

**DEPAUL  
UNIVERSITY**

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## **Course Catalog**

**College of Computing and Digital Media Undergraduate  
Studies**

**Summer/Autumn 2008-2009**

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# General Information

College of Computing and Digital Media - Undergraduate Studies ▢ General Information

## Catalog Version

### **UNDERGRADUATE UPDATE: APRIL 15, 2008**

Please use the menu items to the left for current catalog navigation. Access archived catalogs by choosing the link to the right.

# College of Computing and Digital Media (CDM)

College of Computing and Digital Media - Undergraduate Studies □ College of Computing and Digital Media (CDM)

## 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.

College of Computing and Digital Media - Undergraduate Studies □ College of Computing and Digital Media (CDM) □ Administration

## 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

Facilities

College of Computing and Digital Media - Undergraduate Studies □ College of Computing and Digital Media (CDM) □ Student Services

## Student Services

### Advising Staff

JOHN GLATZ  
Director of Advising

CARRIE JODELKA  
Academic Advisor

BECKY KROCHMAL  
Assistant Director of Advising

JACLYN MUSSELMAN  
Associate Director of Advising

### Undergraduate Admissions

SARAH PIECZYNSKI  
Director of Undergraduate Services

College of Computing and Digital Media - Undergraduate Studies □ College of Computing and Digital Media (CDM) □ Facilities

## **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

College of Computing and Digital Media - Undergraduate Studies □ College of Computing and Digital Media (CDM) □ Admission

## **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 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](#).

### **T ransfer 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.

College of Computing and Digital Media - Undergraduate Studies □ College of Computing and Digital Media (CDM) □ Academic Advisement

## **Academic Advisement**

### **ADVISING**

The College believes that academic advising is necessary for the vitality and success of the student's undergraduate education. Students are assigned a faculty advisor upon admission to the school. All students are encouraged to meet with their faculty advisor at least once each year for assistance in planning a course of study that best reflects their academic and career interests, skills, and lifestyle.

College of Computing and Digital Media - Undergraduate Studies □ College of Computing and Digital Media (CDM) □ Professional Development

## **Professional Development**

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 Open-Source Web Development Program**

A 5-week program addressing rapid and efficient development of business-critical Web applications using Linux, Apache, PostgreSQL and Python

**IPD 360/460 SQL Server Business Intelligence Program**

An 11-week in-depth program covering SQL Server 2005 analysis services, integration services, and reporting services

**IPD 361/461 SQL Server Database High Availability Program**

An 11-week comprehensive overview of the various high availability solutions available with the latest edition of Microsoft's SQL Server

**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 368/468 .NET Mobile Applications Development Program**

A 10-week focused program covering the basic skills and techniques for successfully building mobile applications using the .NET platform

**IPD 370 Advanced SQL Program**

A 2-week program covering advanced 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 390 Information Systems Security Management Program**

A 10-week comprehensive program covering best practices in designing, implementing and maintaining an organizational information security plan

**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

**IPD 395 Database Technologies Program**

A 12-week comprehensive program covering database applications development and administration using Oracle

**IPD 398 .NET Web Services Program**

An 8-week concentrated program covering service-oriented architecture and the development of Web services using the .NET platform



## 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.

## 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.

## 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](mailto: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, 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
  - Security
  - Software Engineering
  - Visual Computing
- 

## **CDM Minor Requirements**

### **Animation Minor**

**ANI 101** Animation for Non-Majors

**ANI 230** 3d Modeling for Animation and Gaming

**ANI 231** 3d Animation for Cinema and Gaming

**ANI 206** History of Animation

3 courses from the following list:

**ANI 220** Pre-Production Art

**ANI 300** 3d Character Animation

**ANI 310** Motion Capture Workshop

**DC 201** Introduction to Screenwriting

**DC 205** Foundations of Cinema

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### **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

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### **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 224** 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

### **Data Analysis and Data Mining Minor**

IT 240 Introduction to Desktop Databases  
IT 223 Data Analysis  
CSC 324 Data Analysis and Statistical Software II  
CSC 367 Introduction to Data Mining  
CSC 334 Advanced Data Analysis  
2 CDM Electives

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### **Database Minor**

CSC 211 Programming in Java I  
and CSC 212 Programming in Java II  
IT 223 Data Analysis  
IT 240 Introduction to Desktop Databases  
CSC 352 Database Programming  
CSC 367 Introduction to Data Mining  
1 CDM Elective

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### **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

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### **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 and Lighting  
DC 310 Digital Cinema Production II  
DC 320 Editing II  
DC 389 The Big Picture: the Entertainment Industry

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## 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

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## 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 for Animation and Gaming

GAM 224 Introduction to Game Design

GAM 244 Game Development I

GAM 245 Game Development II

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## 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 for Animation and Gaming

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

Plus **three** 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 230 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  
One CDM Elective

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### 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 Languages II: C/C++  
IT 201 Introduction to Information Systems  
IT 263 Applied Networks and Security  
TDC 362 Principles of Data Communications  
TDC 363 Introduction to Local Area Networks  
TDC 365 Network Interconnection Technologies

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### 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 II  
DC 304 Topics in Screenwriting

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## Security Minor

CSC 211 Programming in Java I

and CSC 212 Programming in Java II

OR

CSC 261 Programming Languages I: C/C++

and CSC 262 Programming Languages II: C/C++

CSC 233 Codes and Ciphers

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

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## 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

and 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

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## Visual Computing Minor

MAT 140 Discrete Mathematics I

or MAT 220 Linear Algebra with Applications

or One quarter of Calculus (CSC 381 requirement)

IT 223 Data Analysis (required 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

College of Computing and Digital Media - Undergraduate Studies ▢ Programs in CDM

## Current Degree Descriptions

### Bachelor of Science Degree Programs

#### ***School of Computing***

Computer Game Development (joint with CIM)  
Computer Graphics and Motion Technologoy (joint with CIM)  
Computer Science  
E-Commerce Technology  
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 Digital 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)

College of Computing and Digital Media - Undergraduate Studies □ 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.

College of Computing and Digital Media - Undergraduate Studies □ School of Computing (SoC) □ Faculty

## 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.  
Associate Professor  
Northwestern University

ALAN BURNS, Ph.D.  
Assistant Professor  
Kent State University

SUSY CHAN, Ph.D.  
Professor  
Syracuse University

I-PING CHU, Ph.D.  
Associate Professor

State University of New York at Stony Brook

ANTHONY CHUNG, Ph.D.  
Associate Professor  
University of Maryland Baltimore County

LUCIA DETTORI, Ph.D.  
Associate Professor and Associate Dean  
University of Paris XI

MASSIMO DIPIERRO, Ph.D.  
Assistant Professor  
University of Southampton, UK

CLARK ELLIOTT, Ph.D.  
Associate Professor  
Northwestern University

HELMUT EPP, Ph.D.  
Professor  
Northwestern University

XIAOWEN FANG, Ph.D.  
Associate Professor  
Purdue University

ROBERT FISHER, Ph.D.  
Associate Professor  
Harvard University

JACOB FURST, Ph.D.  
Associate Professor  
University of North Carolina at Chapel Hill

GERALD GORDON, Ph.D.  
Associate Professor  
University of California, Berkeley

PETER HASTINGS, Ph.D.  
Associate Professor  
University of Michigan, Ann Arbor

HENRY HARR, Ph.D.  
Professor Emeritus  
Illinois Institute of Technology

JANE HUANG, Ph.D.  
Assistant Professor  
University of Illinois at Chicago

LOUIS IBARRA, Ph.D.  
Assistant Professor  
University of Victoria

RADHA JAGADEESAN, Ph.D.  
Professor  
Cornell University

XIAOPING JIA, Ph.D.  
Professor  
Northwestern University

STEVE JOST, Ph.D.  
Associate Professor

Northwestern University

MARTIN KALIN, Ph.D.  
Professor and Associate Dean  
Northwestern University

IYAD KANJ, Ph.D.  
Associate Professor  
Texas A & M University

LINDA KNIGHT, Ph.D.  
Associate Professor  
DePaul University

JEAN-PHILIPPE LABRUYČRE, M.S.  
Instructor  
Illinois Institute of Technology

GLENN LANCASTER, Ph.D.  
Associate Professor  
University of California, Irvine

JOSEPH LINHOFF, J.D.  
Visiting Assistant Professor  
University of Colorado at Boulder School of Law

STEPHEN LUECKING, M.F.A.  
Professor  
Miami University

EVELYN LULIS, Ph.D.  
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Professor  
Yale University

WILFREDO MARRERO, Ph.D.  
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JOHN MCDONALD, Ph.D.  
Associate Professor  
Northwestern University

CRAIG MILLER, Ph.D.  
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BAMSHAD MOBASHER, Ph.D.  
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MAKOTO NAKAYAMA, Ph.D.  
Associate Professor  
University of California, Los Angeles

LJUBOMIR PERKOVIC, Ph.D.  
Associate Professor  
Carnegie Mellon University

CORIN PITCHER, Ph.D.  
Assistant Professor  
University of Oxford

DANIELA RAICU, Ph.D.  
Assistant 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

RAFFAELLA SETTIMI, Ph.D.  
Associate Professor  
University of Perugia

AMBER SETTLE, Ph.D.  
Associate Professor  
University of Chicago

PAUL SISUL, M.DIV.  
Instructor  
DeAndreis Institute of Theology

ADAM STEELE, Ph.D.  
Associate Professor  
Concordia University

THERESA STEINBACH, M.B.A., M.S.  
Assistant Professor  
DePaul University

HAROLD STREETER, M.S.  
Instructor  
Brown University

NORMA SUTCLIFFE, Ph.D.  
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

CHARLES WILCOX, B.A.  
Instructor  
Southern Illinois University

ROSALEE WOLFE, Ph.D.  
Professor  
Indiana University

JAMES YU, Ph.D.  
Assistant Professor  
Purdue University

College of Computing and Digital Media - Undergraduate Studies □ School of Computing (SoC) □ Liberal Studies Program and Modern Language Option

## **Liberal Studies Program and Modern Language Option**

The Liberal Studies Program (LSP) has two primary components. The first is termed the **Common Core**, and consists of a series of classes taken sequentially by students as they progress towards their degree. These courses are the *First-Year Program* (including: Chicago Quarter, Focal Point Seminar, and First-Year Writing); *Sophomore Seminar on Multiculturalism in the United States*; *Junior Year Experiential Learning*; and *Senior Capstone*. They emphasize writing and communication, quantitative reasoning, and intellectual skills, as well as the urban and Vincentian mission of DePaul University.

The second component consists of six **Learning Domains**:

- Arts and Literature (AL)
- Philosophical Inquiry (PI)
- Religious Dimensions (RD)
- Scientific Inquiry (SI)
- Self, Society, and the Modern World (SSMW)
- Understanding the Past (UP)

Within any single **Domain**, basic criteria, learning outcomes, and modes of inquiry are shared, but the courses themselves come from many different departments, programs, and Colleges across the University. By having such broadly defined **Learning Domains**, students are assured a breadth of pedagogical experiences but also enjoy great latitude in selecting, experiencing, and applying the various methods of intellectual inquiry.

CDM offers dozens of courses in many domains of the LSP, and students can take any of them to satisfy an LSP domain requirement, provided the course is NOT required as part of the student's major. In other words, courses taken for LSP domain credit cannot be counted toward major requirements or even as open electives. However, students may experiment with digital photography, computer graphics, digital cinema, animation, gaming, databases, web development, e-commerce technology, and programming, while fulfilling their LSP requirements. In fact, many of these courses serve as gateway courses into more advanced CDM courses.

### **MODERN LANGUAGE OPTION**

The Modern Language Option is available to all B.A. students who wish to study a modern language beyond the level necessary to meet their Colleges language requirement, and to B.S. students who wish to study a

Modern Language at any level. Students selecting this option will be able to replace two of their learning domain requirements with language courses, according to the following formula:

Select one course from two of the three groupings of learning domains:

- Philosophical Inquiry or Religious Dimensions
- Understanding the Past or Self, Society, and the Modern World
- Arts & Literature or Scientific Inquiry [Note: The lab requirement must still be met.]

[For example, it is acceptable to take one course from Philosophical Inquiry and one from Arts and Literature, but *not* one course from Philosophical Inquiry and another from Religious Dimensions.]

CDM Liberal Studies Courses

College of Computing and Digital Media - Undergraduate Studies □ School of Computing (SoC) □ 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 .

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### 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

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### CDM Liberal Studies Courses by Liberal Studies Area

## Arts and Literature

### **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*

Acquisition and computer representation of sound and image. Sound and video standards. Lossy and Lossless compression. Basic computer graphics and rendering. Distribution of digital information.

### **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.

### **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.

### **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!

### **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.

## 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 380** *Project Bluelight*

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

### **IT 300** *Research Experience*

This course involves the exploration of a research topic under the supervision of a research advisor.

### **GPH 360** *Modeling Spaces*

The digital design and modeling of environmental spaces with attention to human use parameters.

### Scientific Inquiry: Elective

#### **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 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 261 Programming Languages I: C/C++**

#### **CSC 262 Programming Languages II: C/C++**

Two courses in programming C++

#### **CSC 233 Codes and Ciphers**

A history of code making and breaking and the math and (computer) science behind it

#### **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

**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.

#### **IT 223 Data Analysis**

#### **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.

### Self, Society, and the Modern World

#### **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.

**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.

**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.

**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.

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

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**CDM Liberal Studies Courses by Course Topic**

The Internet and How It Works

**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*

Learn to Design Your Own Website

**IT 263** *Applied Networks and Security*

Programming and Basic Computer Know-How

**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++.

**TDC 361** *Basic Communication Systems*

## The Computer and Society

### **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.

### **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.

### **CSC 223** *The Impact of Computing Technology On Our Lives : Self, Society, and the Modern World*

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

### **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

## Computer Graphics and Motion Technology

### **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

### **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

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

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

### Digital Cinema and Gaming

#### **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 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 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.

#### **GAM 206 History of Games**

This class will examine particular games and game genres in their historical context using a case study format

#### **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.

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Acquisition and computer representation of sound and image. Sound and video standards. Lossy and Lossless compression. Basic computer graphics and rendering. Distribution of digital information.

#### **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.

#### **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.

## **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](mailto: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](mailto: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.

College of Computing and Digital Media - Undergraduate Studies □ School of Computing (SoC) □ Minors

### **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](mailto: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, 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
  - Security
  - Software Engineering
  - Visual Computing
- 

### **CDM Minor Requirements**

#### **Animation Minor**

**ANI 101** Animation for Non-Majors

**ANI 230** 3d Modeling for Animation and Gaming

**ANI 231** 3d Animation for Cinema and Gaming

**ANI 206** History of Animation

3 courses from the following list:

**ANI 220** Pre-Production Art

**ANI 300** 3d Character Animation

**ANI 310** Motion Capture Workshop

**DC 201** Introduction to Screenwriting

**DC 205** Foundations of Cinema

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## **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

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## **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 224** 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

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## **Data Analysis and Data Mining Minor**

**IT 240** Introduction to Desktop Databases

**IT 223** Data Analysis

**CSC 324** Data Analysis and Statistical Software II

**CSC 367** Introduction to Data Mining

**CSC 334** Advanced Data Analysis

2 CDM Electives

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## **Database Minor**

**CSC 211** Programming in Java I

and **CSC 212** Programming in Java II  
**IT 223** Data Analysis  
**IT 240** Introduction to Desktop Databases  
**CSC 352** Database Programming  
**CSC 367** Introduction to Data Mining  
1 CDM Elective

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### **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

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### **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 and Lighting  
**DC 310** Digital Cinema Production II  
**DC 320** Editing II  
**DC 389** The Big Picture: the Entertainment Industry

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### **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

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## 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 for Animation and Gaming  
GAM 224 Introduction to Game Design  
GAM 244 Game Development I  
GAM 245 Game Development II

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## 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 for Animation and Gaming  
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

Plus **three** 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 230 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  
One CDM Elective

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### 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 Languages II: C/C++  
IT 201 Introduction to Information Systems  
IT 263 Applied Networks and Security  
TDC 362 Principles of Data Communications  
TDC 363 Introduction to Local Area Networks  
TDC 365 Network Interconnection Technologies

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### 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 II  
DC 304 Topics in Screenwriting

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### Security Minor

CSC 211 Programming in Java I  
and CSC 212 Programming in Java II  
OR  
CSC 261 Programming Languages I: C/C++  
and CSC 262 Programming Languages II: C/C++  
CSC 233 Codes and Ciphers  
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

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## 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

**and 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

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## Visual Computing Minor

**MAT 140** Discrete Mathematics I

**or MAT 220** Linear Algebra with Applications

**or One** quarter of Calculus (CSC 381 requirement)

**IT 223** Data Analysis (required 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)

## Bachelor of Arts Degree Programs

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

### Computing (Joint with SNL)

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 and 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.

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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 (4)*

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](#)  
ICS 200 Introduction to Business

*Liberal Studies (7)*

*Open Elective (1)*

### **Second Year**

*Major Field Courses (6)*

IT 230 Building Internet Applications [Self Placement Test Available](#)  
IT 223 Data Analysis [Self Placement Test Available](#)  
**or** CSC 239 Personal Computing  
IM 210 Introduction to Human-Computer Interaction  
IT 263 Applied Networks and Security  
**or** TDC 361 Basic Communication Systems  
CSC 223 The Impact of Computing Technology On Our Lives  
CMN 212 Small Group Communication  
**or** CMN 220 Public Speaking

*Liberal Studies (6)*

### **Third Year**

*Major Field Courses (4)*

WRD 204 Technical Writing [formerly ENG 204]  
or WRD 301 Writing in the Professions

3 Technical Grounding Courses from this list:

IT 236 User Interface Development  
IT 215 Analysis and Design Techniques [Self Placement Test Available](#)  
CSC 211 Programming in Java I [Self Placement Test Available](#)  
CSC 212 Programming in Java II  
CSC 261 Programming Languages I: C/C++  
CSC 262 Programming Languages II: C/C++  
ECT 330 Advanced Internet Application Development  
TDC 363 Introduction to Local Area Networks  
GPH 211 Perceptual Principles for Digital Environments I  
GPH 212 Perceptual Principles for Digital Environments II  
GAM 244 Game Development I  
GAM 245 Game Development II  
SE 325 Principles and Practices of Software Engineering [Self Placement Test Available](#)

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

#### **Fourth Year**

*Major Field Courses (1)*

SOC 394 Sociology and Society (Satisfies the Junior Experiential Learning requirement)  
CSC 378 Software Projects for Community Clients

*Any 200-level or higher DePaul Elective (3)*  
*300-level CDM Electives (2)*  
*Open Electives (5)*

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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.

## 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

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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 **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 329 Game Business

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)*

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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)*

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## Gaming Electives

Any 200-level ANI, DC, GAM, GPH or IM Course

Any 300-level CDM Course

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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.

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

## 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.

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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)*

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 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)*

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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 Postmodernism  
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)

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## **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]

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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.

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.

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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 PI 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

#### A. **Mathematical Tools** (5 Courses)

MAT 140 Discrete Mathematics I  
 MAT 141 Discrete Mathematics II  
 IT 223 Data Analysis

AND any of the following calculus sequences (160/161 or 170/171 are highly recommended):

MAT 150 Calculus I  
 AND MAT 151 Calculus II  
 OR MAT 160 Calculus for Mathematics and Science Majors I  
 AND MAT 161 Calculus for Mathematics and Science Majors II  
 OR MAT 170 Calculus I with Scientific Applications  
 AND MAT 171 Calculus II with Scientific Applications

#### 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

#### C. **Modeling and Object-Oriented Programming** (3 courses):

CSC 224 Java for Programmers [Self Placement Test Available](#)  
 CSC 383 Data Structures and Algorithms in Java  
 or CSC 393 Data Structures in C++  
 SE 350 Object-Oriented Software Development

#### D. **Computer Systems** (4 courses):

CSC 309 Object-Oriented Programming in C++  
 CSC 373 Computer Systems I  
 CSC 374 Computer Systems II  
 CSC 347 Concepts of Programming Languages

#### E. **Capstone** (1 course):

CSC 394 Software Projects

#### F. **Communication** (2 courses):

### **Major Field Elective Courses (6)**

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

#### **Introductory Major Field Courses**

IT 130 The Internet and the Web  
IT 209 Introduction to Programming Through Animation  
IT 230 Building Internet Applications  
IT 236 User Interface Development  
IT 240 Introduction to Desktop Databases  
IT 263 Applied Networks and Security  
IM 210 Introduction to Human-Computer Interaction  
IM 336 Interactive Media Scripting for Programmers  
GAM 244 Game Development I  
GAM 245 Game Development II  
CSC 233 Codes and Ciphers  
CSC 235 Problem Solving

#### **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.

##### **Theory of Computation**

CSC 333 Cryptology  
CSC 344 Automata Theory and Formal Grammars  
CSC 389 Theory of Computation  
CSC 327 Problem Solving for Contests

##### **Data Storage**

CSC 352 Database Programming  
CSC 353 Advanced Database Concepts

##### **Computer Systems**

CSC 343 Introduction to Operating Systems  
CSC 348 Introduction to Compiler Design  
CSC 375 Introduction to Robotics  
SE 335 Foundations of Distributed Systems I  
SE 336 Foundations of Distributed Systems II  
TDC 368 Network Programming

##### **Data Analysis and Mining**

CSC 324 Data Analysis and Statistical Software II  
CSC 328 Data Analysis for Experimenters  
CSC 367 Introduction to Data Mining  
CSC 334 Advanced Data Analysis

##### **Computational Sciences**

CSC 331 Scientific Computing  
CSC 387 Operations Research I: Linear Programming  
CSC 388 Operations Research II: Optimization Theory

##### **Artificial Intelligence**

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

##### **Computer Vision**

CSC 381 Introduction to Digital Image Processing  
CSC 382 Applied Image Analysis  
CSC 384 Introduction to Computer Vision

### **Software Engineering**

SE 325 Principles and Practices of Software Engineering  
SE 330 Object Oriented Modeling  
SE 331 Model-Driven Software Development  
SE 333 Software Testing  
CNS 340 Fundamentals of Information Assurance  
SE 352 Object-Oriented Enterprise Application Development  
SE 368 Software Measurement and Project Estimation

### **Human-Computer Interaction**

CSC 305 Graphical User Interface Implementation  
IM 360 User-Centered Evaluation

### **Computer Graphics**

GPH 325 Survey of Computer Graphics  
GPH 329 Computer Graphics Development II  
GPH 336 Smooth Surface Modeling for Graphics and Animation  
GPH 339 Advanced Rendering Techniques  
GPH 372 Principles of Computer Animation  
GPH 375 Advanced Graphics Development  
GPH 380 Visualization  
GPH 389 Real-Time Graphics Techniques  
GPH 395 Computer Graphics Senior Project

### **Computer Gaming**

GAM 350 Physics for Game Developers  
GAM 374 Action Games Programming  
GAM 376 Artificial Intelligence for Computer Games  
GAM 378 Strategy Games Programming  
GAM 380 Console Game Development Environments  
GAM 385 Introduction to Game Programming in Java  
GAM 386 Game Development for Mobile Devices  
GAM 390 Multiplayer Game Development  
GAM 394 Game Development Project I  
GAM 395 Game Development Project II

### **Web Development**

CSC 308 Frameworks for Web Application Development  
ECT 330 Advanced Internet Application Development  
ECT 360 Introduction to Xml  
ECT 365 Web Server Operations

### **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

*Open Electives (5 courses)*

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## **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 PI 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 Courses.

**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):

SE 331 Model-Driven Software Development  
SE 333 Software Testing  
CNS 340 Fundamentals of Information Assurance  
SE 335 Foundations of Distributed Systems I  
CSC 305 Graphical User Interface Implementation  
SE 368 Software Measurement and Project Estimation

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**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.

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

## **E-Commerce Technology**

Modern organizations are designing and deploying Internet-based technologies for integrated e-commerce transactions. Students of the **Bachelor of Science in E-Commerce Technology** program learn the most in-demand Internet skills for evolving new economy.

The BS in E-Commerce Technology focuses on applying Internet technologies for a wide variety of e-business solutions, including:

- online retail
- banking
- e-supply chain management
- customer relationship management
- e-government

Students learn methodologies for web engineering and project management, interactive design and e-business process/technologies. This dual emphasis of e-business concepts and technologies has resulted in plentiful job opportunities for many E-Commerce Technology graduates.

What students learn from this program:

- Computer programming and database technology
- Web engineering methodology, user-centered design, and systems development life cycle
- Web services, e-commerce servers, Web 2.0

- Project management
  - Networking and middleware
- 

The Liberal Studies program is the general 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 [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  
MAT 140 Discrete Mathematics I  
**or** BMS 125 Business Calculus I

*Liberal Studies (6)*

### **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](#)  
CSC 212 Programming in Java II  
ECT 330 Advanced Internet Application Development  
WRD 204 Technical Writing [formerly Eng 204]  
**or** WRD 301 Writing in the Professions

*Liberal Studies (5)*

### **Third Year**

*Major Field Courses (5)*

ECT 355 Internet Systems: Collaboration, Commerce, and Media  
ECT 360 Introduction to Xml  
ECT 365 Web Server Operations  
SE 330 Object Oriented Modeling  
CMN 212 Small Group Communication  
**or** CMN 220 Public Speaking

*Liberal Studies (4)*

*Open Electives (3)*

### **Fourth Year**

*Major Field Courses (2)*

ECT 372 Software Project Development and Management  
ECT 359 E-Commerce Technology Senior Project

*300-level CDM elective (2) - chosen in consultation with student's adviser.*

*Liberal Studies (4)*

*Open Electives (4)*

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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.

College of Computing and Digital Media - Undergraduate Studies □ School of Computing (SoC) □ Bachelor of Science Degree Programs □ Information Assurance and Security Engineering

## Information Assurance and Security Engineering

The **Bachelor of Science in Information Assurance and Security Engineering** prepares students to evaluate and manage an organization's computer, information and network security, as well as develop a solid information technology infrastructure.

A student in the **BS in Information Assurance and Security Program** will learn the fundamentals of information security and security engineering, security infrastructure design and implementation as well as the impact of security requirements on a business operation.

The BS in IASE program also emphasizes hands-on experience. IASE students learn to design, implement and manage various security infrastructure components in our state-of-the-art Information Assurance and Security Laboratory. The lab environment includes multi-vendor firewalls, Virtual Private Networks, Intrusion Detection and Prevention systems, routers, switches and event correlation systems.

What students learn from this program:

- Fundamentals of information assurance
- Risk assessment
- Network security
- Computer forensics
- Application development

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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 [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  
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 Available](#)  
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 [formerly ENG 204]

*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  
CMN 212 Small Group Communication  
or CMN 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 Available](#)  
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 FIN 290 Finance for Non-Commerce Majors

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

*Liberal Studies (1)*

*Open Electives (4)*

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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.

## **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

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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 (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)*

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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.

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

## **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.

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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 [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)*

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### **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

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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.

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

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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 230 Building Internet Applications  
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 for Animation and Gaming

*Liberal Studies* (5) - Required: CSC 208 Computers and Social Responsibility

### **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 [formerly Eng 204]  
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)

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### **IM Electives**

Any 200 or 300 level CTI, 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

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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.

College of Computing and Digital Media - Undergraduate Studies □ School of Computing (SoC) □ Bachelor of Science Degree Programs □ Mathematics / Computer Science (Joint with LA&S)

### **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.

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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.

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#### **CORE CLASSES** (14 courses)

##### **Mathematical Foundations**

MAT 140 Discrete Mathematics I  
 MAT 141 Discrete Mathematics II  
 MAT 260 Multivariable Calculus I  
 MAT 262 Linear Algebra

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

MAT 150 Calculus I  
 AND MAT 151 Calculus II  
 AND MAT 152 Calculus III

or

MAT 160 Calculus for Mathematics and Science Majors I  
 AND MAT 161 Calculus for Mathematics and Science Majors II  
 AND MAT 162 Calculus for Mathematics and Science Majors III



or

MAT 170 Calculus I with Scientific Applications

AND MAT 171 Calculus II with Scientific Applications

AND MAT 172 Calculus III with Differential Equations

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

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

CSC 241 Introduction to Computer Science I

CSC 242 Introduction to Computer Science II

CSC 321 Design and Analysis of Algorithms

CSC 383 Data Structures and Algorithms in Java

or CSC 393 Data Structures in C++

### **Object-Oriented Programming**

CSC 224 Java for Programmers [Self Placement Test Available](#)

or CSC 309 Object-Oriented Programming in C++

### **Computer Systems**

CSC 373 Computer Systems I

CSC 374 Computer Systems II

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## **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 Mathematical 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 Models and the Monte Carlo Method  
CSC 367 Introduction to Data Mining  
MAT 261 Multivariable 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

### **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).

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### **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.

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**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.

## **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 .

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### **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.

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

### **First Year**

*Major Field Courses* (6)

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  
MAT 140 Discrete Mathematics I

*Liberal Studies* (6)

### **Second Year**

*Major Field Courses* (6)

IT 223 Data Analysis [Self Placement Test Available](#)  
TDC 311 Computers in Telecommunications Systems  
TDC 362 Principles of Data Communications  
WRD 204 Technical Writing [formerly Eng 204]  
**or** WRD 301 Writing in the Professions  
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++

*Liberal Studies* (6)

### **Third Year**

*Major Field Courses* (4)

TDC 363 Introduction to Local Area Networks  
TDC 364 Voice Communications Technologies  
TDC 365 Network Interconnection Technologies  
CMN 212 Small Group Communication  
**or** CMN 220 Public Speaking

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

*Liberal Studies* (4)

*Open Electives* (3)

### **Fourth Year**

*Major Field Courses* (1)

TDC 376 Network Project

(2) 300-level TDC elective chosen in consultation with student's advisor.

*Liberal Studies* (3)

*Open Electives* (6)

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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)*

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  
MAT 140 Discrete Mathematics I

#### *Liberal Studies (6)*

### **Second Year**

#### *Major Field Courses (6)*

CSC 261 Programming Languages I: C/C++  
CSC 262 Programming Languages II: C/C++  
TDC 311 Computers in Telecommunications Systems  
TDC 362 Principles of Data Communications  
CNS 340 Fundamentals of Information Assurance : (Formerly CSC390).  
WRD 204 Technical Writing [formerly Eng 204]  
**or** WRD 301 Writing in the Professions

#### *Liberal Studies (6)*

### **Third Year**

#### *Major Field Courses (4)*

TDC 363 Introduction to Local Area Networks  
TDC 365 Network Interconnection Technologies  
TDC 377 Fundamentals of Network Security  
CMN 212 Small Group Communication  
**or** CMN 220 Public Speaking

(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)*

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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 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  
MAT 140 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 [formerly Eng 204]  
or WRD 301 Writing in the Professions [prereq: ENG 104 or WRD 104]

### *Liberal Studies (6)*

#### **Third Year**

### *Major Field Courses (6)*

TDC 363 Introduction to Local Area Networks  
TDC 365 Network Interconnection Technologies  
CSC 309 Object-Oriented Programming in C++  
or CSC 224 Java for Programmers [Self Placement Test Available](#)  
CSC 383 Data Structures and Algorithms in Java  
or CSC 393 Data Structures in C++  
TDC 368 Network Programming  
CMN 212 Small Group Communication  
or CMN 210 Interpersonal and Small Group Communication

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

*Liberal Studies (4)*

*Open Electives (1)*

#### **Fourth Year**

### *Major Field Courses (2)*

TDC 375 Network Protocols  
TDC 376 Network Project

(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)

College of Computing and Digital Media - Undergraduate Studies □ 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.

College of Computing and Digital Media - Undergraduate Studies □ School of Cinema and Interactive Media (CIM) □ Faculty

## Faculty

ROBIN BURKE, Ph.D.  
Associate Professor  
Northwestern University

RONALD ELTANAL, MFA  
Visiting Associate Professor  
University of Southern California

SCOTT ERLINDER, MFA  
Assistant Professor  
Columbia College

DANA HODGDON, M.A.  
Visiting Professor  
Northwestern University

MATT IRVINE, MFA  
Assistant Professor  
Columbia College

JOSHUA JONES, MFA  
Assistant Professor  
University of Southern California

MIKAEL KREUZRIEGLER, MFA  
Visiting Assistant Professor  
University of Southern California

JOSEPH LINHOFF, J.D.  
Visiting Assistant Professor  
University of Colorado at Boulder School of Law

THOMAS MUSCARELLO, Ph.D.  
Associate Professor  
University of Illinois at Chicago

GARY NOVAK, MFA  
Assistant Professor  
American Film Institute

SCOTT ROBERTS, M.F.A., M.A.  
Associate Professor



University of Wisconsin - Madison

ERIC SEDGWICK, Ph.D.  
Associate Professor  
University of Texas

ALEXANDER STEWART, M.F.A.  
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School of the Art Institute of Chicago

JOANNE ZIELINSKI, M.F.A.  
Associate Professor  
Rutgers University

College of Computing and Digital Media - Undergraduate Studies □ School of Cinema and Interactive Media (CIM) □ Liberal Studies Program and Modern Language Option

## **Liberal Studies Program and Modern Language Option**

The Liberal Studies Program (LSP) has two primary components. The first is termed the **Common Core**, and consists of a series of classes taken sequentially by students as they progress towards their degree. These courses are the *First-Year Program* (including: Chicago Quarter, Focal Point Seminar, and First-Year Writing); *Sophomore Seminar on Multiculturalism in the United States*; *Junior Year Experiential Learning*; and *Senior Capstone*. They emphasize writing and communication, quantitative reasoning, and intellectual skills, as well as the urban and Vincentian mission of DePaul University.

The second component consists of six **Learning Domains**:

- Arts and Literature (AL)
- Philosophical Inquiry (PI)
- Religious Dimensions (RD)
- Scientific Inquiry (SI)
- Self, Society, and the Modern World (SSMW)
- Understanding the Past (UP)

Within any single **Domain**, basic criteria, learning outcomes, and modes of inquiry are shared, but the courses themselves come from many different departments, programs, and Colleges across the University. By having such broadly defined **Learning Domains**, students are assured a breadth of pedagogical experiences but also enjoy great latitude in selecting, experiencing, and applying the various methods of intellectual inquiry.

CDM offers dozens of courses in many domains of the LSP, and students can take any of them to satisfy an LSP domain requirement, provided the course is NOT required as part of the student's major. In other words, courses taken for LSP domain credit cannot be counted toward major requirements or even as open electives. However, students may experiment with digital photography, computer graphics, digital cinema, animation, gaming, databases, web development, e-commerce technology, and programming, while fulfilling their LSP requirements. In fact, many of these courses serve as gateway courses into more advanced CDM courses.

### **MODERN LANGUAGE OPTION**

The Modern Language Option is available to all B.A. students who wish to study a modern language beyond the level necessary to meet their Colleges language requirement, and to B.S. students who wish to study a Modern Language at any level. Students selecting this option will be able to replace two of their learning domain requirements with language courses, according to the following formula:

Select one course from two of the three groupings of learning domains:

- Philosophical Inquiry or Religious Dimensions

- Understanding the Past or Self, Society, and the Modern World
- Arts & Literature or Scientific Inquiry [Note: The lab requirement must still be met.]

[For example, it is acceptable to take one course from Philosophical Inquiry and one from Arts and Literature, but *not* one course from Philosophical Inquiry and another from Religious Dimensions.]

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 .

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### 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

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### CDM Liberal Studies Courses by Liberal Studies Area

#### Arts and Literature

##### *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**

Acquisition and computer representation of sound and image. Sound and video standards. Lossy and Lossless compression. Basic computer graphics and rendering. Distribution of digital information.

**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.

**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.

**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!

**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.

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 380 Project Bluelight**

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

**IT 300 Research Experience**

This course involves the exploration of a research topic under the supervision of a research advisor.

**GPH 360 Modeling Spaces**

The digital design and modeling of environmental spaces with attention to human use parameters.

Scientific Inquiry: Elective

**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 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 261** *Programming Languages I: C/C++*

**CSC 262** *Programming Languages II: C/C++*

Two courses in programming C++

**CSC 233** *Codes and Ciphers*

A history of code making and breaking and the math and (computer) science behind it

**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

**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.

**IT 223** *Data Analysis*

**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.

Self, Society, and the Modern World

**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.

**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.

### ***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.

### ***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.

### **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

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## **CDM Liberal Studies Courses by Course Topic**

### **The Internet and How It Works**

#### ***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***

Learn to Design Your Own Website

#### ***IT 263 Applied Networks and Security***

Programming and Basic Computer Know-How

#### ***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++.

#### ***TDC 361 Basic Communication Systems***

### **The Computer and Society**

#### ***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.

### ***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.

**CSC 223** *The Impact of Computing Technology On Our Lives : Self, Society, and the Modern World*

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

**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

Computer Graphics and Motion Technology

**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

**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

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

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

## Digital Cinema and Gaming

### **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 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 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.

### **GAM 206 History of Games**

This class will examine particular games and game genres in their historical context using a case study format

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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.

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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.

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### **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.

## **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](mailto: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](mailto: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.

College of Computing and Digital Media - Undergraduate Studies □ School of Cinema and Interactive Media (CIM) □ Minors

## 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](mailto: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, 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.

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- 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
- 

### **CDM Minor Requirements**

#### **Animation Minor**

**ANI 101** Animation for Non-Majors

**ANI 230** 3d Modeling for Animation and Gaming

**ANI 231** 3d Animation for Cinema and Gaming

**ANI 206** History of Animation

3 courses from the following list:

**ANI 220** Pre-Production Art

**ANI 300** 3d Character Animation

**ANI 310** Motion Capture Workshop

**DC 201** Introduction to Screenwriting

**DC 205** Foundations of Cinema

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#### **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

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### **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 224** 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

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### **Data Analysis and Data Mining Minor**

**IT 240** Introduction to Desktop Databases

**IT 223** Data Analysis

**CSC 324** Data Analysis and Statistical Software II

**CSC 367** Introduction to Data Mining

**CSC 334** Advanced Data Analysis

2 CDM Electives

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### **Database Minor**

**CSC 211** Programming in Java I

and **CSC 212** Programming in Java II

**IT 223** Data Analysis

**IT 240** Introduction to Desktop Databases

**CSC 352** Database Programming

**CSC 367** Introduction to Data Mining

1 CDM Elective

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### **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

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### **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 and Lighting  
**DC 310** Digital Cinema Production II  
**DC 320** Editing II  
**DC 389** The Big Picture: the Entertainment Industry

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### **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

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### **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 for Animation and Gaming  
**GAM 224** Introduction to Game Design  
**GAM 244** Game Development I  
**GAM 245** Game Development II

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## **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 for Animation and Gaming

**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

Plus **three** 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 230 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  
One CDM Elective

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### 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 Languages II: C/C++  
IT 201 Introduction to Information Systems  
IT 263 Applied Networks and Security  
TDC 362 Principles of Data Communications  
TDC 363 Introduction to Local Area Networks  
TDC 365 Network Interconnection Technologies

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### 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 II  
DC 304 Topics in Screenwriting

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### Security Minor

CSC 211 Programming in Java I  
and CSC 212 Programming in Java II  
OR  
CSC 261 Programming Languages I: C/C++  
and CSC 262 Programming Languages II: C/C++  
CSC 233 Codes and Ciphers  
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

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### 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  
and CSC 212 Programming in Java II

and then

<b>CSC 383</b>	Data Structures and Algorithms in Java
<b>SE 325</b>	Principles and Practices of Software Engineering
<b>SE 330</b>	Object Oriented Modeling
<b>SE 350</b>	Object-Oriented Software Development

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### Visual Computing Minor

<b>MAT 140</b>	Discrete Mathematics I
<b>or MAT 220</b>	Linear Algebra with Applications
<b>or One</b>	quarter of Calculus (CSC 381 requirement)
<b>IT 223</b>	Data Analysis (required for CSC 367)
<b>CSC 381</b>	Introduction to Digital Image Processing
<b>CSC 382</b>	Applied Image Analysis
<b>CSC 384</b>	Introduction to Computer Vision
<b>CSC 367</b>	Introduction to Data Mining (IT 223 requirement)

## Bachelor of Arts Degree Programs

College of Computing and Digital Media - Undergraduate Studies □ School of Cinema and Interactive Media (CIM) □ 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 Chicagos many animation and production studios.

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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 ISP 120 and ISP 121. ISP 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.

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Four-year schedule of courses:

### First Year

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*Major Field Courses (6)*

ANI 105 Intro to Visual Design  
ANI 201 Animation I \*  
ANI 206 History of Animation  
DC 201 Introduction to Screenwriting  
DC 205 Foundations of Cinema  
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 for Animation and Gaming  
ANI 231 3d Animation for Cinema and Gaming  
DC 210 Digital Cinema Production I  
DC 220 Editing I  
ART 318 Advanced Figure Drawing

*Liberal Studies Courses (6)*

**Third Year**

*Major Field Courses (5)*

ANI 240 Animation II  
ANI 340 Animation III  
IM 220 Interactive Media I  
DC 215 Digital Sound Design  
MCS 207 History of American Cinema, 1890-1945  
or MCS 208 History of American Cinema, 1946-1975  
or MCS 209 History of American Cinema, 1976-Present

*Animation Electives (2)*

*Liberal Studies courses (3)*

*Open Electives (2)*

**Fourth Year**

*Major Field Courses (3)*

ANI 260 Motion Graphics  
ANI 350 Animation Production Studio  
DC 398 Digital Cinema Capstone (Counts as Liberal Studies)

*Animation Electives (2)*

*Liberal Studies courses (5)*

*Open Electives (2)*

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**Animation Electives**

Any ANI, ART, DC, GAM, GPH or IM course EXCEPT: ART 102, ART 104, ART 105, DC 120 or GPH 211

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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.

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 insiders 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.

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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 ISP 120 and ISP 121. ISP 121 will replace one course from any of the six Learning Domain as long as they take at least one course in each domain.

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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 Cinematic 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)*

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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.

## Bachelor of Science Degree Programs

College of Computing and Digital Media - Undergraduate Studies □ School of Cinema and Interactive Media (CIM) □ 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 Chicagos largest game development and animation studios.

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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 ISP 120 and ISP 121. ISP 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 230 3d Modeling for Animation and Gaming  
 DC 205 Foundations of Cinema  
 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 for Cinema and Gaming  
 ANI 300 3d Character Animation  
 DC 201 Introduction to Screenwriting  
 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 II  
 ANI 340 Animation III  
 ANI 330 Advanced 3d Modeling for Animation and Gaming  
 ANI 339 3d Texturing and Lighting  
 DC 220 Editing I  
 GAM 341 Introduction to Level Design

*Animation Electives (2) -*  
*Liberal Studies courses (3)*

*Open Electives (1)*

## **Fourth Year**

*Major Field Courses (4)*

ANI 350 Animation Production Studio \*

MCS 207 History of American Cinema, 1890-1945

OR MCS 208 History of American Cinema, 1946-1975

OR MCS 209 History of American Cinema, 1976-Present

GPH 355 3d Scripting for Animators

DC 398 Digital Cinema Capstone \*

\* GAM 395 may be substituted for DC 398, but if this option is chosen you must also take GAM 394 which can be substitute for ANI 350.

*Animation Electives (1) -*

*Liberal Studies courses (5)*

*Open Electives (2)*

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### **Animation Electives**

Any ANI, ART, DC, GAM, GPH or IM course EXCEPT: ART 102, ART 104, ART 105, DC 120 or GPH 211

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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.

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.

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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 329 Game Business

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)*

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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)*

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### **Gaming Electives**

Any 200-level ANI, DC, GAM, GPH or IM Course

Any 300-level CDM Course

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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.

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)

## Computer Graphics and Motion Technology (Joint with SoC)

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.

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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)*

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 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)*

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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 Postmodernism  
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)

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### **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]

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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.

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

## **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.

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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 ISP 120 and ISP 121. ISP 121 will replace one course from any of the six Learning Domains as long as they take at least one course in each domain.

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Four-year schedule of courses:

### **First Year**

#### *Major Field Courses (5)*

DC 201 Introduction to Screenwriting  
DC 205 Foundations of Cinema  
ANI 105 Intro to Visual Design  
DC 225 Digital Still Photography  
DC 220 Editing I

*Liberal Studies (6)*

*Open Electives (1)*

### **Second Year**

#### *Major Field Courses (6)*

ANI 201 Animation I  
VFX 200 Introduction to Visual Effects  
DC 215 Digital Sound Design  
ANI 230 3d Modeling for Animation and Gaming  
DC 275 Cinematography and Lighting  
DC 210 Digital Cinema Production I

*Liberal Studies (5)*

*Open Electives (1)*

## **Third Year**

### *Major Field Courses (6)*

VFX 278 Digital Compositing I  
ANI 220 Pre-Production Art  
ANI 260 Motion Graphics  
ANI 231 3d Animation for Cinema and Gaming  
DC 375 High Definition Cinematography  
DC 310 Digital Cinema Production II

*Liberal Studies (5)*  
*Open Electives (1)*

## **Fourth Year**

### *Major Field Courses (6)*

VFX 378 Digital Compositing II  
ANI 310 Motion Capture Workshop  
DC 390 Topics in Directing  
ANI 379 Advanced 3D Compositing  
VFX 391 Virtual Cinema  
DC 398 Digital Cinema Capstone

*Liberal Studies (4)*  
*Open Electives (2)*

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

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

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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.

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

## **Interactive Media (Joint with SoC)**

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
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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 230 Building Internet Applications  
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 for Animation and Gaming

*Liberal Studies (5)* - Required: CSC 208 Computers and Social Responsibility

### **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 [formerly Eng 204]  
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)

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### **IM Electives**

Any 200 or 300 level CTI, 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

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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.

# Special Programs

College of Computing and Digital Media - Undergraduate Studies ▢ Special Programs

## 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: [godcm@cdm.depaul.edu](mailto:godcm@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, 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.

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- 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
- 

## CDM Minor Requirements

### Animation Minor

**ANI 101** Animation for Non-Majors

**ANI 230** 3d Modeling for Animation and Gaming

**ANI 231** 3d Animation for Cinema and Gaming

**ANI 206** History of Animation

3 courses from the following list:

**ANI 220** Pre-Production Art

**ANI 300** 3d Character Animation

**ANI 310** Motion Capture Workshop

**DC 201** Introduction to Screenwriting

**DC 205** Foundations of Cinema

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### 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

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### **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 224** 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

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### **Data Analysis and Data Mining Minor**

**IT 240** Introduction to Desktop Databases  
**IT 223** Data Analysis  
**CSC 324** Data Analysis and Statistical Software II  
**CSC 367** Introduction to Data Mining  
**CSC 334** Advanced Data Analysis  
2 CDM Electives

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### **Database Minor**

**CSC 211** Programming in Java I  
**and CSC 212** Programming in Java II  
**IT 223** Data Analysis  
**IT 240** Introduction to Desktop Databases  
**CSC 352** Database Programming  
**CSC 367** Introduction to Data Mining  
1 CDM Elective

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### **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

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### **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 and Lighting  
**DC 310** Digital Cinema Production II  
**DC 320** Editing II  
**DC 389** The Big Picture: the Entertainment Industry

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### **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

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### **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 for Animation and Gaming  
**GAM 224** Introduction to Game Design  
**GAM 244** Game Development I  
**GAM 245** Game Development II

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### **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 for Animation and Gaming

**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

Plus **three** 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 230** Building Internet Applications

**IT 240** Introduction to Desktop Databases

**TDC 361** Basic Communication Systems

**or IT 263** Applied Networks and Security

### 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 Languages II: C/C++
IT 201	Introduction to Information Systems
IT 263	Applied Networks and Security
TDC 362	Principles of Data Communications
TDC 363	Introduction to Local Area Networks
TDC 365	Network Interconnection Technologies

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### 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 II
DC 304	Topics in Screenwriting

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### Security Minor

CSC 211	Programming in Java I
and CSC 212	Programming in Java II
OR	
CSC 261	Programming Languages I: C/C++
and CSC 262	Programming Languages II: C/C++
CSC 233	Codes and Ciphers
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

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### 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
and 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

## Visual Computing Minor

- MAT 140 Discrete Mathematics I
- or MAT 220 Linear Algebra with Applications
- or One quarter of Calculus (CSC 381 requirement)
- IT 223 Data Analysis (required 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)

College of Computing and Digital Media - Undergraduate Studies ▢ Special Programs ▢ Professional Development

## Professional Development

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 Open-Source Web Development Program**

A 5-week program addressing rapid and efficient development of business-critical Web applications using Linux, Apache, PostgreSQL and Python

### **IPD 360/460 SQL Server Business Intelligence Program**

An 11-week in-depth program covering SQL Server 2005 analysis services, integration services, and reporting services

### **IPD 361/461 SQL Server Database High Availability Program**

An 11-week comprehensive overview of the various high availability solutions available with the latest edition of Microsoft's SQL Server

### **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**

A n 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 368/468 .NET Mobile Applications Development Program**

A 10-week focused program covering the basic skills and techniques for successfully building mobile applications using the .NET platform

**IPD 370 Advanced SQL Program**

A 2-week program covering advanced 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 390 Information Systems Security Management Program**

A 10-week comprehensive program covering best practices in designing, implementing and maintaining an organizational information security plan

**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

**IPD 395 Database Technologies Program**

A 12-week comprehensive program covering database applications development and administration using Oracle

**IPD 398 .NET Web Services Program**

An 8-week concentrated program covering service-oriented architecture and the development of Web services using the .NET platform

College of Computing and Digital Media - Undergraduate Studies □ Special Programs □ Combined Bachelor/Master Degrees

**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](mailto: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

College of Computing and Digital Media - Undergraduate Studies ▢ Courses

## **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.