Course Catalog

College of Computing and Digital Media Undergraduate Studies

Summer/Autumn 2009-2010
## Table of Contents

Table of Contents .................................................. 2
General Information ................................................. 4
  Catalog Version .................................................. 4
College of Computing and Digital Media (CDM) .................. 5
  About the College .............................................. 5
  Administration .................................................. 5
  Student Services ............................................... 5
  Facilities ....................................................... 6
  Admission ....................................................... 6
  Academic Advisement ......................................... 7
  Professional Development ..................................... 7
  Transfer Credit ................................................ 8
  Grades and Credit Hours Requirements ....................... 9
  Minors ......................................................... 9
Programs in CDM .................................................. 16
  Current Degree Descriptions ................................ 16
School of Computing (SoC) ........................................ 17
  About the School of Computing .............................. 17
  Faculty ......................................................... 17
  Liberal Studies Program and Modern Language Option .... 21
  CDM Liberal Studies Courses ................................. 21
  Combined Bachelor/Master Degrees ......................... 29
  Minors ......................................................... 30
  Bachelor of Arts Degree Programs ......................... 36
    Computing (Joint with SNL) ................................ 36
    Information Technology .................................... 37
  Bachelor of Science Degree Programs ....................... 39
    Computer Games Development (Joint with CIM) .......... 39
    Computer Graphics and Motion Technology (Joint with CIM) 42
    Computer Science .......................................... 48
    Information Assurance and Security Engineering ....... 53
    Information Systems ....................................... 55
    Information Technology .................................... 56
    Interactive Media (Joint with CIM) ....................... 58
    Mathematics / Computer Science (Joint with LA&S) ... 60
    Network Technologies ...................................... 64
School of Cinema and Interactive Media (CIM) .................. 69
  About the School of Cinema and Interactive Media ....... 69
  Faculty ......................................................... 69
  Liberal Studies Program and Modern Language Option .... 70
  CDM Liberal Studies Courses ................................. 71
  Combined Bachelor/Master Degrees ......................... 78
  Minors ......................................................... 79
  Bachelor of Arts Degree Programs ......................... 86
    Animation .................................................. 86
    Digital Cinema .............................................. 88
Bachelor of Science Degree Programs

Animation .......................................................... 90
Computer Games Development (Joint with SoC) .... 92
Computer Graphics and Motion Technology (Joint with SoC) ................................................................ 100
Digital Cinema ......................................................... 107
Interactive Media (Joint with SoC) ......................... 108

Special Programs ..................................................... 111

Minors .................................................................. 111
Professional Development .................................... 117
Combined Bachelor/Master Degrees ..................... 118

Courses ................................................................ 120

Courses ................................................................ 120
General Information

Catalog Version

Undergraduate Update: April 15, 2009
Please use the menu items to the left for current catalog navigation. Access archived catalogs by choosing the link to the right.
About the College

DePaul's College of Computing and Digital Media (CDM) is organized into two schools: the School of Computing (SoC) and the School of Cinema and Interactive Media (CIM) featuring 16 degree programs designed to keep pace with the latest developments in technology while remaining grounded in the liberal arts and sciences. As one of the largest IT programs in the nation, DePaul CDM has a reputation for offering an extraordinary selection of degree programs and courses from traditional computer science, information systems, and network technologies to game development, digital cinema, and our newest undergraduate program in animation. At CDM, students will experience a dynamic interdisciplinary curriculum and the opportunity to explore their academic curiosity through 18 minor concentrations that reflect the diverse offerings of CDM's majors.

Administration

DAVID MILLER, Ph.D.
Dean

LUCIA DETTORI, Ph.D.
Associate Dean

MARTIN KALIN, Ph.D.
Associate Dean

LIZ FRIEDMAN, Ph.D.
Assistant Dean of Student Services

MARGIE MARTYN, Ph.D., CCNA
Assistant Dean of Academic Administration

Student Services

Advising Staff

JOHN GLATZ
Director of Advising

CARRIE JODELKA
Academic Advisor
Facilities

DePaul University maintains an extensive technological infrastructure which is available for students, faculty and staff. In addition, many schools and departments maintain their own resources dedicated for use by their own constituents.

The College of CDM itself operates specialized laboratories in the following:

- Requirements Engineering Lab
- Mobile Commerce Lab
- Solid Objects and Graphics Lab
- Animation Lab
- Network Security Lab
- Game Development Lab
- Console Gaming Lab
- Digital Cinema Advanced Editing Lab
- High Definition Editing Suite
- Medical Informatics Lab
- Digital Cinema Studio
- Usability Testing Lab
- Intelligent Multimedia Processing Lab
- Supercomputing Cluster Lab
- Software Research Lab
- Multimedia Networking Lab
- Centre for Web Intelligence
- E-Commerce Technology Lab

Admission

First Year Student Applicants

Deadlines And Requirements

1. We recommend you apply by November 15th for Early Action Program admission. The regular submission deadline for all materials is February 1st. Applications are considered on a space available basis until August 15th by rolling notification.
2. Either the SAT or ACT is required. If your ACT or SAT scores do not appear directly on
Either the SAT or ACT is required. If your ACT or SAT scores do not appear directly on your high school transcript, request the testing agency to forward a score report to De Paul, if you have not already done so. Our college code number for ACT is 1012 and for SAT is 1165.

3. If you have earned college credit while in high school, request the college or Advanced Placement service which granted you credit to forward your official record to De Paul.

4. Send all materials to:

   Office of Admission
   1 E. Jackson Blvd.
   Chicago, IL 60604

NOTE: If you have ever enrolled in another college or university (regardless if you earned any credit) after high school graduation, please fill out the Transfer Student application.

Transfer Student Applicants

Transfer students (under age 24) who currently attend another college/university and plan to complete a baccalaureate degree at De Paul should complete and submit this application, the $40 application fee ($25 if you apply online) and official transcripts from every college/university attended. Students who have earned fewer than 30 semester (44 quarter) hours of transferable college work at the time of application submission must additionally provide an official high school transcript and an ACT/SAT score report. If you are currently in college, please indicate (on a separate sheet of paper) what courses you will be enrolled in for the current term or for a future term. (Example: Eng 101/English Composition I - 3 semester hours.)

Note: Students educated outside the United States or with international credit, and students with F1 or J1 visa status should apply for admission a minimum of two months before the beginning of the desired quarter using the application for international student admission.
gaining practical experience through a combination of lectures and demonstrations complemented by laboratory exercises and homework assignments. Certificate programs are typically taught by a team of instructors, that includes both full-time faculty and part-time instructors from industry. The programs require a substantial commitment of time, as most meet two nights per week and in the morning on approximately half of the Saturdays during the program.

For application and registration information pertaining to the certificate programs offered by the Institute for Professional Development, please call the Institute office at (312) 362-6282.

Current certificate program offerings include:

**IPD 359  Web Development with Python Program**
A 5-week program covering Web development with the Python programming language.

**IPD 360/460  SQL Server Business Intelligence Program**
An 11-week in-depth program covering SQL Server analysis services, integration services, and reporting services

**IPD 363  SQL Server Database Administration Program**
An 11-week in-depth program covering database administration using SQL Server

**IPD 364  Lightweight Java Web Development Program**
An 8-week comprehensive program covering open-source, lightweight Java enterprise Web development using POJOs (Plain Old Java Objects)

**IPD 365  Ruby on Rails Program**
A 7-week in-depth program covering Web development using Ruby on Rails

**IPD 366  Java Web Services Program**
A 7-week concentrated program covering service-oriented architecture and the development of Web services using Java

**IPD 370  Advanced SQL Program**
A 2-week program covering advanced Structured Query Language (SQL) features

**IPD 380  IT Project Management Program**
A 10-week comprehensive program covering best practices in IT project management

**IPD 382  Java Developer Program**
A 10-week comprehensive program covering object-oriented applications development using Java

**IPD 389  .NET Developer Program**
A 10-week comprehensive program covering .NET technologies

**IPD 392  Telecommunications Program**
An 11-week intensive program focusing on the configuration, implementation and ongoing support of telecommunications systems and networks

**IPD 394  Java EE Developer Program**
A 10-week in-depth program covering enterprise-wide applications development using Java EE

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**Transfer Credit**

Prospective students may transfer credit from an accredited college to DePaul University. All transfer credit will be initially evaluated by an Admission counselor; final course placement will be made by an
academic advisor in the College of Computing and Digital Media (CDM). For specific information governing transfer admission and evaluation of credit, please consult the DePaul University Undergraduate Transfer webpage. Current CDM students may take courses at another accredited college either in the summer or during the regular school year and transfer the credit back to DePaul University only with prior approval from the students academic advisor.

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**Grades and Credit Hours Requirements**

**GRADES**

Students must earn grades of C or above in all courses taken for credit in the major field. Grades of C- may be accepted for major field credit provided the overall grade point average within the major is 2.0 or above. All other courses require grades of D or better.

**CREDIT HOURS**

All students must complete a minimum of 192 quarter hours of college credit.

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**Minors**

A minor is a combination of courses that provides a cohesive introduction to an area of study. Typically, courses taken to satisfy minor field requirements are credited as open electives; however, there are some instances where minor field courses may be used for credit in other areas of the students curriculum. Grades for all courses, taken to fulfill a minor field requirement must be C or above. Grades of C- may be accepted for credit in the minor provided the minor GPA is 2.0 or above. A minimum of one-half of the courses required for a minor must be completed at DePaul University.

**MINORS IN THE COLLEGE OF COMMERCE**

Students enrolled in the College of Computing and Digital Media (CDM) may obtain a minor in Accounting, Business Administration, E-Business, Economics, Management, MIS, Marketing, and Pre-MBA. Please see the College of Commerce Section for Minor Requirements.

**MINORS IN THE COLLEGE OF LIBERAL ARTS AND SCIENCES**

Students enrolled in the College of Computing and Digital Media (CDM) may obtain a minor through the College of Liberal Arts and Sciences. Most Liberal Arts and Science departments offer minor concentrations of study. In general, a minor in a Liberal Arts and Sciences discipline consists of a set of introductory courses plus another set of more specialized courses. Most minors require six courses, some of which may also be used for credit in the Liberal Studies Program. For a complete list of minors offered through the College of Liberal Arts and Sciences, please consult that section of this online Bulletin.

**MINORS IN THE COLLEGE OF COMPUTING AND DIGITAL MEDIA**

Computer technology is an omnipresent part of our world, used in academic disciplines from physics to history to geography. **CDM offers several minors that will appeal to all DePaul University students.**
**Political science** and **geography** majors can pursue a minor in Data Analysis, Databases, or Data Visualization, which is important to understanding how to analyze census or GPS data.

**Communications** majors may be interested in Digital Cinema which will give you skills in creating videos for advertising.

**Art** majors interested in a career in graphics programming, animation or design may be interested in CDM’s tech-focused minors in Animation or Computer Graphics Software Development.

An academic foundation in E-Commerce Technology, Networks or Information Systems can give **Commerce** students an edge in a tough job market.

There are other examples too numerous to mention. So if you have questions or want advice on what minor is best for you, can email our CDM Undergraduate Services team: gocdm@cdm.depaul.edu or call them at: 312-362-8714.

**Policies for Academic Minors**

Students must:

1. earn at least a grade of C- in each minor course and a GPA of no less than 2.0 for all courses in the minor;
2. earn at least a cumulative GPA of 2.0 for all courses applied to the minor;
3. not select the pass/fail option for courses in the minor
4. meet the following residency requirement: no more than 50% of the requirements of a minor may be fulfilled by transfer credits, AP credit, IB credit of CLEP credit.

Finally, students cannot earn a minor in their major program. Courses required to fulfill a minor are determined by the unit in which the minor resides.

**CDM Minors for CDM Students**

To obtain a minor in CDM when the major is also in CDM:

1. Satisfy all requirements for the major
2. Satisfy all requirements for the minor
3. Students must take at least 6 courses in the minor area that do not count towards their CDM major

**Note:** If you have already taken some of the courses listed under your minor on this page, work with your advisor to choose other courses within the same program area, ie. NT minor would look under NT major courses and Computer Graphics Software Development would look under Computer Graphics Courses, in order to have 6 distinct courses.
CDM Minor Requirements

Animation Minor

ANI 101  Animation for Non-Majors
or ANI 201 (not both)  Animation I
ANI 230  3D Modeling
ANI 231  3D Animation
ANI 206  History of Animation

3 courses from the following list: (at least 1 must be ANI)
DC 201  Introduction to Screenwriting
DC 210  Digital Cinema Production I
DC 220  Editing I
Any ANI course

Computer Graphics Software Development Minor

Liberal Studies
GPH 211  Perceptual Principles for Digital Environments I
GPH 212  Perceptual Principles for Digital Environments II

Course Requirements
CSC 261  Programming Languages I: C/C++
CSC 262  Programming Languages II: C/C++
CSC 393  Data Structures in C++
GPH 329  Computer Graphics Development II
GPH 339  Advanced Rendering Techniques
GPH 372  Principles of Computer Animation

Computer Science Minor

CSC 241  Introduction to Computer Science I
and CSC 242  Introduction to Computer Science II
and CSC 224  Java for Programmers
or
CSC 211  Programming in Java I
and CSC 212  Programming in Java II
and CSC 309  Object-Oriented Programming in C++
or
CSC 261  Programming Languages I: C/C++
and CSC 262  Programming Languages II: C/C++
and CSC 224  Java for Programmers
CSC 393  Data Structures in C++
or CSC 383  Data Structures and Algorithms in Java
MAT 140  Discrete Mathematics I
CSC 373  Computer Systems I
CSC 374  Computer Systems II

Data Analysis and Data Mining Minor

IT 240  Introduction to Desktop Databases
IT 223  Data Analysis
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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</thead>
<tbody>
<tr>
<td>CSC 324</td>
<td>Data Analysis and Statistical Software II</td>
</tr>
<tr>
<td>CSC 367</td>
<td>Introduction to Data Mining</td>
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<tr>
<td>CSC 334</td>
<td>Advanced Data Analysis</td>
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<td><strong>2 CDM Electives</strong></td>
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<tr>
<td></td>
<td><strong>Database Minor</strong></td>
</tr>
<tr>
<td>CSC 211</td>
<td>Programming in Java I</td>
</tr>
<tr>
<td><strong>and</strong> CSC 212</td>
<td>Programming in Java II</td>
</tr>
<tr>
<td>IT 223</td>
<td>Data Analysis</td>
</tr>
<tr>
<td>IT 240</td>
<td>Introduction to Desktop Databases</td>
</tr>
<tr>
<td>CSC 352</td>
<td>Database Programming</td>
</tr>
<tr>
<td>CSC 367</td>
<td>Introduction to Data Mining</td>
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<td></td>
<td><strong>1 CDM Elective</strong></td>
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<tr>
<td></td>
<td><strong>Data Visualization Development Minor</strong></td>
</tr>
<tr>
<td>GPH 211</td>
<td>Perceptual Principles for Digital Environments I</td>
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<tr>
<td>GPH 212</td>
<td>Perceptual Principles for Digital Environments II</td>
</tr>
<tr>
<td></td>
<td><strong>Course Requirements</strong></td>
</tr>
<tr>
<td>CSC 261</td>
<td>Programming Languages I: C/C++</td>
</tr>
<tr>
<td>CSC 262</td>
<td>Programming Languages II: C/C++</td>
</tr>
<tr>
<td>CSC 323</td>
<td>Data Analysis</td>
</tr>
<tr>
<td>CSC 393</td>
<td>Data Structures in C++</td>
</tr>
<tr>
<td>GPH 329</td>
<td>Computer Graphics Development II</td>
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<tr>
<td>GPH 372</td>
<td>Principles of Computer Animation</td>
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<tr>
<td>GPH 380</td>
<td>Visualization</td>
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<td></td>
<td><strong>Digital Cinema Minor</strong></td>
</tr>
<tr>
<td>DC 205</td>
<td>Foundations of Cinema</td>
</tr>
<tr>
<td>DC 225</td>
<td>Digital Still Photography</td>
</tr>
<tr>
<td>DC 201</td>
<td>Introduction to Screenwriting</td>
</tr>
<tr>
<td>DC 220</td>
<td>Editing I</td>
</tr>
<tr>
<td></td>
<td><strong>3 courses from the following list:</strong></td>
</tr>
<tr>
<td>ANI 101</td>
<td>Animation for Non-Majors</td>
</tr>
<tr>
<td>DC 210</td>
<td>Digital Cinema Production I</td>
</tr>
<tr>
<td>DC 270</td>
<td>Topics in Digital Cinema</td>
</tr>
<tr>
<td>GAM 224</td>
<td>Introduction to Game Design</td>
</tr>
<tr>
<td>DC 215</td>
<td>Digital Sound Design</td>
</tr>
<tr>
<td>DC 275</td>
<td>Cinematography</td>
</tr>
<tr>
<td>DC 310</td>
<td>Digital Cinema Production II</td>
</tr>
<tr>
<td>DC 320</td>
<td>Editing II</td>
</tr>
<tr>
<td>DC 389</td>
<td>The Big Picture: The Entertainment Industry</td>
</tr>
<tr>
<td></td>
<td><strong>E-Commerce Technology Minor</strong></td>
</tr>
<tr>
<td>IT 130</td>
<td>The Internet and the Web</td>
</tr>
<tr>
<td>CSC 211</td>
<td>Programming in Java I</td>
</tr>
</tbody>
</table>
CSC 212  Programming in Java II  
IT 230  Building Internet Applications  
ECT 330  Advanced Internet Application Development  
IM 210  Introduction to Human-Computer Interaction  

1 course from the following list:  
ECT 355  Internet Systems: Collaboration, Commerce, and Media  
ECT 360  Introduction to XML  
ECT 365  Web Server Operations  

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
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<tbody>
<tr>
<td>DC 201</td>
<td>Introduction to Screenwriting</td>
</tr>
<tr>
<td>ANI 105</td>
<td>Intro to Visual Design</td>
</tr>
<tr>
<td>ANI 101</td>
<td>Animation for Non-Majors</td>
</tr>
<tr>
<td>or ANI 201</td>
<td>Animation I</td>
</tr>
<tr>
<td>ANI 230</td>
<td>3D Modeling</td>
</tr>
<tr>
<td>GAM 224</td>
<td>Introduction to Game Design</td>
</tr>
<tr>
<td>GAM 244</td>
<td>Game Development I</td>
</tr>
<tr>
<td>GAM 245</td>
<td>Game Development II</td>
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<tr>
<th>Course</th>
<th>Title</th>
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<tbody>
<tr>
<td>GAM 224</td>
<td>Introduction to Game Design</td>
</tr>
<tr>
<td>GAM 244</td>
<td>Game Development I</td>
</tr>
<tr>
<td>GAM 245</td>
<td>Game Development II</td>
</tr>
<tr>
<td>GAM 374</td>
<td>Action Games Programming</td>
</tr>
</tbody>
</table>

2 courses from the following list:  
ANI 230  3D Modeling  
GPH 321  Computer Graphics Development I  
GPH 329  Computer Graphics Development II  
GPH 350  Digital Modeling II  
Any other 300-Level GAM or GPH course  

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
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<tbody>
<tr>
<td>IM 210</td>
<td>Introduction to Human-Computer Interaction</td>
</tr>
<tr>
<td>IM 220</td>
<td>Interactive Media I</td>
</tr>
<tr>
<td>IM 230</td>
<td>Scripting for Interactive Media</td>
</tr>
<tr>
<td>IM 270</td>
<td>User-centered Web Design</td>
</tr>
</tbody>
</table>

3 courses from the following list:  
IM 320  Interactive Media II  
IM 330  Advanced Scripting for Interactive Media  
IM 360  User-Centered Evaluation  
ANI 101| Animation for Non-Majors                   |
| ANI 105| Intro to Visual Design                     |
| ART 260| Art and Design I: History,Concept,Structure|
| ART 264| Typography I                               |
| DC 205 | Foundations of Cinema                      |
| GAM 244| Game Development I                         |
| IT 130 | The Internet and the Web                   |
| IT 230 | Building Internet Applications             |
### Information Systems Minor

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
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<tbody>
<tr>
<td>CSC 211</td>
<td>Programming in Java I</td>
</tr>
<tr>
<td>IT 230</td>
<td>Building Internet Applications</td>
</tr>
<tr>
<td>IT 240</td>
<td>Introduction to Desktop Databases</td>
</tr>
<tr>
<td>IT 130</td>
<td>The Internet and the Web</td>
</tr>
<tr>
<td>IT 201</td>
<td>Introduction to Information Systems</td>
</tr>
<tr>
<td>IT 215</td>
<td>Analysis and Design Techniques</td>
</tr>
<tr>
<td>IM 210</td>
<td>Introduction to Human-Computer Interaction</td>
</tr>
</tbody>
</table>

1 course from the following list:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
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<tbody>
<tr>
<td>IS 371</td>
<td>Introduction to L.T. System Management</td>
</tr>
<tr>
<td>IS 372</td>
<td>Fundamentals of Software Project Management</td>
</tr>
<tr>
<td>IS 373</td>
<td>Introduction to Large Systems Implementation</td>
</tr>
<tr>
<td>IS 374</td>
<td>Management Support Systems</td>
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</tbody>
</table>

### Information Technology Minor

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
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<tbody>
<tr>
<td>IT 130</td>
<td>The Internet and the Web</td>
</tr>
<tr>
<td>IT 130</td>
<td>Building Internet Applications</td>
</tr>
<tr>
<td>IT 240</td>
<td>Introduction to Desktop Databases</td>
</tr>
<tr>
<td>TDC 361</td>
<td>Basic Communication Systems</td>
</tr>
<tr>
<td>or IT 263</td>
<td>Applied Networks and Security</td>
</tr>
<tr>
<td>IT 215</td>
<td>Analysis and Design Techniques</td>
</tr>
</tbody>
</table>

1 CDM Elective

### Network Technology Minor

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
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<tbody>
<tr>
<td>CSC 211</td>
<td>Programming in Java I</td>
</tr>
<tr>
<td>or CSC 261</td>
<td>Programming Languages I: C/C++</td>
</tr>
<tr>
<td>CSC 212</td>
<td>Programming in Java II</td>
</tr>
<tr>
<td>or CSC 262</td>
<td>Programming Language II: C/C++</td>
</tr>
<tr>
<td>IT 201</td>
<td>Introduction to Information Systems</td>
</tr>
<tr>
<td>IT 263</td>
<td>Applied Networks and Security</td>
</tr>
<tr>
<td>TDC 362</td>
<td>Principles of Data Communication</td>
</tr>
<tr>
<td>TDC 363</td>
<td>Introduction to Local Area Networks</td>
</tr>
<tr>
<td>TDC 365</td>
<td>Network Interconnection Technologies</td>
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</tbody>
</table>

### Screenwriting

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
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</thead>
<tbody>
<tr>
<td>DC 201</td>
<td>Introduction to Screenwriting</td>
</tr>
<tr>
<td>DC 205</td>
<td>Foundations of Cinema</td>
</tr>
<tr>
<td>DC 301</td>
<td>Advanced Screenwriting I</td>
</tr>
<tr>
<td>DC 302</td>
<td>Advanced Screenwriting II</td>
</tr>
<tr>
<td>DC 303</td>
<td>Advanced Screenwriting III</td>
</tr>
<tr>
<td>DC 304</td>
<td>Topics in Screenwriting</td>
</tr>
</tbody>
</table>

### Security Minor

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
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<tbody>
<tr>
<td>CSC 211</td>
<td>Programming in Java I</td>
</tr>
<tr>
<td>and CSC 212</td>
<td>Programming in Java II</td>
</tr>
<tr>
<td>or CSC 261</td>
<td>Programming Language I: C/C++</td>
</tr>
<tr>
<td>and CSC 262</td>
<td>Programming Language II: C/C++</td>
</tr>
</tbody>
</table>
CSC 233  Codes and Cyphers
or CSC 333  Cryptology
CNS 378  Host and Information Security
CNS 320  Computer Forensic and Incident Response
CNS 228  Legal, Ethical and Social Issues in Information Security
CNS 340  Fundamentals of Information Assurance

Software Engineering Minor
CSC 261  Programming Languages I: C/C++
and CSC 262  Programming Languages II: C/C++
and CSC 224  Java for Programmers
or CSC 241  Introduction to Computer Science I
and CSC 242  Introduction to Computer Science II
and CSC 224  Java for Programmers
or CSC 211  Programming in Java I
CSC 212  Programming in Java II
and then CSC 383  Data Structures and Algorithms in Java
SE 325  Principles and Practices of Software Engineering
SE 330  Object-Oriented Modeling
SE 350  Object-Oriented Software Development

Visual Computing Minor
MAT 140  Discrete Mathematics I
or MAT 220  Linear Algebra with Applications
or 1 quarter of Calculus (Prerequisite for CSC 381)
IT 223  Data Analysis (Prerequisite for CSC 367)
CSC 381  Introduction to Digital Image Processing
CSC 382  Applied Image Analysis
CSC 384  Introduction to Computer Vision
CSC 367  Introduction to Data Mining (IT 223 requirement)
Programs in CDM

Current Degree Descriptions

Bachelor of Science Degree Programs

School of Computing
- Computer Game Development (joint with CIM)
- Computer Graphics and Motion Technology (joint with CIM)
- Computer Science
- Information Assurance and Security Engineering
- Information Systems
- Information Technology
- Interactive Media (joint with CIM)
- Math & Computer Science (joint with LA & S)
- Network Technologies

School of Cinema and Interactive Media
- Animation
- Computer Game Development (joint with SoC)
- Computer Graphics and Motion Technology (joint with SoC)
- Digital Cinema
- Interactive Media (joint with SoC)

Bachelor of Arts Degree Programs

School of Cinema and Interactive Media
- Animation
- Digital Cinema

School of Computing
- Computing (joint with SNL)
- Information Technology

Combined Bachelor/Master Degree Programs

Professional Development Programs

Minors
School of Computing (SoC)

About the School of Computing

The School of Computing (SoC) houses CDM's technical degrees. With an emphasis on the theoretical as well as practical, students can earn degrees that prepare them for work in computing, programming, data storage, information processing, network security, software development, and computer graphics and motion technology.

Faculty

DAVID MILLER, Ph.D.
Dean
University of Chicago

OLAYELE ADELAKUN, Ph.D.
Associate Professor
Turku School of Economics & Business Adm.

EHAB AL-SHAER, Ph.D.
Associate Professor
Old Dominican University

GARY ANDRUS, Ph.D.
Associate Professor
Wayne State University

ANDRE BERTHIAUME, Ph.D.
Associate Professor
University of Montreal

GIAN MARIO BESANA, Ph.D.
Associate Professor
University of Notre Dame

GREGORY BREWSTER, Ph.D.
Associate Professor
University of Wisconsin, Madison

ROBIN BURKE, Ph.D.
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Northwestern University

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University of Oxford

DANIELA RAICU, Ph.D.
Associate Professor
Oakland University

JAMES RIELY, Ph.D.
Associate Professor
University of North Carolina at Chapel Hill

JOHN ROGERS, Ph.D.
Associate Professor
University of Chicago

MARCUS SCHAEFER, Ph.D.
Associate Professor
University of Chicago

ERIC SCHWABE, Ph.D.
Associate Professor
Massachusetts Institute of Technology
ERIC SEDGWICK, Ph.D.
Associate Professor
University of Texas

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Associate Professor
University of California at Los Angeles

NORIKO TOMURO, Ph.D.
Associate Professor
DePaul University

CURT WHITE, Ph.D.
Associate Professor
Wayne State University
Liberal Studies Program and Modern Language Option

The Liberal Studies Program is the common curriculum taken by all students in the seven undergraduate colleges of DePaul University. Overall, the Program is designed to develop students' writing abilities, computational and technological proficiencies, and critical and creative thinking skills.

Each major in the University has unique Liberal Studies requirements.

Please consult the Liberal Studies catalog for your relevant requirements as a CDM student as well as for information about the Modern Language Option.

CDM Liberal Studies Courses

Have you ever been interested in learning how to create interactive web environments, put together computer animation, or do you want to know more about codes and ciphers as featured in the movies Enigma or Windtalkers? Then CDM has some great courses for you! CDM offers dozens of courses in many domains of the Liberal Studies Program. You can experiment with computer graphics, programming and e-commerce technology and fulfill a requirement at the same time. Many of these courses also serve as gateway courses into more advanced CDM courses. Who knows, you might just like it and want to come back for more!

If you have a specific interest, in something like how the Internet functions, you can click here for a list of courses by topic.

CDM Liberal Studies Courses for CDM students

-Rule 1-
A CDM student can take any CDM course approved for liberal studies credit and use it to satisfy a domain of the liberal studies program (LSP) provided:

1. The course is **NOT** required as part of the students major

   **EXAMPLES:**
• a Computer Graphics and Motion Technology (CGMT) student cannot use GPH 211 to satisfy the arts and literature requirement of LSP, as GPH 211 is required by all CGMT tracks.
• An E-Commerce Technology (ECT) major CAN take GPH 211 to satisfy the arts and literature requirement of the LSP

2. The course qualifies for a liberal studies program domain that IS required by the students major

EXAMPLES:
• a Computer Science (CS) student CAN take GPH 259 to satisfy the Scientific Inquiry (SI)-Quantitative-Lab requirement of LSP because the course is not required by the CS major AND it counts for SI-Lab which is a required domain for CS students
• any CDM student CANNOT take CSC 250 to satisfy SI because, although the course is not required by any of our programs, it qualifies for SI-quantitative (not Lab) which is NOT a required domain for CTI students

Rule 2 -
No double counting allowed for CDM classes by CDM students.
EXAMPLES:
• A CS student takes GPH 211 for arts and literature LSP. Although GPH 211 is allowed as an elective even if it is not a 300 level course, the student CANNOT count the course both as satisfying an LSP domain AND as an elective for the CS program

CDM Liberal Studies Courses by Liberal Studies Area

Arts and Literature

ANI 101 Animation for Non-Majors
Course introduces a variety of basic animation techniques for cinema and gaming, such as hand-drawn, cutout, stop-motion and (very basic) 3D, with an emphasis on the use of computer technology.

ANI 206 History of Animation
History of Animation: This course is an introduction to the history and development of the field of animation.

DC 125 Digital Still Photography for Non-Majors
This course is an introduction to the history and aesthetics of still photography and to the concept of photography as a descriptive and interpretive artistic medium. Students studying photographs in this context will discover relationships between individual photographers choices and their own understanding of meaning. Students will learn the fundamental concepts necessary to shoot, edit, manipulate, and print digital still photographs.

DC 120 Video Editing
Students analyze and assemble dramatic scenes under a variety of conditions and narrative strategies. Editing theories, techniques, and procedures, issues of continuity, effects, movement and sound are examined as they relate to the fundamentals of cinematic montage and visual storytelling. This class present a variety of topics and experiences that are designed to broaden the student's understanding of the art of cinematic storytelling and montage. Work on more advanced projects is integrated into the class as a means to an understanding of advanced editing tools and techniques.

DC 201 Introduction to Screenwriting
This course focuses on narrative storytelling and encourages students to find their unique voices, while emphasizing the critical importance of working as part of a creative team.

DC 205 Foundations of Cinema

DC 233 Cinema & Art
This course will provide an overview of avant-garde film, video, animation and installation,
and the relationship of these cinematic forms to Modern and Contemporary art.

**DC 250 Working with Actors I**
This course is an introduction and examination of the collaborative process between the actor and director. Methods of study include lecture, discussion, assignments, and in-class acting exercises.

**GAM 224 Introduction to Game Design**
Students will learn about a game's "hook", its "high concept" and the crucial needs of marketing for a successful game design. Students will also learn to design a game's component pieces.

**GPH 211 Perceptual Principles for Digital Environments I**  
**GPH 212 Perceptual Principles for Digital Environments II**  
**GPH 213 Perceptual Principles for Digital Environments III**
These three foundational courses in computer animation take you through the process of creating 2-D and 3-D representations on the computer. The last course teaches you how to animate them!

**Junior Experiential Learning Credit**

**CSC 298 Internship**
Computer Science Internship in cooperation with local employers this course offers students the opportunity to integrate their academic experience with on-the-job training in computer related work areas.

**CSC 378 Software Projects for Community Clients**

**CSC 379 Technology Partnerships in Urban Schools**
Students in this course will have the opportunity to assess urban community needs in the technology arena and develop skills in assisting and developing methods for bridging the digital divide that exists.

**DC 298 Internship in Media Production/Post-Production**
This course offers students an excellent opportunity to gain professional experience, industry contacts, and referrals while still in school. Opportunities in post-production, motion picture production, advertising, television, animation, motion graphics and interactive media. Admission to the program requires consent of internship course instructor. Current work experience plus classroom time is required. Supervisor evaluation will contribute to the final grade.

**DC 380 Project Bluelight**
Production of a feature-length digital motion picture written by students or faculty within the Digital Cinema program.

**GPH 360 Modeling Spaces**
The digital design and modeling of environmental spaces with attention to human use parameters.

**IT 300 Research Experience**
This course involves the exploration of a research topic under the supervision of a research advisor.

**IT 398 Topics in Global Information Technology**
This course focuses on current topics in the information and communications technologies that together support the "networked world." Sample topics are global software development and deployment, global data and information management, and cross-cultural project management for information systems. The course may be offered for variable credit hours (2, 4, 8, 16, and 32).

**Scientific Inquiry: Elective**

**CSC 200 Survey of Computing**
Learn about careers using computers and pick up some skills to help you manage your own
Learn about careers using computers and pick up some skills to help you manage your own PC or network!

**CSC 210 Introduction to Computing**
A brief history of computers and an introduction to programming.

**CSC 211 Programming in Java I**
**CSC 212 Programming in Java II**
Two courses in programming JAVA, a cross-platform, web-enabled language.

**CSC 233 Codes and Ciphers**
A history of code making and breaking and the math and (computer) science behind it

**CSC 235 Problem Solving**
How do you solve a problem? In this course we discuss different problem solving techniques and strategies such as modeling, establishing subgoals, and searching and pruning.

**CSC 261 Programming Languages I: C/C++**
**CSC 262 Programming Languages II: C/C++**
Two courses in programming C++

**ECT 250 Internet, Commerce, and Society**
Ever shop online? Learn the basics behind how these kinds of web sites function

**IT 130 The Internet and the Web**
Learn to design your own web site!

**IT 236 User Interface Development**

**IT 240 Introduction to Desktop Databases**
Learn introductory concepts in constructing databases and networking files.

**IT 263 Applied Networks and Security**

**TDC 361 Basic Communication Systems**
Learn about how networks work and how they impact your daily life.

**Scientific Inquiry: Lab/Quantitative**

**DC 274 Image, Optics and Cinematic Motion**
Cinematography is the scientifically-grounded discipline of making lighting and camera choices in order to record moving images. This course deals with the basic mathematics, physics, and photochemistry that underlie cinematography and that motivate camera design and construction. A student who masters the foundations of cinematography through a mixture of lectures, readings, exercises, and labs will be able to evaluate and understand how motion-based recording choices affect perception of moving images they see every day.

**GPH 259 Design Geometry (cross-listed as ART 295)**
Learn the basics of Computer Aided Design.

**Scientific Inquiry: Quantitative**

**CSC 239 Personal Computing**
You will learn how to use Excel to analyze data and how to publish data and retrieve it from the World Wide Web.

**CSC 250 Computers and Human Intelligence**
Study how computers are designed to think like people.

**HCI 201 Multimedia and the World Wide Web**
Overview of the Web, its origins and capabilities. Create your own sample web page.

**IT 223 Data Analysis**

**Self, Society, and the Modern World**


CSC 223 The Impact of Computing Technology On Our Lives
This course will introduce students to an overview of social analysis techniques and the theories of social change.

DC 105 Digital Media Literacies
This course is designed to help students develop an informed, critical and practical understanding of new communication media, including ways to read, write and produce in a digital environment.

DC 235 Adaptation: The Cinematic Recrafting of Meaning
This course explores contemporary cinematic adaptations of literature and how recent reworkings in film open viewers up to critical analysis of the cultural practices surrounding the promotion and reception of these narratives.

IS 208 IT, Economy and Society
This course broadly surveys the history of IT applications and information systems from the historical perspective, and critically assesses the digital impact on industry, the economy, workers, citizens, social class and the future.

IT 201 Introduction to Information Systems
This course examines how various types of computer-based information systems form a critical part of modern organizations, how they work, and how they impact workers, organizations and the economy.

Understanding the Past: Intercontinental/Comparative

GAM 206 History of Games
This class will examine particular games and game genres in their historical context using a case study format.

GPH 205 Historical Foundations of Visual Technology
This course is a survey of the development, application and meaning of visual technologies in a wide range of world cultures from pre-history to the present.

Philosophical Inquiry

CSC 208 The Computer and Social Responsibility
This course will research the impact technology has had in various areas of our lives, the new responsibilities technology presents, and our ability to deal with these changes in an ethical manner.

DC 227 Film Philosophy
This course is a seminar on the philosophical analysis of film art, with an emphasis on the ways in which it creates meaning through techniques that define a formal structure. There is a particular focus on aesthetic problems about appearance and reality, literacy and visual effects, communication and alienation through film technology.

DC 228 or GAM 228 or IT 228 Ethics in Computer Games and Cinema
Societies function based on normative ethics utilizing common sense to distinguish between ethical and unethical behavior. Most of us are not aware of the underlying theories when arriving at ethical judgments about right and wrong. However, the fast pace of progress in information technologies and digital entertainment creates an environment, in which ethical challenges are particularly complex. In the eyes of many, games and movies are violent, offensive and immoral. This course will concentrate on analyzing the impact of digital entertainment on an individual and society. Implications of certain values embedded in games and movies will be discussed. Elements of the ethical code of conduct for a game or movie creator will be formulated. The issue of balancing individual creativity vs. cultural impact, particularly on children, will be discussed.

CDM Liberal Studies Courses by Course Topic

The Internet and How It Works.
CSC 200 Survey of Computing : Scientific Inquiry: Elective
Learn about Careers using computers and pick up some skills to help you manage your own PC or network!

CSC 210 Introduction to Computing : Scientific Inquiry: Elective
A brief history of computers and an introduction to programming

CSC 211 Programming in Java I : Scientific Inquiry: Elective
CSC 212 Programming in Java II : Scientific Inquiry: Elective
Two courses in programming JAVA, a cross-platform, web-enabled language.

CSC 261 Programming Languages I: C/C++
CSC 262 Programming Languages II: C/C++
Two courses in programming C++.  

ECT 250 Internet, Commerce, and Society : Scientific Inquiry: Elective
Ever shop at Gap.com? Learn the basic behind how these kinds of web sites function.

HCI 201 Multimedia and the World Wide Web : Scientific Inquiry: Quantitative
Overview of the Web, its origins and capabilities. Create your own sample web page.

IT 130 The Internet and the Web
Learn to Design Your Own Website

IT 263 Applied Networks and Security
Programming and Basic Computer Know-How

TDC 361 Basic Communication Systems

The Computer and Society

CSC 208 The Computer and Social Responsibility
This course will research the impact technology has had in various areas of our lives, the new responsibilities technology presents, and our ability to deal with these changes in an ethical manner

This course will introduce students to an overview of social analysis techniques and the theories of social change.

IS 208 IT, Economy and Society
This course broadly surveys the history of IT applications and information systems from the historical perspective, and critically assesses the digital impact on industry, the economy, workers, citizens, social class and the future.

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Computer Graphics and Motion Technology

ANI 101 Animation for Non-Majors
Course introduces a variety of basic animation techniques for cinema and gaming, such as hand-drawn, cutout, stop-motion and (very basic) 3D, with an emphasis on the use of computer technology

ANI 206 History of Animation
History of Animation: This course is an introduction to the history and development of the field of animation

GPH 205 Historical Foundations of Visual Technology
This course is a survey of the development, application and meaning of visual technologies in a wide range of world cultures from pre-history to the present.

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GPH 259 Design Geometry (cross-listed as ART 295)
Learn the basics of Computer Aided Design.

GPH 360 Modeling Spaces
The digital design and modeling of environmental spaces with attention to human use parameters

Data Analysis and Retrieval

CSC 235 Problem Solving
How do you solve a problem? In this course we discuss different problem solving techniques and strategies such as modeling, establishing subgoals, and searching and pruning

CSC 239 Personal Computing: Scientific Inquiry: Quantitative
You will learn how to use Excel to analyze data and how to publish data and retrieve it from the World Wide Web.

IT 223 Data Analysis

IT 240 Introduction to Desktop Databases: Personal Computing for Programmers: Scientific Inquiry: Elective
Learn introductory concepts in constructing databases and networking files.

Design your own Web Site

HCI 201 Multimedia and the World Wide Web: Scientific Inquiry: Quantitative
Overview of the Web, its origins and capabilities. Create your own sample web page

ECT 250 Internet, Commerce, and Society: Scientific Inquiry: Elective
Ever shop at Gap.com? Learn the basic behind how these kinds of web sites function

IT 130 The Internet and the Web (formerly ECT 270): Scientific Inquiry: Elective
Learn to design your own complex web site!

Codes, Ciphers and Computer Intelligence

CSC 233 Codes and Ciphers: Scientific Inquiry: Elective
A history of code making and breaking and the math and (computer) science behind it

CSC 250 Computers and Human Intelligence: Scientific Inquiry: Quantitative
Study how computers are designed to think like people

**Digital Cinema and Game Development**

**ANI 101 Animation for Non-Majors**
Course introduces a variety of basic animation techniques for cinema and gaming, such as hand-drawn, cutout, stop-motion and (very basic) 3D, with an emphasis on the use of computer technology.

**ANI 206 History of Animation**
History of Animation: This course is an introduction to the history and development of the field of animation.

**DC 105 Digital Media Literacies**
This course is designed to help students develop an informed, critical and practical understanding of new communication media, including ways to read, write and produce in a digital environment.

**DC 120 Video Editing**
Students analyze and assemble dramatic scenes under a variety of conditions and narrative strategies. Editing theories, techniques, and procedures, issues of continuity, effects, movement and sound are examined as they relate to the fundamentals of cinematic montage and visual storytelling. This class present a variety of topics and experiences that are designed to broaden the student's understanding of the art of cinematic storytelling and montage. Work on more advanced projects is integrated into the class as a means to an understanding of advanced editing tools and techniques.

**DC 125 Digital Still Photography for Non-Majors**
This course is an introduction to the history and aesthetics of still photography and to the concept of photography as a descriptive and interpretive artistic medium. Students studying photographs in this context will discover relationships between individual photographers choices and their own understanding of meaning. Students will learn the fundamental concepts necessary to shoot, edit, manipulate, and print digital still photographs.

**DC 201 Introduction to Screenwriting**
This course focuses on narrative storytelling and encourages students to find their unique voices, while emphasizing the critical importance of working as part of a creative team.

**DC 205 Foundations of Cinema**

**DC 233 Cinema & Art**
This course will provide an overview of avant-garde film, video, animation and installation, and the relationship of these cinematic forms to Modern and Contemporary art.

**DC 235 Adaptation: The Cinematic Recrafting of Meaning**
This courses explores contemporary cinematic adaptations of literature and how recent re-workings in film open viewers up to critical analysis of the cultural practices surrounding the promotion and reception of these narratives.

**DC 250 Working with Actors 1**
This course is an introduction and examination of the collaborative process between the actor and director. Methods of study include lecture, discussion, assignments, and in-class acting exercises.

**GAM 206 History of Games**
This class will examine particular games and game genres in their historical context using a case study format.

**GAM 224 Introduction to Game Design**
Students will learn about a game's "hook", its "high concept" and the crucial needs of marketing for a successful game design. Students will also learn to design a game's
Combined Bachelor/Master Degrees

The Combined Degree Programs at CDM are designed to allow academically gifted students to complete both a bachelor and master's degree in a shorter amount of time than by taking each degree separately.

Please note: This version of the degree replaces all previous combinations and current students will be migrated to this plan.

Combined Degree Program Structure

The shortened structure of combined degree programs is accomplished by students taking three Masters level courses in their junior and senior year that count toward both their bachelor and masters degree requirements at the same time. Students in this program will receive both a bachelor degree, after 192 undergraduate credit hours, and a masters degree after 10 more graduate courses (40 hours), instead of the standard 13 (52 hours).

How to apply:

In order to apply for the BS/MS program, your faculty advisor must send an e-mail recommendation to Becky Krochmal at bkrochmal@cdm.depaul.edu. The recommendation should include, the student full name, id number and the BS and MS degrees you wish to apply for.

Admission criteria are as follows:

- Minimum of 6 course/24 credit hours completed
- GPA of 3.3 or higher
- Endorsement of faculty advisor this should be sent via e-mail to bkrochmal@cdm.depaul.edu

Maintaining Good Standing

- Student GPAs and grades will be reviewed after Autumn, Winter, and Spring Quarter
- Student and Faculty Advisor will be notified when the student's cumulative GPA falls below 3.3 or when the student receives less than a C- in graduate level Course (X-course)

Dismissal Policy

If a student's cumulative GPA falls below 3.3, the student must attain term GPA of 3.3 or above in the following quarter to stay active. If the student does not achieve a 3.3 term GPA, then the student will be dismissed from the combined program and resume the traditional BA/BS. As long as the student's cumulative GPA is below 3.3, the student must continue to achieve at least a 3.3 term GPA in all following quarters or face dismissal. If, at any point, the student's cumulative GPA is once again 3.3 or higher, term requirements no longer apply.
It is important to note:
**If a student does not maintain good standing, they will be dismissed from the Combined Degree and returned to normal undergraduate degree seeking status. Any graduate courses passed before dismissal will not be counted toward graduate credit and may not be retaken (if the student does pursue graduate study, other graduate courses must be substituted). If dismissed students wish to apply to a CDM graduate degree program, they may do so following normal CDM admissions procedures, but will still be required to take 13 graduate courses for a MS degree.

**BA/BS-MA/MS Transition**

If, upon completion of the BA/BS Degree, the student did not meet all prerequisites for the MA/MS Degree, then the student will need to complete (course, test or waiver) the missing prerequisites for the chosen MA/MS Degree.

If, while still in the undergraduate degree phase, the student receives less than a C- in graduate level course (X-course), the X-course cannot count towards the MA/MS Degree.

**Designing a Course of Study**

It is extremely important that the student and faculty advisor work together on a course of study immediately upon admission to the Combined Degree Program.

This course of study may include which undergraduate classes to avoid taking in order to take the graduate version. Failure to put together a solid plan can lead to extra coursework and a lengthening of the Combined Degree program.

It is advisable for the student and advisor to enter the proposed plan of study in the student communication record on the CDM intranet so it is available to the student and CDM faculty and staff.

**Minors**

A minor is a combination of courses that provides a cohesive introduction to an area of study. Typically, courses taken to satisfy minor field requirements are credited as open electives; however, there are some instances where minor field courses may be used for credit in other areas of the students curriculum. Grades for all courses, taken to fulfill a minor field requirement must be C or above. Grades of C- may be accepted for credit in the minor provided the minor GPA is 2.0 or above. A minimum of one-half of the courses required for a minor must be completed at DePaul University.

**MINORS IN THE COLLEGE OF COMMERCE**

Students enrolled in the College of Computing and Digital Media (CDM) may obtain a minor in Accounting, Business Administration, E-Business, Economics, Management, MIS, Marketing, and Pre-MBA. Please see the College of Commerce Section for Minor Requirements.

**MINORS IN THE COLLEGE OF LIBERAL ARTS AND SCIENCES**

Students enrolled in the College of Computing and Digital Media (CDM) may obtain a minor through the College of Liberal Arts and Sciences. Most Liberal Arts and Science departments offer minor concentrations of study. In general, a minor in a Liberal Arts and Sciences discipline consists of a set of introductory courses plus another set of more specialized courses. Most minors require six courses, some of which may also be used for credit in the Liberal Studies Program. For a complete list of minors offered through the College of Liberal Arts and Sciences, please consult that section of this online Bulletin.
MINORS IN THE COLLEGE OF COMPUTING AND DIGITAL MEDIA

Computer technology is an omnipresent part of our world, used in academic disciplines from physics to history to geography. **CDM offers several minors that will appeal to all DePaul University students.**

*Political science* and *geography* majors can pursue a minor in Data Analysis, Databases, or Data Visualization, which is important to understanding how to analyze census or GPS data.

*Communications* majors may be interested in Digital Cinema which will give you skills in creating videos for advertising.

*Art* majors interested in a career in graphics programming, animation or design may be interested in CDM's tech-focused minors in Animation or Computer Graphics Software Development.

An academic foundation in E-Commerce Technology, Networks or Information Systems can give *Commerce* students an edge in a tough job market.

There are other examples too numerous to mention. So if you have questions or want advice on what minor is best for you, can email our CDM Undergraduate Services team: gocdm@cdm.depaul.edu or call them at: 312-362-8714.

**Policies for Academic Minors**

Students must:

1. earn at least a grade of C- in each minor course and a GPA of no less than 2.0 for all courses in the minor;
2. earn at least a cumulative GPA of 2.0 for all courses applied to the minor;
3. not select the pass/fail option for courses in the minor
4. meet the following residency requirement: no more than 50% of the requirements of a minor may be fulfilled by transfer credits, AP credit, IB credit of CLEP credit.

Finally, students cannot earn a minor in their major program. Courses required to fulfill a minor are determined by the unit in which the minor resides.

**CDM Minors for CDM Students**

To obtain a minor in CDM when the major is also in CDM:

1. Satisfy all requirements for the major
2. Satisfy all requirements for the minor
3. Students must take at least 6 courses in the minor area that do not count towards their CDM major

**Note:** If you have already taken some of the courses listed under your minor on this page, work with your advisor to choose other courses within the same program area, ie. NT minor would look under NT major courses and Computer Graphics Software Development would look under Computer Graphics Courses, in order to have 6 distinct courses.

- Animation Minor
- Computer Graphics Software Development
- Computer Science
- Data Analysis and Data Mining
- Database
- Data Visualization Development
- Digital Cinema
- E-Commerce Technology
- Game Design
- Game Programming
- Interactive Media
- Information Systems
- Information Technology
- Network Technologies
CDM Minor Requirements

Animation Minor

ANI 101  Animation for Non-Majors
or ANI 201  (not both)  Animation I
ANI 230  3D Modeling
ANI 231  3D Animation
ANI 206  History of Animation
3 courses from the following list: (at least 1 must be ANI)
DC 201  Introduction to Screenwriting
DC 210  Digital Cinema Production I
DC 220  Editing I
Any ANI course

Computer Graphics Software Development Minor

GPH 211  Perceptual Principles for Digital Environments I
GPH 212  Perceptual Principles for Digital Environments II

Course Requirements

CSC 261  Programming Languages I: C/C++
CSC 262  Programming Languages II: C/C++
CSC 393  Data Structures in C++
GPH 329  Computer Graphics Development II
GPH 339  Advanced Rendering Techniques
GPH 372  Principles of Computer Animation

Computer Science Minor

CSC 241  Introduction to Computer Science I
and CSC 242  Introduction to Computer Science II
and CSC 224  Java for Programmers
or
CSC 211  Programming in Java I
and CSC 212  Programming in Java II
and CSC 309  Object-Oriented Programming in C++
or
CSC 261  Programming Languages I: C/C++
and CSC 262  Programming Languages II: C/C++
and CSC 224  Java for Programmers
CSC 393  Data Structures in C++
or CSC 383  Data Structures and Algorithms in Java
MAT 140  Discrete Mathematics I
CSC 373  Computer Systems I
CSC 374  Computer Systems II
### Data Analysis and Data Mining Minor

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>IT 240</td>
<td>Introduction to Desktop Databases</td>
</tr>
<tr>
<td>IT 223</td>
<td>Data Analysis</td>
</tr>
<tr>
<td>CSC 324</td>
<td>Data Analysis and Statistical Software II</td>
</tr>
<tr>
<td>CSC 367</td>
<td>Introduction to Data Mining</td>
</tr>
<tr>
<td>CSC 334</td>
<td>Advanced Data Analysis</td>
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<tr>
<td></td>
<td>2 CDM Electives</td>
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</tbody>
</table>

### Database Minor

<table>
<thead>
<tr>
<th>Course Code</th>
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<tbody>
<tr>
<td>CSC 211</td>
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</tr>
<tr>
<td>and CSC 212</td>
<td>Programming in Java II</td>
</tr>
<tr>
<td>IT 223</td>
<td>Data Analysis</td>
</tr>
<tr>
<td>IT 240</td>
<td>Introduction to Desktop Databases</td>
</tr>
<tr>
<td>CSC 352</td>
<td>Database Programming</td>
</tr>
<tr>
<td>CSC 367</td>
<td>Introduction to Data Mining</td>
</tr>
<tr>
<td></td>
<td>1 CDM Elective</td>
</tr>
</tbody>
</table>

### Data Visualization Development Minor

**Liberal Studies**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>GPH 211</td>
<td>Perceptual Principles for Digital Environments I</td>
</tr>
<tr>
<td>GPH 212</td>
<td>Perceptual Principles for Digital Environments II</td>
</tr>
</tbody>
</table>

**Course Requirements**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSC 261</td>
<td>Programming Languages I: C/C++</td>
</tr>
<tr>
<td>CSC 262</td>
<td>Programming Languages II: C/C++</td>
</tr>
<tr>
<td>CSC 323</td>
<td>Data Analysis</td>
</tr>
<tr>
<td>CSC 393</td>
<td>Data Structures in C++</td>
</tr>
<tr>
<td>GPH 329</td>
<td>Computer Graphics Development II</td>
</tr>
<tr>
<td>GPH 372</td>
<td>Principles of Computer Animation</td>
</tr>
<tr>
<td>GPH 380</td>
<td>Visualization</td>
</tr>
</tbody>
</table>

### Digital Cinema Minor

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>DC 205</td>
<td>Foundations of Cinema</td>
</tr>
<tr>
<td>DC 225</td>
<td>Digital Still Photography</td>
</tr>
<tr>
<td>DC 201</td>
<td>Introduction to Screenwriting</td>
</tr>
<tr>
<td>DC 220</td>
<td>Editing I</td>
</tr>
<tr>
<td></td>
<td>3 courses from the following list:</td>
</tr>
<tr>
<td>ANI 101</td>
<td>Animation for Non-Majors</td>
</tr>
<tr>
<td>DC 210</td>
<td>Digital Cinema Production I</td>
</tr>
<tr>
<td>DC 270</td>
<td>Topics in Digital Cinema</td>
</tr>
<tr>
<td>GAM 224</td>
<td>Introduction to Game Design</td>
</tr>
<tr>
<td>DC 215</td>
<td>Digital Sound Design</td>
</tr>
<tr>
<td>DC 275</td>
<td>Cinematography</td>
</tr>
<tr>
<td>DC 310</td>
<td>Digital Cinema Production II</td>
</tr>
<tr>
<td>DC 320</td>
<td>Editing II</td>
</tr>
<tr>
<td>DC 389</td>
<td>The Big Picture: The Entertainment Industry</td>
</tr>
</tbody>
</table>
## E-Commerce Technology Minor

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>IT 130</td>
<td>The Internet and the Web</td>
</tr>
<tr>
<td>CSC 211</td>
<td>Programming in Java I</td>
</tr>
<tr>
<td>CSC 212</td>
<td>Programming in Java II</td>
</tr>
<tr>
<td>IT 230</td>
<td>Building Internet Applications</td>
</tr>
<tr>
<td>ECT 330</td>
<td>Advanced Internet Application Development</td>
</tr>
<tr>
<td>IM 210</td>
<td>Introduction to Human-Computer Interaction</td>
</tr>
</tbody>
</table>

1 course from the following list:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECT 355</td>
<td>Internet Systems: Collaboration, Commerce, and Media</td>
</tr>
<tr>
<td>ECT 360</td>
<td>Introduction to XML</td>
</tr>
<tr>
<td>ECT 365</td>
<td>Web Server Operations</td>
</tr>
</tbody>
</table>

## Game Design Minor

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>DC 201</td>
<td>Introduction to Screenwriting</td>
</tr>
<tr>
<td>ANI 105</td>
<td>Intro to Visual Design</td>
</tr>
<tr>
<td>ANI 101</td>
<td>Animation for Non-Majors</td>
</tr>
<tr>
<td>or ANI 201</td>
<td>Animation I</td>
</tr>
<tr>
<td>ANI 230</td>
<td>3D Modeling</td>
</tr>
<tr>
<td>GAM 224</td>
<td>Introduction to Game Design</td>
</tr>
<tr>
<td>GAM 244</td>
<td>Game Development I</td>
</tr>
<tr>
<td>GAM 245</td>
<td>Game Development II</td>
</tr>
</tbody>
</table>

## Game Programming Minor

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>GAM 224</td>
<td>Introduction to Game Design</td>
</tr>
<tr>
<td>GAM 244</td>
<td>Game Development I</td>
</tr>
<tr>
<td>GAM 245</td>
<td>Game Development II</td>
</tr>
<tr>
<td>GAM 374</td>
<td>Action Games Programming</td>
</tr>
</tbody>
</table>

2 courses from the following list:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANI 230</td>
<td>3D Modeling</td>
</tr>
<tr>
<td>GPH 321</td>
<td>Computer Graphics Development I</td>
</tr>
<tr>
<td>GPH 329</td>
<td>Computer Graphics Development II</td>
</tr>
<tr>
<td>GPH 350</td>
<td>Digital Modeling I</td>
</tr>
</tbody>
</table>

Any other 300-Level **GAM or GPH** course

## Interactive Media Minor

### Required Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>IM 210</td>
<td>Introduction to Human-Computer Interaction</td>
</tr>
<tr>
<td>IM 220</td>
<td>Interactive Media I</td>
</tr>
<tr>
<td>IM 230</td>
<td>Scripting for Interactive Media</td>
</tr>
<tr>
<td>IM 270</td>
<td>User-centered Web Design</td>
</tr>
</tbody>
</table>

3 courses from the following list:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>IM 320</td>
<td>Interactive Media II</td>
</tr>
<tr>
<td>IM 330</td>
<td>Advanced Scripting for Interactive Media</td>
</tr>
<tr>
<td>IM 360</td>
<td>User-Centered Evaluation</td>
</tr>
<tr>
<td>ANI 101</td>
<td>Animation for Non-Majors</td>
</tr>
<tr>
<td>ANI 105</td>
<td>Intro to Visual Design</td>
</tr>
<tr>
<td>ART 260</td>
<td>Art and Design I: History,Concept,Structure</td>
</tr>
<tr>
<td>ART 264</td>
<td>Typography I</td>
</tr>
<tr>
<td>Course Code</td>
<td>Course Title</td>
</tr>
<tr>
<td>-------------</td>
<td>--------------------------------------</td>
</tr>
<tr>
<td>DC 205</td>
<td>Foundations of Cinema</td>
</tr>
<tr>
<td>GAM 244</td>
<td>Game Development I</td>
</tr>
<tr>
<td>IT 130</td>
<td>The Internet and the Web</td>
</tr>
<tr>
<td>IT 230</td>
<td>Building Internet Applications</td>
</tr>
</tbody>
</table>

**Information Systems Minor**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSC 211</td>
<td>Programming in Java I</td>
</tr>
<tr>
<td>IT 230</td>
<td>Building Internet Applications</td>
</tr>
<tr>
<td>IT 240</td>
<td>Introduction to Desktop Databases</td>
</tr>
<tr>
<td>IT 130</td>
<td>The Internet and the Web</td>
</tr>
<tr>
<td>IT 201</td>
<td>Introduction to Information Systems</td>
</tr>
<tr>
<td>IT 215</td>
<td>Analysis and Design Techniques</td>
</tr>
<tr>
<td>IM 210</td>
<td>Introduction to Human-Computer Interaction</td>
</tr>
</tbody>
</table>

1 course from the following list:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>IS 371</td>
<td>Introduction to L.T. System Management</td>
</tr>
<tr>
<td>IS 372</td>
<td>Fundamentals of Software Project Management</td>
</tr>
<tr>
<td>IS 373</td>
<td>Introduction to Large Systems Implementation</td>
</tr>
<tr>
<td>IS 374</td>
<td>Management Support Systems</td>
</tr>
</tbody>
</table>

**Information Technology Minor**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>IT 130</td>
<td>The Internet and the Web</td>
</tr>
<tr>
<td>IT 130</td>
<td>Building Internet Applications</td>
</tr>
<tr>
<td>IT 240</td>
<td>Introduction to Desktop Databases</td>
</tr>
<tr>
<td>TDC 361</td>
<td>Basic Communication Systems</td>
</tr>
<tr>
<td>or IT 263</td>
<td>Applied Networks and Security</td>
</tr>
<tr>
<td>IT 215</td>
<td>Analysis and Design Techniques</td>
</tr>
</tbody>
</table>

1 CDM Elective

**Network Technology Minor**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSC 211</td>
<td>Programming in Java I</td>
</tr>
<tr>
<td>or CSC 261</td>
<td>Programming Languages I:C/C++</td>
</tr>
<tr>
<td>CSC 212</td>
<td>Programming in Java II</td>
</tr>
<tr>
<td>or CSC 262</td>
<td>Programming Language II:C/C++</td>
</tr>
<tr>
<td>IT 201</td>
<td>Introduction to Information Systems</td>
</tr>
<tr>
<td>IT 263</td>
<td>Applied Networks and Security</td>
</tr>
<tr>
<td>TDC 362</td>
<td>Principles of Data Communication</td>
</tr>
<tr>
<td>TDC 363</td>
<td>Introduction to Local Area Networks</td>
</tr>
<tr>
<td>TDC 365</td>
<td>Network Interconnection Technologies</td>
</tr>
</tbody>
</table>

**Screenwriting**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>DC 201</td>
<td>Introduction to Screenwriting</td>
</tr>
<tr>
<td>DC 205</td>
<td>Foundations of Cinema</td>
</tr>
<tr>
<td>DC 301</td>
<td>Advanced Screenwriting I</td>
</tr>
<tr>
<td>DC 302</td>
<td>Advanced Screenwriting II</td>
</tr>
<tr>
<td>DC 303</td>
<td>Advanced Screenwriting III</td>
</tr>
<tr>
<td>DC 304</td>
<td>Topics in Screenwriting</td>
</tr>
</tbody>
</table>

**Security Minor**
Bachelor of Arts Degree Programs

The Bachelor of Arts in Computing is offered jointly by the College of Computing and Digital Media and the School for New Learning. This degree is designed for working adults at least 24 years of age, who wish to obtain credit for their careers as technology professionals, and gain new skills in
problem-solving, design, testing and communicating. The BA in Computing differs from the BS in Computer Science in that the BS places heavier emphasis on traditional programming and formal algorithmic analysis. The BA in computing program focuses on relating program design and computing to organizational dynamics and human relations. It helps to prepare students to analyze and negotiate the social, ethical, and technological systems of a business and to act as a liaison between the technical and non-technical sides of a company.

The computer competences in the BA in Computing program cover a variety of topics directly related to current industry practice. These competences include skills and knowledge in information systems, data communications, databases, software engineering, and the design and evaluation of user interfaces. In the general studies area of the program, competences are tied to the humanities, the natural sciences and the social sciences. Students may select competences in the arts, design, ecology, human biology, multicultural relations, and politics so on that are tailored to their individual goals and interests. The BA in Computing is completed by satisfying a total of fifty (50) competences; this amounts to the equivalent of 140 quarter hours. Typically these competences are satisfied through course work or equivalent work experience.

For a copy of the Program Guide for the Bachelor of Arts in Computing or to make reservations for a BA in Computing Information Session, please call either the College of Computing and Digital Media at (312)362-8381 or the School for New Learning at (312)362-8001.

College of Computing and Digital Media - Undergraduate Studies ▶ School of Computing (SoC) ▶ Bachelor of Arts Degree Programs ▶ Information Technology

**Information Technology**

The Bachelor of Arts degree in **Information Technology** program will give students a broad education in current areas of information technology, with a focus on producing educated and sophisticated consumers of information technology. They will acquire:

- An understanding of the impact of information and communication technologies on social, cultural, and ethical dimensions.
- Strong quantitative and reasoning skills with the ability to present technical data in verbal, written, and graphical forms.
- Verbal and written communication literacy.
- Students will also have an opportunity to specialize in a domain of interest or to acquire a generalized education in information technology.

The Liberal Studies program is the general education portion of the curriculum at DePaul. Click here to view the CDM courses that qualify for Liberal Studies credit.

Four-year schedule of courses:

**First Year**

*Major Field Courses (4)*

- IT 130  The Internet and the Web [Self Placement Test](#)
- IT 201  Introduction to Information Systems
- IT 240  Introduction to Desktop Databases [Self Placement Test](#)
- ICS 200  Introduction to Business

*Liberal Studies (7)*

*Open Elective (1)*

**Second Year**
Major Field Courses (7)

CSC 223  The Impact of Computing Technology On Our Lives
IM 210  Introduction to Human-Computer Interaction
IT 231  Web Development I
IT 232  Web Development II
IT 223  Data Analysis Self Placement Test
or CSC 239  Personal Computing
IT 263  Applied Networks and Security
or TDC 361  Basic Communication Systems
CMNS 212  Small Group Communication
or CMNS 220  Public Speaking

Liberal Studies (5)

Third Year

Major Field Courses (4)

WRD 204  Technical Writing
or WRD 301  Writing in Workplace Contexts

3 Technical Grounding Courses from this list:

IT 330  User Interface Development for Interactive Systems
IT 320  Content Management Systems
IT 215  Analysis and Design Techniques Self Placement Test
CSC211  Programming in Java I Self Placement Test
CSC212  Programming in Java II
CSC261  Programming Languages I: C/C++
CSC262  Programming Languages II: C/C++
ECT 330  Advanced Internet Application Development
TDC363  Introduction to Local Area Networks
GPH211  Perceptual Principles for Digital Environments I
GPH212  Perceptual Principles for Digital Environments II
GAM244  Game Development I
GAM245  Game Development II
SE 325  Principles and Practices of Software Engineering Self Placement Test

300-Level CDM Electives (1)
Any DePaul Class 200-level and higher (2)
Liberal Studies (5)

Fourth Year

Major Field Courses (1)

CSC 378  Software Projects for Community Clients*
CSC 399 Independent Study*

*CSC 378 is the first course in a two quarter sequence (8 hours of credit). It counts for both Senior Year capstone and Junior Year Experiential Learning. The second course is a special section of CSC 399. Both quarters must be completed to receive any credit.

Any 200-level or higher DePaul Elective (3)
300-level CDM Electives (1)
Liberal Studies (1)
Open Electives (5)

Open Electives
Open Electives may be taken from any department or program. These are the only courses that may be taken under the pass/fail option (see the undergraduate Bulletin for details). If you wish to pursue a minor, most minor field courses will be credited as open electives.

Note: Grades for all courses in the students major (i.e. non-Liberal Studies and non-Open Elective) must be ‘C’ or better. Grades of ‘C-’ may be accepted provided the overall grade point average in the major is 2.0 or better.

Bachelor of Science Degree Programs

College of Computing and Digital Media - Undergraduate Studies School of Computing (SoC) Bachelor of Science Degree Programs

Computer Games Development (Joint with CIM)

The Bachelor of Science in Computer Games Development is ideal for creative-minded and technically adept individuals with a passion for crafting interactive experiences. It offers career opportunities for skilled, creative programmers, designers, and animators.

The BS in Computer Games Development prepares students to work in the multi-disciplinary field of computer gaming and interactive media. This program also requires strong mathematical and programming skills.

CDM’s Computer Games Development program combines coursework in game programming, game design, 3D Modeling, animation, physics, and artificial intelligence. Students work in cross-disciplinary teams to design and develop games.

The BS in Computer Games Development offers a Production & Design concentration and a concentration in Game Programming.

What students will learn from this degree program:

- game programming
- game physics and game engines
- computer graphics and rendering
- 3D modeling and animation
- game design and level design

The Liberal Studies program is the general education portion of the curriculum at DePaul. Click here to view the CDM courses that qualify for liberal studies credit.

Four-year schedule of courses for the Production & Design Concentration
**First Year**

*Major Field Courses (5)*

GAM 224 Introduction to Game Design  
GAM 244 Game Development I  
GAM 245 Game Development II  
ANI 101 Animation for Non-Majors  
or ANI 201 Animation I  
ANI 105 Intro to Visual Design  

*Liberal Studies (7) (DC 201 required as one of the LS courses)*

**Second Year**

*Major Field Courses (6)*

MAT 150 Calculus I  
GAM 341 Introduction to Level Design  
ANI 230 3d Modeling for Animation and Gaming  
CSC 261 Programming Languages I: C/C++  
CSC 262 Programming Languages II: C/C++  
GAM 230 Intro to Game Production  

*Gaming Elective (1)*  
*Liberal Studies (5)*

**Third Year**

*Major Field Courses (4)*

ANI 231 3d Animation for Cinema and Gaming  
GAM 374 Action Games Programming  
IM 220 Interactive Media I  
WRD 204 Technical Writing  

*Gaming Electives (4)*  
*Liberal Studies (4) - (IT 228 Required as one of the LS courses)*

**Fourth Year**

*Major Field Courses (4)*

GAM 333 The Business of Games  
GAM 392 Game Modification Workshop  
GAM 394 Game Development Project I  
GAM 395 Game Development Project II  

*Gaming Electives (1)*  
*Liberal Studies (3)*  
*Open Electives (4)*

---

Four-year schedule of courses for the **Game Programming Concentration**:  

**First Year**

*Major Field Courses (5)*

ANI 105 Intro to Visual Design  
GAM 224 Introduction to Game Design  
GAM 244 Game Development I  
MAT 150 Calculus I  
MAT 151 Calculus II
**Second Year**

**Major Field Courses (5)**

CSC 261 Programming Languages I: C/C++  
CSC 262 Programming Languages II: C/C++  
CSC 393 Data Structures in C++  
GAM 245 Game Development II  
ANI 230 3d Modeling for Animation and Gaming

**Gaming Electives (2)**  
**Liberal Studies (5)**

**Third Year**

**Major Field Courses (6)**

CSC 373 Computer Systems I  
CSC 374 Computer Systems II  
GPH 321 Computer Graphics Development I  
GPH 329 Computer Graphics Development II  
GAM 350 Physics for Game Developers  
GAM 374 Action Games Programming

**Gaming Electives (2)**  
**Liberal Studies (4)** - (IT 228 required as one of the LS courses)

**Fourth Year**

**Major Field Courses (5)**

GPH 389 Real-Time Graphics Techniques  
GAM 376 Artificial Intelligence for Computer Games  
GAM 392 Game Modification Workshop  
GAM 394 Game Development Project I  
GAM 395 Game Development Project II

**Gaming Electives (1)**  
**Liberal Studies (3)**  
**Open Electives (3)**

**Gaming Electives**  
Any 200-level ANI, DC, GAM, GPH or IM Course  
Any 300-level CDM Course

**Open Electives**  
Open Electives may be taken from any department or program. These are the only courses that may be taken under the pass/fail option (see the undergraduate Bulletin for details). If you wish to pursue a minor, most minor field courses will be credited as open electives.

**Note:** Grades for all courses in the students major (i.e. non-Liberal Studies and non-Open Elective) must be 'C' or better. Grades of 'C-' may be accepted provided the overall grade point average in the major is 2.0 or better.
Computer Graphics and Motion Technology (Joint with CIM)

The Bachelor of Science in Computer Graphics and Motion Technology unites the technical and aesthetic principals of digitally created motion graphics and animation. Graduates of the program may find opportunities in diverse fields, from motion pictures or architecture to computer gaming or medicine.

The BS in Computer Graphics and Motion Technology provides DePaul students with an interest in mathematics/computer science as well as visual design, an academic foundation in both the technical and aesthetic elements of computer graphics.

The Bachelor of Science degree program offers two options of study:

- The Developer concentration is geared toward students who are considering careers in graphic software development, with course work focused in programming languages (C/C++) and mathematics (calculus and algebra), in addition to animation and computer graphics.
- The Technical Designer concentration is geared toward students interested in the visual aspects, including lighting setup, shader development and character rigging.

What students learn in this degree program:

- Design and analysis of mathematics/computer science principals for computer graphic design.
- Beginning and advance digital photography.
- History and theory of graphic design (color theory, perception).
- Usability and human-computer interaction.

The Liberal Studies program is the general education portion of the curriculum at DePaul. Click here to view the CDM courses that qualify for liberal studies credit.

Four-year schedule of courses for the Developer Concentration:

**First Year**

**Major Field Courses (9)**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSC 261</td>
<td>Programming Languages I: C/C++</td>
</tr>
<tr>
<td>CSC 262</td>
<td>Programming Languages II: C/C++</td>
</tr>
<tr>
<td>CSC 393</td>
<td>Data Structures in C++</td>
</tr>
<tr>
<td>GPH 211</td>
<td>Perceptual Principles for Digital Environments I</td>
</tr>
<tr>
<td>GPH 212</td>
<td>Perceptual Principles for Digital Environments II</td>
</tr>
<tr>
<td>ANI 201</td>
<td>Animation I</td>
</tr>
<tr>
<td>MAT 140</td>
<td>Discrete Mathematics I</td>
</tr>
<tr>
<td>MAT 150</td>
<td>Calculus I</td>
</tr>
<tr>
<td>or MAT 160</td>
<td>Calculus for Mathematics and Science Majors I</td>
</tr>
<tr>
<td>or MAT 170</td>
<td>Calculus I with Scientific Applications *</td>
</tr>
<tr>
<td>MAT 151</td>
<td>Calculus II</td>
</tr>
</tbody>
</table>

* MAT 170 is recommended

**Liberal Studies (3)**

**Second Year**

**Major Field Courses (5)**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>GPH 325</td>
<td>Survey of Computer Graphics</td>
</tr>
<tr>
<td>GPH 329</td>
<td>Computer Graphics Development II</td>
</tr>
<tr>
<td>GPH 339</td>
<td>Advanced Rendering Techniques</td>
</tr>
<tr>
<td>GPH 321</td>
<td>Computer Graphics Development I</td>
</tr>
</tbody>
</table>
Third Year

Major Field Courses (4)

GPH 372 Principles of Computer Animation
CSC 321 Design and Analysis of Algorithms
IM 315 Theory and Perception of Color
WRD 204 Technical Writing [formerly Eng 204]

Graphics Electives (3) - from the list at the bottom of the page.
Liberal Studies (5)

Fourth Year

Major Field Courses (4)

GPH 375 Advanced Graphics Development
GPH 388 Production Pipeline Techniques
GPH 389 Real-Time Graphics Techniques
GPH 395 Computer Graphics Senior Project

Graphics Electives (1) - from the list at the bottom of the page.
Liberal Studies (4)
Open Electives (3)

Four-year schedule of courses for the Technical Designer Concentration:

First Year

Major Field Courses (6)

CSC 211 Programming in Java I Self Placement Test Available and CSC 212 Programming in Java II
OR CSC 261 Programming Languages I: C/C++ and CSC 262 Programming Languages II: C/C++
GPH 211 Perceptual Principles for Digital Environments I
GPH 212 Perceptual Principles for Digital Environments II
ANI 201 Animation I
MAT 140 Discrete Mathematics I

Liberal Studies (4) - ART 102 and ART 106 are required.

Second Year

Major Field Courses (7)

GPH 250 Digital Modeling I
GPH 325 Survey of Computer Graphics
IT 236 User Interface Development
ART 242 Survey of Asian Art
IM 210 Introduction to Human-Computer Interaction
CMN 220 Public Speaking
GPH 255 Hand Prototyping for Graphic Visualization

Liberal Studies (5)

Third Year

Major Field Courses (5)
ART 322     Modernism to Postmoderism
IM 315       Theory and Perception of Color
GPH 338     Survey of 3-D Animation
GPH 339     Advanced Rendering Techniques
WRD 204     Technical Writing [formerly Eng 204]

**Graphics Electives (1)** - from the list at the bottom of the page.
**Liberal Studies (6)**

**Fourth Year**

**Major Field Courses (2)**

GPH 395     Computer Graphics Senior Project
GPH 388     Production Pipeline Techniques

**Graphics Electives (4)** - from the list at the bottom of the page.
**Liberal Studies (4)**
**Open Electives (4)**

**Graphics Electives List**
Students may take any of the following courses as long as they were not previously used to satisfy the computer graphics and animation core:

ANI 300     3d Character Animation
ANI 310     Motion Capture Workshop
ART 225     Beginning Photography
ART 329     Advanced Digital Photography
[prereq: Art 225 and Art 101 Or Art 227 Or Instructor Consent]
ART 360     Illustration
ART 373     History of Design
IT 223     Data Analysis [Self Placement Test Available]
IT 236     User Interface Development
GPH 336     Smooth Surface Modeling for Graphics and Animation
GPH 340     Procedural Shading
GPH 341     Advanced Lighting Techniques
GPH 348     Rigging for Animation
GPH 376     Artificial Intelligence in Computer Games
GPH 380     Visualization
GPH 389     Real-Time Graphics Techniques
GPH 250     Digital Modeling I
GPH 259     Design Geometry
GPH 329     Computer Graphics Development II
GPH 350     Digital Modeling II
GPH 360     Modeling Spaces
GPH 374     Computer Games
GPH 375     Advanced Graphics Development
IM 270     User-Centered Web Design
IM 210     Introduction to Human-Computer Interaction
IM 322     Multimedia
MAT 150     Calculus I
MAT 151     Calculus II
MAT 152     Calculus III [prereq MAT 151 or MAT 161 or MAT 171]

**Open Electives**
Open Electives may be taken from any department or program. These are the only courses that may be taken under the pass/fail option (see the undergraduate Bulletin for details). If you wish to pursue a minor, most minor field courses will be credited as open electives.

**Note:** Grades for all courses in the students major (i.e. non-Liberal Studies and non-Open Elective) must be ‘C’ or better. Grades of ‘C-’ may be accepted provided the overall grade point average in the major is 2.0 or better.
The **Bachelor of Science in Computer Graphics and Motion Technology** unites the technical and aesthetic principals of digitally created motion graphics and animation. Graduates of the program may find opportunities in diverse fields, from motion pictures or architecture to computer gaming or medicine.

The **BS in Computer Graphics and Motion Technology** provides DePaul students with an interest in mathematics/computer science as well as visual design, an academic foundation in both the technical and aesthetic elements of computer graphics.

The Bachelor of Science degree program offers two options of study:

- The Developer concentration is geared toward students who are considering careers in graphic software development, with course work focused in programming languages (C/C++) and mathematics (calculus and algebra), in addition to animation and computer graphics.
- The Technical Designer concentration is geared toward students interested in the visual aspects, including lighting setup, shader development and character rigging.

What students learn is this degree program:

- Design and analysis of mathematics/computer science principals for computer graphic design.
- Beginning and advance digital photography.
- History and theory of graphic design (color theory, perception).
- Usability and human-computer interaction.

The Liberal Studies program is the general education portion of the curriculum at DePaul. Click here to view the CDM courses that qualify for liberal studies credit.

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### Four-year schedule of courses for the **Developer Concentration**:

#### First Year

**Major Field Courses** (9)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSC 261</td>
<td>Programming Languages I: C/C++</td>
</tr>
<tr>
<td>CSC 262</td>
<td>Programming Languages II: C/C++</td>
</tr>
<tr>
<td>CSC 393</td>
<td>Data Structures in C++</td>
</tr>
<tr>
<td>GPH 211</td>
<td>Perceptual Principles for Digital Environments I</td>
</tr>
<tr>
<td>GPH 212</td>
<td>Perceptual Principles for Digital Environments II</td>
</tr>
<tr>
<td>ANI 201</td>
<td>Animation I</td>
</tr>
<tr>
<td>MAT 140</td>
<td>Discrete Mathematics I</td>
</tr>
<tr>
<td>MAT 150</td>
<td>Calculus I</td>
</tr>
<tr>
<td>or MAT 160</td>
<td>Calculus for Mathematics and Science Majors I</td>
</tr>
<tr>
<td>or MAT 170</td>
<td>Calculus I with Scientific Applications (Recommended)</td>
</tr>
<tr>
<td>MAT 151</td>
<td>Calculus II</td>
</tr>
</tbody>
</table>

**Liberal Studies** (3)

#### Second Year

**Major Field Courses** (5)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>GPH 325</td>
<td>Survey of Computer Graphics</td>
</tr>
<tr>
<td>GPH 329</td>
<td>Computer Graphics Development II</td>
</tr>
<tr>
<td>GPH 339</td>
<td>Advanced Rendering Techniques</td>
</tr>
<tr>
<td>GPH 321</td>
<td>Computer Graphics Development I</td>
</tr>
<tr>
<td>or MAT 220</td>
<td>Linear Algebra with Applications</td>
</tr>
<tr>
<td>CMNS 220</td>
<td>Public Speaking</td>
</tr>
</tbody>
</table>
Liberal Studies (7)

Third Year

Major Field Courses (4)

GPH 372 Principles of Computer Animation
CSC 321 Design and Analysis of Algorithms
IM 315 Theory and Perception of Color
WRD 204 Technical Writing

Graphics Electives (3) - from the list at the bottom of the page.
Liberal Studies (5)

Fourth Year

Major Field Courses (4)

GPH 375 Advanced Graphics Development
GPH 388 Production Pipeline Techniques
GPH 389 Real-Time Graphics Techniques
GPH 395 Computer Graphics Senior Project

Graphics Electives (1) - from the list at the bottom of the page.
Liberal Studies (4)
Open Electives (3)

Four-year schedule of courses for the Technical Designer Concentration:

First Year

Major Field Courses (6)

IM 230 Scripting for Interactive Media
and IM 330 Advanced Scripting for Interactive Media
or CSC 261 Programming Language I: C/C++
and CSC 262 Programming Language II: C/C++
GPH 211 Perceptual Principles for Digital Environments I
GPH 212 Perceptual Principles for Digital Environments II
ANI 201 Animation I
MAT 140 Discrete Mathematics I

Liberal Studies (4) - ART 102 and ART 106 are required.

Second Year

Major Field Courses (7)

GPH 250 Digital Modeling I
GPH 325 Survey of Computer Graphics
IT 236 User Interface Development
ART 242 Principles of Asian Art
IM 210 Introduction to Human-Computer Interaction
CMNS 220 Public Speaking
GPH 255 Hand Prototyping for Graphic Visualization

Liberal Studies (5)

Third Year
**Major Field Courses (5)**

- ART 322 Modernism to Postmodernism
- IM 315 Theory and Perception of Color
- GPH 338 Survey of 3-D Animation
- GPH 339 Advanced Rendering Techniques
- WRD 204 Technical Writing

**Graphics Electives (1) - from the list at the bottom of the page.**

**Liberal Studies (6)**

**Fourth Year**

**Major Field Courses (2)**

- GPH 395 Computer Graphics Senior Project
- GPH 388 Production Pipeline Techniques

**Graphics Electives (4) - from the list at the bottom of the page.**

**Liberal Studies (4)**

**Open Electives (4)**

**Graphics Electives List**

Students may take any of the following courses as long as they were not previously used to satisfy the computer graphics and animation core:

- ANI 300 3D Character Animation
- ANI 310 Motion Capture Workshop
- ART 225 Beginning Photography
- ART 329 Advanced Digital Photography
- ART 360 Illustration
- ART 373 History of Design
- IT 223 Data Analysis [Self Placement Test](#)
- IT 236 User Interface Development
- GPH 336 Smooth Surface Modeling for Graphics and Animation
- GPH 340 Procedural Shading
- GPH 341 Advanced Lighting Techniques
- GPH 348 Rigging for Animation
- GPH 376 Artificial Intelligence in Computer Games
- GPH 380 Visualization
- GPH 389 Real-Time Graphics Techniques
- GPH 250 Digital Modeling I
- GPH 259 Design Geometry
- GPH 329 Computer Graphics Development II
- GPH 350 Digital Modeling II
- GPH 360 Modeling Spaces
- GPH 374 Computer Games
- GPH 375 Advanced Graphics Development
- IM 270 User-Centered Web Design
- IM 210 Introduction to Human-Computer Interaction
IM 322       Multimedia
IM 330       Advanced Scripting for Interactive Media
or IM 336    Interactive Media Scripting for Programmers *
MAT 150      Calculus I
MAT 151      Calculus II
MAT 152      Calculus III

* Students who take CSC 261 and CSC 262 may take IM 330 or IM 336 as an elective. Only one of the two would count as an elective.

Open Electives
Open Electives may be taken from any department or program. These are the only courses that may be taken under the pass/fail option (see the undergraduate Bulletin for details). If you wish to pursue a minor, most minor field courses will be credited as open electives.

Note: Grades for all courses in the students major (i.e. non-Liberal Studies and non-Open Elective) must be 'C' or better. Grades of 'C-' may be accepted provided the overall grade point average in the major is 2.0 or better.

College of Computing and Digital Media - Undergraduate Studies  School of Computing (SoC)  Bachelor of Science Degree Programs  Computer Science

Computer Science

Graduates of the Bachelor of Science in Computer Science program are skilled problem solvers, sought-after programmers and software developers, and computer systems experts. They use their skills to improve or develop computer applications in a wide variety of areas.

Computer Science is a field that spans diverse areas including:

- Security and Cryptography
- Robotics
- Data Mining and Databases
- Distributed and Mobile Systems
- Intelligent Systems and gaming
- Computation Biology, and more

The BS in Computer Science at DePaul provides essential training in the foundations of computing, data storage and information processing. With this foundation, graduates of the program can easily adapt to and create new information technologies, new computing paradigms, and new ideas for applying computer systems.

The Software Engineering concentration provides students with skills, knowledge, and experiences in state-of-the-art software engineering methodologies, techniques, and applications.

What students learn in the BS in Computer Science program:

- Programming and software development skills, the technical tools of the IT trade
- An understanding of modern Computer Systems, which you will use to develop computer applications
- Skills in application areas such as security and cryptography, robotics and computer vision, data mining and databases, distributed and mobile systems, intelligent systems and gaming, computational biology, etc.
The Liberal Studies program is the general education portion of the curriculum at DePaul. Click here to view the CDM courses that qualify for Liberal Studies credit.

The coursework for the B.S. in Computer Science consists of:

- **The DePaul University Liberal Studies Program**: (19 courses, not including the Senior Capstone),
- **Major Field courses** (24 courses or 96 credits, including the Senior Capstone), and
- **Open Elective courses** (5 courses or 20 credits).

**Note**: CSC 208 The Computer and Social Responsibility must be taken to satisfy the Philosophical Inquiry Liberal Studies requirement.

The **18 required courses** provide training in the following fundamental areas:

A. mathematical tools  
B. problem solving, algorithms, and structured programming  
C. modeling and object-oriented programming  
D. computer systems  

They also include:

E. the senior capstone course  
F. the communication requirement

<table>
<thead>
<tr>
<th>A. Mathematical Tools (3 Courses)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>MAT 140 Discrete Mathematics I</td>
<td></td>
</tr>
<tr>
<td>MAT 141 Discrete Mathematics II</td>
<td></td>
</tr>
<tr>
<td>IT 223 Data Analysis</td>
<td></td>
</tr>
</tbody>
</table>

| B. Problem Solving, algorithms, and structured programming (3 Courses): |
|-----------------|--|-------------------|
| CSC 241         | Introduction to Computer Science I |  |
| CSC 242         | Introduction to Computer Science II |  |
| CSC 321         | Design and Analysis of Algorithms   |  |

<table>
<thead>
<tr>
<th>C. Modeling and Object-Oriented Programming (4 courses):</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSC 224 Java for Programmers</td>
</tr>
<tr>
<td>CSC 309 Object-Oriented Programming in C++</td>
</tr>
<tr>
<td>CSC 383 Data Structures and Algorithms in Java</td>
</tr>
<tr>
<td>or CSC 393 Data Structures in C++</td>
</tr>
<tr>
<td>SE 350 Object-Oriented Software Development</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>D. Computer Systems (5 courses):</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSC 348 Introduction to Compiler Design</td>
</tr>
<tr>
<td>CSC 355 Database Systems</td>
</tr>
<tr>
<td>CSC 373 Computer Systems I</td>
</tr>
<tr>
<td>CSC 374 Computer Systems II</td>
</tr>
<tr>
<td>CSC 376 Distributed Systems</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>E. Capstone (1 course):</th>
</tr>
</thead>
</table>

F. Communication (2 courses):

WRD 204 Technical Writing
CMNS 220 Public Speaking

Major Field Courses (6)
At least 4 of the 6 Major Field courses (i.e. 16 out of 24 credits) must be taken from the list of "ADVANCED MAJOR FIELD COURSES" (see below).

Major Field Courses

Introductory Major Field Courses

- CSC 233 Codes and Ciphers
- CSC 235 Problem Solving
- GAM 244 Game Development I
- GAM 245 Game Development II
- IM 210 Introduction to Human-Computer Interaction
- IM 336 Interactive Media Scripting for Programmers
- IT 130 The Internet and the Web
- IT 231 Web Development I
- IT 232 Web Development II
- IT 263 Applied Networks and Security
- MAT 150 Calculus I
- MAT 151 Calculus II

Advanced Major Field Courses
The courses are listed by area; there is NO requirement that the 4 courses must be from the same or from different areas.

Artificial Intelligence

- CSC 357 Expert Systems
- CSC 358 Symbolic Programming
- CSC 389 Foundations of Artificial Intelligence

Computational Sciences

CSC 331 Scientific Computing

Computer Game Development

- GAM 350 Physics for Game Developers
- GAM 353 Tool Programming for Game Development
- GAM 374 Action Games Programming
- GAM 376 Artificial Intelligence for Computer Games
- GAM 378 Strategy Games Programming
- GAM 380 Console Game Development Environments
- GAM 382 Serious Games
- GAM 386 Game Development for Mobile Devices
GAM 390 Multiplayer Game Development
GAM 394 Game Development Project I
GAM 395 Game Development Project II

Computer Graphics

GPH 325 Survey of Computer Graphics
GPH 329 Computer Graphics Development II
GPH 339 Advanced Rendering Techniques
GPH 372 Principles of Computer Animation
GPH 375 Advanced Graphics Development
GPH 389 Real-Time Graphics Techniques
GPH 395 Computer Graphics Senior Project

Computer Networks

TDC 362 Principles of Data Communications
TDC 363 Introduction to Local Area Networks
TDC 365 Network Interconnection Technologies
TDC 371 Wireless Communications Networks
TDC 372 Digital Access Services
TDC 375 Network Protocols
TDC 379 Telecommunication and Network Security Practicum

Computer Systems

CSC 343 Introduction to Operating Systems
CSC 347 Concepts of Programming Languages
CSC 375 Introduction to Robotics
TDC 368 Network Programming

Computer Vision

CSC 381 Introduction to Digital Image Processing
CSC 382 Applied Image Analysis

Data Analysis and Mining

CSC 324 Data Analysis and Statistical Software II
CSC 334 Advanced Data Analysis
CSC 367 Introduction to Data Mining

Data Storage

CSC 352 Database Programming
CSC 353 Advanced Database Concepts

Human-Computer Interaction

CSC 305 Graphical User Interface Implementation
IM 360 User-Centered Evaluation
The Bachelor of Science in Computer Science: **Software Engineering Concentration Program**

Program Requirements

The coursework for the BS in CS: SE Concentration consists of the DePaul University Liberal Studies Program (19 courses), Major Field courses (24 courses or 96 credits), and Open Elective courses (5 courses or 20 credits).

Note: CSC 208 The Computer and Social Responsibility must be taken to satisfy the Philosophical Inquiry Liberal Studies requirement.

The **Major Field** courses for the BS in CS Software Engineering (SE) Concentration consists of 21 required (4 credit) courses and 3 SE Concentration elective courses (or 12 credits). The 21 required courses include the 18 courses required for the BS in Computer Science (see above) together with an additional 3 required SE courses and 3 SE concentration electives.

The **three required SE courses are**:  
SE 325 Principles and Practices of Software Engineering
SE 330 Object Oriented Modeling
SE 352 Object-Oriented Enterprise Application Development
SE Concentration Elective courses (3 courses or 12 credits):

- CNS 340 Fundamentals of Information Assurance
- CSC 305 Graphical User Interface Implementation
- SE 333 Software Testing
- SE 368 Software Measurement and Project Estimation

Open Electives may be taken from any department or program. These are the only courses that may be taken under the pass/fail option. If you wish to pursue a minor, most minor field courses will be credited as open electives.

Note: Grades for all courses in the students major (i.e. non-Liberal Studies and non-Open Elective) must be ‘C’ or better. Grades of ‘C-’ may be accepted provided the overall grade point average in the major is 2.0 or better.
IT 231  Web Development I
CSC 233  Codes and Ciphers
MAT 140  Discrete Mathematics I

Liberal Studies (6)

Second Year

Major Field Courses (7)

CSC 211  Programming in Java I Self Placement Test
and  CSC 212  Programming in Java II
or  CSC 261  Programming Languages I: C/C++
and  CSC 262  Programming Languages II: C/C++
CSC 373  Computer Systems I
CNS 340  Fundamentals of Information Assurance (ex CSC 390)
TDC 375  Network Protocols
TDC 365  Network Interconnection Technologies
WRD 204  Technical Writing

Liberal Studies (5)

Third Year

Major Field Courses (4)

TDC 377  Fundamentals of Network Security
CNS 378  Host and Information Security
CNS 320  Computer Forensic and Incident Response
CMNS 212  Small Group Communication
or  CMNS 220  Public Speaking

300-level CDM elective (1) -chosen in consultation with student's advisor.
Liberal Studies (7)

Fourth Year

Major Field Courses (6)

SE 325  Principles and Practices of Software Engineering Self Placement Test
TDC 379  Telecommunication and Network Security Practicum
CNS 228  Legal, Ethical and Social Issues in Information Security
CNS 394  Information Systems Security Engineering I
CNS 395  Information Systems Security Engineering II
ACC 101  Introduction to Accounting I
or  FIN290  Finance for Non-Commerce Majors

300-level CDM elective (1) -chosen in consultation with student's advisor.
Liberal Studies (1)
Open Electives (4)

Open Electives
Open Electives may be taken from any department or program. These are the only courses that may be taken under the pass/fail option (see the undergraduate Bulletin for details). If you wish to pursue a minor, most minor field courses will be credited as open electives.

Note: Grades for all courses in the students major (i.e. non-Liberal Studies and non-Open
Elective) must be ‘C’ or better. Grades of ‘C-’ may be accepted provided the overall grade point average in the major is 2.0 or better.

**Information Systems**

The Bachelor of Science in Information Systems program emphasizes both technical and managerial expertise. Its graduates start their careers in IT project management, systems analysis & design, database administration, helpdesk, enterprise systems administration, and user training.

DePaul's BS in Information Systems provides students with a solid and diverse foundation in information technology, preparing for the changing technology demands of the business world.

The program is focused on the organizational and business application of computers and related technologies. Students within the IS program apply their knowledge of hardware, software, business processes and procedures to help organizations improve their performance and meet tactical and strategic goals.

What students learn from this program:

- systems analysis and design skills
- IT project management skills
- supply chain management (SCM) and customer relationship management (CRM)
- knowledge of enterprise systems
- knowledge of systems architecture and design

The Liberal Studies program is the general education portion of the curriculum at DePaul. Click here to view the CDM courses that qualify for liberal studies credit.

Four-year schedule of courses:

**First Year**

*Major Field Courses (5)*

IT 130 The Internet and the Web *Self Placement Test Available*
IT 201 Introduction to Information Systems
IT 240 Introduction to Desktop Databases *Self Placement Test Available*
IT 263 Applied Networks and Security
IT 230 Building Internet Applications

*Liberal Studies (7)*

**Second Year**

*Major Field Courses (7)*

IT 223 Data Analysis *Self Placement Test Available*
IM 210 Introduction to Human-Computer Interaction
IT 215 Analysis and Design Techniques *Self Placement Test Available*
CSC 211 Programming in Java I *Self Placement Test Available*
ACC 101 Introduction to Accounting I
or MKT 301 Principles of Marketing
CMN 212 Small Group Communication
or CMN 220 Public Speaking
WRD 204 Technical Writing [formerly Eng 204]
or WRD 301 Writing in the Professions

Liberal Studies (5)

Third Year

Major Field Courses (5)
IT 236 User Interface Development
CSC 212 Programming in Java II
IS 371 Introduction to I.T System Management
IS 372 Fundamentals of Software Project Management
IS 373 Introduction to Large Systems Implementation

Liberal Studies (4)
Open Electives (3)

Fourth Year

Major Field Courses (3)
CNS 340 Fundamentals of Information Assurance : (Formerly CSC390)
IS 375 Object-Oriented Analysis and Design
IS 376 Information Systems Project

300-Level CDM electives (2) - chosen in consultation with your advisor.
Liberal Studies (3)
Open Electives (4)

Open Electives
Open Electives may be taken from any department or program. These are the only courses that may be taken under the pass/fail option (see the undergraduate Bulletin for details). If you wish to pursue a minor, most minor field courses will be credited as open electives.

Note: Grades for all courses in the students major (i.e. non-Liberal Studies and non-Open Elective) must be 'C' or better. Grades of 'C-' may be accepted provided the overall grade point average in the major is 2.0 or better.

Information Technology

The Bachelor of Science in Information Technology is a technical degree that instructs students in core competencies in the areas of problem solving and programming, networks and communications systems, databases, internet and Web technologies, security, and project management. Students also receive a solid academic foundation in business concepts and technical communication.

The Liberal Studies program is the general education portion of the curriculum at DePaul. Click here to view the CDM courses that qualify for liberal studies credit.

Four-year schedule of courses:
**First Year**

*Major Field Courses (6)*

- IT 130  The Internet and the Web [Self Placement Test Available](#)
- IT 240  Introduction to Desktop Databases [Self Placement Test Available](#)
- IT 263  Applied Networks and Security
- IT 230  Building Internet Applications [Self Placement Test Available](#)
- CSC 211 Programming in Java I [Self Placement Test Available](#)
- and  CSC 212 Programming in Java II
  
  or CSC 261 Programming Languages I: C/C++
  and  CSC 262 Programming Languages II: C/C++
  
  or CSC 241 Introduction to Computer Science I
  and  CSC 242 Introduction to Computer Science II

*Liberal Studies (6)*

**Second Year**

*Major Field Courses (7)*

- CSC 309  Object-Oriented Programming in C++ (Take this if you took the JAVA sequence.)
  
  or CSC 224 Java for Programmers (Take this if you took C++ programming.) [Self Placement Test Available](#)
- CSC 383  Data Structures and Algorithms in Java
  
  or CSC 393 Data Structures in C++
- CSC 352  Database Programming
- IT 215  Analysis and Design Techniques [Self Placement Test Available](#)
- IT 223  Data Analysis [Self Placement Test Available](#)
- MAT 140  Discrete Mathematics I
- WRD 204 Technical Writing [formerly Eng 204]
  
  or WRD 301 Writing in the Professions [prereq: ENG 104 or WRD 104]

*Liberal Studies (5)*

**Third Year**

*Major Field Courses (6)*

- CNS 378 Host and Information Security
- CSC 373 Computer Systems I
  
  or ECT 365 Web Server Operations
  
  or TDC 311 Computers in Telecommunications Systems
- IS 372  Fundamentals of Software Project Management
- CMN 212 Small Group Communication
  
  or CMN 220 Public Speaking
- MKT 301  Principles of Marketing

*(1) of the 4 CDM Electives of which at least 3 must be 300-level and at most one could be chosen from the restricted list below*

*Liberal Studies (5)*  Required: ECO 105 Principles of Microeconomics

**Fourth Year**

*Major Field Courses (5)*

- ACC 101 Introduction to Accounting I
  
  or FIN 290 Finance for Non-Commerce Majors

*(3) of the 4 CDM Electives of which 3 must be 300-level and at most one could be chosen from the restricted list below.*

*Capstone (Any CDM Capstone)*

*Liberal Studies (3)*

*Open Electives (5)*
**Restricted List of CDM Electives** (Only 1 CDM Elective can come from this list):

IM 210     Introduction to Human-Computer Interaction
IM 270     User-Centered Web Design
GPH 211    Perceptual Principles for Digital Environments I
GPH 212    Perceptual Principles for Digital Environments II
GPH 213    Perceptual Principles for Digital Environments III
GPH 250    Digital Modeling I
GPH 259    Design Geometry
GAM 244    Game Development I
GAM 245    Game Development II
ANI 201    Animation I
ANI 230    3d Modeling for Animation and Gaming
ANI 231    3d Animation for Cinema and Gaming
ANI 240    Animation II

**Open Electives**

Open Electives may be taken from any department or program. These are the only courses that may be taken under the pass/fail option (see the undergraduate Bulletin for details). If you wish to pursue a minor, most minor field courses will be credited as open electives.

**Note:** Grades for all courses in the students major (i.e. non-Liberal Studies and non-Open Elective) must be 'C' or better. Grades of 'C-' may be accepted provided the overall grade point average in the major is 2.0 or better.

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College of Computing and Digital Media - Undergraduate Studies  ▶  School of Computing (SoC)  ▶  Bachelor of Science Degree Programs  ▶  Interactive Media (Joint with CIM)

**Interactive Media (Joint with CIM)**

A major in Interactive Media provides students with skills and expertise for designing and producing web applications, interactive presentations and user interfaces for computer applications and a variety of consumer devices.

The Bachelor of Science in Interactive Media degree prepares students for the expanding field of interaction design and its application to multimedia and web development. The base program integrates technical and artistic disciplines. Technical concepts and skills involve web markup languages, interactive scripting and human-centered design. The student also explores artistic areas of study such as communication design, animation, game design and cinema.

What students learn from this program:

- Develop well-designed web pages, sites, and interactive applications
- Design, code and create content for casual games
- Conduct usability tests for interactive web sites
- Employ visual design principles to express ideas and concepts
- Create prototypes for interactive displays

The Liberal Studies program is the general education portion of the curriculum at DePaul. Click here to view the CDM courses that qualify for Liberal Studies credit.

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Four-year schedule of courses:

**First Year**
**Major Field Courses (6)**

- IT 130  The Internet and the Web
- ANI 105  Intro to Visual Design
- IM 270  User-Centered Web Design
- ART 260  Art and Design I: History, Concept, Structure
- IT 240  Introduction to Desktop Databases
- ANI 101  Animation for Non-Majors  
  or ANI 201  Animation I

**Liberal Studies (6) - Required:** PSY 105 Introductory Psychology I and DC 205 Foundations of Cinema

**Second Year**

**Major Field Courses (7)**

- IT 223  Data Analysis
- IT 231  Web Development I
- IM 210  Introduction to Human-Computer Interaction
- IM 220  Interactive Media I
- IM 230  Scripting for Interactive Media
- ART 264  Typography I
- ANI 230  3D Modeling

**Liberal Studies (5) - Required:** CSC 208 Computers and Social Responsibility or IT 228 Ethics in Computer Games and Cinema

**Third Year**

**Major Field Courses (5)**

- IM 360  User-Centered Evaluation
- IM 320  Interactive Media II
- IM 330  Advanced Scripting for Interactive Media
- WRD 204  Technical Writing
- GAM 244  Game Development I

**IM Electives (3)**  
**Liberal Studies (4)**

**Fourth Year**

**Major Field Courses (1)**

- IM 394  Human-Computer Interaction Capstone Course  
  or CSC 394  Software Projects

**IM Electives (2) - chosen in consultation with student's advisor**

**Liberal Studies (4)**  
**Open Electives (5)**

**IM Electives**

Any 200- or 300-level CDM, ART or CMN course.

Any of the following:

- PSY 360  Theories of Learning and Cognition
- PSY 375  Sensation and Perception
Open Electives
Open Electives may be taken from any department or program. These are the only courses that may be taken under the pass/fail option (see the undergraduate Bulletin for details). If you wish to pursue a minor, most minor field courses will be credited as open electives.

Note: Grades for all courses in the students major (i.e. non-Liberal Studies and non-Open Elective) must be ‘C’ or better. Grades of ‘C-’ may be accepted provided the overall grade point average in the major is 2.0 or better.

Mathematics / Computer Science (Joint with LA&S)

Exceptional students with an interest in the highly theoretical nexus of math and computer science will find challenging opportunities from the BS in Math and Computer Science degree.

Mathematics is a key element to the theory and practice of computer science and technology:

- Number theory forms the basis for encryption algorithms for messages sent over the Internet.
- Facts from projective geometry and multivariable calculus underlie the computer algorithms that control computer animation.
- Properties of abstract groups are instrumental in correcting transmission errors that occur when information is sent from one computer to another.
- Graph theory and combinatorics are used to create algorithms for Internet search engines and analyze Internet routing protocols.

This joint major program is intended to appeal to academically talented students. It is designed to prepare them for graduate study in various areas of computer science such as theoretical computer science, graphics, data analysis, artificial intelligence, and computational methods and in areas in applied mathematics such as numerical analysis or discrete mathematics.

The program is also designed to prepare students to compete for the more theoretical complex jobs found in computer software development.

What students learn from the program:

- theory of computation
- computational mathematics
- artificial intelligence
- data analysis
- graphics
- computer vision

It is highly recommended that students concentrate on one or two areas for their advanced classes to achieve depth, but they are not required to do so. Faculty advisors are available to assist students in their selection.
The BS in Math and Computer Science consists of five parts:

- The DePaul Liberal Studies program (19 courses, not including the capstone course).
  
  Click here to view the CDM courses that qualify for Liberal Studies credit.

- Core Classes (14 courses)
- Advanced Classes (7 courses)
- Capstone (1 course)
- Open Electives (7 courses)

The courses in the Core build the necessary foundation in discrete and continuous mathematics, problem solving, algorithmic thinking and programming. The Advanced Classes allow the student to explore the different areas of mathematics and computer science in more depth.

**CORE CLASSES** (14 courses)

**Mathematical Foundations**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
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</thead>
<tbody>
<tr>
<td>MAT 140</td>
<td>Discrete Mathematics I</td>
</tr>
<tr>
<td>MAT 141</td>
<td>Discrete Mathematics II</td>
</tr>
<tr>
<td>MAT 260</td>
<td>Multivariable Calculus I</td>
</tr>
<tr>
<td>MAT 262</td>
<td>Linear Algebra</td>
</tr>
</tbody>
</table>

In addition, students must complete one of the following three-course sequences:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAT 150</td>
<td>Calculus I</td>
</tr>
<tr>
<td>and MAT 151</td>
<td>Calculus II</td>
</tr>
<tr>
<td>and MAT 152</td>
<td>Calculus III</td>
</tr>
<tr>
<td>or MAT 160</td>
<td>Calculus for Mathematics and Science Majors I</td>
</tr>
<tr>
<td>and MAT 161</td>
<td>Calculus for Mathematics and Science Majors II</td>
</tr>
<tr>
<td>and MAT 162</td>
<td>Calculus for Mathematics and Science Majors II</td>
</tr>
<tr>
<td>or MAT 170</td>
<td>Calculus I with Scientific Applications</td>
</tr>
<tr>
<td>and MAT 171</td>
<td>Calculus II with Scientific Applications</td>
</tr>
<tr>
<td>and MAT 172</td>
<td>Calculus III with Differential Equations</td>
</tr>
</tbody>
</table>

(MAT 147, MAT 148 and MAT 149 may also be used to satisfy this requirement)

**Problem Solving, algorithms, and structured programming**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSC 241</td>
<td>Introduction to Computer Science I</td>
</tr>
<tr>
<td>CSC 242</td>
<td>Introduction to Computer Science II</td>
</tr>
<tr>
<td>CSC 321</td>
<td>Design and Analysis of Algorithms</td>
</tr>
<tr>
<td>CSC 383</td>
<td>Data Structures and Algorithms in Java</td>
</tr>
<tr>
<td>or CSC 393</td>
<td>Data Structures in C++</td>
</tr>
</tbody>
</table>

**Object-Oriented Programming**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSC 224</td>
<td>Java for Programmers Self Placement Test</td>
</tr>
<tr>
<td>or CSC 309</td>
<td>Object-Oriented Programming in C++</td>
</tr>
</tbody>
</table>
ADVANCED CLASSES (7 Courses)

Students can choose advanced computer science and mathematics classes from different areas including theory of computation, computational mathematics, artificial intelligence, data analysis, graphics, and computer vision. It is recommended that students concentrate on one or two areas for their advanced classes to achieve depth, but they are not required to do so. Students are strongly encouraged to discuss course selection with an advisor.

Students choose seven courses from the following area lists. At least three of the courses have to be in computer science (or graphics) and at least three in mathematics. Courses not on this list need to be approved by an advisor. In particular, students may wish to arrange with a professor to take an independent study or a research experience (MAT 399 or CSC 399 or IT 300) in order to explore a subject more deeply than is possible in a scheduled course.

Theory of Computation Area
The courses in the theory area explore the mathematical and logical foundations of computer science.

- MAT 302 Combinatorics
- MAT 303 Theory of Numbers
- MAT 351 Probability and Statistics I
- MAT 310 Abstract Algebra I
- MAT 311 Abstract Algebra II
- MAT 312 Abstract Algebra III
- MAT 335 Real Analysis I
- MAT 372 Logic and Set Theory
- CSC 235 Problem Solving
- CSC 327 Problem Solving for Contests
- CSC 333 Cryptology
- CSC 344 Automata Theory and Formal Grammars
- CSC 347 Concepts of Programming Languages
- CSC 348 Introduction to Compiler Design
- CSC 387 Operations Research I: Linear Programming
  or MAT 387 Operations Research I: Linear Programming
- CSC 389 Theory of Computation
- CSC 358 Symbolic Programming

Computational Methods Area
The computational methods area investigates quantitative and computational methods in computer science.

- CSC 331 Scientific Computing
- CSC 385 Numerical Analysis
  or MAT 385 Numerical Analysis I
- CSC 386 Advanced Numerical Analysis
  or MAT 386 Numerical Analysis II
- MAT 330 Methods of Computation and Theoretical Physics I
- MAT 331 Methods of Computation and Theoretical Physics II
- MAT 384 Mathemactical Modeling
Artificial Intelligence Area
For students with an interest in the computational relations between syntax and semantics.

CSC 380  Foundations of Artificial Intelligence
CSC 357  Expert Systems
CSC 358  Symbolic Programming

Data Analysis Area
For students who are interested in statistical and computational Analysis of data. Many of the courses in this area require the student to take MAT 351-353.

CSC 328  Data Analysis for Experimenters
CSC 334  Advanced Data Analysis
or MAT 354  Multivariate Statistics
CSC 332  Simulation and Modeling
or MAT 359  Simulation and Models and the Monte Carlo Method
CSC 367  Introduction to Data Mining
MAT 261  Multivariate Calculus II
MAT 351  Probability and Statistics I
MAT 352  Probability and Statistics II
MAT 353  Probability and Statistics III
MAT 355  Stochastic Processes
MAT 357  Nonparametric Statistics
MAT 370  Advanced Linear Algebra
MAT 356  Applied Regression Analysis
MAT 358  Applied Time Series and Forecasting

Graphics Area
The graphics courses are intended for students who want to study the technical and mathematical foundations of computer graphics and animation.

MAT 337  Complex Analysis
MAT 261  Multivariable Calculus II
MAT 370  Advanced Linear Algebra
CSC 385  Numerical Analysis
or MAT 385  Numerical Analysis I
GPH 211  Perceptual Principles for Digital Environments I
GPH 212  Perceptual Principles for Digital Environments II
GPH 325  Survey of Computer Graphics
GPH 329  Computer Graphics Development II
GPH 336  Smooth Surface Modeling for Graphics and Animation
GPH 372  Principles of Computer Animation

Computer Vision Area
Computer vision studies the mathematical and algorithmic underpinnings of image analysis and image processing.

MAT 261  Multivariable Calculus II
MAT 335  Real Analysis I
MAT 381  Fourier Analysis and Special Functions
MAT 370  Advanced Linear Algebra
MAT 384  Mathematical Modeling
CSC 381  Introduction to Digital Image Processing
CSC 383  Applied Image Analysis  
CSC 384  Introduction to Computer Vision  

**CAPSTONE COURSES** (1 course)

Students can choose from several capstone courses, depending on their interest and coursework:

- CSC 378  Software Projects for Community Clients
- CSC 394  Software Projects
- GPH 395  Computer Graphics Senior Project
- MAT 398  Senior Capstone Seminar

Students need to make sure that they cover all prerequisites of their respective capstone (possibly using open electives).

**OPEN ELECTIVES** (7 courses)

Students choose seven (7) open electives. Open Electives may be taken from any department or program. These are the only courses that may be taken under the pass/fail option (see the undergraduate Bulletin for details). If you wish to pursue a minor, most minor field courses will be credited as open electives.

*Note:* Grades for all courses in the students major (i.e. non-Liberal Studies and non-Open Elective) must be 'C' or better. Grades of 'C-' may be accepted provided the overall grade point average in the major is 2.0 or better.

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**Network Technologies**

The **BS degree in Network Technology** trains professionals who meet the current industry demands for innovative network designs, and develop network applications and services for business enterprises and the network providers that serve them.

Students in DePaul's **Network Technology Program** will learn the theory and practice of designing, deploying and managing both wired and wireless networks technologies, including broadband Internet access technologies, interconnection technologies, network convergence, and network security.

The program provides a combined emphasis on both foundational theory and hands-on experience that allow students to design, configure, and manage equipment and services in a variety of network environments.

Students gain experience with network devices and servers in lab facilities focused on enterprise network, security, and multimedia network services.

**Concentrations**

The degree features a Standard Concentration, as well as concentrations in Network Security and Application Development.

*What students learn from the program:*
What students learn from the program:
- The protocols and services that enable Internet and LAN services
- The design and management of local and wide area network
- Voice and data network convergence through VoIP technologies
- Wireless networks (WiFi, WiMAX, Cellular, and 3G)
- Network security

The Liberal Studies program is the general education portion of the curriculum at DePaul. Click here to view the CDM courses that qualify for Liberal Studies credit.

Four-year schedule of courses for the Standard Concentration:

**First Year**

_Major Field Courses (6)_

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>IT 130</td>
<td>The Internet and the Web Self Placement Test</td>
<td></td>
</tr>
<tr>
<td>IT 201</td>
<td>Introduction to Information Systems</td>
<td></td>
</tr>
<tr>
<td>IT 240</td>
<td>Introduction to Desktop Databases Self Placement Test</td>
<td></td>
</tr>
<tr>
<td>IT 263</td>
<td>Applied Networks and Security</td>
<td></td>
</tr>
<tr>
<td>IT 231</td>
<td>Web Development I</td>
<td></td>
</tr>
<tr>
<td>MAT 140</td>
<td>Discrete Mathematics I</td>
<td></td>
</tr>
</tbody>
</table>

_LIBERAL STUDIES (6)_

**Second Year**

_Major Field Courses (6)_

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
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</tr>
</thead>
<tbody>
<tr>
<td>IT 223</td>
<td>Data Analysis Self Placement Test</td>
<td></td>
</tr>
<tr>
<td>TDC 311</td>
<td>Computers in Telecommunications Systems</td>
<td></td>
</tr>
<tr>
<td>TDC 362</td>
<td>Principles of Data Communications</td>
<td></td>
</tr>
<tr>
<td>WRD 204</td>
<td>Technical Writing</td>
<td></td>
</tr>
<tr>
<td>or WRD 301</td>
<td>Writing in Workplace Contexts</td>
<td></td>
</tr>
<tr>
<td>CSC 211</td>
<td>Programming in Java I Self Placement Test</td>
<td></td>
</tr>
<tr>
<td>and CSC 212</td>
<td>Programming in Java II</td>
<td></td>
</tr>
<tr>
<td>or CSC 261</td>
<td>Programming Languages I: C/C++</td>
<td></td>
</tr>
<tr>
<td>and CSC 262</td>
<td>Programming Languages II: C/C++</td>
<td></td>
</tr>
</tbody>
</table>

_LIBERAL STUDIES (6)_

**Third Year**

_Major Field Courses (4)_

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>TDC 363</td>
<td>Introduction to Local Area Networks</td>
<td></td>
</tr>
<tr>
<td>TDC 364</td>
<td>Voice Communications Technologies</td>
<td></td>
</tr>
<tr>
<td>TDC 365</td>
<td>Network Interconnection Technologies</td>
<td></td>
</tr>
<tr>
<td>CMNS 212</td>
<td>Small Group Communication</td>
<td></td>
</tr>
<tr>
<td>or CMNS 220</td>
<td>Public Speaking</td>
<td></td>
</tr>
</tbody>
</table>

(1) 300-level TDC elective chosen in consultation with student's advisor.

_LIBERAL STUDIES (4)_

_OPEN ELECTIVES (3)_

**Fourth Year**
Four-year schedule of courses for the **Network Security Concentration**.

This concentration is designed to provide focused coursework in network security technologies, including detailed instruction in security infrastructure design, deployment, configuration and support.

While this concentration is designed for students that are planning to start their career as network security engineers, security administrators, security auditors and security infrastructure designers, it is also appropriate for any student that wants to integrate security practice within their career.

**First Year**

**Major Field Courses (6)**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>IT 130</td>
<td>The Internet and the Web Self Placement Test</td>
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<tr>
<td>IT 201</td>
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<tr>
<td>IT 240</td>
<td>Introduction to Desktop Databases Self Placement Test</td>
</tr>
<tr>
<td>IT 263</td>
<td>Applied Networks and Security</td>
</tr>
<tr>
<td>IT 231</td>
<td>Web Development I</td>
</tr>
<tr>
<td>MAT 140</td>
<td>Discrete Mathematics I</td>
</tr>
</tbody>
</table>

**Liberal Studies (6)**

**Second Year**

**Major Field Courses (6)**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSC 261</td>
<td>Programming Languages I: C/C++</td>
</tr>
<tr>
<td>CSC 262</td>
<td>Programming Languages II: C/C++</td>
</tr>
<tr>
<td>TDC 311</td>
<td>Computers in Telecommunications Systems</td>
</tr>
<tr>
<td>TDC 362</td>
<td>Principles of Data Communications</td>
</tr>
<tr>
<td>CNS 340</td>
<td>Fundamentals of Information Assurance</td>
</tr>
<tr>
<td>WRD 204</td>
<td>Technical Writing</td>
</tr>
<tr>
<td>or WRD 301</td>
<td>Writing in Workplace Contexts</td>
</tr>
</tbody>
</table>

**Liberal Studies (6)**

**Third Year**

**Major Field Courses (4)**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>TDC 363</td>
<td>Introduction to Local Area Networks</td>
</tr>
<tr>
<td>TDC 365</td>
<td>Network Interconnection Technologies</td>
</tr>
<tr>
<td>TDC 377</td>
<td>Fundamentals of Network Security</td>
</tr>
<tr>
<td>CMNS 212</td>
<td>Small Group Communication</td>
</tr>
<tr>
<td>or CMNS 220</td>
<td>Public Speaking</td>
</tr>
</tbody>
</table>
(1) 300-level TDC elective chosen in consultation with student's advisor.

Liberal Studies (7)

Fourth Year

Major Field Courses (5)

- CNS 378 Host and Information Security
- TDC 379 Telecommunication and Network Security Practicum
- TDC 375 Network Protocols
- TDC 368 Network Programming
- TDC 376 Network Project

(1) 300-level TDC elective chosen in consultation with student's advisor.

Open Electives (6)

Four-year schedule of courses for the Application Development Concentration:

First Year

Major Field Courses (6)

- IT 130 The Internet and the Web Self Placement Test
- IT 201 Introduction to Information Systems
- IT 240 Introduction to Desktop Databases Self Placement Test
- IT 263 Applied Networks and Security
- IT 231 Web Development I
- MAT140 Discrete Mathematics I

Liberal Studies (6)

Second Year

Major Field Courses (6)

- IT 223 Data Analysis
- TDC 311 Computers in Telecommunications Systems
- TDC 362 Principles of Data Communications
- CSC 211 Programming in Java I
  or CSC 261 Programming Languages I: C/C++
- CSC 212 Programming in Java II
  or CSC 262 Programming Languages II: C/C++
- WRD 204 Technical Writing
  or WRD 301 Writing in Workplace Contexts

Liberal Studies (6)

Third Year

Major Field Courses (6)

- TDC 363 Introduction to Local Area Networks
- TDC 365 Network Interconnection Technologies
- TDC 368 Network Programming
- CSC 309 Object-Oriented Programming in C++
  or CSC 224 Java for Programmers Self Placement Test
- CSC 383 Data Structures and Algorithms in Java
  or CSC 393 Data Structures in C++
CMNS 212  Small Group Communication
or CMNS 220  Public Speaking

(1) 300-level TDC elective chosen in consultation with student's advisor.
Liberal Studies (4)
Open Electives (1)

**Fourth Year**

Major Field Courses (2)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>TDC 375</td>
<td>Network Protocols</td>
</tr>
<tr>
<td>TDC 376</td>
<td>Network Project</td>
</tr>
</tbody>
</table>

(1) 300-level TDC elective chosen in consultation with student's advisor.
Liberal Studies (3)
Open Electives (6)

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**Open Electives**
Open Electives may be taken from any department or program. These are the only courses that may be taken under the pass/fail option (see the undergraduate Bulletin for details). If you wish to pursue a minor, most minor field courses will be credited as open electives.

*Note:* Grades for all courses in the students major (i.e. non-Liberal Studies and non-Open Elective) must be 'C' or better. Grades of 'C-' may be accepted provided the overall grade point average in the major is 2.0 or better.
School of Cinema and Interactive Media (CIM)

About the School of Cinema and Interactive Media

The School of Cinema and Interactive Media (CIM) houses CDM's creative degrees. With an emphasis on all aspects of production, students can earn degrees that prepare them for work in digital cinema, animation, computer game development, and interactive media.

Faculty

LISA BARCY, M.A.
Instructor
Columbia College

ROBIN BURKE, Ph.D.
Associate Professor
Northwestern University

SHAYNA CONNELLY, M.F.A.
Instructor
Columbia College

RONALD ELTANAL, M.F.A.
Associate Professor
University of Southern California

SCOTT ERLINDER, M.F.A.
Assistant Professor
Columbia College

DANA HODGDON, M.A.
Visiting Professor
Northwestern University

MATT IRVINE, M.F.A.
Assistant Professor
Columbia College

JOSHUA JONES, M.F.A.
Assistant Professor
University of Southern California

STEVEN JONES, B.S.
Producer in Residence
Illinois Institute of Technology

EDWARD KEENAN, M.S.
Instructor
University of Illinois at Chicago

DANIEL KLEIN, B.F.A.
Instructor
New York University
The Liberal Studies Program is the common curriculum taken by all students in the seven undergraduate colleges of DePaul University. Overall, the Program is designed to develop students writing abilities, computational and technological proficiencies, and critical and creative thinking skills.
Each major in the University has unique Liberal Studies requirements. Please consult the Liberal Studies catalog for your relevant requirements as a CDM student as well as for information about the Modern Language Option.

College of Computing and Digital Media - Undergraduate Studies ○ School of Cinema and Interactive Media (CIM) ○ CDM Liberal Studies Courses

CDM Liberal Studies Courses

Have you ever been interested in learning how to create interactive web environments, put together computer animation, or do you want to know more about codes and ciphers as featured in the movies Enigma or Windtalkers? Then CDM has some great courses for you! CDM offers dozens of courses in many domains of the Liberal Studies Program. You can experiment with computer graphics, programming and e-commerce technology and fulfill a requirement at the same time. Many of these courses also serve as gateway courses into more advanced CDM courses. Who knows, you might just like it and want to come back for more!

If you have a specific interest, in something like how the Internet functions, you can click here for a list of courses by topic.

CDM Liberal Studies Courses for CDM students

-Rule 1-
A CDM student can take any CDM course approved for liberal studies credit and use it to satisfy a domain of the liberal studies program (LSP) provided:

1. The course is NOT required as part of the students major
   EXAMPLES:
   • a Computer Graphics and Motion Technology (CGMT) student cannot use GPH 211 to satisfy the arts and literature requirement of LSP, as GPH 211 is required by all CGMT tracks.
   • An E-Commerce Technology (ECT) major CAN take GPH 211 to satisfy the arts and literature requirement of the LSP
2. The course qualifies for a liberal studies program domain that IS required by the students major
   EXAMPLES:
   • a Computer Science (CS) student CAN take GPH 259 to satisfy the Scientific Inquiry (SI)-Quantitative-Lab requirement of LSP because the course is not required by the CS major AND it counts for SI-Lab which is a required domain for CS students
   • any CDM student CANNOT take CSC 250 to satisfy SI because, although the course is not required by any of our programs, it qualifies for SI-quantitative (not Lab) which is NOT a required domain for CTI students

-Rule 2-
No double counting allowed for CDM classes by CDM students.
EXAMPLES:

• A CS student takes GPH 211 for arts and literature LSP. Although GPH 211 is allowed as an elective even if it is not a 300 level course, the student CANNOT count the course both as satisfying an LSP domain AND as an elective for the CS program

CDM Liberal Studies Courses by Liberal Studies Area

Arts and Literature
**ANI 101 Animation for Non-Majors**
Course introduces a variety of basic animation techniques for cinema and gaming, such as hand-drawn, cutout, stop-motion and (very basic) 3D, with an emphasis on the use of computer technology.

**ANI 206 History of Animation**
History of Animation: This course is an introduction to the history and development of the field of animation.

**DC 125 Digital Still Photography for Non-Majors**
This course is an introduction to the history and aesthetics of still photography and to the concept of photography as a descriptive and interpretive artistic medium. Students studying photographs in this context will discover relationships between individual photographers' choices and their own understanding of meaning. Students will learn the fundamental concepts necessary to shoot, edit, manipulate, and print digital still photographs.

**DC 120 Video Editing**
Students analyze and assemble dramatic scenes under a variety of conditions and narrative strategies. Editing theories, techniques, and procedures, issues of continuity, effects, movement and sound are examined as they relate to the fundamentals of cinematic montage and visual storytelling. This class present a variety of topics and experiences that are designed to broaden the student's understanding of the art of cinematic storytelling and montage. Work on more advanced projects is integrated into the class as a means to an understanding of advanced editing tools and techniques.

**DC 201 Introduction to Screenwriting**
This course focuses on narrative storytelling and encourages students to find their unique voices, while emphasizing the critical importance of working as part of a creative team.

**DC 205 Foundations of Cinema**

**DC 233 Cinema & Art**
This course will provide an overview of avant-garde film, video, animation and installation, and the relationship of these cinematic forms to Modern and Contemporary art.

**DC 250 Working with Actors 1**
This course is an introduction and examination of the collaborative process between the actor and director. Methods of study include lecture, discussion, assignments, and in-class acting exercises.

**GAM 224 Introduction to Game Design**
Students will learn about a game's "hook", its "high concept" and the crucial needs of marketing for a successful game design. Students will also learn to design a game's component pieces.

**GPH 211 Perceptual Principles for Digital Environments I**
**GPH 212 Perceptual Principles for Digital Environments II**
**GPH 213 Perceptual Principles for Digital Environments III**
These three foundational courses in computer animation take you through the process of creating 2-D and 3-D representations on the computer. The last course teaches you how to animate them!

**Junior Experiential Learning Credit**

**CSC 298 Internship**
Computer Science Internship in cooperation with local employers this course offers students the opportunity to integrate their academic experience with on-the-job training in computer related work areas.

**CSC 378 Software Projects for Community Clients**
CSC 379 Technology Partnerships in Urban Schools
Students in this course will have the opportunity to assess urban community needs in the technology arena and develop skills in assisting and developing methods for bridging the digital divide that exists.

DC 298 Internship in Media Production/Post-Production
This course offers students an excellent opportunity to gain professional experience, industry contacts, and referrals while still in school. Opportunities in post-production, motion picture production, advertising, television, animation, motion graphics and interactive media. Admission to the program requires consent of internship course instructor. Current work experience plus classroom time is required. Supervisor evaluation will contribute to the final grade.

DC 380 Project Bluelight
Production of a feature-length digital motion picture written by students or faculty within the Digital Cinema program.

GPH 360 Modeling Spaces
The digital design and modeling of environmental spaces with attention to human use parameters.

IT 300 Research Experience
This course involves the exploration of a research topic under the supervision of a research advisor.

IT 398 Topics in Global Information Technology
This course focuses on current topics in the information and communications technologies that together support the "networked world." Sample topics are global software development and deployment, global data and information management, and cross-cultural project management for information systems. The course may be offered for variable credit hours (2, 4, 8, 16, and 32).

Scientific Inquiry: Elective

CSC 200 Survey of Computing
Learn about careers using computers and pick up some skills to help you manage your own PC or network!

CSC 210 Introduction to Computing
A brief history of computers and an introduction to programming.

CSC 211 Programming in Java I
CSC 212 Programming in Java II
Two courses in programming JAVA, a cross-platform, web-enabled language.

CSC 233 Codes and Ciphers
A history of code making and breaking and the math and (computer) science behind it

CSC 235 Problem Solving
How do you solve a problem? In this course we discuss different problem solving techniques and strategies such as modeling, establishing subgoals, and searching and pruning.

CSC 261 Programming Languages I: C/C++
CSC 262 Programming Languages II: C/C++
Two courses in programming C++

ECT 250 Internet, Commerce, and Society
Ever shop online? Learn the basics behind how these kinds of web sites function

IT 130 The Internet and the Web
Learn to design your own web site!

IT 236 User Interface Development
IT 240 Introduction to Desktop Databases
Learn introductory concepts in constructing databases and networking files.

IT 263 Applied Networks and Security

TDC 361 Basic Communication Systems
Learn about how networks work and how they impact your daily life.

Scientific Inquiry: Lab/Quantitative

DC 274 Image, Optics and Cinematic Motion
Cinematography is the scientifically-grounded discipline of making lighting and camera choices in order to record moving images. This course deals with the basic mathematics, physics, and photochemistry that underlie cinematography and that motivate camera design and construction. A student who masters the foundations of cinematography through a mixture of lectures, readings, exercises, and labs will be able to evaluate and understand how motion-based recording choices affect perception of moving images they see every day.

GPH 259 Design Geometry (cross-listed as ART 295)
Learn the basics of Computer Aided Design.

Scientific Inquiry: Quantitative

CSC 239 Personal Computing
You will learn how to use Excel to analyze data and how to publish data and retrieve it from the World Wide Web.

CSC 250 Computers and Human Intelligence
Study how computers are designed to think like people.

HCI 201 Multimedia and the World Wide Web
Overview of the Web, its origins and capabilities. Create your own sample web page.

IT 223 Data Analysis

Self, Society, and the Modern World

CSC 223 The Impact of Computing Technology On Our Lives
This course will introduce students to an overview of social analysis techniques and the theories of social change.

DC 105 Digital Media Literacies
This course is designed to help students develop an informed, critical and practical understanding of new communication media, including ways to read, write and produce in a digital environment.

DC 235 Adaptation: The Cinematic Recrafting of Meaning
This course explores contemporary cinematic adaptations of literature and how recent reworkings in film open viewers up to critical analysis of the cultural practices surrounding the promotion and reception of these narratives.

IS 208 IT, Economy and Society
This course broadly surveys the history of IT applications and information systems from the historical perspective, and critically assesses the digital impact on industry, the economy, workers, citizens, social class and the future.

IT 201 Introduction to Information Systems
This course examines how various types of computer-based information systems form a critical part of modern organizations, how they work, and how they impact workers, organizations and the economy.

Understanding the Past: Intercontinental/Comparative

GAM 206 History of Games
This class will examine particular games and game genres in their historical context using a
This class will examine particular games and game genres in their historical context using a case study format.

**GPH 205 Historical Foundations of Visual Technology**
This course is a survey of the development, application and meaning of visual technologies in a wide range of world cultures from pre-history to the present.

**Philosophical Inquiry**

**CSC 208 The Computer and Social Responsibility**
This course will research the impact technology has had in various areas of our lives, the new responsibilities technology presents, and our ability to deal with these changes in an ethical manner.

**DC 227 Film Philosophy**
This course is a seminar on the philosophical analysis of film art, with an emphasis on the ways in which it creates meaning through techniques that define a formal structure. There is a particular focus on aesthetic problems about appearance and reality, literacy and visual effects, communication and alienation through film technology.

**DC 228 or GAM 228 or IT 228 Ethics in Computer Games and Cinema**
Societies function based on normative ethics utilizing common sense to distinguish between ethical and unethical behavior. Most of us are not aware of the underlying theories when arriving at ethical judgments about right and wrong. However, the fast pace of progress in information technologies and digital entertainment creates an environment, in which ethical challenges are particularly complex. In the eyes of many, games and movies are violent, offensive and immoral. This course will concentrate on analyzing the impact of digital entertainment on an individual and society. Implications of certain values embedded in games and movies will be discussed. Elements of the ethical code of conduct for a game or movie creator will be formulated. The issue of balancing individual creativity vs. cultural impact, particularly on children, will be discussed.

**CDM Liberal Studies Courses by Course Topic**

**The Internet and How It Works**

**CSC 200 Survey of Computing : Scientific Inquiry: Elective**
Learn about Careers using computers and pick up some skills to help you manage your own PC or network!

**CSC 210 Introduction to Computing : Scientific Inquiry: Elective**
A brief history of computers and an introduction to programming

**CSC 211 Programming in Java I : Scientific Inquiry: Elective**
**CSC 212 Programming in Java II : Scientific Inquiry: Elective**
Two courses in programming JAVA, a cross-platform, web-enabled language.

**CSC 261 Programming Languages I: C/C++**
**CSC 262 Programming Languages II: C/C++**
Two courses in programming C++.

**ECT 250 Internet, Commerce, and Society : Scientific Inquiry: Elective**
Ever shop at Gap.com? Learn the basic behind how these kinds of web sites function.

**HCI 201 Multimedia and the World Wide Web : Scientific Inquiry: Quantitative**
Overview of the Web, its origins and capabilities. Create your own sample web page.

**IT 130 The Internet and the Web**
Learn to Design Your Own Website

**IT 263 Applied Networks and Security**
Programming and Basic Computer Know-How

**TDC 361 Basic Communication Systems**
The Computer and Society

**CSC 208 The Computer and Social Responsibility**
This course will research the impact technology has had in various areas of our lives, the new responsibilities technology presents, and our ability to deal with these changes in an ethical manner.

This course will introduce students to an overview of social analysis techniques and the theories of social change.

**IS 208 IT, Economy and Society**
This course broadly surveys the history of IT applications and information systems from the historical perspective, and critically assesses the digital impact on industry, the economy, workers, citizens, social class and the future.

**IT 201 Introduction to Information Systems**
This course examines how various types of computer-based information systems form a critical part of modern organizations, how they work, and how they impact workers, organizations and the economy.

**DC 228 or GAM 228 or IT 228 Ethics in Computer Games and Cinema**
Societies function based on normative ethics utilizing common sense to distinguish between ethical and unethical behavior. Most of us are not aware of the underlying theories when arriving at ethical judgments about right and wrong. However, the fast pace of progress in information technologies and digital entertainment creates an environment, in which ethical challenges are particularly complex. In the eyes of many, games and movies are violent, offensive and immoral. This course will concentrate on analyzing the impact of digital entertainment on an individual and society. Implications of certain values embedded in games and movies will be discussed. Elements of the ethical code of conduct for a game or movie creator will be formulated. The issue of balancing individual creativity vs. cultural impact, particularly on children, will be discussed.

Computer Graphics and Motion Technology

**ANI 101 Animation for Non-Majors**
Course introduces a variety of basic animation techniques for cinema and gaming, such as hand-drawn, cutout, stop-motion and (very basic) 3D, with an emphasis on the use of computer technology.

**ANI 206 History of Animation**
History of Animation: This course is an introduction to the history and development of the field of animation.

**GPH 205 Historical Foundations of Visual Technology**
This course is a survey of the development, application and meaning of visual technologies in a wide range of world cultures from pre-history to the present.

**GPH 211 Perceptual Principles for Digital Environments I : Arts and Literature**
**GPH 212 Perceptual Principles for Digital Environments II : Arts and Literature**
**GPH 213 Perceptual Principles for Digital Environments III : Arts and Literature**
These three foundational courses in computer animation take you through the process of creating 2-D and 3-D representations on the computer. The last course teaches you how to animate them.

**GPH 259 Design Geometry (cross-listed as ART 295)**
Learn the basics of Computer Aided Design.

**GPH 360 Modeling Spaces**
The digital design and modeling of environmental spaces with attention to human use parameters.
Data Analysis and Retrieval

**CSC 235 Problem Solving**
How do you solve a problem? In this course we discuss different problem solving techniques and strategies such as modeling, establishing subgoals, and searching and pruning.

**CSC 239 Personal Computing**: Scientific Inquiry: Quantitative
You will learn how to use Excel to analyze data and how to publish data and retrieve it from the World Wide Web.

**IT 223 Data Analysis**

**IT 240 Introduction to Desktop Databases**: Personal Computing for Programmers: Scientific Inquiry: Elective
Learn introductory concepts in constructing databases and networking files.

**Design your own Web Site**

**HCI 201 Multimedia and the World Wide Web**: Scientific Inquiry: Quantitative
Overview of the Web, its origins and capabilities. Create your own sample web page.

**ECT 250 Internet, Commerce, and Society**: Scientific Inquiry: Elective
Ever shop at Gap.com? Learn the basic behind how these kinds of web sites function.

**IT 130 The Internet and the Web (formerly ECT 270)**: Scientific Inquiry: Elective
Learn to design your own complex web site!

**Codes, Ciphers and Computer Intelligence**

**CSC 233 Codes and Ciphers**: Scientific Inquiry: Elective
A history of code making and breaking and the math and (computer) science behind it.

**CSC 250 Computers and Human Intelligence**: Scientific Inquiry: Quantitative
Study how computers are designed to think like people.

**Digital Cinema and Game Development**

**ANI 101 Animation for Non-Majors**
Course introduces a variety of basic animation techniques for cinema and gaming, such as hand-drawn, cutout, stop-motion and (very basic) 3D, with an emphasis on the use of computer technology.

**ANI 206 History of Animation**
History of Animation: This course is an introduction to the history and development of the field of animation.

**DC 105 Digital Media Literacies**
This course is designed to help students develop an informed, critical and practical understanding of new communication media, including ways to read, write and produce in a digital environment.

**DC 120 Video Editing**
Students analyze and assemble dramatic scenes under a variety of conditions and narrative strategies. Editing theories, techniques, and procedures, issues of continuity, effects, movement and sound are examined as they relate to the fundamentals of cinematic montage and visual storytelling. This class present a variety of topics and experiences that are designed to broaden the student's understanding of the art of cinematic storytelling and montage. Work on more advanced projects is integrated into the class as a means to an understanding of advanced editing tools and techniques.

**DC 125 Digital Still Photography for Non-Majors**
This course is an introduction to the history and aesthetics of still photography and to the concept of photography as a descriptive and interpretive artistic medium. Students studying
photographs in this context will discover relationships between individual photographers' choices and their own understanding of meaning. Students will learn the fundamental concepts necessary to shoot, edit, manipulate, and print digital still photographs.

**DC 201 Introduction to Screenwriting**
This course focuses on narrative storytelling and encourages students to find their unique voices, while emphasizing the critical importance of working as part of a creative team.

**DC 205 Foundations of Cinema**

**DC 233 Cinema & Art**
This course will provide an overview of avant-garde film, video, animation and installation, and the relationship of these cinematic forms to Modern and Contemporary art.

**DC 235 Adaptation: The Cinematic Recrafting of Meaning**
This course explores contemporary cinematic adaptations of literature and how recent reworkings in film open viewers up to critical analysis of the cultural practices surrounding the promotion and reception of these narratives.

**DC 250 Working with Actors 1**
This course is an introduction and examination of the collaborative process between the actor and director. Methods of study include lecture, discussion, assignments, and in-class acting exercises.

**GAM 206 History of Games**
This class will examine particular games and game genres in their historical context using a case study format

**GAM 224 Introduction to Game Design**
Students will learn about a game's "hook", its "high concept" and the crucial needs of marketing for a successful game design. Students will also learn to design a game's component pieces.

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**Combined Bachelor/Master Degrees**

The Combined Degree Programs at CDM are designed to allow academically gifted students to complete both a bachelor and master's degree in a shorter amount of time than by taking each degree separately.

Please note: This version of the degree replaces all previous combinations and current students will be migrated to this plan.

**Combined Degree Program Structure**

The shortened structure of combined degree programs is accomplished by students taking three Masters level courses in their junior and senior year that count toward both their bachelor and masters degree requirements at the same time. Students in this program will receive both a bachelor degree, after 192 undergraduate credit hours, and a masters degree after 10 more graduate courses (40 hours), instead of the standard 13 (52 hours).

**How to apply:**

In order to apply for the BS/MS program, your faculty advisor must send an e-mail
In order to apply for the BS/MS program, your faculty advisor must send an e-mail recommendation to Becky Krochmal at bkrochmal@cdm.depaul.edu. The recommendation should include, the student full name, id number and the BS and MS degrees you wish to apply for.

Admission criteria are as follows:

- Minimum of 6 course/24 credit hours completed
- GPA of 3.3 or higher
- Endorsement of faculty advisor this should be sent via e-mail to bkrochmal@cdm.depaul.edu

**Maintaining Good Standing**

- Student GPAs and grades will be reviewed after Autumn, Winter, and Spring Quarter
- Student and Faculty Advisor will be notified when the student's cumulative GPA falls below 3.3 or when the student receives less than a C- in graduate level Course (X-course)

**Dismissal Policy**

If a student’s cumulative GPA falls below 3.3, the student must attain term GPA of 3.3 or above in the following quarter to stay active. If the student does not achieve a 3.3 term GPA, then the student will be dismissed from the combined program and resume the traditional BA/BS. As long as the student’s cumulative GPA is below 3.3, the student must continue to achieve at least a 3.3 term GPA in all following quarters or face dismissal. If, at any point, the student's cumulative GPA is once again 3.3 or higher, term requirements no longer apply.

It is important to note:
**If a student does not maintain good standing, they will be dismissed from the Combined Degree and returned to normal undergraduate degree seeking status. Any graduate courses passed before dismissal will not be counted toward graduate credit and may not be retaken (if the student does pursue graduate study, other graduate courses must be substituted). If dismissed students wish to apply to a CDM graduate degree program, they may do so following normal CDM admissions procedures, but will still be required to take 13 graduate courses for a MS degree.**

**BA/BS-MA/MS Transition**

If, upon completion of the BA/BS Degree, the student did not meet all prerequisites for the MA/MS Degree, then the student will need to complete (course, test or waiver) the missing prerequisites for the chosen MA/MS Degree.

If, while still in the undergraduate degree phase, the student receives less than a C- in graduate level course (X-course), the X-course cannot count towards the MA/MS Degree.

**Designing a Course of Study**

It is extremely important that the student and faculty advisor work together on a course of study immediately upon admission to the Combined Degree Program.

This course of study may include which undergraduate classes to avoid taking in order to take the graduate version. Failure to put together a solid plan can lead to extra coursework and a lengthening of the Combined Degree program.

It is advisable for the student and advisor to enter the proposed plan of study in the student communication record on the CDM intranet so it is available to the student and CDM faculty and staff.
A minor is a combination of courses that provides a cohesive introduction to an area of study. Typically, courses taken to satisfy minor field requirements are credited as open electives; however, there are some instances where minor field courses may be used for credit in other areas of the students curriculum. Grades for all courses, taken to fulfill a minor field requirement must be C or above. Grades of C- may be accepted for credit in the minor provided the minor GPA is 2.0 or above. A minimum of one-half of the courses required for a minor must be completed at DePaul University.

**MINORS IN THE COLLEGE OF COMMERCE**

Students enrolled in the College of Computing and Digital Media (CDM) may obtain a minor in Accounting, Business Administration, E-Business, Economics, Management, MIS, Marketing, and Pre-MBA. Please see the College of Commerce Section for Minor Requirements.

**MINORS IN THE COLLEGE OF LIBERAL ARTS AND SCIENCES**

Students enrolled in the College of Computing and Digital Media (CDM) may obtain a minor through the College of Liberal Arts and Sciences. Most Liberal Arts and Science departments offer minor concentrations of study. In general, a minor in a Liberal Arts and Sciences discipline consists of a set of introductory courses plus another set of more specialized courses. Most minors require six courses, some of which may also be used for credit in the Liberal Studies Program. For a complete list of minors offered through the College of Liberal Arts and Sciences, please consult that section of this online Bulletin.

**MINORS IN THE COLLEGE OF COMPUTING AND DIGITAL MEDIA**

Computer technology is an omnipresent part of our world, used in academic disciplines from physics to history to geography. **CDM offers several minors that will appeal to all DePaul University students.**

*Political science* and *geography* majors can pursue a minor in Data Analysis, Databases, or Data Visualization, which is important to understanding how to analyze census or GPS data.

*Communications* majors may be interested in Digital Cinema which will give you skills in creating videos for advertising.

*Art* majors interested in a career in graphics programming, animation or design may be interested in CDM’s tech-focused minors in Animation or Computer Graphics Software Development.

An academic foundation in E-Commerce Technology, Networks or Information Systems can give *Commerce* students an edge in a tough job market.

There are other examples too numerous to mention. So if you have questions or want advice on what minor is best for you, can email our CDM Undergraduate Services team: gocdm@cdm.depaul.edu or call them at: 312-362-8714.

**Policies for Academic Minors**

Students must:

1. earn at least a grade of C- in each minor course and a GPA of no less than 2.0 for all courses in the minor;
2. earn at least a cumulative GPA of 2.0 for all courses applied to the minor;
3. not select the pass/fail option for courses in the minor;
4. meet the following residency requirement: no more than 50% of the requirements of a minor may be fulfilled by transfer credits, AP credit, IB credit of CLEP credit.

Finally, students cannot earn a minor in their major program. Courses required to fulfill a minor are determined by the unit in which the minor resides.

**CDM Minors for CDM Students**

To obtain a minor in CDM when the major is also in CDM:
1. Satisfy all requirements for the major
2. Satisfy all requirements for the minor
3. Students must take at least 6 courses in the minor area that do not count towards their CDM major

Note: If you have already taken some of the courses listed under your minor on this page, work with your advisor to choose other courses within the same program area, i.e., NT minor would look under NT major courses and Computer Graphics Software Development would look under Computer Graphics Courses, in order to have 6 distinct courses.

- Animation Minor
- Computer Graphics Software Development
- Computer Science
- Data Analysis and Data Mining
- Database
- Data Visualization Development
- Digital Cinema
- E-Commerce Technology
- Game Design
- Game Programming
- Interactive Media
- Information Systems
- Information Technology
- Network Technologies
- Security
- Software Engineering
- Visual Computing

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**CDM Minor Requirements**

**Animation Minor**

ANI 101 Animation for Non-Majors
or ANI 201 (not both) Animation I
AN 230 3D Modeling
AN 231 3D Animation
AN 206 History of Animation

3 courses from the following list: (at least 1 must be ANI)
DC 201 Introduction to Screenwriting
DC 210 Digital Cinema Production I
DC 220 Editing I
Any ANI course

**Computer Graphics Software Development Minor**

**Liberal Studies**

GPH 211 Perceptual Principles for Digital Environments I
GPH 212 Perceptual Principles for Digital Environments II

**Course Requirements**

CSC 261 Programming Languages I: C/C++
CSC 262 Programming Languages II: C/C++
CSC 393 Data Structures in C++
GPH 329 Computer Graphics Development II
GPH 339 Advanced Rendering Techniques
Computer Science Minor
CSC 241 Introduction to Computer Science I
and CSC 242 Introduction to Computer Science II
and CSC 224 Java for Programmers
or
CSC 211 Programming in Java I
and CSC 212 Programming in Java II
and CSC 309 Object-Oriented Programming in C++
or
CSC 261 Programming Languages I: C/C++
and CSC 262 Programming Languages II: C/C++
and CSC 224 Java for Programmers
CSC 393 Data Structures in C++
or CSC 383 Data Structures and Algorithms in Java
MAT 140 Discrete Mathematics I
CSC 373 Computer Systems I
CSC 374 Computer Systems II

Data Analysis and Data Mining Minor
IT 240 Introduction to Desktop Databases
IT 220 Data Analysis
CSC 324 Data Analysis and Statistical Software II
CSC 367 Introduction to Data Mining
CSC 334 Advanced Data Analysis
2 CDM Electives

Database Minor
CSC 211 Programming in Java I
and CSC 212 Programming in Java II
IT 220 Data Analysis
IT 240 Introduction to Desktop Databases
CSC 352 Database Programming
CSC 367 Introduction to Data Mining
1 CDM Elective

Data Visualization Development Minor
Liberal Studies
GPH 211 Perceptual Principles for Digital Environments I
GPH 212 Perceptual Principles for Digital Environments II

Course Requirements
CSC 261 Programming Languages I: C/C++
CSC 262 Programming Languages II: C/C++
CSC 323 Data Analysis
CSC 393 Data Structures in C++
GPH 329 Computer Graphics Development II
GPH 372 Principles of Computer Animation  
GPH 380 Visualization  

**Digital Cinema Minor**  
DC 205 Foundations of Cinema  
DC 225 Digital Still Photography  
DC 201 Introduction to Screenwriting  
DC 220 Editing I  
3 courses from the following list:  
ANI 101 Animation for Non-Majors  
DC 210 Digital Cinema Production I  
DC 270 Topics in Digital Cinema  
GAM 224 Introduction to Game Design  
DC 215 Digital Sound Design  
DC 275 Cinematography  
DC 310 Digital Cinema Production II  
DC 320 Editing II  
DC 389 The Big Picture: The Entertainment Industry  

**E-Commerce Technology Minor**  
IT 130 The Internet and the Web  
CSC 211 Programming in Java I  
CSC 212 Programming in Java II  
IT 230 Building Internet Applications  
ECT 330 Advanced Internet Application Development  
IM 210 Introduction to Human-Computer Interaction  
1 course from the following list:  
ECT 355 Internet Systems: Collaboration, Commerce, and Media  
ECT 360 Introduction to XML  
ECT 365 Web Server Operations  

**Game Design Minor**  
DC 201 Introduction to Screenwriting  
ANI 105 Intro to Visual Design  
ANI 101 Animation for Non-Majors  
or ANI 201 Animation I  
ANI 230 3D Modeling  
GAM 224 Introduction to Game Design  
GAM 244 Game Development I  
GAM 245 Game Development II  

**Game Programming Minor**  
GAM 224 Introduction to Game Design  
GAM 244 Game Development I  
GAM 245 Game Development II  
GAM 374 Action Games Programming  
2 courses from the following list:  
ANI 230 3D Modeling
Interactive Media Minor

Required Courses

- IM 210 Introduction to Human-Computer Interaction
- IM 220 Interactive Media I
- IM 230 Scripting for Interactive Media
- IM 270 User-centered Web Design

3 courses from the following list:

- IM 320 Interactive Media II
- IM 330 Advanced Scripting for Interactive Media
- IM 360 User-Centered Evaluation
- ANI 101 Animation for Non-Majors
- ANI 105 Intro to Visual Design
- ART 260 Art and Design I: History, Concept, Structure
- ART 264 Typography I
- DC 205 Foundations of Cinema
- GAM 244 Game Development I
- IT 130 The Internet and the Web
- IT 230 Building Internet Applications

Information Systems Minor

- CSC 211 Programming in Java I
- IT 230 Building Internet Applications
- IT 240 Introduction to Desktop Databases
- IT 130 The Internet and the Web
- IT 201 Introduction to Information Systems
- IT 215 Analysis and Design Techniques
- IM 210 Introduction to Human-Computer Interaction

1 course from the following list:

- IS 371 Introduction to L.T. System Management
- IS 372 Fundamentals of Software Project Management
- IS 373 Introduction to Large Systems Implementation
- IS 374 Management Support Systems

Information Technology Minor

- IT 130 The Internet and the Web
- IT 130 Building Internet Applications
- IT 240 Introduction to Desktop Databases
- TDC 361 Basic Communication Systems
- IT 263 Applied Networks and Security
- IT 215 Analysis and Design Techniques

1 CDM Elective

Network Technology Minor
CSC 211 Programming in Java I
or CSC 261 Programming Languages I: C/C++
CSC 212 Programming in Java II
or CSC 262 Programming Language II: C/C++
IT 201 Introduction to Information Systems
IT 263 Applied Networks and Security
TDC 362 Principles of Data Communication
TDC 363 Introduction to Local Area Networks
TDC 365 Network Interconnection Technologies

Screenwriting
DC 201 Introduction to Screenwriting
DC 205 Foundations of Cinema
DC 301 Advanced Screenwriting I
DC 302 Advanced Screenwriting II
DC 303 Advanced Screenwriting III
DC 304 Topics in Screenwriting

Security Minor
CSC 211 Programming in Java I
and CSC 212 Programming in Java II
or CSC 261 Programming Language I: C/C++
and CSC 262 Programming Language II: C/C++
CSC 233 Codes and Cyphers
or CSC 333 Cryptology
CNS 378 Host and Information Security
CNS 320 Computer Forensic and Incident Response
CNS 228 Legal, Ethical and Social Issues in Information Security
CNS 340 Fundamentals of Information Assurance

Software Engineering Minor
CSC 261 Programming Languages I: C/C++
and CSC 262 Programming Languages II: C/C++
and CSC 224 Java for Programmers
or CSC 241 Introduction to Computer Science I
and CSC 242 Introduction to Computer Science II
and CSC 224 Java for Programmers
or CSC 211 Programming in Java I
CSC 212 Programming in Java II
and then CSC 383 Data Structures and Algorithms in Java
SE 325 Principles and Practices of Software Engineering
SE 330 Object-Oriented Modeling
SE 350 Object-Oriented Software Development

Visual Computing Minor
MAT 140 Discrete Mathematics I
Bachelor of Arts Degree Programs

Animation

The **BA in Animation** emphasizes solid traditional animation and storytelling skills, while encouraging experimentation in form, content and medium. Students are free to work in hand-drawn, stop-motion, cut-out and 3D computer animation. They may produce hybrid forms fully integrated with live action video, draw web-based shorts inspired by Hollywood or anime, or design motion graphics for film titles and commercials.

Students will gain a broad foundation in the rich history of the art form and prepare for the future under the guidance of faculty with professional experience in television, film, art and interactive media.

What students get from this program:

- A faculty body of experienced animators and working professionals.
- Education in the foundations of cinema, as well as in the important skills of drawing and design.
- Access to the latest in animation technology, computing systems, and software.
- Valuable production experience both in class and through internships.
- The benefit of industry connections through CDMs relationship with Chicago's many animation and production studios.

The Liberal Studies program is the general education portion of the curriculum at DePaul. Click here to view the CDM courses that qualify for Liberal Studies credit.

**Please note**: Students must complete 20 Liberal Studies courses including the eight credit hour Mathematical and Technological Literacy requirement which is both LSP 120 (formerly ISP 120) and LSP 121 (formerly ISP 121). LSP 121 will replace one course from any one of the six Learning Domains as long as the student takes at least one course in each domain.

Four-year schedule of courses:

**First Year**

*Major Field Courses (6)*

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANI 105</td>
<td>Intro to Visual Design</td>
</tr>
<tr>
<td>ANI 201</td>
<td>Animation I *</td>
</tr>
<tr>
<td>ANI 206</td>
<td>History of Animation</td>
</tr>
</tbody>
</table>
DC 201 Introduction to Screenwriting
DC 220 Editing I
ART 218 Figure Drawing

Liberal Studies Courses (6) (Required: ART 106 Beginning Drawing and either DC 233 Cinema and Art or ART 200 Art and Artists in Contemporary Culture)

*ANI 101 Animation for Non-Majors allowed for students transferring into the major.

Second Year

Major Field Courses (6)

ANI 220 Pre-Production Art
ANI 230 3D Modeling
ANI 231 3D Animation
ANI 320 Hand-Drawn Animation
DC 210 Digital Cinema Production I
ART 218 Advanced Figure Drawing

Liberal Studies Courses (6)

Third Year

Major Field Courses (5)

ANI 240 Animation Production I
ANI 340 Animation Production II
IM 220 Interactive Media I
DC 215 Digital Sound Design
MCS 207 History of Cinema I, 1890-1945
or MCS 208 History of Cinema II
or MCS 209 History of Cinema III, 1975-Present

Animation Electives (2) Any ANI, ART, DC, GAM, GPH or IM course EXCEPT: ART 102, ART 104, ART 105, DC 120 or GPH 211
Liberal Studies Courses (3)
Open Electives (2)

Fourth Year

Major Field Courses (3)

ANI 260 Motion Graphics
ANI 394 Animation Project I
ANI 395 Animation Project II

Animation Electives (2) Any ANI, ART, DC, GAM, GPH or IM course EXCEPT: ART 102, ART 104, ART 105, DC 120 or GPH 211
Liberal Studies Courses (5)
Open Electives (2)

Open Electives:
Open Electives may be taken from any department or program. These are the only courses that may be taken under the pass/fail option (see the undergraduate Bulletin for details). If you wish to pursue a minor, most minor field courses will be credited as open electives.
Note: Grades for all courses in the students major (i.e. non-Liberal Studies and non-Open Elective) must be 'C' or better. Grades of 'C-' may be accepted provided the overall grade point average in the major is 2.0 or better.

College of Computing and Digital Media - Undergraduate Studies > School of Cinema and Interactive Media (CIM) > Bachelor of Arts Degree Programs > Digital Cinema

Digital Cinema

The Bachelor of Arts program in Digital Cinema teaches the fundamentals of motion picture theory and history along with technical production skills, using state-of-the-art digital technology.

The BA in Digital Cinema is an innovative motion picture production program dedicated to utilizing the latest cutting-edge digital technology while incorporating classic cinema narrative theory and aesthetics. Students receive hands-on experience with the latest production equipment in the first year and get an insider’s view of the industry from experienced faculty.

The Bachelor of Arts Program offers two programs of undergraduate study for students:

- The Standard Concentration features a hands-on program in live-action production. With its greater number of electives students may also develop an interdisciplinary program of study in cinema history and theory.
- The Screenwriting Concentration features a program of study in advanced screenwriting in addition to core courses in cinema production, dramatic literature and cinema history/theory.

The curriculum consists of the DePaul University Liberal Studies Program and Major Field Courses.

The Liberal Studies program is the general education portion of the curriculum at DePaul. Click here to view the CDM courses that qualify for liberal studies credit.

Please note: Students must complete 20 liberal studies courses including the eight credit hour Mathematical and Technological Literacy requirement which is both LSP 120 (formerly ISP 120) and LSP 121 (formerly ISP 121). LSP 121 will replace one course from any of the six Learning Domain as long as they take at least one course in each domain.

Four-year schedule of courses for the Standard Concentration:

First Year

Major Field Courses (6)

DC 201 Introduction to Screenwriting
DC 205 Foundations of Cinema
DC 220 Editing I
MCS 207 History of Cinema, 1890-1945
MCS 208 History of Cinema, 1945-1975
MCS 209 History of Cinema, 1975-Present

Liberal Studies (5)
Open Electives (1)

Second Year
**Major Field Courses (5)**

ANI 101 Animation for Non-Majors  
or ANI 201 Animation I  
DC 210 Digital Cinema Production I  
DC 215 Digital Sound Design  
DC 225 Digital Still Photography  
DC 275 Cinematography and Lighting  

**Liberal Studies (6)**  
Open Electives (1)  

**Third Year**

**Major Field Courses (5)**

DC 270 Topics in Digital Cinema  
VFX 278 Digital Compositing I  
DC 310 Digital Cinema Production II  
DC 315 Advanced Digital Sound Design  
DC 320 Editing II  

*CIM Electives (1)* Any 200-level or above ANI, GPH, DC, GAM or IM course  
**Liberal Studies (5)**  
Open Electives (1)  

**Fourth Year**

**Major Field Courses (5)**

DC 371 Documentary Production  
DC 376 Visual Design  
DC 389 The Big Picture: the Entertainment Industry  
DC 390 Topics in Directing  
DC 398 Digital Cinema Capstone  

*CIM Electives (1)* Any 200-level or above ANI, GPH, DC, GAM or IM course  
**Liberal Studies (4)**  
Open Electives (2)  

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Four-year schedule of courses for the **Screenwriting Concentration**:  

**First Year**

**Major Field Courses (5)**

DC 201 Introduction to Screenwriting  
DC 205 Foundations of Cinema  
MCS 207 History of Cinema, 1890-1945  
MCS 208 History of Cinema, 1945-1975  
MCS 209 History of Cinema, 1975-Present  

Liberal Studies (5)  
Open Electives (2)  

**Second Year**

**Major Field Courses (5)**

DC 210 Digital Cinema Production I  
DC 220 Editing I  
DC 250 Working with Actors 1  
DC 270 Topics in Digital Cinema  
THE 244 Dramatic Writing for Non-Majors
CIM Elective (1) Any 200-level or above ANI, GPH, DC, GAM or IM course
Liberal Studies (6)

**Third Year**

**Major Field Courses (4)**

- DC 301 Advanced Screenwriting I
- DC 302 Advanced Screenwriting II
- DC 303 Advanced Screenwriting III
- DC 304 Topics in Screenwriting

CIM Elective (1) Any 200-level or above ANI, GPH, DC, GAM or IM course
English Course (1) - A 200-level or above English Literature Class
Liberal Studies (5)
Open Electives (1)

**Fourth Year**

**Major Field Courses (3)**

- DC 235 Adaptation: The Cinematice Recrafting of Meaning
- DC 389 The Big Picture: the Entertainment Industry
- DC 398 Digital Cinema Capstone

CIM Elective (1) Any 200-level or above ANI, GPH, DC, GAM or IM course
English Course (1) - A 200-level or above English Literature Class
Liberal Studies (4)
Open Electives (3)

**Open Electives**

Open Electives may be taken from any department or program. These are the only courses that may be taken under the pass/fail option (see the undergraduate Bulletin for details). If you wish to pursue a minor, most minor field courses will be credited as open electives.

**Note:** Grades for all courses in the students major (i.e. non-Liberal Studies and non-Open Elective) must be 'C' or better. Grades of ‘C-' may be accepted provided the overall grade point average in the major is 2.0 or better.

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**Bachelor of Science Degree Programs**

**Animation**

The **BS in Animation** provides students with a solid foundation in the art of animation and its history combined with insight into the latest techniques used in the rapidly-moving fields of high end 3D animation in the film, television, and game development industries.

Students will learn a comprehensive set of skills in 3D including character animation, modeling, texturing, lighting, and rigging. 3D courses are designed to provide students with necessary proficiencies while also encouraging creativity and experimentation. Students interested in game art will have additional options for gaining experience through cross-disciplinary classes in game development and production and through work on game
development teams.

What students get from this program:

- A faculty body of experienced animators and working professionals.
- Access to the latest in animation software, computing systems, and technology, including motion capture and green screen studios.
- Close cooperation with programming students in the Game Development program.
- Valuable production experience both in class and through internships.
- The benefits of industry connections through CDMs relationship with Chicago's largest game development and animation studios.

The Liberal Studies program is the general education portion of the curriculum at DePaul. Click here to view the CDM courses that qualify for Liberal Studies credit.

Please note: Students must complete 20 Liberal Studies courses including the eight credit hour Mathematical and Technological Literacy requirement which is both LSP 120 (formerly ISP 120) and LSP 121 (formerly ISP 121). LSP 121 will replace one course from any one of the six Learning Domains as long as the student takes at least one course in each domain.

Four-year schedule of courses:

**First Year**

*Major Field Courses (6)*

ANI 105        Intro to Visual Design  
ANI 201        Animation I *  
ANI 206        History of Animation  
ANI 220        3D Modeling  
DC 201        Introduction to Screenwriting  
ART 218        Figure Drawing

*Liberal Studies Courses (6)* (Required: ART 106 Beginning Drawing)and either DC 233 Cinema and Art or ART 200 Art and Artists in Contemporary Culture). GAM 224 is recommended.

* ANI 101 Animation for Non-Majors allowed for students transferring into the major.

**Second Year**

*Major Field Courses (6)*

ANI 220        Pre-Production Art  
ANI 231        3D Animation  
ANI 300        3D Character Animation  
DC 220        Editing I  
ART 318        Advanced Figure Drawing  
or ART 317        Figure Sculpture  
GAM 244        Game Development I

*Liberal Studies Courses (6)*

**Third Year**
Major Field Courses (6)

ANI 240     Animation Production I
ANI 340     Animation Production II
ANI 330     3D Character Modeling
ANI 339     3D Texturing and Lighting
DC 210     Digital Cinema Production I
GAM 341     Introduction to Level Design

Animation Electives (2) - Any ANI, ART, DC, GAM, GPH, or IM course EXCEPT: ART 102, ART 104, ART 105, DC 120 or GPH 211

Liberal Studies Courses (3)

Open Electives (1)

Fourth Year

Major Field Courses (4)

MCS 207     History of Cinema I, 1890-1945
or MCS 208     History of Cinema II
or MCS 209     History of Cinema III, 1975-Present
GPH 355     3D Scripting for Animators
ANI 394     Animation Project I *
ANI 395     Animation Project II *

* GAM 394/395 may be substituted for ANI 394/395

Animation Electives (1) - Any ANI, ART, DC, GAM, GPH, or IM course EXCEPT: ART 102, ART 104, ART 105, DC 120 or GPH 211

Liberal Studies Courses (5)

Open Electives (1)

Open Electives:
Open Electives may be taken from any department or program. These are the only courses that may be taken under the pass/fail option (see the undergraduate Bulletin for details). If you wish to pursue a minor, most minor field courses will be credited as open electives.

Note: Grades for all courses in the students major (i.e. non-Liberal Studies and non-Open Elective) must be ‘C’ or better. Grades of ‘C-’ may be accepted provided the overall grade point average in the major is 2.0 or better.

College of Computing and Digital Media - Undergraduate Studies School of Cinema and Interactive Media (CIM) Bachelor of Science Degree Programs Computer Games Development (Joint with SoC)

Computer Games Development (Joint with SoC)

The Bachelor of Science in Computer Games Development is ideal for creative-minded and technically adept individuals with a passion for crafting interactive experiences. It offers career opportunities for skilled, creative programmers, designers, and animators.

The BS in Computer Games Development prepares students to work in the multi-disciplinary field of computer gaming and interactive media. This program also requires
strong mathematical and programming skills.

CDM's Computer Games Development program combines coursework in game programming, game design, 3D Modeling, animation, physics, and artificial intelligence. Students work in cross-disciplinary teams to design and develop games.

The BS in Computer Games Development offers a Production & Design concentration and a concentration in Game Programming.

What students will learn from this degree program:

- game programming
- game physics and game engines
- computer graphics and rendering
- 3D modeling and animation
- game design and level design

The Liberal Studies program is the general education portion of the curriculum at DePaul. Click here to view the CDM courses that qualify for liberal studies credit.

Four-year schedule of courses for the Production & Design Concentration

**First Year**

*Major Field Courses (5)*

GAM 224 Introduction to Game Design  
GAM 244 Game Development I  
GAM 245 Game Development II  
ANI 101 Animation for Non-Majors  
or ANI 201 Animation I  
ANI 105 Intro to Visual Design

*Liberal Studies (7) (DC 201 required as one of the LS courses)*

**Second Year**

*Major Field Courses (6)*

MAT 150 Calculus I  
GAM 341 Introduction to Level Design  
ANI 230 3d Modeling for Animation and Gaming  
CSC 261 Programming Languages I: C/C++  
CSC 262 Programming Languages II: C/C++  
GAM 230 Intro to Game Production

*Gaming Elective (1)  
Liberal Studies (5)*

**Third Year**

*Major Field Courses (4)*

ANI 231 3d Animation for Cinema and Gaming  
GAM 374 Action Games Programming  
IM 220 Interactive Media I  
WRD 204 Technical Writing

*Gaming Electives (4)  
Liberal Studies (4) - (IT 228 Required as one of the LS courses)*

**Fourth Year**
Major Field Courses (4)

GAM 333 The Business of Games  
GAM 392 Game Modification Workshop  
GAM 394 Game Development Project I  
GAM 395 Game Development Project II

Gaming Electives (1)  
Liberal Studies (3)  
Open Electives (4)

Four-year schedule of courses for the Game Programming Concentration:

First Year

Major Field Courses (5)

ANI 105 Intro to Visual Design  
GAM 224 Introduction to Game Design  
GAM 244 Game Development I  
MAT 150 Calculus I  
MAT 151 Calculus II

Liberal Studies (7) - (DC 201 and ANI 101 Required as two of the LS courses)

Second Year

Major Field Courses (5)

CSC 261 Programming Languages I: C/C++  
CSC 262 Programming Languages II: C/C++  
CSC 393 Data Structures in C++  
GAM 245 Game Development II  
ANI 230 3d Modeling for Animation and Gaming

Gaming Electives (2)  
Liberal Studies (5)

Third Year

Major Field Courses (6)

CSC 373 Computer Systems I  
CSC 374 Computer Systems II  
GPH 321 Computer Graphics Development I  
GPH 329 Computer Graphics Development II  
GAM 350 Physics for Game Developers  
GAM 374 Action Games Programming

Gaming Electives (2)  
Liberal Studies (4) - (IT 228 required as one of the LS courses)

Fourth Year

Major Field Courses (5)

GPH 389 Real-Time Graphics Techniques  
GAM 376 Artificial Intelligence for Computer Games  
GAM 392 Game Modification Workshop  
GAM 394 Game Development Project I  
GAM 395 Game Development Project II

Gaming Electives (1)
Gaming Electives
Any 200-level ANI, DC, GAM, GPH or IM Course
Any 300-level CDM Course

Open Electives
Open Electives may be taken from any department or program. These are the only courses that may be taken under the pass/fail option (see the undergraduate Bulletin for details). If you wish to pursue a minor, most minor field courses will be credited as open electives.

Note: Grades for all courses in the students major (i.e. non-Liberal Studies and non-Open Elective) must be ‘C’ or better. Grades of ‘C-’ may be accepted provided the overall grade point average in the major is 2.0 or better.

The Bachelor of Science in Computer Graphics and Motion Technology unites the technical and aesthetic principals of digitally created motion graphics and animation. Graduates of the program may find opportunities in diverse fields, from motion pictures or architecture to computer gaming or medicine.

The BS in Computer Graphics and Motion Technology provides DePaul students with an interest in mathematics/computer science as well as visual design, an academic foundation in both the technical and aesthetic elements of computer graphics.

The Bachelor of Science degree program offers two options of study:

- The Developer concentration is geared toward students who are considering careers in graphic software development, with course work focused in programming languages (C/C++) and mathematics (calculus and algebra), in addition to animation and computer graphics.
- The Technical Designer concentration is geared toward students interested in the visual aspects, including lighting setup, shader development and character rigging.

What students learn in this degree program:

- Design and analysis of mathematics/computer science principals for computer graphic design.
- Beginning and advance digital photography.
- History and theory of graphic design (color theory, perception).
- Usability and human-computer interaction.

The Liberal Studies program is the general education portion of the curriculum at DePaul. Click here to view the CDM courses that qualify for liberal studies credit.

Four-year schedule of courses for the Developer Concentration:

First Year
Major Field Courses (9)

CSC 261 Programming Languages I: C/C++
CSC 262 Programming Languages II: C/C++
CSC 393 Data Structures in C++
GPH 211 Perceptual Principles for Digital Environments I
GPH 212 Perceptual Principles for Digital Environments II
ANI 201 Animation I
MAT 140 Discrete Mathematics I
MAT 150 Calculus I
or MAT 160 Calculus for Mathematics and Science Majors I
or MAT 170 Calculus I with Scientific Applications *
MAT 170 Calculus I with Scientific Applications

MAT 151    Calculus II

* MAT 170 is recommended

Liberal Studies (3)

Second Year

Major Field Courses (5)

GPH 325    Survey of Computer Graphics
GPH 329    Computer Graphics Development II
GPH 339    Advanced Rendering Techniques
GPH 321    Computer Graphics Development I
or MAT 220    Linear Algebra with Applications
CMN 220    Public Speaking

Liberal Studies (7)

Third Year

Major Field Courses (4)

GPH 372    Principles of Computer Animation
CSC 321    Design and Analysis of Algorithms
IM 315    Theory and Perception of Color
WRD 204    Technical Writing [formerly Eng 204]

Graphics Electives (3) - from the list at the bottom of the page.

Liberal Studies (5)

Fourth Year

Major Field Courses (4)

GPH 375    Advanced Graphics Development
GPH 388    Production Pipeline Techniques
GPH 389    Real-Time Graphics Techniques
GPH 395    Computer Graphics Senior Project

Graphics Electives (1) - from the list at the bottom of the page.

Liberal Studies (4)

Open Electives (3)

Four-year schedule of courses for the Technical Designer Concentration:

First Year

Major Field Courses (6)

CSC 211    Programming in Java I Self Placement Test Available
and CSC 212    Programming in Java II
OR CSC 261    Programming Languages I: C/C++
and CSC 262    Programming Languages II: C/C++
GPH 211    Perceptual Principles for Digital Environments I
GPH 212    Perceptual Principles for Digital Environments II
ANI 201    Animation I
MAT 140    Discrete Mathematics I

Liberal Studies (4) - ART 102 and ART 106 are required.

Second Year

Major Field Courses (7)
GPH 250    Digital Modeling I
GPH 325    Survey of Computer Graphics
IT 236    User Interface Development
ART 242    Survey of Asian Art
IM 210    Introduction to Human-Computer Interaction
CMN 220    Public Speaking
GPH 255    Hand Prototyping for Graphic Visualization

Liberal Studies (5)

Third Year

Major Field Courses (5)

ART 322    Modernism to Postmoderism
IM 315    Theory and Perception of Color
GPH 338    Survey of 3-D Animation
GPH 339    Advanced Rendering Techniques
WRD 204    Technical Writing [formerly Eng 204]

Graphics Electives (1) - from the list at the bottom of the page.
Liberal Studies (6)

Fourth Year

Major Field Courses (2)

GPH 395    Computer Graphics Senior Project
GPH 388    Production Pipeline Techniques

Graphics Electives (4) - from the list at the bottom of the page.
Liberal Studies (4)
Open Electives (4)

Graphics Electives List
Students may take any of the following courses as long as they were not previously used to satisfy the computer graphics and animation core:

ANI 300    3d Character Animation
ANI 310    Motion Capture Workshop
ART 225    Beginning Photography
ART 329    Advanced Digital Photography
[prereq: Art 225 and Art 101 Or Art 227 Or Instructor Consent]
ART 360    Illustration
ART 373    History of Design
IT 223    Data Analysis Self Placement Test Available
IT 236    User Interface Development
GPH 336    Smooth Surface Modeling for Graphics and Animation
GPH 340    Procedural Shading
GPH 341    Advanced Lighting Techniques
GPH 348    Rigging for Animation
GPH 376    Artificial Intelligence in Computer Games
GPH 380    Visualization
GPH 389    Real-Time Graphics Techniques
GPH 250    Digital Modeling I
GPH 259    Design Geometry
GPH 329    Computer Graphics Development II
GPH 350    Digital Modeling II
GPH 360    Modeling Spaces
GPH 374    Computer Games
GPH 375    Advanced Graphics Development
IM 270    User-Centered Web Design
IM 210    Introduction to Human-Computer Interaction
Open Electives
Open Electives may be taken from any department or program. These are the only courses that may be taken under the pass/fail option (see the undergraduate Bulletin for details). If you wish to pursue a minor, most minor field courses will be credited as open electives.

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- game programming
- game physics and game engines
- computer graphics and rendering
- 3D modeling and animation
- game design and level design

The Liberal Studies program is the general education portion of the curriculum at DePaul. Click here to view the CDM courses that qualify for liberal studies credit.

Four-year schedule of courses for the Production & Design Concentration

First Year

Major Field Courses (5)

GAM 224 Introduction to Game Design
GAM 244 Game Development I
GAM 245 Game Development II
ANI 101 Animation for Non-Majors
or ANI 201 Animation I
ANI 105 Intro to Visual Design

Liberal Studies (7) (DC 201 required as one of the LS courses)

Second Year

Major Field Courses (6)

MAT 150 Calculus I
GAM 341 Introduction to Level Design
ANI 230 3d Modeling for Animation and Gaming
CSC 261 Programming Languages I: C/C++
CSC 262 Programming Languages II: C/C++
GAM 230 Intro to Game Production

Gaming Elective (1)
Liberal Studies (5)

**Third Year**

Major Field Courses (4)

ANI 231 3d Animation for Cinema and Gaming
GAM 374 Action Games Programming
IM 220 Interactive Media I
WRD 204 Technical Writing

Gaming Electives (4)
Liberal Studies (4) - (IT 228 Required as one of the LS courses)

**Fourth Year**

Major Field Courses (4)

GAM 333 The Business of Games
GAM 392 Game Modification Workshop
GAM 394 Game Development Project I
GAM 395 Game Development Project II

Gaming Electives (1)
Liberal Studies (3)
Open Electives (4)

Four-year schedule of courses for the **Game Programming Concentration**:

**First Year**

Major Field Courses (5)

ANI 105 Intro to Visual Design
GAM 224 Introduction to Game Design
GAM 244 Game Development I
MAT 150 Calculus I
MAT 151 Calculus II

Liberal Studies (7) - (DC 201 and ANI 101 Required as two of the LS courses)

**Second Year**

Major Field Courses (5)

CSC 261 Programming Languages I: C/C++
CSC 262 Programming Languages II: C/C++
CSC 393 Data Structures in C++
GAM 245 Game Development II
ANI 230 3d Modeling for Animation and Gaming

Gaming Electives (2)
Liberal Studies (5)

**Third Year**

Major Field Courses (6)

CSC 373 Computer Systems I
CSC 374 Computer Systems II  
GPH 321 Computer Graphics Development I  
GPH 329 Computer Graphics Development II  
GAM 350 Physics for Game Developers  
GAM 374 Action Games Programming  

**Gaming Electives (2)**  
**Liberal Studies (4) -** (IT 228 required as one of the LS courses)

**Fourth Year**

**Major Field Courses (5)**

GPH 389 Real-Time Graphics Techniques  
GAM 376 Artificial Intelligence for Computer Games  
GAM 392 Game Modification Workshop  
GAM 394 Game Development Project I  
GAM 395 Game Development Project II  

**Gaming Electives (1)**  
**Liberal Studies (3)**  
**Open Electives (3)**

**Gaming Electives**
Any 200-level ANI, DC, GAM, GPH or IM Course  
Any 300-level CDM Course

**Open Electives**
Open Electives may be taken from any department or program. These are the only courses that may be taken under the pass/fail option (see the undergraduate Bulletin for details). If you wish to pursue a minor, most minor field courses will be credited as open electives.

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College of Computing and Digital Media - Undergraduate Studies  
School of Cinema and Interactive Media (CIM)  
Bachelor of Science Degree Programs  
Computer Graphics and Motion Technology (Joint with SoC)

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- Beginning and advance digital photography.
- History and theory of graphic design (color theory, perception).
- Usability and human-computer interaction.

The Liberal Studies program is the general education portion of the curriculum at DePaul. Click here to view the CDM courses that qualify for liberal studies credit.

Four-year schedule of courses for the **Developer Concentration:**

**First Year**

**Major Field Courses (9)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
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<tbody>
<tr>
<td>CSC 261</td>
<td>Programming Languages I: C/C++</td>
</tr>
<tr>
<td>CSC 262</td>
<td>Programming Languages II: C/C++</td>
</tr>
<tr>
<td>CSC 393</td>
<td>Data Structures in C++</td>
</tr>
<tr>
<td>GPH 211</td>
<td>Perceptual Principles for Digital Environments I</td>
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<tr>
<td>GPH 212</td>
<td>Perceptual Principles for Digital Environments II</td>
</tr>
<tr>
<td>ANI 201</td>
<td>Animation I</td>
</tr>
<tr>
<td>MAT 140</td>
<td>Discrete Mathematics I</td>
</tr>
<tr>
<td>MAT 150</td>
<td>Calculus I</td>
</tr>
<tr>
<td><strong>or</strong> MAT 160</td>
<td>Calculus for Mathematics and Science Majors I</td>
</tr>
<tr>
<td><strong>or</strong> MAT 170</td>
<td>Calculus I with Scientific Applications (Recommended)</td>
</tr>
<tr>
<td>MAT 151</td>
<td>Calculus II</td>
</tr>
</tbody>
</table>

**Liberal Studies (3)**

**Second Year**

**Major Field Courses (5)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>GPH 325</td>
<td>Survey of Computer Graphics</td>
</tr>
<tr>
<td>GPH 329</td>
<td>Computer Graphics Development II</td>
</tr>
<tr>
<td>GPH 339</td>
<td>Advanced Rendering Techniques</td>
</tr>
<tr>
<td>GPH 321</td>
<td>Computer Graphics Development I</td>
</tr>
<tr>
<td><strong>or</strong> MAT 220</td>
<td>Linear Algebra with Applications</td>
</tr>
<tr>
<td>CMNS 220</td>
<td>Public Speaking</td>
</tr>
</tbody>
</table>

**Liberal Studies (7)**

**Third Year**

**Major Field Courses (4)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>GPH 372</td>
<td>Principles of Computer Animation</td>
</tr>
<tr>
<td>CSC 321</td>
<td>Design and Analysis of Algorithms</td>
</tr>
<tr>
<td>IM 315</td>
<td>Theory and Perception of Color</td>
</tr>
<tr>
<td>WRD 204</td>
<td>Technical Writing</td>
</tr>
</tbody>
</table>

**Graphics Electives (3) - from the list at the bottom of the page.**

**Liberal Studies (5)**

**Fourth Year**

**Major Field Courses (4)**
Four-year schedule of courses for the **Technical Designer Concentration**:

**First Year**

**Major Field Courses (6)**

- IM 230  Scripting for Interactive Media
- **and IM 330**  Advanced Scripting for Interactive Media
- **or CSC 261**  Programming Language I: C/C++
- **and CSC 262**  Programming Language II: C/C++
- GPH 211  Perceptual Principles for Digital Environments I
- GPH 212  Perceptual Principles for Digital Environments II
- ANI 201  Animation I
- MAT 140  Discrete Mathematics I

**Liberal Studies (4)** - ART 102 and ART 106 are required.

**Second Year**

**Major Field Courses (7)**

- GPH 250  Digital Modeling I
- GPH 325  Survey of Computer Graphics
- IT 236  User Interface Development
- ART 242  Principles of Asian Art
- IM 210  Introduction to Human-Computer Interaction
- CMNS 220  Public Speaking
- GPH 255  Hand Prototyping for Graphic Visualization

**Liberal Studies (5)**

**Third Year**

**Major Field Courses (5)**

- ART 322  Modernism to Postmodernism
- IM 315  Theory and Perception of Color
- GPH 338  Survey of 3-D Animation
- GPH 339  Advanced Rendering Techniques
- WRD 204  Technical Writing

**Graphics Electives (1)** - from the list at the bottom of the page.

**Liberal Studies (6)**

**Fourth Year**

**Major Field Courses (2)**

- GPH 395  Computer Graphics Senior Project
**Graphics Electives** (4) - from the list at the button of the page.  
**Liberal Studies** (4)  
**Open Electives** (4)

### Graphics Electives List
Students may take any of the following courses as long as they were not previously used to satisfy the computer graphics and animation core:

<table>
<thead>
<tr>
<th>Course Code</th>
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</tr>
</thead>
<tbody>
<tr>
<td>ANI 300</td>
<td>3D Character Animation</td>
</tr>
<tr>
<td>ANI 310</td>
<td>Motion Capture Workshop</td>
</tr>
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<td>ART 225</td>
<td>Beginning Photography</td>
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<td>Advanced Lighting Techniques</td>
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<td>Artificial Intelligence in Computer Games</td>
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<td>Visualization</td>
</tr>
<tr>
<td>GPH 389</td>
<td>Real-Time Graphics Techniques</td>
</tr>
<tr>
<td>GPH 250</td>
<td>Digital Modeling I</td>
</tr>
<tr>
<td>GPH 259</td>
<td>Design Geometry</td>
</tr>
<tr>
<td>GPH 329</td>
<td>Computer Graphics Development</td>
</tr>
<tr>
<td>GPH 350</td>
<td>Digital Modeling II</td>
</tr>
<tr>
<td>GPH 360</td>
<td>Modeling Spaces</td>
</tr>
<tr>
<td>GPH 374</td>
<td>Computer Games</td>
</tr>
<tr>
<td>GPH 375</td>
<td>Advanced Graphics Development</td>
</tr>
<tr>
<td>IM 270</td>
<td>User-Centered Web Design</td>
</tr>
<tr>
<td>IM 210</td>
<td>Introduction to Human-Computer Interaction</td>
</tr>
<tr>
<td>IM 322</td>
<td>Multimedia</td>
</tr>
<tr>
<td>IM 330</td>
<td>Advanced Scripting for Interactive Media</td>
</tr>
<tr>
<td>or IM 336</td>
<td>Interactive Media Scripting for Programmers *</td>
</tr>
<tr>
<td>MAT 150</td>
<td>Calculus I</td>
</tr>
<tr>
<td>MAT 151</td>
<td>Calculus II</td>
</tr>
<tr>
<td>MAT 152</td>
<td>Calculus III</td>
</tr>
</tbody>
</table>

* Students who take CSC 261 and CSC 262 may take IM 330 or IM 336 as an elective. Only one of the two would count as an elective.

### Open Electives
Open Electives may be taken from any department or program. These are the only courses that may be taken under the pass/fail option (see the undergraduate Bulletin for details). If
you wish to pursue a minor, most minor field courses will be credited as open electives.

**Note:** Grades for all courses in the student's major (i.e. non-Liberal Studies and non-Open Elective) must be 'C' or better. Grades of 'C-' may be accepted provided the overall grade point average in the major is 2.0 or better.

The **Bachelor of Science in Computer Graphics and Motion Technology** unites the technical and aesthetic principals of digitally created motion graphics and animation. Graduates of the program may find opportunities in diverse fields, from motion pictures or architecture to computer gaming or medicine.

The **BS in Computer Graphics and Motion Technology** provides DePaul students with an interest in mathematics/computer science as well as visual design, an academic foundation in both the technical and aesthetic elements of computer graphics.

The Bachelor of Science degree program offers two options of study:

- **The Developer concentration** is geared toward students who are considering careers in graphic software development, with course work focused in programming languages (C/C++) and mathematics (calculus and algebra), in addition to animation and computer graphics.
- **The Technical Designer concentration** is geared toward students interested in the visual aspects, including lighting setup, shader development and character rigging.

What students learn in this degree program:

- Design and analysis of mathematics/computer science principals for computer graphic design.
- Beginning and advance digital photography.
- History and theory of graphic design (color theory, perception).
- Usability and human-computer interaction.

The Liberal Studies program is the general education portion of the curriculum at DePaul. Click here to view the CDM courses that qualify for liberal studies credit.

Four-year schedule of courses for the **Developer Concentration**:

**First Year**

*Major Field Courses (9)*

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSC 261</td>
<td>Programming Languages I: C/C++</td>
</tr>
<tr>
<td>CSC 262</td>
<td>Programming Languages II: C/C++</td>
</tr>
<tr>
<td>CSC 393</td>
<td>Data Structures in C++</td>
</tr>
<tr>
<td>GPH 211</td>
<td>Perceptual Principles for Digital Environments I</td>
</tr>
<tr>
<td>GPH 212</td>
<td>Perceptual Principles for Digital Environments II</td>
</tr>
<tr>
<td>ANI 201</td>
<td>Animation I</td>
</tr>
<tr>
<td>MAT 140</td>
<td>Discrete Mathematics I</td>
</tr>
<tr>
<td>MAT 150</td>
<td>Calculus I</td>
</tr>
<tr>
<td>or MAT 160</td>
<td>Calculus for Mathematics and Science Majors I</td>
</tr>
<tr>
<td>or MAT 170</td>
<td>Calculus I with Scientific Applications *</td>
</tr>
<tr>
<td>MAT 151</td>
<td>Calculus II</td>
</tr>
</tbody>
</table>

* MAT 170 is recommended

*Liberal Studies (3)*

**Second Year**

*Major Field Courses (5)*

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>GPH 325</td>
<td>Survey of Computer Graphics</td>
</tr>
</tbody>
</table>
GPH 329   Computer Graphics Development II
GPH 339   Advanced Rendering Techniques
GPH 321   Computer Graphics Development I
or MAT 220   Linear Algebra with Applications
CMN 220   Public Speaking

Liberal Studies (7)

Third Year

Major Field Courses (4)

GPH 372   Principles of Computer Animation
CSC 321   Design and Analysis of Algorithms
IM 315    Theory and Perception of Color
WRD 204   Technical Writing [formerly Eng 204]

Graphics Electives (3) - from the list at the bottom of the page.
Liberal Studies (5)

Fourth Year

Major Field Courses (4)

GPH 375   Advanced Graphics Development
GPH 388   Production Pipeline Techniques
GPH 389   Real-Time Graphics Techniques
GPH 395   Computer Graphics Senior Project

Graphics Electives (1) - from the list at the bottom of the page.
Liberal Studies (4)
Open Electives (3)

Four-year schedule of courses for the Technical Designer Concentration:

First Year

Major Field Courses (6)

CSC 211   Programming in Java I Self Placement Test Available
and CSC 212   Programming in Java II
OR CSC 261   Programming Languages I: C/C++
and CSC 262   Programming Languages II: C/C++
GPH 211   Perceptual Principles for Digital Environments I
GPH 212   Perceptual Principles for Digital Environments II
ANI 201   Animation I
MAT 140   Discrete Mathematics I

Liberal Studies (4) - ART 102 and ART 106 are required.

Second Year

Major Field Courses (7)

GPH 250   Digital Modeling I
GPH 325   Survey of Computer Graphics
IT 236    User Interface Development
ART 242   Survey of Asian Art
IM 210    Introduction to Human-Computer Interaction
CMN 220   Public Speaking
GPH 255   Hand Prototyping for Graphic Visualization

Liberal Studies (5)

Third Year
Major Field Courses (5)

ART 322  Modernism to Postmoderism
IM 315  Theory and Perception of Color
GPH 338  Survey of 3-D Animation
GPH 339  Advanced Rendering Techniques
WRD 204  Technical Writing [formerly Eng 204]

Graphics Electives (1) - from the list at the bottom of the page.

Liberal Studies (6)

Fourth Year

Major Field Courses (2)

GPH 395  Computer Graphics Senior Project
GPH 388  Production Pipeline Techniques

Graphics Electives (4) - from the list at the bottom of the page.

Liberal Studies (4)

Open Electives (4)

Graphics Electives List

Students may take any of the following courses as long as they were not previously used to satisfy the computer graphics and animation core:

ANI 300  3d Character Animation
ANI 310  Motion Capture Workshop
ART 225  Beginning Photography
ART 329  Advanced Digital Photography
[prereq: Art 225 and Art 101 Or Art 227 Or Instructor Consent]
ART 360  Illustration
ART 373  History of Design
IT 223  Data Analysis Self Placement Test Available
IT 236  User Interface Development
GPH 336  Smooth Surface Modeling for Graphics and Animation
GPH 340  Procedural Shading
GPH 341  Advanced Lighting Techniques
GPH 348  Rigging for Animation
GPH 376  Artificial Intelligence in Computer Games
GPH 380  Visualization
GPH 389  Real-Time Graphics Techniques
GPH 250  Digital Modeling I
GPH 259  Design Geometry
GPH 329  Computer Graphics Development II
GPH 350  Digital Modeling II
GPH 360  Modeling Spaces
GPH 374  Computer Games
GPH 375  Advanced Graphics Development
IM 270  User-Centered Web Design
IM 210  Introduction to Human-Computer Interaction
IM 322  Multimedia
MAT 150  Calculus I
MAT 151  Calculus II
MAT 152  Calculus III [prereq MAT 151 or MAT 161 or MAT 171]

Open Electives

Open Electives may be taken from any department or program. These are the only courses that may be taken under the pass/fail option (see the undergraduate Bulletin for details). If you wish to pursue a minor, most minor field courses will be credited as open electives.

Note: Grades for all courses in the students major (i.e. non-Liberal Studies and non-Open
Elective) must be 'C' or better. Grades of 'C-' may be accepted provided the overall grade point average in the major is 2.0 or better.

Digital Cinema

The Bachelor of Science program in Digital Cinema teaches students the fundamentals of motion picture theory and history along with the technical production skills, using state-of-the-art digital technology.

The BS degree in Digital Cinema at DePaul CDM is an innovative program that seeks to define and to develop the evolving relationship between cinema production technologies and creative artistic expression.

The intensive technical emphasis of the Bachelor of Science degree prepares students for work in live-action special effects, 3-D animation, and game development.

The Liberal Studies program is the general education portion of the curriculum at DePaul. Click here to view the CDM courses that qualify for Liberal Studies credit.

Please note: Students must complete 20 liberal studies courses including the eight credit hour Mathematical and Technological Literacy requirement which is both LSP 120 (formerly ISP 120) and LSP 121 (formerly ISP 121). LSP 121 will replace one course from any of the six Learning Domains as long as they take at least one course in each domain.

Four-year schedule of courses:

**First Year** Major Field Courses (5)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANI 105</td>
<td>Intro to Visual Design</td>
</tr>
<tr>
<td>DC 201</td>
<td>Introduction to Screenwriting</td>
</tr>
<tr>
<td>DC 110</td>
<td>Foundation of Cinema for Majors</td>
</tr>
<tr>
<td>DC 225</td>
<td>Digital Still Photography</td>
</tr>
<tr>
<td>DC 220</td>
<td>Editing I</td>
</tr>
</tbody>
</table>

Liberal Studies (6 *)

Open Electives (1)

**Second Year**

Major Field Courses (7)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANI 201</td>
<td>Animation I</td>
</tr>
<tr>
<td>VFX 200</td>
<td>Introduction to Visual Effects</td>
</tr>
<tr>
<td>DC 215</td>
<td>Digital Sound Design</td>
</tr>
<tr>
<td>ANI 230</td>
<td>3D Modeling</td>
</tr>
<tr>
<td>DC 275</td>
<td>Cinematography</td>
</tr>
<tr>
<td>DC 210</td>
<td>Digital Cinema Production I</td>
</tr>
<tr>
<td>DC 211</td>
<td>Pre-Production for Cinema</td>
</tr>
</tbody>
</table>

Liberal Studies (5 *)
Third Year

Major Field Courses (6)

VFX 278 Digital Compositing I
ANI 220 Pre-Production Art
ANI 260 Motion Graphics
ANI 231 3D Animation
DC 375 Advanced Cinematography
DC 310 Digital Cinema Production II

Liberal Studies (5 *)
Open Electives (1)

Fourth Year

Major Field Courses (5)

VFX 378 Digital Compositing II
ANI 310 Motion Capture Workshop
ANI 379 Advanced 3D Compositing
VFX 391 Virtual Cinema
DC 398 Digital Cinema Capstone

Liberal Studies (4 *)
Open Electives (3)

* Liberal Studies Arts & Literature Requirement must include at least TWO of the following:

MCS 207 History of Cinema I, 1890-1945
MCS 208 History of Cinema II
MCS 209 History of Cinema III, 1975-Present
ANI 206 History of Animation

Open Electives

Open Electives may be taken from any department or program. These are the only courses that may be taken under the pass/fail option (see the undergraduate Bulletin for details). If you wish to pursue a minor, most minor field courses will be credited as open electives.

Note: Grades for all courses in the students major (i.e. non-Liberal Studies and non-Open Elective) must be 'C' or better. Grades of 'C-' may be accepted provided the overall grade point average in the major is 2.0 or better.
The Bachelor of Science in Interactive Media degree prepares students for the expanding field of interaction design and its application to multimedia and web development. The base program integrates technical and artistic disciplines. Technical concepts and skills involve web markup languages, interactive scripting and human-centered design. The student also explores artistic areas of study such as communication design, animation, game design and cinema.

What students learn from this program:

- Develop well-designed web pages, sites, and interactive applications
- Design, code and create content for casual games
- Conduct usability tests for interactive web sites
- Employ visual design principles to express ideas and concepts
- Create prototypes for interactive displays

The Liberal Studies program is the general education portion of the curriculum at DePaul. Click here to view the CDM courses that qualify for Liberal Studies credit.

Four-year schedule of courses:

**First Year**

*Major Field Courses (6)*

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>IT 130</td>
<td>The Internet and the Web</td>
</tr>
<tr>
<td>ANI 105</td>
<td>Intro to Visual Design</td>
</tr>
<tr>
<td>IM 270</td>
<td>User-Centered Web Design</td>
</tr>
<tr>
<td>ART 260</td>
<td>Art and Design I: History, Concept, Structure</td>
</tr>
<tr>
<td>IT 240</td>
<td>Introduction to Desktop Databases</td>
</tr>
<tr>
<td>ANI 101</td>
<td>Animation for Non-Majors</td>
</tr>
<tr>
<td>or ANI 201</td>
<td>Animation I</td>
</tr>
</tbody>
</table>

*Liberal Studies (6) - Required: PSY 105 Introductory Psychology I and DC 205 Foundations of Cinema*

**Second Year**

*Major Field Courses (7)*

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>IT 223</td>
<td>Data Analysis</td>
</tr>
<tr>
<td>IT 231</td>
<td>Web Development I</td>
</tr>
<tr>
<td>IM 210</td>
<td>Introduction to Human-Computer Interaction</td>
</tr>
<tr>
<td>IM 220</td>
<td>Interactive Media I</td>
</tr>
<tr>
<td>IM 230</td>
<td>Scripting for Interactive Media</td>
</tr>
<tr>
<td>ART 264</td>
<td>Typography I</td>
</tr>
<tr>
<td>ANI 230</td>
<td>3D Modeling</td>
</tr>
</tbody>
</table>

*Liberal Studies (5) - Required: CSC 208 Computers and Social Responsibility or IT 228 Ethics in Computer Games and Cinema*

**Third Year**

*Major Field Courses (5)*

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>IM 360</td>
<td>User-Centered Evaluation</td>
</tr>
<tr>
<td>IM 320</td>
<td>Interactive Media II</td>
</tr>
<tr>
<td>IM 330</td>
<td>Advanced Scripting for Interactive Media</td>
</tr>
<tr>
<td>WRD 204</td>
<td>Technical Writing</td>
</tr>
</tbody>
</table>
**IM Electives (3)**  
**Liberal Studies (4)**

**Fourth Year**

**Major Field Courses (1)**

- IM 394 Human-Computer Interaction Capstone Course  
  or CSC 394 Software Projects

**IM Electives (2) - chosen in consultation with student's advisor**

**Liberal Studies (4)**

**Open Electives (5)**

**IM Electives**  
Any 200- or 300-level CDM, ART or CMN course.

Any of the following:
- PSY 360 Theories of Learning and Cognition  
- PSY 375 Sensation and Perception  
- PSY 380 Industrial and Organizational Psychology  
- PSY 383 Psychology of Design  
- PSY 241 Research Methods I  
- PSY 242 Research Methods II

**Open Electives**  
Open Electives may be taken from any department or program. These are the only courses that may be taken under the pass/fail option (see the undergraduate Bulletin for details). If you wish to pursue a minor, most minor field courses will be credited as open electives.

**Note:** Grades for all courses in the students major (i.e. non-Liberal Studies and non-Open Elective) must be ‘C’ or better. Grades of ‘C-’ may be accepted provided the overall grade point average in the major is 2.0 or better.
Minors

A minor is a combination of courses that provides a cohesive introduction to an area of study. Typically, courses taken to satisfy minor field requirements are credited as open electives; however, there are some instances where minor field courses may be used for credit in other areas of the student’s curriculum. Grades for all courses, taken to fulfill a minor field requirement must be C or above. Grades of C- may be accepted for credit in the minor provided the minor GPA is 2.0 or above. A minimum of one-half of the courses required for a minor must be completed at DePaul University.

MINORS IN THE COLLEGE OF COMMERCE

Students enrolled in the College of Computing and Digital Media (CDM) may obtain a minor in Accounting, Business Administration, E-Business, Economics, Management, MIS, Marketing, and Pre-MBA. Please see the College of Commerce Section for Minor Requirements.

MINORS IN THE COLLEGE OF LIBERAL ARTS AND SCIENCES

Students enrolled in the College of Computing and Digital Media (CDM) may obtain a minor through the College of Liberal Arts and Sciences. Most Liberal Arts and Science departments offer minor concentrations of study. In general, a minor in a Liberal Arts and Sciences discipline consists of a set of introductory courses plus another set of more specialized courses. Most minors require six courses, some of which may also be used for credit in the Liberal Studies Program. For a complete list of minors offered through the College of Liberal Arts and Sciences, please consult that section of this online Bulletin.

MINORS IN THE COLLEGE OF COMPUTING AND DIGITAL MEDIA

Computer technology is an omnipresent part of our world, used in academic disciplines from physics to history to geography. CDM offers several minors that will appeal to all DePaul University students.

Political science and geography majors can pursue a minor in Data Analysis, Databases, or Data Visualization, which is important to understanding how to analyze census or GPS data. Communications majors may be interested in Digital Cinema which will give you skills in creating videos for advertising.

Art majors interested in a career in graphics programming, animation or design may be interested in CDM’s tech-focused minors in Animation or Computer Graphics Software Development.

An academic foundation in E-Commerce Technology, Networks or Information Systems can give Commerce students an edge in a tough job market.

There are other examples too numerous to mention. So if you have questions or want advice on what minor is best for you, can email our CDM Undergraduate Services team: gocdm@cdm.depaul.edu or call them at: 312-362-8714.

Policies for Academic Minors

Students must:

1. earn at least a grade of C- in each minor course and a GPA of no less than 2.0 for all courses in the minor;
2. earn at least a cumulative GPA of 2.0 for all courses applied to the minor;
3. not select the pass/fail option for courses in the minor
4. meet the following residency requirement: no more than 50% of the requirements of a
minor may be fulfilled by transfer credits, AP credit, IB credit or CLEP credit.

Finally, students cannot earn a minor in their major program.
Courses required to fulfill a minor are determined by the unit in which the minor resides.

**CDM Minors for CDM Students**

To obtain a minor in CDM when the major is also in CDM:

1. Satisfy all requirements for the major
2. Satisfy all requirements for the minor
3. Students must take at least 6 courses in the minor area that do not count towards their CDM major

**Note:** If you have already taken some of the courses listed under your minor on this page, work with your advisor to choose other courses within the same program area, i.e. NT minor would look under NT major courses and Computer Graphics Software Development would look under Computer Graphics Courses, in order to have 6 distinct courses.

- **Animation Minor**
  - ANI 101 Animation for Non-Majors
  - or ANI 201 (not both) Animation I
  - ANI 230 3D Modeling
  - ANI 231 3D Animation
  - ANI 206 History of Animation
  - 3 courses from the following list: (at least 1 must be ANI)
    - DC 201 Introduction to Screenwriting
    - DC 210 Digital Cinema Production I
    - DC 220 Editing I
  - Any ANI course

- **Computer Graphics Software Development Minor**
  - **Liberal Studies**
  - GPH 211 Perceptual Principles for Digital Environments I
### Course Requirements

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSC 261</td>
<td>Programming Languages I: C/C++</td>
</tr>
<tr>
<td>CSC 262</td>
<td>Programming Languages II: C/C++</td>
</tr>
<tr>
<td>CSC 393</td>
<td>Data Structures in C++</td>
</tr>
<tr>
<td>GPH 329</td>
<td>Computer Graphics Development II</td>
</tr>
<tr>
<td>GPH 339</td>
<td>Advanced Rendering Techniques</td>
</tr>
<tr>
<td>GPH 372</td>
<td>Principles of Computer Animation</td>
</tr>
</tbody>
</table>

### Computer Science Minor

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSC 241</td>
<td>Introduction to Computer Science I</td>
</tr>
<tr>
<td>and</td>
<td>CSC 242 Introduction to Computer Science II</td>
</tr>
<tr>
<td>and</td>
<td>CSC 224 Java for Programmers</td>
</tr>
<tr>
<td>or</td>
<td>CSC 211 Programming in Java I</td>
</tr>
<tr>
<td>and</td>
<td>CSC 212 Programming in Java II</td>
</tr>
<tr>
<td>and</td>
<td>CSC 309 Object-Oriented Programming in C++</td>
</tr>
<tr>
<td>or</td>
<td>CSC 261 Programming Languages I: C/C++</td>
</tr>
<tr>
<td>and</td>
<td>CSC 262 Programming Languages II: C/C++</td>
</tr>
<tr>
<td>and</td>
<td>CSC 224 Java for Programmers</td>
</tr>
<tr>
<td>CSC 393</td>
<td>Data Structures in C++</td>
</tr>
<tr>
<td>or</td>
<td>CSC 383 Data Structures and Algorithms in Java</td>
</tr>
<tr>
<td>MAT 140</td>
<td>Discrete Mathematics I</td>
</tr>
<tr>
<td>CSC 373</td>
<td>Computer Systems I</td>
</tr>
<tr>
<td>CSC 374</td>
<td>Computer Systems II</td>
</tr>
</tbody>
</table>

### Data Analysis and Data Mining Minor

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>IT 240</td>
<td>Introduction to Desktop Databases</td>
</tr>
<tr>
<td>IT 223</td>
<td>Data Analysis</td>
</tr>
<tr>
<td>CSC 324</td>
<td>Data Analysis and Statistical Software II</td>
</tr>
<tr>
<td>CSC 367</td>
<td>Introduction to Data Mining</td>
</tr>
<tr>
<td>CSC 334</td>
<td>Advanced Data Analysis</td>
</tr>
<tr>
<td>2 CDM Electives</td>
<td></td>
</tr>
</tbody>
</table>

### Database Minor

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSC 211</td>
<td>Programming in Java I</td>
</tr>
<tr>
<td>and</td>
<td>CSC 212 Programming in Java II</td>
</tr>
<tr>
<td>IT 223</td>
<td>Data Analysis</td>
</tr>
<tr>
<td>IT 240</td>
<td>Introduction to Desktop Databases</td>
</tr>
<tr>
<td>CSC 352</td>
<td>Database Programming</td>
</tr>
<tr>
<td>CSC 367</td>
<td>Introduction to Data Mining</td>
</tr>
<tr>
<td>1 CDM Elective</td>
<td></td>
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</table>

### Data Visualization Development Minor

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>GPH 211</td>
<td>Perceptual Principles for Digital Environments I</td>
</tr>
</tbody>
</table>

### Liberal Studies

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>GPH 211</td>
<td>Perceptual Principles for Digital Environments I</td>
</tr>
</tbody>
</table>
GPH 212  Perceptual Principles for Digital Environments II

Course Requirements

CSC 261  Programming Languages I: C/C++
CSC 262  Programming Languages II: C/C++
CSC 323  Data Analysis
CSC 393  Data Structures in C++
GPH 329  Computer Graphics Development II
GPH 372  Principles of Computer Animation
GPH 380  Visualization

Digital Cinema Minor

DC 205  Foundations of Cinema
DC 225  Digital Still Photography
DC 201  Introduction to Screenwriting
DC 220  Editing I

3 courses from the following list:

ANI 101  Animation for Non-Majors
DC 210  Digital Cinema Production I
DC 270  Topics in Digital Cinema
GAM 224  Introduction to Game Design
DC 215  Digital Sound Design
DC 275  Cinematography
DC 310  Digital Cinema Production II
DC 320  Editing II
DC 389  The Big Picture: The Entertainment Industry

E-Commerce Technology Minor

IT 130  The Internet and the Web
CSC 211  Programming in Java I
CSC 212  Programming in Java II
IT 230  Building Internet Applications
ECT 330  Advanced Internet Application Development
IM 210  Introduction to Human-Computer Interaction

1 course from the following list:

ECT 355  Internet Systems: Collaboration, Commerce, and Media
ECT 360  Introduction to XML
ECT 365  Web Server Operations

Game Design Minor

DC 201  Introduction to Screenwriting
ANI 105  Intro to Visual Design
ANI 101  Animation for Non-Majors
or ANI 201  Animation I
ANI 230  3D Modeling
GAM 224  Introduction to Game Design
GAM 244  Game Development I
GAM 245  Game Development II
**Game Programming Minor**

GAM 224  Introduction to Game Design  
GAM 244  Game Development I  
GAM 245  Game Development II  
GAM 374  Action Games Programming  

2 courses from the following list:  
ANI 230  3D Modeling  
GPH 321  Computer Graphics Development I  
GPH 329  Computer Graphics Development II  
GPH 350  Digital Modeling II  

Any other 300-Level GAM or GPH course

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**Interactive Media Minor**

**Required Courses**

IM 210  Introduction to Human-Computer Interaction  
IM 220  Interactive Media I  
IM 230  Scripting for Interactive Media  
IM 270  User-centered Web Design  

3 courses from the following list:  
IM 320  Interactive Media II  
IM 330  Advanced Scripting for Interactive Media  
IM 360  User-Centered Evaluation  
ANI 101  Animation for Non-Majors  
ANI 105  Intro to Visual Design  
ART 260  Art and Design I: History, Concept, Structure  
ART 264  Typography I  
DC 205  Foundations of Cinema  
GAM 244  Game Development I  
IT 130  The Internet and the Web  
IT 230  Building Internet Applications

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**Information Systems Minor**

CSC 211  Programming in Java I  
IT 230  Building Internet Applications  
IT 240  Introduction to Desktop Databases  
IT 130  The Internet and the Web  
IT 201  Introduction to Information Systems  
IT 215  Analysis and Design Techniques  
IM 210  Introduction to Human-Computer Interaction  

1 course from the following list:  
IS 371  Introduction to L.T. System Management  
IS 372  Fundamentals of Software Project Management  
IS 373  Introduction to Large Systems Implementation  
IS 374  Management Support Systems

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**Information Technology Minor**

IT 130  The Internet and the Web  
IT 130  Building Internet Applications
IT 240  Introduction to Desktop Databases
TDC 361  Basic Communication Systems
or IT 263  Applied Networks and Security
IT 215  Analysis and Design Techniques
1 CDM Elective

Network Technology Minor
CSC 211  Programming in Java I
or CSC 261  Programming Languages I: C/C++
CSC 212  Programming in Java II
or CSC 262  Programming Language II: C/C++
IT 201  Introduction to Information Systems
IT 263  Applied Networks and Security
TDC 362  Principles of Data Communication
TDC 363  Introduction to Local Area Networks
TDC 365  Network Interconnection Technologies

Screenwriting
DC 201  Introduction to Screenwriting
DC 205  Foundations of Cinema
DC 301  Advanced Screenwriting I
DC 302  Advanced Screenwriting II
DC 303  Advanced Screenwriting III
DC 304  Topics in Screenwriting

Security Minor
CSC 211  Programming in Java I
and CSC 212  Programming in Java II
or CSC 261  Programming Language I: C/C++
and CSC 262  Programming Language II: C/C++
CSC 233  Codes and Cyphers
or CSC 333  Cryptology
CNS 378  Host and Information Security
CNS 320  Computer Forensic and Incident Response
CNS 228  Legal, Ethical and Social Issues in Information Security
CNS 340  Fundamentals of Information Assurance

Software Engineering Minor
CSC 261  Programming Languages I: C/C++
and CSC 262  Programming Languages II: C/C++
and CSC 224  Java for Programmers
or CSC 241  Introduction to Computer Science I
and CSC 242  Introduction to Computer Science II
and CSC 224  Java for Programmers
or CSC 211  Programming in Java I
CSC 212  Programming in Java II
and then
The College of Computing and Digital Media established the Institute for Professional Development in 1985 to offer certificate programs designed to meet the needs of both individuals and businesses in the Chicagoland area. These non-degree offerings provide intensive training in a wide variety of areas, with each standalone certificate program addressing a different set of theoretical concepts and practical skills. Emphasis is placed on gaining practical experience through a combination of lectures and demonstrations complemented by laboratory exercises and homework assignments. Certificate programs are typically taught by a team of instructors, that includes both full-time faculty and part-time instructors from industry. The programs require a substantial commitment of time, as most meet two nights per week and in the morning on approximately half of the Saturdays during the program.

For application and registration information pertaining to the certificate programs offered by the Institute for Professional Development, please call the Institute office at (312) 362-6282.

Current certificate program offerings include:

**IPD 359  Web Development with Python Program**  
A 5-week program covering Web development with the Python programming language.

**IPD 360/460  SQL Server Business Intelligence Program**  
An 11-week in-depth program covering SQL Server analysis services, integration services, and reporting services

**IPD 363  SQL Server Database Administration Program**  
An 11-week in-depth program covering database administration using SQL Server

**IPD 364  Lightweight Java Web Development Program**  
An 8-week comprehensive program covering open-source, lightweight Java enterprise Web development using POJOs (Plain Old Java Objects)

**IPD 365  Ruby on Rails Program**  
A 7-week in-depth program covering Web development using Ruby on Rails

**IPD 366  Java Web Services Program**  
A 7-week concentrated program covering service-oriented architecture and the development
of Web services using Java

**IPD 370 Advanced SQL Program**
A 2-week program covering advanced Structured Query Language (SQL) features

**IPD 380 IT Project Management Program**
A 10-week comprehensive program covering best practices in IT project management

**IPD 382 Java Developer Program**
A 10-week comprehensive program covering object-oriented applications development using Java

**IPD 389 .NET Developer Program**
A 10-week comprehensive program covering .NET technologies

**IPD 392 Telecommunications Program**
An 11-week intensive program focusing on the configuration, implementation and ongoing support of telecommunications systems and networks

**IPD 394 Java EE Developer Program**
A 10-week in-depth program covering enterprise-wide applications development using Java EE

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**Combined Bachelor/Master Degrees**

The Combined Degree Programs at CDM are designed to allow academically gifted students to complete both a bachelor and master's degree in a shorter amount of time than by taking each degree separately.

Please note: This version of the degree replaces all previous combinations and current students will be migrated to this plan.

**Combined Degree Program Structure**

The shortened structure of combined degree programs is accomplished by students taking three Masters level courses in their junior and senior year that count toward both their bachelor and masters degree requirements at the same time. Students in this program will receive both a bachelor degree, after 192 undergraduate credit hours, and a masters degree after 10 more graduate courses (40 hours), instead of the standard 13 (52 hours).

**How to apply:**

In order to apply for the BS/MS program, your faculty advisor must send an e-mail recommendation to Becky Krochmal at bkrochmal@cdm.depaul.edu. The recommendation should include, the student full name, id number and the BS and MS degrees you wish to apply for.

**Admission criteria are as follows:**

- Minimum of 6 course/24 credit hours completed
- GPA of 3.3 or higher
- Endorsement of faculty advisor  this should be sent via e-mail to bkrochmal@cdm.depaul.edu

**Maintaining Good Standing**

- Student GPAs and grades will be reviewed after Autumn, Winter, and Spring Quarter
- Student and Faculty Advisor will be notified when the student's cumulative GPA falls...
below 3.3 or when the student receives less than a C- in graduate level Course (X-course)

Dismissal Policy

If a student's cumulative GPA falls below 3.3, the student must attain term GPA of 3.3 or above in the following quarter to stay active. If the student does not achieve a 3.3 term GPA, then the student will be dismissed from the combined program and resume the traditional BA/BS. As long as the student's cumulative GPA is below 3.3, the student must continue to achieve at least a 3.3 term GPA in all following quarters or face dismissal. If, at any point, the student's cumulative GPA is once again 3.3 or higher, term requirements no longer apply.

It is important to note:
**If a student does not maintain good standing, they will be dismissed from the Combined Degree and returned to normal undergraduate degree seeking status. Any graduate courses passed before dismissal will not be counted toward graduate credit and may not be retaken (if the student does pursue graduate study, other graduate courses must be substituted). If dismissed students wish to apply to a CDM graduate degree program, they may do so following normal CDM admissions procedures, but will still be required to take 13 graduate courses for a MS degree.**

BA/BS-MA/MS Transition

If, upon completion of the BA/BS Degree, the student did not meet all prerequisites for the MA/MS Degree, then the student will need to complete (course, test or waiver) the missing prerequisites for the chosen MA/MS Degree.
If, while still in the undergraduate degree phase, the student receives less than a C- in graduate level course (X-course), the X-course cannot count towards the MA/MS Degree.

**Designing a Course of Study**

It is extremely important that the student and faculty advisor work together on a course of study immediately upon admission to the Combined Degree Program.

This course of study may include which undergraduate classes to avoid taking in order to take the graduate version. Failure to put together a solid plan can lead to extra coursework and a lengthening of the Combined Degree program.

It is advisable for the student and advisor to enter the proposed plan of study in the student communication record on the CDM intranet so it is available to the student and CDM faculty and staff.
Courses

Please visit Campus Connection at https://campusconnect.depaul.edu for current course information. If you do not have a password for Campus Connection you may log on as a guest. Once you are on Campus Connection please select Course Catalog followed by the department.