linear Algebra** S 3 s.h.  
A course designed for second-year mathematics or science students. Topics include systems of linear equations, vector spaces, linear dependence, bases, dimension, linear transformations, matrices, determinants, eigenvectors. *Prerequisite: MA 158. Hours of class per week: 3.*

### Mechanical Drawing/Drafting

**MD 171 Engineering Graphics** F 3 s.h.  
The course covers drafting work in lettering, use of drawing instruments including the drafting machine and parallel straight edge, geometrics, orthographic projection, cross sections, axonometric projection, intersections and sketching. *Hours of class per week: 2. Hours of lab per week: 2.*

**MD 174 Computer Aided Drafting** 3 s.h.  
This course teaches the basics of computer aided drafting as applied to engineering type drawings. Topics include geometric shapes, scaling, polar and delta positioning, editing, arcs and fillets, grids and snap, dimensioning, translating, rotation and mirroring, three dimensional drawing, and wireframe drawings. *Hours of class per week: 2. Hours of lab per week: 2.*

**MD 176 Electrical Graphics** F 3 s.h.  
This electrical graphics course introduces the student to basic drafting and construction techniques used in the electronics industry. This is strictly a computer aided drafting course. The course introduces the basics of orthographic and isometric projections, cross sections, dimensioning, and sketching using the CADKEY software package. The student is then introduced to the electronic schematic diagram and to printed circuit development using the EE Designer III software package. Finally the student is presented with a series of drawings ranging from block and logic diagrams, chassis drawings, graphs and charts, residential and industrial wiring diagrams, and 3D diagrams. *Hours of class each week: 1. Hours of lab per week: 3.*

**MD 179 Electronic Computer Design Applications** 2 s.h.  
This course provides for the instruction of software based applications specific to the electronics field. Applications such as PSPICE or Design Center assists in computerized design. Computerized instrumentation and problem solving software is used to provide essential computer and technical training for the student. *Prerequisite: MD 176. Hours of class each week: 1. Hours of lab per week: 2.*

**MD 180 Architectural Drawing** S 3 s.h.  
Architectural drawing as related to functional planning of residence buildings, working drawings, including plans, elevations, section, details, notes and specifications. *Prerequisite: MD 171. Hours of class per week: 2. Hours of lab per week: 2.*

### Medical Office Assistant

**ME 284 Medical Insurance** S 3 s.h.  
This course presents standardized basic concepts and brings all reimbursement systems down to a common denominator that simplifies and clarifies medical insurance. The procedures necessary to successfully file medical claims for reimbursement are covered. This course benefits students in medical-related programs as well as practicing medical assistants. *Prerequisite: OT 283 or 285. Hours of class per week: 3.*

**ME 286 Clinical Procedures for Medical Assisting** S 3 s.h.  
This course provides a format for the achievement of professional competency in medical assisting in a clinical setting as well as the understanding of applications to on-the-job situations. This course is beneficial to students in the medical-related programs as well as practicing personnel who have not had an opportunity to receive formal training. *Prerequisite: OT 283. Hours of class per week: 2. Hours of lab per week: 2.*

### Multimedia

**MM 101 Multimedia Technology I** 3 s.h.  
This course introduces the field of multimedia to the student. The course

examines the tools used in the multimedia field and how graphics, sound, video, and text are integrated into a multimedia work. Delivery mechanisms for multimedia, such as CD-ROM, Internet, and print are introduced. Preliminary uses of the Internet and presentation systems as delivery mechanisms for multimedia works are examined by the student. Topics: computer use in multimedia, sound, video, graphic picture formats, Internet web usage, basic HTML, 2D drawing, 3D drawing, applications of multimedia, current information on the multimedia industry. *Hours of class per week: 2. Hours of lab per week: 2.*

**MM 102 Multimedia Technology II** 3 s.h.  
This course explores advanced topics in multimedia development. Audio, video and computer system requirements, limitations and integration are examined. Computer formats, such as JPEG and MPEG are covered as are CD-ROM production requirements. Software used for multimedia application are examined from a production standpoint as is the delivery of content via various means. Topics: audio - analog vs. digital, mixing, streaming; video systems; video/graphics formats - GIF, MPEG, JPEG; projection requirements; software applications - specifications, hardware requirements; Internet and server requirements; CD-ROM and other media. *Prerequisite: MM 101. Hours of class per week: 2. Hours of lab per week: 2.*

**MM 201 Multimedia Development I** 3 s.h.  
Multimedia Development I provides an in-depth use of current multimedia application software and systems and provides the student the opportunity to produce multimedia works. Applications include using presentation software and equipment, hypertext development, merging graphics and video 3D rendering. *Prerequisite: MM 102. Hours of class per week: 2. Hours of lab per week: 2.*

**MM 202 Multimedia Development II** 3 s.h.  
This course provides the student with a capstone opportunity to use multimedia software to develop a complex multimedia project. Student work results in the production

of an interactive multimedia work. *Prerequisite: MM 201. Hours of class per week: 2. Hours of lab per week: 2.*

## Music

**MU 101 The American Broadway Musical** F 3 s.h.  
**Musical**  
This course explores the creative journey involved in bringing the idea of a musical to its final realization as a full-blown production. By understanding the creative processes involved, by listening to and reading libretti and scores of a number of musicals, by learning to recognize and critique different creators and artists of the genre, and by interpreting some of the material themselves, students gain a greater knowledge of the components that result in an enduring masterpiece. *Hours of class per week: 3.*

**MU 102 American Broadway Musical Production** S 3 s.h.  
An in-depth study of the musical score, lyrics, and book of a particular musical, resulting in its production. These activities involve sixty hours of class and rehearsal time and culminate with the performance of the show. This course may be repeated once for credit. *Prerequisite: Admission by audition only. Hours of class per week: 3.*

**MU 111 College Chorus** 1 s.h.  
Study and performance of a variety of choral literature. The emphasis is on developing the student's ability to sing with a group. Special attention is paid to choral phrasing and interpretation. Each semester's work culminates in a campus performance by the Chorus. May be taken for credit for four semesters. No prior experience with choral singing is required. *Hours of class per week: 2.*

**MU 123 Concert Band** 1 s.h.  
Study and performance of a wide variety of concert band literature. Musical selections range from traditional to contemporary. Emphasis on the study of characteristic music literature and the development of musicianship. Attendance at all rehearsals and performances is mandatory. May be taken for credit for four semesters. *Prerequisites: Prior experience in playing a band instrument, suitable proficiency, and permission of instructor. Hours of class per week: 2.*

**MU 201 History of the American Musical Theater** F 3 s.h.  
The course traces the development of the American musical from its European origins to its full realization as the major art form that it is today. Emphasis on developing both a true understanding of the creative process involved and a deeper appreciation of the music and lyrics that have contributed so much to our society. The course examines a variety of musicals. *Hours of class per week: 3.*

#### Natural Resources Conservation

Courses may meet at sites other than the main campus. Students must make transportation arrangements. Weekend field trips may be required.

Students may need special clothing or safety equipment in addition to texts. Details are provided by the instructor.

**NR 121 Fisheries & Wildlife Management I** F 3 s.h.  
Introduction to the principles of fisheries and wildlife management. An understanding of the practice of wildlife management in a contemporary context, but with sufficient review of past efforts to clarify present directions. The course stresses knowledge of the plants and animals indigenous to Eastern United States with respect to their management and identification. *Hours of class per week: 2. Hours of lab per week: 3.*

**NR 122 Fisheries & Wildlife Management II** S 3 s.h.  
Use and understanding of both the theoretical and operational aspects of the varied techniques used in the management of both fisheries and wildlife. Topics include population estimation, analysis and manipulation of cover water and food for fisheries and wildlife, wildlife collection techniques, species management techniques, telemetry. *Prerequisite: NR 121. Hours of class per week: 2. Hours of lab per week: 3.*

**NR 126 Principles of Soils & Water** F 3 s.h.  
A study of the principles of erosion control, surface drainage and subsurface drainage. The course considers soil genesis, composition, classification, physical and chemical characteristics in relation to soil moisture, fertility and management. *Hours of class per week: 2. Hours of lab per week: 2.*

**NR 223 Forest Management I** F 3 s.h.  
The practices and principles involved in managing woodlands for timber, recreation, wildlife, and soil conservation values. Includes species identification and characteristics, tree development and growth, cutting practices, harvesting and marketing, reforestation, planting management and protection. *Prerequisite: NR 122. Hours of class per week: 2. Hours of lab per week: 3.*

**NR 224 Forest Management II** S 3 s.h.  
Major topics include tree physiology, major forest products, nursery techniques, planting, maintenance of individual trees (ornamental and Christmas), forest protection (fire, insects, and disease), forest influences upon the environment, and harvesting techniques from the standing tree to the mill. The course emphasizes the proper use and maintenance of related tools. *Prerequisite: NR 223. Hours of class per week: 2. Hours of lab per week: 3.*

**NR 231 Practical Skills in Conservation & Outdoor Recreation** 4 s.h.

A basic-level practical skills course in which students work on individual or group projects assigned by the instructor. Projects involve actual field experience and are selected to give students a high degree of introductory skills in work normally conducted in Natural Resources. Where possible, the student shall work with Conservation agencies and active field specialists. *Hours of class per week: 2. Hours of lab per week: To Be Arranged.*

**NR 232 Basic Research in Conservation & Outdoor Recreation** 4 s.h.

In this research seminar students work with the instructor in selecting a topic of research that give the student a strong introduction to methods and techniques of research. The student pursues a line of fieldwork along with studying subject-related textbooks and literature. The student documents activities and prepares a class presentation. *Prerequisites: NR 231 or equivalent and permission of instructor. Hours of class per week: To Be Arranged. Hours of lab per week: To Be Arranged.*

**NR 241 Water Resources Management I** F 3 s.h.

This course provides students with an introduction to the physical and biological properties of water. Specific areas of study include the hydrologic cycle; hydraulics and electricity; water chemistry, (acids, bases and salts, chemical calculations, solutions); microbiology; water quality tests and standards; sedimentation. *Prerequisite: High school biology, general science. Hours of class per week: 2. Hours of lab per week: 3.*

**NR 242 Water Resources Management II** S 3 s.h.

This course furthers the student's understanding of water resources management. Specific areas of study include filtration processes; chlorinating; softening; aeration; taste and odor control; corrosion and corrosion control; fluoridation; protection of water and watershed; plant maintenance and accident prevention. *Prerequisite: NR 241. Hours of class per week: 2. Hours of lab per week: 3.*

**NR 250 Waste Resource Management** S 3 s.h.

This course provides the student with a general background in the science and technology of solid and hazardous waste management. Specific areas of study include conventional disposal operations; material recovery operations; energy recovery systems; composting--methodology, products, and legal restrictions; sanitary landfilling; innovations in solid and hazardous waste disposal; hazardous waste reduction, recycling, and waste exchange; transportation of wastes; siting of waste treatment facilities; health effects and risk assessment; household hazardous wastes. *Prerequisites: SC 135, 170 or permission of instructor. Hours of class per week: 3.*

**Nursing**

The professional component of the Nursing major assists students in gaining the knowledge, attitudes, and skills essential to nursing practice in a variety of settings.

**NU 105 Nursing Science I** 7 s.h.

This course introduces concepts, skills, and procedures common to nursing care of all patients, regardless of age or disability. Emphasis is placed upon acquiring a body of knowledge that permits individualization of nursing care based upon a sound, scientific rationale. The nursing process, the role of the nurse, communication theory, provision for meeting basic physical needs, nutrition, pharmacology, and the special needs of the aged are included. Practice in basic skills is provided in the College laboratory and through selected patient care assignments at long-term care facilities. At times, students are required to attend an educational program or meeting in lieu of class or clinical. These programs/meetings may be held outside of regular class/clinical hours. *Prerequisite: Completion of or concurrent registration in BI181 and SS291. Hours of class per week: 5. Hours of lab per week: 6.*

**NU 106 Nursing Science II** 7 s.h.

The course focuses on the commonalities of acute care, including the care of patients undergoing diagnosis and surgical treatment. Other topics of study include: care of patients with fluid, electrolyte, and acid-base imbalances; care of patients with mobility problems; care of patients with malignancies; and care of patients with communicable diseases. Patient care assignments and observational experiences are provided through affiliations with community hospitals and health care agencies. *Prerequisites: NU 105, completion of concurrent registration in BI 182, SS 297. Hours of class per week: 4. Hours of lab per week: 9.*

**NU 205 Nursing Science III** 9 s.h.

This course is divided into three major units. Each instructor assumes complete responsibility for classroom and clinical instruction in a specialty area. Each unit is complete in itself. Units may be completed in any sequence. Based on faculty assessment of their learning needs, students may be asked to follow a particular sequence. Specialty units include Mental Health, Medical-Surgical with emphasis on patients with cardiovascular and respiratory dysfunction, and Maternal-Child Health. *Prerequisites: NU106, completion of or concurrent registration in, BI 282. Hours of class per week: 5. Hours of lab per week: 12.*

**NU 206 Nursing Science IV** 9 s.h.

This course stresses complex health needs of adults. Principles, concepts, and skills introduced in previous courses are further developed and expanded. Clinical experiences include advanced Medical-Surgical interventions, medication administration, application of principles of leadership and group management, and a three week preceptorship. *Prerequisite: NU205. Hours of class per week: Lecture 5, Seminar 1, Total 6. Hours of lab per week: 9. In addition, a 3-week preceptorship is required.*

**NU 207 Pharmacology for Nurses** 3 s.h.

Designed to expand on basic knowledge of pharmacology. Emphasis is placed on current drug therapy and the specific nursing responsibilities for the safe administration of drugs. Content includes drugs used to relieve pain and treat disorders affecting every system in the body. *Prerequisite: 3 semesters of NU courses, or permission of instructor. Hours of class per week: 3.*

**Office Technology****OT 131 Beginning Shorthand** F 5 s.h.

Presentation of the basic principles of Gregg shorthand theory. Intensive drill on brief forms. Development of skills in correct reading and writing techniques. Drills for spelling and punctuation in preparation for transcription. *Hours of class per week: 5.*

**OT 133 Introductory Keyboarding** 3 s.h.

This course is taught in the Office Technology Lab by a self-paced, individualized method of instruction combining word processing functions with keyboarding skills. There is continued emphasis on the use of the mandatory touch system in building speed and accuracy. Grade is based on timed writings and knowledge of word processing functions. *Hours of class per week: 3-4. Pretest optional for advanced placement in course.*

**OT 134 Intermediate Keyboarding** 3 s.h.

This course is a self-paced, individualized method of instruction. Speed and accuracy continue to be stressed. Students learn to create business documents using keyboarding skills and basic word processing functions. Grade is based on timed writings, keyboarding theory and word processing functions. *Prerequisite: OT 133 or equivalent. Hours of class per week: 3. Theory pretest optional for advanced placement in course. Five-minute timed writing pretest is required.*



**OT 183 Intermediate Shorthand** S 4 s.h.  
 Review and reinforcement of shorthand principles including brief forms and phrases. Emphasis is on reading and writing, speed building commensurate with previous background. Development of transcription skills including spelling and punctuation and transcription at the keyboard is included. Individualized practice in the Office Technology Lab is required. *Prerequisite: OT131 and OT133 or equivalent. Hours of class per week: 4. Additional hours in the Office Technology Lab.*

**OT 230 Machine Transcription** 3 s.h.  
 This course is taught in the Office Technology Lab. This is a comprehensive course designed to provide the student with the necessary skills to prepare documents from a recorded voice. Material to be transcribed consists of various forms of business correspondence used in fifteen different employment areas such as governmental, legal, medical, manufacturing, banking, retailing, etc. In addition, strong emphasis is placed on building language and vocabulary skills such as spelling, grammar, word division, abbreviations, punctuation, pronunciation, and word definition to prepare the student to edit when necessary. Use of reference manual is emphasized. Cassette transcribers are used. *Prerequisites: EN 103 or BU 137, OT 134, or permission of instructor. Hours of class per week: 3. Additional hours in the Office Technology Lab.*

**OT 233 Advanced Shorthand** F 4 s.h.  
 Emphasis on increasing speed and accuracy in taking dictation of new material and transcribing mailable copy using a typewriter. Review of spelling, grammar, and proofreading is included. Production of mailable materials is stressed. *Prerequisite: OT 183 or equivalent. Hours of class per week: 4. Additional hours in the Office Technology Lab.*

**OT 235 Administrative Support Procedures I** F 3 s.h.  
 An overview of office services and responsibilities of office employees is provided. Topics covered include career planning, employment opportunities, work organization, computer information systems, telecommunications, communication processes, office teamwork, and ethics. The students are introduced to integrated software using PCs in the Windows environment. *Hours of class per week: 3.*

**OT 236 Administrative Support Procedures II** S 3 s.h.  
 An overview of office procedures and responsibilities of office employees is provided. Topics covered include receptionist and telephone techniques, mail procedures, document creation, records management, mailing and shipping services, meeting and conference planning, travel arrangements, and financial assistance. Selected exercises are performed on PCs in the Windows environment using integrated software applications. *Hours of class per week: 3.*

**OT 239 Introduction to Office Systems & Technology** 3 s.h.  
 This is an orientation course designed to introduce the terminology and concepts of the office automation/information system in the modern office. Topics include an industry overview, input and output, and reprographics and distribution. Emphasis is on the people, procedures, and technology utilized in office systems. Machine concepts are presented. Laboratory exercises on word processors are assigned. Laboratory exercises are completed on PCs using the Windows environment with integrated software. *Prerequisite: OT 133 or equivalent. Hours of class per week: 3. Additional hours in the Office Technology Lab.*

**OT 240 Word Processing****Applications I****3 s.h.**

Basic office output applications are taught on PCs using the WordPerfect for Windows environment. Students learn such functions as creating, saving, retrieving, editing documents cut and paste; merging, etc. Students are required to apply these applications to prepare typical office communication projects.

*Prerequisites:* OT 134, 239, or equivalent.

*Hours of class per week: 3. Additional hours in the Office Technology Lab.*

**OT 241 Word Processing****Applications II****3 s.h.**

Basic office output applications are taught on PC's using Microsoft Word in the Windows environment. Students learn such functions as creating, saving, retrieving, editing documents cut and paste; merging, etc. Students are required to apply these applications to prepare typical office communication projects.

*Prerequisite:* OT134, OT239 (co-requisite for WP certificate majors). *Hours of class per week: 3. Additional hours in the Office Technology Lab.*

**OT 249 Information/Word Processing****Practicum****3 s.h.**

Using PCs in the Windows environment word processing students receive actual on-the-job work experience in a word processing center. The duties performed are primarily those of correspondence secretary rather than administrative in nature. Although the primary workstation for this course is the College's Model Office, other arrangements, if available, can be made. Self-logging is the major responsibility of the student requiring a minimum of ten hours per week in the center.

*Prerequisites:* OT 230, 239 and permission of instructor. *Hours of class per week: 10-15.*

**OT 255 Administrative Office****Management****F 3 s.h.**

This course provides a foundation in the theory and practice of management in the administrative office. Emphasis is on basic concepts, problem solving, and communications. In addition, issues related to staffing, productivity, job analysis, and integrating automated services is studied. Some assignments simulate on-the-job experience or be completed through study of administrative offices in the community.

*Prerequisite:* OT 239, equivalent experience, or permission of instructor. *Hours of class per week: 3.*

**OT 259 Office Systems Supervision****S 3 s.h.**

This course explores the key concepts related to people, organizations, and technologies as they relate to the supervision of automated office systems. Strategies for providing supervisory support in office system planning, implementation, and operation are studied. Use of presentation graphics software is introduced. Some assignments utilize software for computer-assisted decision-making and communications.

*Prerequisite:* OT 239 or permission of instructor. *Hours of class per week: 3.*

**OT 273 Legal Terminology****S 1 s.h.**

This course provides knowledge and understanding of approximately 800 terms commonly used in the legal profession, with emphasis on correct spelling and pronunciation. *Hours of class per week: 3.*

**OT 274 Legal Dictation****S 1 s.h.**

Using PCs in the Windows environment, material is transcribed from letters and documents that are commonly prepared in the lawyer's office. Students use machine transcription tapes as a source of input. Specialized legal vocabulary is emphasized.

*Prerequisite:* OT 134, 273 or equivalent or permission of instructor. *Hours of class per week: 3.*

**OT 275 Legal Document Production S 1 s.h.**  
 Legal Document Production is a simulation, which represents three working days in a law firm. Students create and revise realistic legal documents commonly prepared in a law office. The jobs are done on PCs using the Windows environment. *Prerequisite: OT 134 or equivalent. Hours of class per week: 3.*

**OT 276 Legal Administrative Support Procedures F 3 s.h.**

This course familiarizes students with the court structures, the jurisdiction of the courts, rules for preparing legal documents and the local fees for filing court papers. Specific areas of law are covered, with the required procedures and necessary forms for each area, i.e. family law, wills and probate, real estate, bankruptcy, and criminal law. *Hours of class per week: 3.*

**OT 283 Medical Terminology 3 s.h.**

Emphasis is on understanding medical terms. The logic behind the formation of medical terms, analysis of words, and interpretive and deductive skills are used. Terms associated with all anatomical systems are covered. Slides and tapes may be used. *Hours of class per week: 3.*

**OT 285 Medical Administrative Support Procedures F 3 s.h.**

Emphasis is on topics covered by the American Association of Medical Assistants' Study Outline for Certification Review Administrative Division: patient relations, legal and ethical issues, communications, financial records, billing and collection, and insurance. *Prerequisite: OT 133 or equivalent. Hours of class per week: 3.*

**OT 287 Medical Transcription I S 3 s.h.**

This course begins with an introduction to medical transcription and use of medical references. Medical document transcription is emphasized. Terminology, language skills, and transcription skills are systematically reinforced. Assignments are drawn from actual records. The Office Technology Lab may be used. *Prerequisite: OT 134, 283, or permission of instructor. Hours of class per week: 3.*

**OT 288 Medical Transcription II SU 3 s.h.**  
 This course continues to build on the material learned in Medical Transcription I. Detailed autopsies are emphasized. Specialty areas such as: cardiology, psychiatry, neurology, ob/gyn, respiratory system are included. Terminology, language skills, and transcription skills continue to be systematically reinforced. Electronic keyboards are utilized. The Office Technology Lab may be used. *Prerequisite: OT 287. Hours of class per week: 3.*

### Physical Education

**PE 031 Intramural Activities 1 s.h.**

Students are required to participate satisfactorily in supervised sport activities to complete course requirements. The schedule of activities is available from the Physical Education faculty. This course may not be used to satisfy Physical Education activity course requirements but may be repeated for additional elective credit. *Hours of class per week: 1.*

**PE 110 Introduction to Fitness 1 s.h.**

A course designed as a survey in physical fitness. It has both lecture and lab components. Laboratory sessions present a variety of fitness activities. Course lectures cover the physiological and emotional effects of exercise, dietary concerns, and a variety of wellness issues. *Hours of class per week: 2.*

**PE 111 Jogging 1 s.h.**

A course designed to instruct individuals in developing cardio-vascular fitness through jogging. Emphases on monitoring fitness indicators such as heart rates and active use of a variety of aerobic and anaerobic running activities. *Hours of class per week: 2.*

**PE 113 Archery 1 s.h.**

Students are instructed in beginning-level techniques of target archery. Emphasis on understanding, selecting, and using equipment; scoring; safety on range and in the field; and archery as a sport. *Hours of class per week: 2.*

**PE 114 Canoeing** 1 s.h.

A course designed to instruct beginning-level techniques of canoeing. Students must be able to demonstrate swimming proficiency. Emphasis on paddle strokes, selection and use of equipment, safety, and survival techniques.

*Course meets at sites other than main campus. Students make their own transportation arrangements. Hours of class per week: 2.*

**PE 118 - Weight Training & Conditioning** 1 s.h.

This course includes instruction in technique and safe use of a variety of strength training equipment. Individual programs are designed to improve fitness levels. Emphasis on familiarizing students with various systems of training and the benefits of each. *Hours of class per week: 2.*

**PE 123 Bowling** 1 s.h.

Instruction in fundamental bowling skills rules etiquette and selection of equipment. *Course meets at sites other than main campus. Students make their own transportation arrangements and pay an additional fee at off-campus site. Hours of class per week: 2.*

**PE 124 Golf** 1 s.h.

Instruction in fundamental golf skills, rules etiquette, and selection and care of equipment. *Course meets at sites other than main campus. Students make their own transportation arrangements and pay an additional fee at off-campus site. Hours of class per week: 2.*

**PE 127 Cross-Country Skiing** 1 s.h.

A beginning-level course designed to instruct the individual in traditional techniques of cross-country skiing. Emphasis on selection of equipment, technique, safety and fundamentals of travel on a variety of terrain. Planning and safety on trips are discussed and implemented on trails within the Adirondack Park. *Course meets at sites other than main campus. Students make their own transportation arrangements. Hours of class per week: 2.*

**PE 128 Aerobic Dance** 1 s.h.

A fitness course designed to improve cardio-respiratory function, muscle tone, strength and flexibility. It emphasizes low-impact activities. *Hours of class per week: 2.*

**PE 130 Step Aerobics** 1 s.h.

A high-intensity activity course to promote cardio-respiratory fitness using low-impact steps techniques. *Hours of class per week: 2.*

**PE 131 Volleyball** 1 s.h.

An introduction to the skills, rules and strategies involved in the game of volleyball. A progression begins with basic drills and continues through intermediate play. Special emphasis on volleyball as a recreational activity. *Hours of class per week: 2.*

**PE 133 Soccer** 1 s.h.

An introduction to the skills, rules and strategies of soccer. A progression begins with basic drills and continues through intermediate play. Play includes both full field and the indoor game. The course is designed for all levels of ability. *Hours of class per week: 2.*

**PE 136 Basketball** 1 s.h.

An introduction to the skills, rules and strategies of basketball. Both individual and team skills are emphasized through a variety of drills and game situations. *Hours of class per week: 2.*

**PE 141 Beginning Swimming** 1 s.h.

Open to non-swimmers or those with marginal skills. The course focuses on buoyancy, breath control, the introduction of swimming strokes, water games and activities. *Hours of class per week: 2.*

**PE 142 Intermediate Swimming** 1 s.h.

Open to all students who possess moderate swimming skills. The course focuses on stroke refinement, beginning diving, forms of rescue, water games and activities. *Hours of class per week: 2.*

**PE 145 Aquatics**

1 s.h.

A course for advanced swimmers that provides a broad introduction to water activities including, but not limited to stroke refinement, rescue techniques, water aerobics, synchronized swimming, snorkeling, small-craft use, water polo, and beginning diving. *Hours of class per week: 2.*

**PE 146 Lifeguarding**

1 s.h.

Open to all students with advanced swimming skills. The course focuses on the duties and responsibilities of a lifeguard, rescue techniques, emergency care and management skills. *Hours of class per week: 2.*

**PE 151 Racquet Activities**

1 s.h.

An introduction to basic skills, rules and strategies in racquetball, tennis and badminton. Emphasis on improving skill level and progression to game play. *Hours of class per week: 2.*

**PE 154 Intermediate Tennis**

1 s.h.

A progression from PE 151. The course is designed to review basic skills, rules and introduces advanced game strategies in both singles and doubles play. *Prerequisite: Ability to demonstrate basic skills. Hours of class per week: 2.*

**PE 157 Intermediate Racquetball**

1 s.h.

A progression from PE 151. The course is designed to review basic skills, and introduce advanced strategies in both the three- and four-wall game. *Course meets at sites other than main campus. Students make their own transportation arrangements and pay an additional fee for off-campus site. Prerequisite: Ability to demonstrate basic skills. Hours of class per week: 2.*

**PE 171 Ice Fishing**

W 3 s.h.

The course takes advantage of the College's location near Adirondack lakes. Some time spent in classroom discussing development and theory of ice fishing and use of equipment. Talks by local conservation officials. Visit to local hatchery. Much time spent ice fishing on Sacandaga and other lakes of the region. *Course meets at sites other than main campus. Students make their own transportation arrangements. NYS Fishing License required. Hours of class per week: 3.*

**PE 201 Introduction to Health, Physical Education, & Recreation**

F 3 s.h.

The course provides an historical background and understanding of health, physical education, and recreation. Experiences in classroom observations, athletics, supervised teaching and administration is interspersed with lectures. Individual objectives and qualifications are reviewed, as are opportunities in the profession. *Course meets at sites other than main campus. Students make their own transportation arrangements. Hours of class per week: 3.*

**PE 231 Camping**

S 3 s.h.

Selected guided experiences in camping including nature and conservation, camp craft, nature craft, waterways, and conduct and management of resident and day camps. *Course meets at sites other than main campus. Students make their own transportation arrangements. Hours of class per week: 3.*

**PE 235 Outdoor Education**

S 3 s.h.

A course designed for students interested in management of wildlife and natural resources in New York State. Topics include fisheries, wildlife management, and land control. Field trips are coordinated with the New York State Department of Fish and Game and the Conservation Department. Special emphasis on federal and state controls. *Course meets at sites other than main campus. Students make their own transportation arrangements. Hours of class per week: 3.*

**PE 236 Introduction to Care & Prevention of Athletic Injuries** S 3 s.h.  
The course emphasizes the scientific and clinical foundations of athletic training and sports medicine. It focuses on athletic injury prevention, recognition and initial care, along with laboratory time for practice of taping and wrapping techniques. Not credited toward Physical Education activity course requirement. *Prerequisite: HE 136. Hours of class per week: 3.*

**PE 253 Lifetime Sports** F 2 s.h.  
Philosophy and instructional techniques for physical education majors in two of the lifetime sports: Volleyball and Archery. *Course meets at sites other than main campus. Students make their own transportation arrangements. Hours of class per week: 2.*

**PE 255 Lifetime Sports** S 2 s.h.  
Philosophy and instructional techniques for Physical Education majors in two of the lifetime sports: Bowling and Golf. *Course meets at sites other than main campus. Students make their own transportation arrangements and pay additional fees at off-campus sites. Hours of class per week: 2.*

**PE 257 Lifetime Sports** 2 s.h.  
Philosophy and instructional techniques for Physical Education majors in one of the lifetime sports areas: Racket Activities (Tennis & Racquetball). *Hours of class per week: 2.*

### Physics

(See also SC 131, 161, 162)

**PH 171 Physics I** 4 s.h.

**PH 172 Physics II** S 4 s.h.

A comprehensive course stressing the basic concepts, principles, and laws of physics, designed for engineering, mathematics and science majors.

Areas covered are fundamentals of mechanics, heat and thermodynamics, electricity and magnetism, oscillations and waves. It also covers briefly atomic and nuclear physics. It uses fundamental forces and conservation of energy, linear momentum, and angular momentum as unifying themes for the different branches of physics. The course places major emphasis on developing the analytical ability and problem solving skills of the student. *Prerequisite: Concurrent registration in MA 157 or permission of instructor. Hours of class per week: 3. Hours of lab per week: 3.*

**PH 271 Physics III** F 4 s.h.

A course designed for engineering and physics majors. Topics covered are Maxwell's equations and electromagnetic waves; special theory of relativity; photoelectric effect, Compton effect, pair production and annihilation, X-Rays, electron diffraction, deBroglie waves; particle in a box; uncertainty principles, Bohr model of the atom; Schrodinger equation; Pauli exclusion principle and the periodic table; nuclear structure; radioactivity; nuclear fission and fusion reactions; Maxwell-Boltzman distribution, quantum statistics, laser, band theory of solids and semiconductors. *Prerequisites: PH 171-172, MA 157-158. Hours of class per week: 3. Hours of lab per week: 3.*

### Peer Tutoring

**PT 199 Training for Peer Tutoring** 1 s.h.  
The course provides practice in effective techniques of peer tutoring. *Prerequisites: Completion of at least 15 credit hours with a minimum G.P.A. of 3.0 and recommendation of area instructor. Hours of class per week: To Be Arranged.*

**Science**  
(See also Biology, Chemistry,  
Engineering, Natural Resources, Physics)

**SC 121 Basic Skills for Science & Technology** 3 s.h.

The course provides the preparation needed for success in the study of all science and technology courses. Topics include recognizing the relevant scientific concepts while reading problems, using diagrams and graphs effectively for the solution of problems, selecting relevant relationships of physical variables for solving problems, deducing needed relationships of variables, manipulating algebraic relations and arriving at a solution in terms of symbols representing variables, using physical units and their conversions, dimensional analysis, applying right-triangle trigonometry to the solution of technical problems, using measuring devices, and data analysis using computers. Not credited toward the Associate Degree science requirements, but may be used for elective credit. *Hours of class per week: 3.*

**SC 130 Science, Technology, & Society** F 3 s.h.

A course on the nature of science and technology and on the interactions among science, technology, and society. The course explores the nature of science and its influence on society through a study of rational cosmological models and theories on the structure of matter. It investigates the nature of technology, the extent of science-technology coupling, and the impact of technology on humanity and the environment through a study of the use of different sources of power and methods of communication. The course studies a systems approach to problem assessment, feedback elements of the decision-making process, modeling, and optimization. It stresses the need for the assessment of technology and matching technology to society and the environment. *Hours of class per week: 2. Hours of lab per week: 2.*

**SC 131 Environmental Physics** 3 s.h.

A course centered around the contemporary problems—energy, pollution, and depletion of natural resources—of our physical environment.

It analyzes different forms of energy, energy conservation principles, our energy resources, methods of energy conversions and their by-products, first and second laws of thermodynamics, and efficiency of current energy usage—thermal pollution, air pollution, solid waste, noise pollution, nuclear radiation pollution, and their effects on man and the environment. It explores the potential for more efficient use of our natural resources. The course studies energy sources of the future—breeder reactor, fusion reactor, solar energy, geothermal energy, magneto-hydrodynamics, fuel cells and energy from wastes. *Hours of class per week: 2. Hours of lab per week: 2.*

**SC 135 Introductory Biology: Molecules & Cells** F 3 s.h.

This course is designed for people with no or minimal background in biology. It prepares students to take upper-level biology courses such as BI 171, 172, 173, 176, and 282. The course stresses the human relevance and social implications of biology. It discusses modern scientific developments, as well as cellular anatomy, physiology and energetics in genetic and ecological perspectives. Laboratory investigations apply concepts presented in lecture. The course integrates observation, interpretation, and library research by means of written laboratory reports and investigation into scientific literature. *Hours of class per week: 2. Hours of lab per week: 3.*

**SC 137 Human Biology** F 3 s.h.

This course in Human Biology focuses on how the systems of the human body operate and how various illnesses interfere with that operation. Lectures cover organ systems from a functional aspect, then diseases from a malfunctional perspective, with special attention given to the connection between malfunctions and symptoms. The course also covers how treatment for disease is related (or not) to system malfunction. Laboratories cover simple internal anatomy, disease-causing organisms, simple diagnostics, and such topics as medical ethics and epidemiology. Laboratory approaches vary from hands-on dissection to group discussion. *Hours of class per week: 2. Hours of lab per week: 3.*

**SC 139 Introductory Biology: Animals  
& Plants**

**S 3 s.h.**

A phylogenetic approach to plant and animal groups, both living and extinct, using representative fossils and live specimens when available. An understanding of the inter-relationships between and among plant and animal species is complemented by topics from comparative anatomy and physiology. The course integrates observation, interpretation and library research by means of written laboratory reports and investigation into scientific literature. Included are dissections and micro-anatomy of representative invertebrates, vertebrates, and plants, field collection, identification, and study of plants and animals of biologic interest. *Hours of class per week: 2. Hours of lab per week: 3.*

**SC 143 Earth Systems**

**F 3 s.h.**

A perspective on the Earth that emphasizes the structure, dynamics, and resources of the planet, and examines man's use and misuse of finite resources. Major topics include rocks, minerals, and mining soils from a geologic perspective; surface and underground waters—their movement, origins, use and abuse; the atmosphere and its pollution; natural geological hazards such as landslides, earthquakes and faults; geothermal, tidal and other sources of energy; landforms and land use; wastes and their treatment; environmental action and the future. Labs include practical identification of minerals and rocks; topographic maps. *Hours of class per week: 2. Hours of lab per week: 2.*

**SC 144 The Ancient Earth**

**S 3 s.h.**

A look at the earth's history, ancient environments, and the fossil record. The dimension of time is a unifying theme that links the history and present state of the oceans; the fossil fuels - earth's savings bank; landscapes and their "evolution," fossilization and the "endangered species" of the past; the evolution and fossil record of invertebrates and fishes; the dinosaurs - when giants walked the earth; mammals, man and glaciers; the geological history of New York State and the Northeast. Labs include detailed study of the fossil record and nearby sedimentary rock sequences. *Hours of class per week: 2. Hours of*

*lab per week: 2.*

**SC 145 Environmental Geology**

**3 s.h.**

The course will explore the underlying processes behind all major geologic hazards such as volcanoes, landslides, earthquakes, floods, and hurricanes and their impact on humanity. In depth coverage will be given to tsunamis, meteorite impacts and subsidence. The distribution and human consumption of our natural resources will be discussed. *Hours of class per week: 2. Hours of lab per week: 2.*

**SC 146 Our Solar System**

**3 s.h.**

A survey of past evolution and the current state of our solar system, with emphasis on recent exploration by spacecraft will be studied. The course will examine the theories of formation of the solar system, the inner planets, the outer planets and the search for life in the solar system. Stress will be placed on the processes that have shaped the planets and their satellites. *Hours of class per week: 2. Hours of lab per week: 2.*

**SC 149 Geology of the Mohawk  
Valley**

**3 s.h.**

Geology of the Mohawk Valley will teach the basic principles of geology using local examples to illustrate. Topics of the course will include rocks and minerals, structures, sedimentation, erosion, glaciation and glacial geomorphology. Fossils of the Paleozoic and Cenozoic eras will be looked at. The course will make extensive use of field trips to teach both basic principles and unique geologic attractions. *Hours of class per week: 2. Hours of lab per week: 2.*

**SC 151 Physical Anthropology**

**3 s.h.**

An introductory course in physical anthropology. The course will begin with a study of evolutionary process and genetics. Such issues, as the definition of race, and culture will be discussed. The course will examine the fossil record in regard to human evolution. Labs will focus on genetics, human osteology, and paleoanthropology. *Hours of class per week: 2. Hours of lab per week: 2.*



**SC 161 Introduction to Physics I** F 3 s.h.  
**SC 162 Introduction to Physics II** S 3 s.h.

A two-part first course in physics intended for technology students and other non-science majors. The course uses lectures supported by laboratory investigation to achieve a hands-on, practical approach to understanding important physical laws of nature. Topics covered include quantitative methods for describing motion; the relationships between forces and motion; work, power, and energy; momentum methods for analysis of collisions and explosions; torque and rotational motion; vibrations and waves; sound; basic electricity and magnetism; electromagnetic waves; atoms and spectra; atomic nuclei and nuclear energy; geometric and wave optics; heat and thermodynamics; and fluid mechanics. *Prerequisites: High school algebra, MA 147 or equivalent, or permission of instructor. (SC 161 recommended, but not required to be taken before SC 162). Hours of class per week: 2. Hours of lab per week 3.*

**SC 170 Introductory Chemistry I** F 3 s.h.

A course emphasizing the role of chemistry in daily living suitable for the non-science major or for enhancing the background of a student whom is preparing for the upper-level course. Topics include measurement, dimensional analysis, basic atomic theory, chemical nomenclature, periodic behavior, stoichiometry. The course includes an original research paper on a chemical aspect of a topic selected by the student and approved by the instructor. *Hours of class per week: 2. Hours of lab per week: 3.*

**SC 171 Introductory Chemistry II** S 3 s.h.

A course designed for students having little or no chemistry background that seeks entrance into health related programs. Emphasis is placed on practical aspects of inorganic chemistry, a brief introduction to organic and biochemistry. Course lectures will be augmented by laboratory experimentation and technical report writing. *Hours of class per week: 2. Hours of lab per week: 3.*

**SC 181 Introduction to Environmental Science** 3 s.h.

A broad-based approach to environmental

relationships and issues emphasizing critical thinking and research techniques. The course focuses on four major areas: (1) what ecosystems are and how they work; (2) balancing needs and resources; (3) pollution of the soil and water; (4) seeking solutions to environmental problems. Not credited toward the Associate Degree science requirements but may be used for elective credit. *Prerequisites: None. (High-school Biology, Chemistry, Math recommended). Hours of class per week: 3.*

**SC 290 Special Topics in the Sciences** 1-3 s.h.

Discussion and analysis of a subject of current interest in the sciences not covered extensively in other science courses. Topics vary with each offering. Specific topics and credit hours are announced before pre-registration. The course may be repeated for credit, but prior topics may not be repeated for additional credit. *Prerequisite: Any SC, BI, CH, NR, or PH course; permission of the instructor. Hours of class per week: 1-3.*

**Social Sciences: History, Political Science,  
Psychology, Sociology**

**History**

**SS 183 Modern Western Civilization I** F 3 s.h.

The major emphasis of the course is on early modern Europe from the late Middle Ages into the 17th Century. Political, economic, social, and intellectual developments are covered for the major countries of Europe, as well as the relationships between those countries. *Hours of class per week: 3.*

**SS 184 Modern Western Civilization II** S 3 s.h.

A continuation of SS 183 from the 17th Century into the 20th Century with the same general concerns, in addition to world issues. SS 183 is not a prerequisite for this course. *Hours of class per week: 3.*

**SS 186 Black American History** 3 s.h.  
A study of the historical background of Africans in America and their contributions to and impact upon America. Emphasis on the last 100 years and the recent civil rights and Black Power movements. *Hours of class per week: 3.*

**SS 187 Origins of the American Revolution** 3 s.h.  
The course covers English history from the 16th into the 18th Century and undertakes an in-depth study of Colonial political, economic, and social-cultural developments to understand the positions of the two societies by 1775-1776 that resulted in the war. *Hours of class per week: 3.*

**SS 283 Survey of American History I F** 3 s.h.  
A survey of the political, social, and intellectual development of the United States from the Colonial period to Reconstruction. *Hours of class per week: 3.*

**SS 284 Survey of American History II** S 3 s.h.  
A continuation of SS 283 from Reconstruction to the present. Emphasis on the changing character of the American society and its role in international affairs. *Hours of class per week: 3.*

**SS 287 America Since 1945** F 3 s.h.  
An interdisciplinary study of the U.S. since 1945 using sociology, history, and political science data to examine major changes and trends. The course focuses on four major aspects of this period: 1) cultural—changes in norms, values, and personal behavior; 2) social—changes in the nature and functions of social institutions; 3) political—trends and changes as reflected in the presidential elections; 4) international—patterns in American social relations. *Hours of class per week: 3.*

**SS 293 Diplomatic History of the United States Before 1900** 3 s.h.  
This course examines the relations of the United States with foreign nations from the American Revolution until the Spanish-American War. *Hours of class per week: 3.*

**SS 295 Diplomatic History of the United States Since 1900** 3 s.h.  
A continuation of SS 293, studying American foreign relations from the turn of the century to the present. *Hours of class per week: 3.*

**SS 296 Israel: Biblical Period to 1948** 3 s.h.  
Major historical, political, social, and military developments from the time of Abraham to the emergence of the Modern State of Israel in 1948. Areas of concentration include the Biblical Period; Resistance against Greece and Rome; Life in the Diaspora; Rise of Jewish Nationalism; Growth of the Yishuv; Balfour Declaration and the British Mandate; Arab-Jewish Confrontation; Holocaust; Palestine in WW II; War of Independence; Mass Immigration. *Hours of class per week: 3.*

#### Political Science

**SS 278 International Relations** 3 s.h.  
This course examines the relations among nation-states as the end of the Cold War and the increasingly global economic market is redefining them. The study focuses on (a) the trends toward regionalization (the European Union, North American Free Trade Association, General Agreements on Tariffs and Trades); (b) the role that governments can still play in a global economy with transnational political structures; (c) the trend toward disintegration (Yugoslavia, the Soviet Union, Russia, and the U.S.); (d) immigration; (e) the role of international organizations; and (f) the position and role of the U.S. in the "new world order." *Hours of class per week: 3.*

**SS 279 The New Europe** 3 s.h.  
 After considering the crucial economic and military importance of Europe to the U.S., this course examines some of the recent trends and events that have transformed the political, economic, and social structures of this continent. The focus is on (a) the role Europe plays in the global competition with the U.S. and Japan; (b) the European Union and the continuing economic, social and political integration of its members; (c) the growing social similarities among Western Europeans; (d) voting and party trends; (e) the disintegration of the Soviet Empire and the new Eastern Europe; (f) immigration and asylum issues; and (g) Germany as a superpower. Students also learn about some of the social, labor, and education policies common to Western Europe. *Hours of class per week: 3.*

**SS 280 Public Policy** 3 s.h.  
 This course examines what governments do and don't do to deal with the perceived social problems of the nation. The study progresses in the following fashion: 1) an analysis of what "policy" is; 2) a comparison of the way liberals, conservatives, and radicals identify and define social issues and the role they believe the government should play in solving the problems; 3) an examination of the policy-making process; and 4) a discussion of the existing and possible alternative policies designed to deal with the issues related to crime, welfare, education, health, economic growth, and affirmative action. *Hours of class per week: 3.*

**SS 282 American Political System** 3 s.h.  
 The purpose of this study is to examine the various political and governmental structures that make up the American political system: political culture, constitutional arrangements, public opinion, pressure groups, political parties, elections, Congress, president, courts, and bureaucracy. The major theme of this study is the understanding that since the American political system was intentionally designed to make it difficult for any one individual or group to govern effectively, public policies are usually the results of compromises; hence, the final outcome is less than any one wishes. Hoping to make the student a realistic observer of the process, the course explores, then, how the "system" affects the relationship between the promises and the performances of elected officials. *Hours of class per week: 3.*

### Psychology

**SS 291 General Psychology** 3 s.h.  
 This course is intended to acquaint students with the discipline of psychology, the scientific study of behavior and mental processes. Given the complex nature of its subject matter, the topics addressed by psychologists are wide-ranging. They may include any of the following: the history and systems of psychology, the scientific method, the brain and nervous system, sensation and perception, states of consciousness, motivation and emotion, learning, problem-solving, life-span development, personality, social psychology, cultural diversity, adjustment, health psychology, mental illness, counseling and psychotherapy. *Hours of class per week: 3.*

**SS 292 Abnormal Psychology** 3 s.h.  
 A biological, psychosocial and sociocultural approach structured around the Diagnostic and Statistical Manual of Mental Disorders (Fourth Edition), (DSM-IV). The course stresses the nature, causes, and treatment of these maladaptive behaviors. It investigates historical information, clinical assessment, and biologically-based and psychologically-based therapies. *Prerequisite: SS 291. Hours of class per week: 3.*

**SS 297 Developmental Psychology** 3 s.h.  
A systematic examination of the patterns of development and behavior changes that occur during each of the principal stages of life: childhood, adolescence, adulthood, and old age. Attention is given to cultural and social, as well as genetic forces affecting human development. *Prerequisite: SS 291 or permission of instructor. Hours of class per week: 3.*

**SS 298 Child Development** 3 s.h.  
A study of the person from conception through adolescence, including cognitive, physical, emotional, moral, and social phases of development. *Prerequisite: SS 291 or permission of instructor. Hours of class per week: 3.*

**SS 384 Personality Theories** 3 s.h.  
A study of personality as a theoretical construct that includes an organized system of structures and processes. Major models and how they are derived are used to pursue basic concepts of personality. *Prerequisites: SS 291, 297 or permission of instructor. Hours of class per week: 3.*

### Sociology

**SS 180 Contemporary Issues & Problems** 3 s.h.  
This course examines major issues of concern to the American nation and the world generally, at the time the course is offered. The issues and problems include some that have troubled societies over a long period of time, such as poverty, mass education, racial tensions, power and privilege, and family dislocation, as well as issues that may be just emerging. The course, in addition to offering a survey of the problems, provides theoretical and/or conceptual frameworks to help the student understand the issues and problems in greater depth. *Hours of class per week: 3.*

**SS 264 Minority Groups in America** 3 s.h.  
This course examines the sociological concepts and principles that help determine the nature of intergroup relations, especially the outcomes of dominant-subordinate relationships. These concepts and principles are then applied to the American experiences of ethnic, religious and racial minority groups. *Prerequisite: None. (SS 281 recommended). Hours of class per week: 3.*

**SS 281 Introduction to Sociology** 3 s.h.  
An introductory course designed to acquaint the student with the study of sociology as one of the sciences that deals with man in his relationships with the members of his society and the world in which he lives. The methods and objectives of sociological research, the varying patterns of social organization, and the study of society in relation to individual and group behavior are major areas of study. *Hours of class per week: 3.*

**SS 285 Gender & Society** 3 s.h.  
The course explores being feminine and/or masculine in a contemporary world. The focus is on the social processes through which male and female biology are transformed and institutionalized into culture: i.e., gender or sex roles. The course investigates how gender norms are constructed, maintained, and challenged in language, personal relationships, popular culture, the family, education, work arrangements, and other social institutions. Emphasis is on a sociological analysis of gender issues, but also draw upon are on anthropology, biology, history, and psychology to gain a broader perspective. *Prerequisite: SS 281. (291 recommended). Hours of class per week: 3.*

**SS 294 The Sociology of Families F 3 s.h.**

An examination and analysis of marriage and family from an interdisciplinary perspective. The course attempts to communicate information, theories, and ideas about marriage and family as a social institution. It addresses such issues as cross-cultural variations of marital and family types, gender roles, love, mate selection, parenting, the challenges of combining work and marriage, communication in marriage, family crises such as violence and divorce, and factors behind lasting relationships. Students are encouraged to make connections between the course material and their own experiences. Students are also encouraged to develop their own questions and answers about marriage and family through assignments, class discussions, and presentations. *Prerequisite: SS 281 or permission of instructor. Hours of class per week: 3.*

**SS 382 Political Sociology 3 s.h.**

The course develops the application of sociological theory to the study of political systems, the process of adult and child political socialization, theories of assimilation and acculturation. It uses systems analysis as a method of explanation. *Hours of class per week: 3.*

**SS 386 Deviant Behavior and Social Control S 3 s.h.**

The course presents and analyzes a variety of definitions, concepts, and key theoretical perspectives in an effort to increase student knowledge and understanding of the multiple ways that deviant behavior may be defined, explained, and interpreted. Each perspective also offers suggestions for resolving the "problem" of deviant behavior in society. The course reviews such suggestions and weighs their respective advantages and disadvantages. It also analyzes (and applies these perspectives to) different forms of deviant behavior and conditions such as alcoholism, sexual deviance, crime, and delinquency. Students are encouraged to develop their own questions and answers about deviance through assignments, class discussions, and presentations. *Prerequisite: SS 281 or permission of the instructor. Hours of class per week: 3.*

**SS 387 Social Psychology 3 s.h.**

Human social behavior. A scientific attempt to understand and explain how the thought, feeling, and behavior of individuals are influenced by the actual, imagined, or implied presence of others. The study of people-loving, hating, working, helping, trusting, fighting, communicating. *Prerequisite: 3 credit hours of Sociology or Psychology. Hours of class per week: 3.*

**Interdisciplinary****SS 290 Special Topics in the Social Sciences 3 s.h.**

An examination, using the methodology of the social sciences, of a subject not covered extensively in other Social Science courses. Topics vary with each offering but frequently involve interdisciplinary and multicultural perspectives. Specific topics are announced before pre-registration. The course may be repeated for credit, but prior topics may not be repeated for additional credit. *Prerequisite: Any two SS courses. Hours of class per week: 3.*

**Surveying****SU 101 Surveying I 3 s.h.**

Surveying I is an elementary course in surveying. It includes fundamentals of plane surveying and emphasizes the use and care of leveling instruments. Linear measurements and theory and practice of leveling are studied in coordinated lecture and field work. *Course often meets at sites other than main campus. Students make their own transportation arrangements. Prerequisite: MA 142 or permission of instructor. Hours of class per week: 2. Hours of lab per week: 2.*

## Computer Technology

### TC 229 Electronics for Computer Technology 4 s.h.

The course covers all topics necessary for a fundamental background in electronics. Topics include solid state theory, device characteristics of a diode, clippers, clampers, rectifiers—half wave and full wave, power supply configurations, filtering, regulation, device characteristics of the transistor, base bias, voltage divider bias, other biasing circuits, small signal AC amplifiers, power amplifiers, the transistor as a switch, FETs, FET circuits, Op amps, and feedback. *Prerequisite: EL 125. Hours of class per week: 3. Hours of lab per week: 3.*

## Theater

### TH 101 Theater History 3 s.h.

The interactions of cultural, political, economic, and scientific forces with dramatic art and their implications for modern movements in dramatic theory and practice. Students trace the development of the theater from its beginnings to the present. The course focuses on European and American theater, with some attention to non-Western traditions. *Hours of class per week: 3.*

### TH 102 Stagecraft F 4 s.h.

The course provides students with theory and practice in the visual, aural, and construction facets of theater through attention to scenery, sound, and lighting equipment. Workshop is required. *Hours of class per week: 4.*

### TH 105 Fundamentals of Acting S 3 s.h.

The course studies movement and speech as aspects of dramatic art and provides exercises to enrich and discipline the imagination and to develop and control the responses of the body and speech to the imagination. It also entails some preliminary application of the elements of acting to the study of scenes, including analysis of the script for structure, objectives, and style. *Hours of class per week: 3.*

### TH 136 Introduction to Theater 3 s.h.

The course is intended as a survey to introduce students to theater as a technique apart from, although closely related to, literature. Students study acting techniques, stage devices, set design, costuming, and make-up. The student reads significant plays to consider drama as art, audience reactions and needs, methods of expression, and interpretation. The course requires textbooks and provides laboratory experience. *Hours of class per week: 3.*

### TH 201 Introduction to Theater Production F 3 s.h.

The course includes the fundamentals of directing, principles of design and organization, and management of theatrical production. *Prerequisite: Completion of or concurrent registration in EN 104 or permission of instructor. (TH 102 recommended). Hours of class per week: 3.*

### TH 202 Theater Seminar S 4 s.h.

Application of theater study to the challenges of theater practice. The course provides an intensive study of the components of theater in relation to actual productions; plays are produced and directed by seminar students. *Prerequisite: TH 201 or permission of instructor. Hours of class per week: 4.*

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