Computer Programs

www.laguardia.edu/majors

In 2008, the programs of the Computer Information Systems Department were reorganized. No program was eliminated. Programs were assigned to different academic departments. The program descriptions that follow indicate the new department to which the offerings are assigned.

All programs and options award students an Associate in Applied Science (AAS) degree, except for the Computer Science Program, which awards the Associate in Science (AS) degree and the Certificate in Digital Media Arts.

**Computer Science:**
Mathematics, Engineering and Computer Science Department

The major in Computer Science is appropriate for those students interested in mathematics and/or computer science who plan to transfer to a senior college for further study in computer science. Graduating students will be prepared for careers as programmers for business and/or scientific applications.

**Programming and Systems:**
Business and Technology Department

The Programming and Systems curriculum provides training for entry-level jobs as well as for transfer to a senior college as a business or information sciences major. Graduates of this program may qualify for positions as programmers or programmer trainees.

**Computer Operations:**
Mathematics, Engineering and Computer Science Department

The Computer Operations curriculum prepares students to operate computer equipment. After graduation, students will qualify for positions as input/output control clerks, computer operators, and console operators.

**Computer Operations - Computer Network Administration and Security Option:**
Mathematics, Engineering and Computer Science Department

This option will provide graduates with a thorough knowledge of network operating systems, thereby enabling graduates to support fully client/server environments. In addition, students will be prepared to take certification examinations in UNIX and Windows.

**Computer Technology:**
Mathematics, Engineering and Computer Science Department

This curriculum provides the skills needed for careers in a rapidly growing technical area. Students will be prepared for careers as field engineers specializing in microcomputer repair and network diagnosis. Students will be prepared to transfer to a bachelor of technology program at a senior college.

**Computer Technology - Telecommunications Option:**
Mathematics, Engineering and Computer Science Department

The option in Telecommunications provides students with skills for working in data switching centers, maintaining data lines, and repairing communication devices. In addition, students have the opportunity to plan advanced studies in teleprocessing and telecommunications. Students will be prepared to transfer to a bachelor of technology program at a senior college.

**New Media Technology:**
Humanities Department

The New Media Technology curriculum prepares students for varied careers in new media including webmaster, multimedia applications developer, Internet programmer, streaming video, and digital film producer. Students have a choice of specialization between Multimedia Design and Web Programming.
## Computer Science Curriculum: AS Degree

<table>
<thead>
<tr>
<th>Category</th>
<th>Courses</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td><strong>Counseling</strong></td>
<td>New Student Seminar</td>
<td>0</td>
</tr>
<tr>
<td><strong>English: 6 credits</strong></td>
<td>Composition I ENC/G101</td>
<td>3</td>
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<tr>
<td></td>
<td>Writing Through Literature ENG102</td>
<td>3</td>
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<tr>
<td><strong>Humanities: 3 credits</strong></td>
<td>Liberal Arts Elective*</td>
<td>3</td>
</tr>
<tr>
<td><strong>Math, Engineering &amp; Computer Science: 39 credits</strong></td>
<td>Introduction to Computer Science MAC101</td>
<td>4</td>
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<td></td>
<td>Object-Oriented Programming MAC190</td>
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<tr>
<td></td>
<td>BASIC Assembler Language for Computer Science MAC196</td>
<td>5</td>
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<td></td>
<td>Data Structures MAC286</td>
<td>3</td>
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<td></td>
<td>Computer Architecture MAC295</td>
<td>4</td>
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<tr>
<td></td>
<td>Calculus I MAT201</td>
<td>4</td>
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<tr>
<td></td>
<td>Calculus II MAT202</td>
<td>4</td>
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<tr>
<td></td>
<td>Calculus III MAT203</td>
<td>4</td>
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<tr>
<td></td>
<td>Linear Algebra MAT210</td>
<td>3</td>
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<tr>
<td></td>
<td>Introduction to Discrete Mathematical Structures MAT230</td>
<td>4</td>
</tr>
<tr>
<td><strong>Social Science: 3 credits</strong></td>
<td>Choose one of the following courses:**</td>
<td>3</td>
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<tr>
<td></td>
<td>Any history course except SSN183, SSN199, SSN240</td>
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<tr>
<td></td>
<td>Cultural Anthropology SSA101</td>
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<td></td>
<td>Introduction to Anthropology SSA100</td>
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<td></td>
<td>U.S. Power and Politics SSP101</td>
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<td></td>
<td>Political Ideas and Ideologies SSP250</td>
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<td></td>
<td>General Psychology SSY101</td>
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<td></td>
<td>Introduction to Sociology SSS100</td>
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<td></td>
<td>Introduction to Microeconomics SSE103</td>
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<tr>
<td></td>
<td>Introduction to Macroeconomics SSE104</td>
<td></td>
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<tr>
<td><strong>Business and Technology: 3 credits</strong></td>
<td>Introduction to Business BTM101</td>
<td>3</td>
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<tr>
<td><strong>Cooperative Education: 6 credits</strong></td>
<td>Fundamentals of Professional Advancement CEP121</td>
<td>3</td>
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<td></td>
<td>Full-Time Internship CEP201</td>
<td>3</td>
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<tr>
<td></td>
<td><em>(Both Day and Extended Day students are required to take CEP121. Extended Day students may take CEP201 or an unrestricted elective course.)</em></td>
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</tbody>
</table>

**TOTAL CREDITS: 60**

* Elective must satisfy the urban study requirement.

**For transfer to New York City College of Technology, General Psychology SSY101 is recommended.

**Note:** Students should consult with a counselor and/or faculty advisor in the selection of elective courses to ensure maximum transferability of credits taken.

## Programming and Systems Curriculum: AAS Degree

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<th>Category</th>
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<td>Writing Through Literature ENG102</td>
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<td><strong>Humanities: 3 credits</strong></td>
<td>Liberal Arts Elective*</td>
<td>3</td>
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<tr>
<td><strong>Math, Engineering &amp; Computer Science: 25 credits</strong></td>
<td>Precalculus MAT200</td>
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<td></td>
<td>Introduction to Visual Programming MAC109</td>
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<td></td>
<td>Systems Analysis and Design MAC110</td>
<td>3</td>
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<td></td>
<td>C/C++ Programming MAC125</td>
<td>3</td>
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<td></td>
<td>Comparative Operating Systems MAC230</td>
<td>3</td>
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<td></td>
<td>Database Concepts and Programming MAC250</td>
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<td></td>
<td>Introduction to Teleprocessing MAC260</td>
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<td></td>
<td>Any MAC or BTC course except BTC/SSD105</td>
<td>3</td>
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<tr>
<td><strong>Social Science: 3 credits</strong></td>
<td>Choose one of the following courses:**</td>
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<td></td>
<td>Introduction to Macroeconomics SSE104</td>
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<tr>
<td><strong>Business and Technology: 10 credits</strong></td>
<td>Principles of Accounting I BTA111</td>
<td>4</td>
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<tr>
<td></td>
<td>Introduction to Business BTM101</td>
<td>3</td>
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<tr>
<td></td>
<td>Introduction to Computers and Their Applications BTC100</td>
<td>3</td>
</tr>
<tr>
<td><strong>Cooperative Education: 6 credits</strong></td>
<td>Fundamentals of Professional Advancement CEP121</td>
<td>3</td>
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<td></td>
<td>Full-Time Internship CEP201</td>
<td>3</td>
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<tr>
<td></td>
<td><em>(Both Day and Extended Day students are required to take CEP121. Extended Day students may take CEP201 or an unrestricted elective course.)</em></td>
<td></td>
</tr>
<tr>
<td><strong>Liberal Arts Electives: 5 credits</strong></td>
<td>Any course in Communication Skills; Education and Language Acquisition; English; Human Services; Humanities; Library; Mathematics, Engineering, and Computer Science; Natural Sciences; Health Sciences; or Social Science EXCEPT when noted as unrestricted elective in DegreeWorks or College Catalog. See page 188 for these courses.</td>
<td>5</td>
</tr>
<tr>
<td><strong>Unrestricted Electives: 2 credits</strong></td>
<td>One elective must be urban study course. See page 189 for these courses.</td>
<td>2</td>
</tr>
</tbody>
</table>

**TOTAL CREDITS: 60**
Computer Operations Curriculum: AAS Degree

Counseling
New Student Seminar 0

English: 6 credits
Composition I ENC/G101 3
Writing Through Literature ENG102 3

Math, Engineering & Computer Science: 3 credits
Elementary Statistics MAT120 3

Social Science: 3 credits
Choose one of the following courses:* 3
Any history course except SSN183, SSN199, SSN240
Cultural Anthropology SSA101
Introduction to Anthropology SSA100
U.S. Power and Politics SSP101
Political Ideas and Ideologies SSP250
General Psychology SSY101
Introduction to Sociology SSS100
Introduction to Microeconomics SSE103
Introduction to Macroeconomics SSE104

Business and Technology: 10 credits
Principles of Accounting I BTA111 4
Introduction to Business BTM101 3
Introduction to Computers and Their Applications BTC100 3

Total Credits: 60

* For transfer to New York City College of Technology, General Psychology SSY101 is recommended.

Note: Students should consult with a counselor and/or faculty advisor in the selection of elective courses to ensure maximum transferability of credits taken.
COMPUTER OPERATIONS: COMPUTER NETWORK ADMINISTRATION AND SECURITY OPTION

Humanities: 3 credits
Select one of the following courses:
- Fundamentals of Speech Communication HUC101 3
- Communication in a Professional Setting HUC108 3

Math, Engineering & Computer Science: 22 credits
- Comparative Operating Systems MAC230 3
- UNIX Network Operating Systems MAC232 3
- Windows Network Operating System MAC233 3
- Network and Systems Security MAC245 3
- Advanced Network and Systems Security MAC246 3
- Computer Repair and Network Maintenance MAC293 4
Select one of the following courses:
- Advanced UNIX Administration MAC252 3
- Advanced Windows NT Administration MAC253 3

Cooperative Education: 6 credits
- Fundamentals of Professional Advancement CEP121 3
- Full-Time Internship CEP201 3
(Both Day and Extended Day students are required to take CEP121. Extended Day students may take CEP201 or an unrestricted elective course.)

Liberal Arts Electives: 7 credits
Any course in Communication Skills; Education and Language Acquisition; English; Human Services; Humanities; Library; Mathematics, Engineering, and Computer Science; Natural Sciences; Health Sciences; or Social Science EXCEPT when noted as unrestricted elective in DegreeWorks or College Catalog. See page 188 for these courses. 7

One elective must be urban study course. See page 189 for these courses.

TOTAL CREDITS: 60

Note: Students should consult with a counselor and/or faculty advisor in the selection of elective courses to ensure maximum transferability of credits taken.

New Media Technology/Media Studies Digital Media Arts Certificate

Humanities: 27 credits
- Introduction to New Media HUW112 3
- Principles of Multimedia and Web Design HUW161 3
- Web Animation and Interactivity HUW162 3
- Internet Video and DVD Development HUW163 3
- Introduction to Computer Art HUA125 3
- The Art of Film HUC150 3
- Video Production Workshop HUC240 3
- Video Production Workshop II HUC241 3
- American Film HUC270 3

Business and Technology: 3 credits
- Introduction to Computers and Their Applications BTC100 3

Elective: 3 credits
Select one of the following:
- Introduction to Web Development HUW166 3
- Music Audio Recording I HUM146 3

TOTAL CREDITS: 33
Computer Technology Curriculum: AAS Degree

**Counseling**
New Student Seminar 0

**English: 6 credits**
Composition I ENC/G101 3
Writing Through Literature ENG102 3

**Humanities: 3 credits**
Fundamentals of Speech Communication HUC101 3

**Math, Engineering & Computer Science: 28 credits**
Computer Electronics I MAC241 4
Computer Electronics II MAC242 3
Computer Hardware Interfacing and Programming MAC265 3
Computer Technology Project Lab MAC289 2
Computer Logic, Design and Implementation I MAC291 4
Computer Logic, Design and Implementation II MAC292 4
Computer Repair and Network Maintenance MAC293 4
Computer Architecture MAC295 4

**Cooperative Education: 6 credits**
Fundamentals of Professional Advancement CEP121 3
Full-Time Internship CEP201 3

(Both Day and Extended Day students are required to take CEP121. Extended Day students may take CEP201 or an unrestricted elective course.)

**TOTAL CREDITS: 60**

OR

**TELECOMMUNICATIONS OPTION**

**Math, Engineering & Computer Science: 27 credits**
Computer Electronics I Computer Architecture MAC241 4
Computer Electronics II MAC242 3
Internet Telephony MAC261 3
Data Communications MAC262 4
Network Operations MAC263 4

**Cooperative Education: 6 credits**
Fundamentals of Professional Advancement CEP121 3
Full-Time Internship CEP201 3

(Both Day and Extended Day students are required to take CEP121. Extended Day students may take CEP201 or an unrestricted elective course.)

Unrestricted Electives: 1 credit

**TOTAL CREDITS: 60**

Note: Students should consult with a counselor and/or faculty advisor in the selection of elective courses to ensure maximum transferability of credits taken.
New Media Technology Curriculum: AAS Degree

<table>
<thead>
<tr>
<th>Counseling</th>
<th>0</th>
</tr>
</thead>
<tbody>
<tr>
<td>New Student Seminar</td>
<td></td>
</tr>
</tbody>
</table>

**English: 6 credits**
- Composition I ENC/G101         | 3 |
- Writing Through Literature ENG102 | 3 |

**Humanities: 15 credits**
- Introduction to Design HUA104 | 3 |

**Math, Engineering & Computer Science: 3 credits**
- Elementary Statistics I MAT120 | 3 |

**Social Science: 3 credits**
*Choose one of the following courses:*  
- Any history course except SSN183, SSN199, SSN240 | 3 |
- Introduction to Anthropology SSA100 |
- Cultural Anthropology SSA101 |
- Introduction to Microeconomics SSE103 |
- Introduction to Macroeconomics SSE104 |
- U.S. Power and Politics SSP101 |
- Political Ideas and Ideologies SSP250 |
- Introduction to Sociology SSS100 |
- General Psychology SSY101 |

**Business and Technology: 3 credits**
- Introduction to E-Business BTM116 | 3 |

**Humanities (New Media Courses): 18 credits**
- Introduction to New Media HUW112 | 3 |
- Principles of Multimedia and Web Design HUW161 | 3 |
- Web Animation and Interactivity HUW162 | 3 |
- Internet Video and DVD Development HUW163 | 3 |
- Introduction to Web Development HUW166 | 3 |
- New Media Project Lab HUW269 | 3 |

**Humanities (New Media Elective Courses): 9 credits**
*Select three of the following courses:*  
- Computer Art I HUA125 | 9 |
- Computer Art II HUA126 |
- Video Production Workshop I HUC240 |
- Video Production Workshop II HUC242 |
- Music Audio Recording HUM146 |
- E-Commerce Technology HUW111 |
- Topics in New Media HUW160 |
- Internet Game Design HUW165 |
- Dynamic Web Design HUW167 |
- Advanced Dynamic Web Design HUW168 |

**Cooperative Education: 6 credits**
- Fundamentals of Professional Advancement CEP121 | 3 |
- Full-Time Internship CEP201 | 3 |

(Both Day and Extended Day students are required to take CEP121. Extended Day students may take CEP201 or an unrestricted elective course.)

**Liberal Arts Electives: 9 credits**
- Mass Communication and Society HUC130 | 3 |
- Select one of the following courses:  
  - Art of Film HUC250 | 3 |
  - American Film HUC270 |
  - Urban Study Elective*** | 3 |

**TOTAL CREDITS: 60**

* For transfer to New York City College of Technology, General Psychology SSY101 is recommended.

** Students selecting the Web Design cluster should consider additional art courses such as HUA165 or HUA166.

*** Students selecting the Web Programming cluster should consider an additional mathematics course such as MAT200.

**** HUN196 is recommended.

Note: Students should consult with a counselor and/or faculty advisor in the selection of elective courses to ensure maximum transferability of credits taken.