

SCHOOL OF COMPUTER

SCIENCE, TELECOMMUNICATIONS

AND INFORMATION SYSTEMS

SCHOOL OF COMPUTER SCIENCE, TELECOMMUNICATIONS AND INFORMATION SYSTEMS

ADMINISTRATION

HELMUT EPP, PH.D.

Dean

GREGORY BREWSTER, PH.D.

Associate Dean

MARTIN KALIN, PH.D.

Associate Dean

LINDA V. KNIGHT, PH.D.

Associate Dean

DAVID MILLER, PH.D.

Associate Dean

ANNE B. MORLEY

Assistant Dean

TERRY SKWAREK

Director, Institute for Professional Development

Assistant Dean

FACILITIES

FACULTY

ADMISSION

ACADEMIC PROGRAMS

BACHELOR OF SCIENCE IN COMPUTER GRAPHICS AND ANIMATION

- I. Developer
- II. Technical Designer

BACHELOR OF SCIENCE IN COMPUTER SCIENCE

- I. Standard Computer Science
- II. Data Analysis
- III. Database
- IV. Honors in Software Engineering
- V. Telecommunications
- VI. Accelerated Bachelor of Science / Master of Science in Computer Science

BACHELOR OF ARTS AND BACHELOR OF SCIENCE IN DIGITAL CINEMA

BACHELOR OF SCIENCE IN E-COMMERCE TECHNOLOGY

BACHELOR OF SCIENCE IN HUMAN- COMPUTER INTERACTION

BACHELOR OF SCIENCE IN INFORMATION SYSTEMS

BACHELOR OF SCIENCE IN MATHEMATIC AND COMPUTER SCIENCE

- I. Theory
- II. Computational Methods
- III. Graphics
- IV. Individualized

BACHELOR OF SCIENCE IN NETWORK TECHNOLOGY

- I. Bachelor of Science in Network Technology
- II. Accelerated Bachelor of Science in Network Technology / Master of Science in Telecommunications

BACHELOR OF ARTS IN COMPUTING

COURSES

GENERAL INFORMATION

The School of Computer Science, Telecommunications and Information Systems offers a course of studies leading to the degrees of Bachelor of Science in Computer Graphics and Animation, Bachelor of Science in Computer Science, Bachelor of Science in E-Commerce Technology, Bachelor of Science in Information Systems, Bachelor of Science in Human-Computer Interaction, Bachelor of Science in Math and Computer Science, Bachelor of Science in Network Technology and Bachelor of Arts in Computing. The purpose of each curriculum is to prepare the student with the requisite theoretical, technical, and practical knowledge for a professional career in various computer or computer-related fields. Each degree program develops an informed view of the relationship between computer science and its allied fields while equipping the student with the technical expertise necessary to enter a computer-related career.

FACILITIES

DePaul's Information System Division (ISD) houses a large network of computers and allows students, access to a rich computing environment. The configuration includes several Sun SPARCcenters for student use. In addition, students have access to IBM PC laboratories and Macintosh laboratories at the Loop and Lincoln Park campuses. There are numerous dial-up phone numbers available for off-campus work. DePaul's suburban campuses, in the Naperville, O'Hare and South areas also offer excellent student laboratory facilities. Permanent student Internet access accounts are available along with dial-in SLIP connections.

The School itself operates specialized laboratories in the following:

- Requirements Engineering Lab
- Mobile E-Commerce Lab
- Solid Objects Lab
- Software Research Lab
- Multimedia Networking Lab
- Artificial Intelligence Lab
- American Sign Language Lab
- E-Commerce Technology Lab
- Information Systems Lab

FACULTY

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Assistant Professor
Purdue University

LU ZHANG, PH.D.,
Assistant Professor
Iowa State University

ADMISSION

Candidates interested in admission to the school should direct all inquiries to the Office of admission, DePaul University, 1 E. Jackson Boulevard, Chicago, Illinois 60604. Telephone (312) 362-8300; e-mail: admitdpu@depaul.edu. The Office of Admission will provide each candidate with the required forms and instructions for filing the application or visit the web site at www.depaul.edu to apply on-line. A non-refundable application fee of \$25.00 is required of each applicant. For further information on the regulations and procedures governing admission, consult page 441 of the Bulletin.

ACADEMIC ADVISEMENT

The school believes that academic advisement is necessary for the vitality and success of the student's undergraduate education. The purposes of liberal education require that the education of the student form a coherent whole. Therefore, the requirements of the Liberal Studies Program and to a degree the major field of study are determined by the individual student's intellectual interests, needs and abilities.

Students will be assigned a faculty advisor upon admission to the school. Academic approval of a course of study is required of all students in the school. All students are encouraged to meet with their faculty advisor at least once each year to plan their course of study.

PROGRAM AND CURRICULUM INFORMATION

PROFESSIONAL DEVELOPMENT

The School of Computer Science, Telecommunications and Information Systems established the Institute for Professional Development in 1985 to offer certificate programs designed to meet the needs of both individuals and businesses in the Chicago land 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. Each certificate program is taught by a team of instructors, that includes full-time faculty with consulting experience and part-time instructors from industry. Each program requires a substantial commitment of time, as classes meet two nights per week and in the morning on 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.

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 School of Computer Science, Telecommunications and Information Systems (CTI). For specific information governing transfer admission and evaluation of credit, please consult page 442 of this Bulletin. Current CTI 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 student's academic advisor.

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. In addition, all students must fulfill the graduation requirements as noted on page 469 of this Bulletin.

MINORS

A minor is a combination of courses that provides a cohesive introduction to an area of study. Typically, courses taken to satisfy minor field requirements are credited as open electives; however, there are some instances where minor field courses may be used for credit in other areas of the student's curriculum. Grades for all courses, taken to fulfill a minor field requirement

must be 'C' or above. Grades of 'C-' may be accepted for credit in the minor provided the minor GPA is 2.0 or above. A minimum of one-half of the courses required for a minor must be completed at DePaul University.

MINORS IN THE COLLEGE OF COMMERCE

Students enrolled in the School of Computer Science, Telecommunications and Information Systems (CTI) 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 School of Computer Science, Telecommunications and Information Systems (CTI) 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

MODERN LANGUAGE OPTION

Students in the School of Computer Science, Telecommunications and Information Systems (CTI) may choose to study a modern language and use the credit earned from the language courses to satisfy Liberal Studies domain requirements. Students reduce their Liberal Studies domain requirements by two courses if they complete a three-course language sequence. From the following combinations of learning domains, students can select their two course reduction: Philosophical Inquiry or Religious Dimensions; Understanding the Past or Self, Society and the Modern World; Arts and Literature (at most one course from each combination). The third course in the three-course language sequence may apply as open elective credit only.

BACHELOR OF SCIENCE

LIBERAL STUDIES PROGRAM

The student's course of study in the Liberal Studies Program is part of the undergraduate program devoted exclusively to liberal education. The program seeks to balance and, when necessary, augment the student's course in the major field. In addition to the 24 quarter hours required in the liberal studies core, all students in the School are required to complete 52 quarter hours distributed through 6 learning domains as part of one degree program. The number and distribution of courses in each of the areas are as follows:

Liberal Studies Core: 6 courses/24 quarter hours required

First Year Program: (16 quarter hours required) Discover Chicago or Explore Chicago, Focal Point Seminar, and Composition and Rhetoric I and II.

Sophomore Seminar: (4 quarter hours required) Sophomore Seminar on Multiculturalism in the United States

Junior Year Experiential Learning: (4 quarter hours required) If your junior year experiential learning requirement also fulfills a major field requirement, you may substitute a liberal studies domain elective (from outside your major field area) or the third course in the modern language option for this requirement.

Senior capstone: All CTI majors require that students complete the senior capstone in their major field.

Liberal Studies Learning Domains: 13 courses/52 quarter hours required

Arts and Literature: 12 quarter hours required. At most 2 courses from the same department or program. (ART 102 is required for the Bachelor of Science in Computer Graphics and Animation technical designer concentration.)

Philosophical Inquiry: 8 quarter hours required.

Religious Dimensions: 8 quarter hours required; 4 quarter hours in “Patterns and Problems,” and 4 quarter hours in “Traditions in Context.” Note: One course from either Philosophical Inquiry or Religious Dimensions must be a course in ethics. PHL/REL/MGT 228 is strongly recommended.

Scientific Inquiry: 4 quarter hours required. The course must be designated as a lab course. Courses in mathematics or CTI are not acceptable.

Self, Society and the Modern World: 12 quarter hours required. At most 2 courses from the same department or program. (Psychology 105 is required for the Human-Computer Interaction degree).

Understanding the Past: 8 quarter hours required; 4 quarter hours of history pre-1800 and 4 quarter hours of history 1800-1945. In addition, courses must be from two different categories:

- 1) Asia, 2) Latin America, 3) Africa, 4) North America or Europe; 5) intercontinental or comparative.

Although study in CTI courses contributes to a student’s liberal education, courses offered through CTI may not be applied towards liberal studies requirements.

ACADEMIC PROGRAMS

BACHELOR OF SCIENCE IN COMPUTER GRAPHICS AND ANIMATION

I. DEVELOPER CONCENTRATION

The developer concentration in the B.S. in Computer Graphics and Animation degree emphasizes software development for such areas as computer animation, video gaming, multimedia, and special effects. It prepares students for such careers as games development, visualization, and modeling.

Nineteen (19) Liberal Studies courses (see above) plus the following 29 courses. See your advisor for help in choosing your classes.

Allied Fields

CMN 220 Public Speaking
ENG 204 Technical Writing
HCI 315 Theory and Perception of Color
MAT 140 Discrete Mathematics
MAT 150 Calculus I
MAT 151 Calculus II
MAT 220 Linear Algebra

Core

CSC 211 Programming in Java I
CSC 212 Programming in Java II
GPH 211 Perceptual Principles for Digital Environments I
GPH 212 Perceptual Principles for Digital Environments II
GPH 371 Computer Graphics Survey
GPH 339 Advanced Rendering Techniques
GPH 395 Graphics Capstone Course
CSC 210 Introduction to Data Representation and Algorithms
CSC 309 Object Oriented Programming in C++
CSC 321 Design and Analysis of Algorithms
GPH 329 Computer Graphics Development
GPH 372 Principles of Animation
GPH 375 Advanced Computer Graphics Development

Six Computer Graphics and Animation electives chosen from the list below in consultation with the student's advisor. Courses from the list, which were previously used to satisfy specific requirements, may not be chosen as electives.

Open Electives

Four courses to be chosen in consultation with student's advisor.

Note: PHL/REL/MGT 228 Business, Ethics and Society is a required course which is already credited in the Liberal Studies Program.

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.

II. TECHNICAL DESIGNER CONCENTRATION

The technical designer concentration in the B.S. in Computer Graphics and Animation degree prepares students to support and engage in the visual aspects of the graphics and entertainment industry, including such careers as technical director for computer animation, games designer and new media consultant.

Nineteen (19) Liberal Studies courses (see above) plus the following 29 courses. See your advisor for help in choosing your classes.

Allied Fields

CMN 220 Public Speaking
ENG 204 Technical Writing
HCI 315 Theory and Perception of Color
MAT 140 Discrete Mathematics
ART 102 Principles of Art History (counts in Liberal Studies)
ART 106 Beginning Drawing
ART 203 Survey of Non Western Art

Core

CSC 211 Programming in Java I
CSC 212 Programming in Java II
GPH 211 Perceptual Principles for Digital Environments I
GPH 212 Perceptual Principles for Digital Environments II
GPH 371 Computer Graphics Survey, GPH 339 Advanced Rendering Techniques
GPH 395 Graphics Capstone Course
CSC 210 Introduction to Data Representation and Algorithms
ART 222 Contemporary Art
CSC 336 Visual Basic for Programmers
GPH 250 Digital Modeling I,
GPH 338 Computer Animation Survey
HCI 310 Introduction to Human-Computer Interaction

Six Computer Graphics and Animation electives chosen from the list below in consultation with the student's advisor. Courses from the list which were previously used to satisfy specific requirements may not be chosen as electives.

Open Electives

Four courses to be chosen in consultation with student's advisor.

Note: PHL/REL/MGT 228 Business, Ethics and Society is a required course which is already credited in the Liberal Studies Program.

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

Computer Graphics and Animation Elective list: Courses from the list which were previously used to satisfy specific requirements may not be chosen as electives.

ART 225 Beginning Photography
HCI 270 Formatting Digital Pages I
HCI 271 Formatting Digital Pages II
ART 329 Digital Photography
ART 360 Illustration
ART 373 History of Design,
CSC 323 Data Analysis and Statistical Software I
CSC 336 Visual Basic for Programmers
GPH 250 Digital Modeling
GPH 259 Design Geometry
GPH 329 Computer Graphics I
GPH 350 Digital Modeling II
GPH 360 Modeling Spaces
GPH 374 Computer Games
GPH 375 Advanced Computer Graphics Development
HCI 310 Introduction to HCI
HCI 322 Multimedia
HCI 332 User Centered Web Development
HCI 341 Usability issues for Electronic Commerce
MAT 150 Calculus I
MAT 151 Calculus II
MAT 152 Calculus III

BACHELOR OF SCIENCE IN COMPUTER SCIENCE

I. COMPUTER SCIENCE CONCENTRATION

This concentration is designed for students who want a solid foundation in traditional computer science. It is more theoretical and technical and requires a more extensive analytical background. This concentration is designed to prepare students for advanced studies or for employment in computer science where extensive programming is required.

Nineteen (19) Liberal Studies courses (see above) plus the following 29 courses. Although all 29 courses are required, the grouping of the courses into First-Year, Sophomore, Junior, and Senior courses is a recommendation only. See your advisor for help in choosing your classes.

First-Year Courses

CSC 210 Introduction to Data Representation and Algorithms
CSC 211 Programming in Java I
CSC 212 Programming in Java II
CSC 319 Database Technology
MAT 140 Discrete Mathematics I

Sophomore Courses

CSC 309 Object Oriented Programming in C++
CSC 313 Data Structures in Java
MAT 150 Calculus I
MAT 151 Calculus II

Choose 1 course from Mathematics (MAT):

MAT 141 Discrete Mathematics II or MAT 152 Calculus III or MAT 220 Linear Algebra

Choose 1 course from Communication (CMN):

CMN 220 Public Speaking or CMN 212 Small Group Communication

Junior Courses

CSC 345 Computer Architecture
CSC 321 Design and Analysis of Algorithms
CSC 323 Data Analysis and Statistical Software I
CSC 343 Introduction to Operating Systems
IS 315 Analysis and Design Techniques
TDC 361 Basic Communication Systems

Choose 1 course from English (ENG):
ENG 204 Technical Writing or ENG 301 Writing in the Professions

Senior Courses

CSC 347 Concepts of Programming Languages
CSC 394 Software Projects
One 300-level CTI elective to be chosen in consultation with student's advisor.

Open Electives

Eight courses to be chosen in consultation with student's advisor.

Note: PHL/REL/MGT 228 Business, Ethics and Society is a required course which is already credited in Liberal Studies

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.

II. DATA ANALYSIS CONCENTRATION

This concentration emphasizes computer-based statistical analysis of data. It looks at the storage, retrieval, and post-processing of data from database systems. The concentration includes programming and design of applications; it develops a strong foundation in statistical concepts and theories and puts them into practice using statistical software.

Nineteen (19) Liberal Studies courses (see above) plus the following 29 courses. Although all 29 courses are required, the grouping of the courses into First-Year, Sophomore, Junior, and Senior courses is a recommendation only. See your advisor for help in choosing your classes.

First-Year Courses

CSC 200 Survey of Computer Technology
CSC 211 Programming in Java I
CSC 212 Programming in Java II
CSC 255 Information Structures and Representation
MAT 140 Discrete Mathematics I

Sophomore Courses

CSC 319 Database Technology
MAT 150 Calculus I
MAT 151 Calculus II
TDC 361 Basic Communication Systems

Choose 1 course from the following list:
CSC 309 Object Oriented Programming in C++
CSC 313 Data Structures in Java
CSC 336 Visual Basic for Programmers or Information Systems
IS 313 Business Application Programming in Java

Choose 1 course from Mathematics (MAT):
MAT 141 Discrete Mathematics II, MAT 152 Calculus III, or MAT 220 Linear Algebra

Choose 1 course from Communication (CMN):
CMN 220 Public Speaking or CMN 212 Small Group Communication

Junior Courses

CSC 323 Data Analysis and Statistical Software I
CSC 324 Data Analysis and Statistical Software II
IS 315 Analysis and Design Techniques

Choose 1 course from Computer Science (CSC):
CSC 328 Data Analysis for Experimenters
CSC 334 Advanced Data Analysis

Choose 1 course from English (ENG):
ENG 204 Technical Writing or ENG301 Writing in the Professions

Senior Courses

Choose 1 course from the following list:
CSC 394 Software Projects or Information Systems
IS 376 Information Systems Project

Two 300-level CTI electives to be chosen in consultation with student's advisor.

Open Electives

Nine courses to be chosen in consultation with student's advisor.

Note: PHL/REL/MGT 228 Business, Ethics and Society is a required course which is already credited in Liberal Studies

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.

III. DATABASE CONCENTRATION

First Year

CSC210 Introduction to Data Representation and Algorithms
CSC211 Programming in Java I
CSC212 Programming in Java II
MAT140 Discrete Mathematics I

Second Year

CSC313 Data Structures in Java
CSC319 Database Technology
CMN220 (Public Speaking) or CMN 212 (Small Group Communication)
MAT 150 Calculus I
MAT 151 Calculus II
MAT 141 Discrete Mathematics II

Third Year

CSC323 Data Analysis and Statistical Software I
IS315 Analysis and Design Techniques
CSC351 Database Design
CSC352 Database Programming
CSC350 Introduction to Data Mining
CSC353 Advanced Database Concepts
ENG204 (Technical Writing) or ENG301 (Writing in the Professions)

Fourth Year

CSC394 (Software Projects) or IS 376 (Information Systems Project)

Open Electives

Two 300-level electives

Note: PHL/REL/MGT 228 Business, Ethics and Society is a required course which is already credited in Liberal Studies

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.

IV. SOFTWARE ENGINEERING HONORS CONCENTRATION

The Honors Software Engineering (HSE) concentration has been designed for students who are interested in studying advanced software development techniques and technologies. Because of its advanced nature, much of this material is normally accessible only to graduate students. It is therefore only available to students with a strong academic background. Furthermore, students must apply for admission to the program.

Students should apply for the HSE concentration by the end of the winter quarter of their sophomore year, and will be notified of their acceptance (pending completion of requirements) in the spring quarter. Progress will be reviewed at the end of the third year to determine eligibility for continuing to the fourth year. Review is automatic for all students, but students may “opt out of review” and voluntarily change to another concentration.

Nineteen (19) Liberal Studies courses (see above) plus the following courses. Note that the grouping of courses into First-Year, Sophomore, Junior, and Senior courses **is a recommendation only**. See your advisor for help in choosing your classes. Also, note that courses designated First-Year and Sophomore would usually be completed before admission to the concentration.

First-Year Courses (prior to admission into honors concentration) Courses

CSC 210 Introduction to Data Representation and Algorithms
CSC 211 Programming in Java I
CSC 212 Programming in Java II
CSC 319 Database Technology
MAT 140 Discrete Mathematics I
MAT 150 Calculus I

Sophomore Courses (prior to admission into the honors concentration) Courses

CSC 313 Data Structures in Java
CSC 321 Design and Analysis of Algorithms
CSC 309 Object Oriented Programming in C++
MAT 141 Discrete Mathematics II
ENG 204 Technical Writing
CMN 212 Small Group Communication or
CMN 220 Public Speaking

Junior Courses (after admission into the honors concentration) Courses

CSC 323 Data Analysis and Statistical Software I
CSC 343 Introduction to Operating Systems
SE 330 Object-Oriented Modeling
SE 350 Object-Oriented Software Development
SE 352 Object-Oriented Enterprise Application Development
CSC 347 Concepts of Programming Languages
SE 370 Software Development Processes

Senior Courses (after admission into the honors concentration) - 7 courses

SE 391 Software Engineering Studio I (honors)
SE 392 Software Engineering Studio II (honors)

Five 300-level CTI electives. Three of the five must be from the following list:

SE 368 Software Measurement and Project Estimation
SE 360 Structured Document Interchange and Processing
SE 355 Distributed Software Development
SE 356 Software Development for Mobile Systems
SE 357 Concurrent System Development
SE 358 Software Development for Limited and Embedded Devices
SE 375 Design and Architecture of Secure Software Systems
SE 380 Design of Object-Oriented Languages
SE 354 Enterprise Component Architecture
CSC 345 Computer Architecture
CSC 348 Introduction to Compiler Design
CSC 358 Symbolic Programming
CSC 380 Foundations of Artificial Intelligence
CSC 389 Theory of Computation

Students may also take other advanced SE graduate classes or “CSC 535 - Formal Semantics of Programming Languages” as an independent study, by arrangement with the instructor, subject to approval of the program director.

Open Electives:

Four open electives are to be chosen in consultation with the advisor.

Note: PHL/REL/MGT 228 Business, Ethics, and Society is a required course that is already credited in Liberal Studies. Note: To satisfy the requirements of the HSE concentration, students must earn a grade of B or better for all junior and senior year courses (A- or better for non-honors sections).

V. TELECOMMUNICATIONS CONCENTRATION

This concentration is designed to provide focused coursework in networking technologies, including detailed instruction in data communications, local area networks, and voice telecommunications networks.

Nineteen (19) Liberal Studies courses (see above) plus the following 29 courses. Although all 29 courses are required, the grouping of the courses into First-Year, Sophomore, Junior, and Senior courses is a recommendation only. See your advisor for help in choosing your classes.

First-Year Courses

CSC 210 Introduction to Data Representation and Algorithms
CSC 211 Programming in Java I
CSC 212 Programming in Java II
CSC 319 Database Technology
MAT 140 Discrete Mathematics

Sophomore Courses

MAT 150 Calculus I
MAT 151 Calculus II
TDC 361 Basic Communication Systems
CSC 309 Object-Oriented Programming in C++
CSC 323 Data Analysis and Statistical Software

Choose 1 course from Mathematics (MAT):

MAT 141 Discrete Mathematics II, MAT 152 Calculus III, or MAT 220 Linear Algebra

Choose 1 course from Communication (CMN):
CMN 220 Public Speaking or CMN 212 Small Group Communication

Junior Courses:

IS 315 Analysis and Design Techniques
CSC 343 Introduction to Operating Systems
TDC 362 Principles of Data Communications
TDC 363 Introduction to Local Area Networks
TDC 364 Voice Communication Technologies

Choose 1 course from English (ENG):
ENG 204 Technical Writing or ENG 301 Writing in the Professions

Senior Courses:

CSC 394 Software Projects
One 300-level TDC elective chosen in consultation with student's advisor.
One 300-level CTI elective chosen in consultation with student's advisor.

Open Electives for Telecommunications Concentration

Eight courses to be chosen in consultation with student's advisor.

Note: PHL/REL/MGT 228 Business, Ethics, and Society is a required course that is already credited in Liberal Studies.

Note: Grades for all courses in the students major and allied fields (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.**

VI. ACCELERATED BACHELOR OF SCIENCE/MASTER OF SCIENCE IN COMPUTER SCIENCE

The BS in Computer Science and the MS in Computer Science programs provide a broad based study of computer systems. Students graduating from these programs are well prepared for IT careers with any business that must design and maintain computing systems and computer applications.

Contact undergradadvising@cs.depaul.edu to find out more about this option.

What is an accelerated BS/MS?

This degree option reduces the amount of courses by 3 that you have to take to get a BS and an MS.

Do I still get two separate degrees?

Yes. After your senior year you can march in graduation and get your BS. After just 10 more courses, instead of the normal 13, you can be awarded your MS diploma.

How does it work?

1. During your first three years, follow the BS program Computer Science degree requirements.
2. Check to see if you meet the admissions criteria and then apply to the Computer Science masters degree during junior year by the proscribed date.
3. Meet with your academic advisor to work out your senior year plan.
4. Take the Master's Degree Core Courses in your senior Year. Take the Core Exams as soon as possible after you complete these classes.

5. If the Core Exams are passed, and you remain in good standing, complete the remaining 10 MS advanced phase courses to get both your BS and MS in Computer Science.

Admission Criteria

- You must have a B or better in your Concentration Classes courses up to the time of application.
- Your overall undergraduate GPA must be at least 3.3 up to the time of application.

Admission Procedure

- Complete an online graduate application and submit it to the office of graduate admissions by October 1 (or the next business day if on a weekend).
- Make sure to check the Accelerated program box to which you are applying.
- Conditional decisions will be made by October 15th.
- Meet with your advisor to do an accelerated PPA.
- Full Admission granted after you graduate from the BS program if you still meet the admissions criteria above and passed your core courses.

BACHELOR OF ARTS AND BACHELOR OF SCIENCE IN DIGITAL CINEMA

Digitization has caused the convergence of cinema, computer graphics, animation, and gaming. Digital Cinema is the realization that computer-generated images and animations can be inserted convincingly into realistic images; and real images can be brought into computer-generated models to provide photo-realistic effects. The convergence of cinema, computer graphics, animation and gaming in the BS and BA in Digital Cinema will train you to redefine cinematic reality.

- The B.A. degree, with its greater number of electives, offers the student a chance to create an interdisciplinary program of study.
- The B.S. degree, with its increased technical emphasis, provides students with more comprehensive training in the three areas of digital cinema.

BACHELOR OF ARTS IN DIGITAL CINEMA

Nineteen (19) Liberal Studies courses (see above) plus the following 29 courses. See your advisor for help in choosing your classes.

First-Year Courses:

DC 201 Narrative Techniques in Digital Cinema:
DC 220 Non-Linear Editing I
DC 275 Cinematography and Lighting
DC 310 Digital Cinema Production II
MM 230 Digital Object Representation and Manipulation I
CMN 206 History of Film
MM 231 Digital Object Representation and Manipulation II
DC 201 Narrative Techniques in Digital Cinema
CMN 273 Film / Video Aesthetics I

Sophomore Courses

DC 210 Digital Cinema Production I
GPH 211 Perceptual Principles for Digital Environments I
DC 220 Non-Linear Editing I
DC 215 Digital Sound Design
DC 320 Non-Linear Editing II
GPH 212 Perceptual Principles for Digital Environments II

Junior Courses

GPH 213 Perceptual Principles for Digital Environments III

GPH 250 Digital Modeling I
DC 275 Cinematography & Lighting
GPH 338 3D Animation
DC 310 Digital Cinema Production II
CMN 348 Film / Television Genres

Senior Courses

DC 390 Topics in Directing
GAM 224 Strategies in Game Design
DC 395 Topics in Production
DC 399 Digital Cinema Capstone
CMN 349 Topics in Film / Television History
ENG 385 Mythology and the Dramatic Arts

Open Electives

Six courses to be chosen in consultation with student's advisor.

Note: PHL/REL/MGT 228 Business, Ethics, and Society is a required course that is already credited in Liberal Studies.

BACHELOR OF SCIENCE IN DIGITAL CINEMA

Nineteen (19) Liberal Studies courses (see above) plus the following 29 courses. See your advisor for help in choosing your classes.

First-Year Courses:

DC 201 Narrative Techniques in Digital Cinema:
DC 220 Non-Linear Editing I
DC 275 Cinematography and Lighting
DC 310 Digital Cinema Production II
MM 230 Digital Object Representation and Manipulation I
CMN 206 History of Film
MM 231 Digital Object Representation and Manipulation II
DC 201 Narrative Techniques in Digital Cinema
CMN 273 Film / Video Aesthetics I
GPH 211 Perceptual Principles for Digital Environments I

Sophomore Courses

DC 210 Digital Cinema Production I
GPH 212 Perceptual Principles for Digital Environments II
DC 220 Non-Linear Editing I
DC 215 Digital Sound Design
GPH 213 Perceptual Principles for Digital Environments III
DC 320 Non-Linear Editing II
GPH 250 Digital Modeling I

Junior Courses

GPH 338 Survey of 3D Animation
GAM 224 Strategies in Game Design
DC 275 Cinematography & Lighting
GAM 344 Game Development I
DC 310 Digital Cinema Production II
GAM 345 Game Development II
ENG 385 Mythology and the Dramatic Arts

Senior Courses

DC 390 Topics in Directing
DC 395 Topics in Production
DC 399 Digital Cinema Capstone
DC 315 Advanced Digital Sound Design
DC 375 High Definition Cinematography
GPH 378 Compositing and Special Effects

Open Electives

Three courses to be chosen in consultation with student's advisor.

Note: PHL/REL/MGT 228 Business, Ethics, and Society is a required course that is already credited in Liberal Studies.

BACHELOR OF SCIENCE IN E-COMMERCE TECHNOLOGY

The Bachelor of Science program in E-Commerce Technology is a pioneering degree in an emerging technological field. With the explosive growth of the Internet, industries are increasingly employing Internet and related electronic commerce technologies. E-Commerce has expanded beyond its early roots in electronic funds transfer and data interchange to embrace the use of Internet technologies for such applications as Web-based retailing, electronic supply chain management, and Web publishing. This technical degree program is designed to meet that demand. Students earning a B.S. in E-Commerce Technology will acquire computer programming, user-centered design, and E-Commerce system development skills, as well as knowledge of the technology of databases, networking, and middleware.

Nineteen (19) Liberal Studies courses (see above) plus the following 29 courses. Although all 29 courses are required, the grouping of the courses into First-Year, Sophomore, Junior, and Senior courses is a recommendation only. See your advisor for help in choosing your classes.

First-Year Courses:

CSC 210 Introduction to Data Representation and Algorithms
CSC 211 Programming in Java I
ECT 250 Survey of E-Commerce Technology
ECT 270 Client Side Web Application Development

Choose 1 course from Mathematics

MAT 140 Discrete Mathematics I or MAT 125 Business Math and Statistics

Sophomore Courses

CSC 212 Programming in Java II
CSC 336 End User Application Development
CSC 319 Database Technology
CSC 323 Data Analysis and Statistical Software I
ECT 353 Server Side Web Application Development

Choose 1 course from English:

ENG 204 Technical Writing or ENG 301 Writing in the Professions

Choose 1 course from Communication:

CMN 220 Public Speaking or CMN 212 Small Group Communication

Junior Courses

ECT 355 E-Commerce Web Application Models
HCI 310 Introduction to Human-Computer Interaction
IS 315 Analysis and Design Techniques
ECT 360 Introduction to XML
ECT 365 Web Server Operations

Choose 1 course from the following:
MKT 301 Principles of Marketing
PSY 380 Industrial and Organization Psychology
ART 260 Graphic Design I

Senior Courses

ECT 359 ECT Senior Project
ECT 372 Software Project Development & Management

Two 300-level CTI elective chosen in consultation with student's advisor. Recommended courses for these electives are as follows:

CSC 351 Database Design
CSC 352 Database Programming
CSC 390 Fundamentals of Information Assurance
GPH 371 Survey of Computer Graphics
ECT 341 Usability Issues for E-Commerce
ECT 356 Advanced Server Side Programming
ECT 357 Introduction to Mobile Commerce
ECT 390 Topics in E-Commerce Technology
HCI 360 Evaluating HCI
IS 313 Business Application Development in Java
IS 371 Introduction to IT Management
IS 373 Large Systems Implementation
TDC 361 Basic Communication Systems

Seven courses to be chosen in consultation with student's advisor.

Note: PHL/REL/MGT 228 Business, Ethics, and Society is a required course that is already credited in Liberal Studies.

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 IN HUMAN-COMPUTER INTERACTION

Human-Computer Interaction (HCI) is a multidisciplinary degree program designed to study methods that improve the working relationship between humans and computers. HCI practitioners enable individuals and groups to make more effective use of computers by creating better user interfaces and supportive surrounding environments. Drawing on principles from such diverse disciplines as art, psychology, engineering and computer science, HCI involves the analysis, design, development and evaluation of interfaces that are easy to use but powerful enough to accomplish complex tasks.

Nineteen (19) Liberal Studies courses (see above) plus the following 29 courses. Although all 29 courses are required, the grouping of the courses into First-Year, Sophomore, Junior, and Senior courses is a recommendation only. See your advisor for help in choosing your classes.

First-Year Courses

CSC 210 Introduction to Data Representation and Algorithms
GPH 211 Perceptual Principles for Digital Environments I
GPH 212 Perceptual Principles for Digital Environments II
HCI 270 Formatting Digital Pages I

Sophomore Courses

CMN 220 Public Speaking
CMN 212 Small Group Communication
CSC 211 Programming in Java I
CSC 319 Database Technology

CSC 323 Data Analysis and Statistical Software
CSC 336 Visual Basic for Programmers
HCI 310 Introduction to Human-Computer Interaction

Junior Courses

HCI 312 Analysis and Design for HCI
HCI 350 Usability in Computer Systems
HCI 360 Evaluating Human Computer Interaction

Two HCI electives chosen in consultation with student's advisor. See course lists below for HCI elective options.

Senior Courses

[CSC 394](#) Software Projects

Three HCI electives chosen in consultation with student's advisor. See [course lists below](#) for HCI elective options.

Nine courses to be chosen in consultation with student's advisor.

Note: PHL/REL/MGT 228 Business, Ethics, and Society and PSY 105 Introductory to Psychology I are required courses which are already credited in Liberal Studies.

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

The five HCI electives must be chosen from the following lists. At least one course must be chosen from each list.

List 1 (Design):

ART 217 Advanced 3D Design
ART 262 Publication Design
ART 360 Illustration
ART 361 Package Design
ART 362 Typography
CMN 327 Argumentation and Debate
CMN 329 Persuasion
GPH 250 Digital Modeling
GPH 259 Design Geometry
GPH 350 Digital Modeling II
GPH 360 Modeling Spaces
HCI 341 Usability Issues E-Commerce
HCI 315 Theory and Perception of Color
HCI 390 Topics in HCI

List 2 (Computer Science):

GPH 338 Computer Animation Survey
GPH 339 Advanced Rendering Techniques
GPH 371 Computer Graphics Survey
CSC 212 Programming in Java II
CSC 324 Data Analysis and Statistical Software II
CSC 352 Database Design
CSC 365 Introduction to Software Engineering
CSC 366 Introduction to Quality Assurance

CSC 373 Information Systems
HCI 322 Multimedia
HCI 332 User-Centered Web Development
IS 315 Analysis and Design Techniques
TDC 361 Basic Communications Systems

List 3: (Evaluation):

PSY 241 Methods of Psychological Inquiry
PSY 242 Experimental Psychology I
PSY 355 Small Groups and Leadership
PSY 360 Theories of Learning and Cognition
PSY 373 The Psychology of Judgment and Decision Making
PSY 375 Sensation and Perception

BACHELOR OF SCIENCE IN INFORMATION SYSTEMS

Information Systems is devoted to the application of computers and related technologies to organizational and business problems. IS professionals apply their knowledge of hardware, software, business processes and procedures to help organizations improve performance and meet tactical and strategic goals. IS graduates gain employment in a wide variety of positions, including business application programmers, help desk analysts, end user training and support personnel, database analysts, process consultants, user liaisons, and business system analysts.

Nineteen (19) Liberal Studies courses (see above) plus the following 29 courses. Although all 29 courses are required, the grouping of the courses into First-Year, Sophomore, Junior, and Senior courses is a recommendation only. See your advisor for help in choosing your classes.

First-Year Courses

IS 201 Introduction to Information Systems
CSC 210 Introduction to Data Representation and Algorithms
CSC 211 Programming in Java I
ECT 270 Client Side Web Application Development
MAT 140 Discrete Mathematics

Sophomore Courses

CSC 212 Programming in Java II
CSC 319 Database Technology
HCI 310 Introduction to Human Computer Interaction
IS 313 Business Application Programming

Choose 1 course from Mathematics (MAT):

MAT 141 Discrete Mathematics II or MAT 145 Calculus for Information Systems

Choose 1 course from Communication (CMN):

CMN 220 Public Speaking or CMN212 Small Group Communication

Junior Courses

CSC 323 Data Analysis and Statistical Software
IS 321 Information Systems Analysis
IS 371 Introduction to IT System Management
IS 372 Fundamentals of Software Management
TDC 361 Basic Communication Systems

Choose 1 course from English (ENG):

ENG 204 Technical Writing or ENG 301 Writing in the Professions

Senior Courses

IS 322 Information Systems Design
IS 375 Object Oriented Analysis and Design
IS 376 Information Systems Project

Two Major Field electives chosen from the following list in consultation with the student's advisor:

CSC 203 COBOL Programming
CSC 309 Object-Oriented Programming in C++
CSC 336 Visual Basic for Programmers
ECT 353 Server Side Web Application Development
ECT 355 E-Commerce Web Application Models
ECT 356 Advanced Server Side Programming
ECT 357 Introduction to Mobile Commerce
IS 373 Large Systems Implementation
IS 374 Management Support Systems
TDC 363 Local Area Networks

Open Electives

Seven courses to be chosen in consultation with student's advisor.

Note: PHL/REL/MGT 228 Business, Ethics, and Society is a required course that is already credited in Liberal Studies.

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 IN MATH/COMPUTER SCIENCE

The Mathematics and Computer Science major is meant for mathematics students with talent and interest in computer science and computer science students with talent and interest in mathematics to develop the necessary background to be able to work in areas which depend on knowledge from both fields. It is designed to prepare the student for graduate study in various areas of computer science such as theoretical computer science, graphics, and computational methods and in areas in applied mathematics such as numerical analysis or discrete mathematics. It is also a good preparation for the more intellectually demanding jobs in computer software development.

Nineteen (19) Liberal Studies courses (see above) plus the following 29 courses. Although all 29 courses are required, the grouping of the courses into First-Year, Sophomore, Junior, and Senior courses is a recommendation only. See your advisor for help in choosing your classes.

I. THEORY CONCENTRATION

The theory concentration is aimed at students with an interest in the mathematical and foundations of computer science.

First-Year Courses

MAT 140 Discrete Mathematics I
MAT 141 Discrete Mathematics II
CSC 211 Programming in Java I
CSC 212 Programming in Java II

Sophomore Courses

CSC 313 Data Structures in Java
MAT 303 Theory of Numbers

Choose one three-course sequence from Mathematics:

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

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

Or MAT 147- MAT 148- MAT 149 Calculus with Integrated Precalculus I-II-III

Junior Courses

CSC 321 Design and Analysis of Algorithms
CSC 347 Concepts of Programming Languages
MAT 260 Multivariable Calculus I
MAT 262 Linear Algebra
MAT 310 Abstract Algebra I
MAT351 Probability and Statistics I

Senior Courses

CSC 333 Automata Theory and Formal Grammars
CSC 358 Symbolic Programming

Choose 1 course from the following list:

MAT 398 Mathematics Capstone or CSC 394 Computer Science Capstone

Choose 1 course from Mathematics (MAT):

MAT 302 Combinatorics, MAT 311 Abstract Algebra II, MAT 370 Advanced Linear Algebra, or MAT 372 Logic and Set Theory

Open Electives

Eight courses to be chosen in consultation with an advisor.

Concentration Electives

Two advanced courses in computer science or mathematics to be chosen in consultation with student's advisor. Possible classes:

CSC 389 (CSC 544) Theory of Computation
CSC 348 Compiler Design
CSC 387/MAT 387 Operations Research I MAT 262 Linear Algebra
MAT 399 or CSC 399 Independent Study
OR any course listed above that is not already included in the student's program

II. COMPUTATIONAL METHODS CONCENTRATION

The computational methods concentration is intended for students with an interest in quantitative and computational methods in computer science.

First-Year Courses

MAT 140 Discrete Mathematics I
MAT 141 Discrete Mathematics II
CSC 211 Programming in Java I
CSC 212 Programming in Java II

Choose one three-course sequence from the Mathematics (MAT):

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

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

Or MAT 147- MAT 148- MAT 149 Calculus with Integrated Precalculus I-II-III

Sophomore Courses

CSC 309 Object-Oriented Programming in C++
MAT 141 Discrete Mathematics II
MAT 260 Multivariable Calculus I
MAT 261 Multivariable Calculus II
MAT 262 Linear Algebra

Junior Courses

CSC 321 Design and Analysis of Algorithms
CSC 343 Introduction to Operating Systems

MAT 351 Probability and Statistics I
MAT 352 Probability and Statistics II
MAT 353 Probability and Statistics III
CSC 385/ MAT 385 Numerical Analysis I

Senior Courses

Choose 1 course from the following list:

MAT 398 Mathematics Capstone or CSC 394 Computer Science Capstone

Two classes from one of the following sub-concentrations. Students in the Artificial Intelligence concentration are recommended to take CSC 313 as an open elective.

1. Artificial Intelligence:

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

2. Data Analysis:

CSC 328 Data Analysis for Experimenters
CSC 481 Pattern Recognition and Image Processing
MAT 370 Advanced Linear Algebra
MAT 356 Applied Regression Analysis
CSC 334 Advanced Data Analysis or MAT 354 Multivariate Statistics
CSC 332 Simulation and Modeling or MAT 359 Simulation Models and the Monte Carlo Methods

Open Electives

Eight courses to be chosen in consultation with an advisor.

Concentration Electives

Students select **one** advanced course in computer science or mathematics in consultation with their advisors. This course may be chosen from those listed above that are not already included in a student's program, or it may come from a broader selection. Possible courses for the artificial intelligence sub-concentration include CSC 456 Foundations of Intelligent Databases and CSC 481 Pattern Recognition and Image Processing. Possible courses for the data analysis sub-concentration include SE 467 Software Reliability and SE 468 Software Measurement. Possible courses for either sub-concentration include CSC/MAT 386 Numerical Analysis II, CSC/MAT 387-388 Operations Research I & II, MAT 302 Combinatorics, MAT 384 Mathematical Modeling, MAT 355 Stochastic Processes, and MAT 357 Nonparametric Statistics.

III. GRAPHICS CONCENTRATION

The graphics concentration is intended for students who want to study the technical and mathematical foundations of computer graphics and animation.

First-Year Courses

MAT 140 Discrete Mathematics I
MAT 141 Discrete Mathematics II
CSC 211 Programming in Java I
CSC 212 Programming in Java II
ART 105 Two-Dimensional Foundations (counts in liberal studies)

Sophomore Courses

ART 113 Three-Dimensional Foundations (counts in liberal studies)
CSC 309 Object-Oriented Programming in C++
GPH 212 Perpetual Principles for Digital Environments II
GPH 371 Survey of Computer Graphics

Choose one three-course sequence from the Mathematics (MAT):

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

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

Or MAT 147- MAT 148- MAT 149 Calculus with Integrated Precalculus I-II-III

Junior Courses

CSC 321 Design and Analysis of Algorithms

CSC 343 Introduction to Operating Systems

GPH 329 Computer Graphics Development

MAT 260 Multivariable Calculus

MAT 261 Multivariable Calculus II

MAT 262 Linear Algebra

Senior Courses

MAT 370 Advanced Linear Algebra

MAT 385 Numerical Analysis I or MAT 337 Complex Analysis

GPH 372 Principles of Computer Animation

GPH 395 Graphics Capstone Course

GPH 339 Advanced Rendering Techniques or GPH 336 Advanced Modeling Techniques

Open Electives

Eight courses to be chosen in consultation with an advisor.

IV. INDIVIDUALIZED CONCENTRATION

This concentration is intended for students who wish to combine advanced study of mathematics and computer science but whose particular area of interest is not exactly satisfied by one of the other three concentrations. Students wishing to create an individualized program of study leading to a joint degree in mathematics and computer science will be counseled to consult with both mathematics and CTI faculty advisors.

The individualized concentration will consist of the core of 12 courses plus an additional 8 mathematics and computer science courses designed to provide a coherent program. At least three of these courses must be in mathematics and at least three must be in computer science. An individualized program of study must be approved by the chair of the mathematical sciences department and the dean of CTI.

BACHELOR OF SCIENCE IN NETWORK TECHNOLOGIES

The Bachelor of Science in network Technologies degree program is designed for students who wish to learn to select, justify, configure, and manage appropriate network technologies for a wide variety of business applications. Course topics include the foundations of networking, local area network design and management, Internet access technologies, routing, and interconnection technologies.

Nineteen (19) Liberal Studies courses (see above) plus the following 29 courses. Although all 29 courses are required, the grouping of the courses into First-Year, Sophomore, Junior, and Senior courses is a recommendation only. See your advisor for help in choosing your classes.

First-Year Courses

CSC 210 Introduction to Data Representation and Algorithms

CSC 211 Programming in Java I

CSC 212 Programming in Java II

ECT 250 Survey of E-Commerce Technology

MAT 140 Discrete Mathematics

Choose 1 course from Mathematics (MAT):

MAT 141 Discrete Mathematics II or MAT 145 Calculus for Information Systems

Sophomore Courses

CSC 319 Database Technology
CSC 323 Data Analysis and Statistical Software
ECT 270 Client Side Web Application Development
TDC 311 Computers in Telecommunications Systems
TDC 361 Basic Communication Systems

Choose 1 course from English (ENG):
ENG 204 Technical Writing or ENG 301 Writing in the Professions

Junior Courses

ECT 353 Server Side Web Application Development
TDC 362 Principles of Data Communications
TDC 363 Local Area Networks
TDC 365 Network Interconnection Technologies

Choose 1 course from Communication (CMN):
CMN 220 Public Speaking or CMN 212 Small Group Communication

Senior Courses

TDC 376 Network Project

Two 300-level TDC electives chosen in consultation with student's advisor.

9 courses (36 quarter hours) are required and 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

I. BACHELOR OF SCIENCE IN NETWORK TECHNOLOGY AND MASTER OF SCIENCE IN TELECOMMUNICATION SYSTEMS

The Accelerated BS in Network Technologies and MS in Telecommunications Systems program will provide a balanced study of the design, configuration and management of networks supporting a variety of business applications. A student graduating from this program will be well-prepared for a career with any business that must design and maintain data and/or telephone networks to support business applications. A student may choose a career with telecommunications carriers, Internet service providers, network consulting firms, or large businesses that require specialized communications infrastructures, such as the financial markets or call center applications.

What is an accelerated BS/MS?

This degree option reduces the amount of courses by 3 that you have to take to get a BS and an MS.

Do I still get two separate degrees?

Yes. After your senior year you can march in graduation and get your BS. After just 10 more courses, instead of the normal 13, you can be awarded your MS diploma.

How does it work?

1. During your first three years, follow the BS program Network Technologies degree requirements.

2. Check to see if you meet the admissions criteria and then apply to the Telecommunications masters degree during junior year by the proscribed date.
3. Meet with your academic advisor to work out your senior year plan.
4. Take the Master's Degree Core Courses in your senior Year. Take the Core Exams as soon as possible after you complete these classes.
5. If the Core Exams are passed, and you remain in good standing, complete the remaining 10 MS advanced phase courses to get both your BS in Network Technologies and MS in Telecommunications Systems.

Contact undergradadvising@cs.depaul.edu to find out more about this option.

Admission Criteria

- You must have a B or better in your Major Field of Study courses up to the time of application.
- Your overall undergraduate GPA must be at least 3.3 up to the time of application.

Admission Procedure

- Complete an online graduate application and submit it to the office of graduate admissions by October 1 (or the next business day if on a weekend).
- Make sure to check the Accelerated program box to which you are applying.
- Conditional decisions will be made by October 15th.
- Meet with your advisor to do an accelerated PPA.
- Full Admission granted after you graduate from the BS program if you still meet the admissions criteria above and passed your core courses.

BACHELOR OF ARTS IN COMPUTING

The Bachelor of Arts in Computing is offered jointly by the School of Computer Science, Telecommunications and Information Systems 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 School of Computer Science, Telecommunications and Information Systems at (312)362-8381 or the School for New Learning at (312)362-8001.

SPECIAL PROGRAMS

TEACHER OF COMPUTER SCIENCE: SECONDARY LEVEL

In cooperation with the School of Education, the School of Computer Science, Telecommunications and Information Systems (CTI) offers a concentration of study which combines the requirements for a major in Computer Science with certification for teaching computer science at the junior high, middle, and senior high school levels. A student electing

such a program should consult the School of Education counselor as soon as possible after entering DePaul.

MINORS

Minors Within CTI for CTI Students

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

- Satisfy all of the requirements for the major.
- Take six 300-level CTI courses that are required for the major field of the desired minor. None of these six courses can also count for the major in 1.

Exception: These 200-level courses can count as one of the eight 300-level major field courses:

- GPH 211, GPH 212, and GPH 250 if the second major is Computer Graphics and Animation.
- CSC 212 if the second major is Computer Science.
- ECT 270 if the second major is E-Commerce Technology.
- GPH 211 and GPH 212 if the second major is Human Computer Interaction.

Clarifications for CTI Minors Within CTI

1. Major field courses are the courses required for one of these Undergraduate CTI majors: Computer Graphics and Animation (GPH), Computer Science (CSC), E-Commerce Technology (ECT), Human-Computer Interaction (HCI), Information Systems (IS), Network Technologies (NT). Major field courses are not Liberal Studies Courses or Open Electives.
2. Major field courses counting for the minor need not have the course prefix of the minor. For example, HCI 310 is a major field course for E-Commerce, but it does not have the prefix ECT.
3. Open electives are a not requirement for either the major or minor. They are a university requirement to insure that a graduating student has taken at least 192 credit hours.
- 4.

CTI Minor Requirements for Non-CTI Majors

Computer Graphics Minor

CSC 211 Programming in Java I
GPH 211 Perceptual Principles for Digital Environments I
GPH 212 Perceptual Principles for Digital Environments II
GPH 338 Computer Animation Survey
GPH 339 Advanced Rendering Techniques
GPH 371 Independent Study

Choose 1 course from the following list:

GPH 250 Digital Modeling
HCI 310 Introduction to Human-Computer Interaction

Computer Science Minor

CSC 210 Introduction to Data Representations and Algorithms
CSC 211 Programming in Java I
CSC 212 Programming in Java II
CSC 319 Database Technology
ECT 270 Client Side Web Application Development
MAT 140 Discrete Mathematics I

Choose 1 course from Computer Science (CS):

CSC 309 Object oriented programming in C++
CSC 313 Data Structures in Java

Choose 1 course from Mathematics (MAT):
MAT 141 Discrete Mathematics II or MAT 150 Calculus I

Data Analysis Minor

CSC 210 Introduction to Data Representations and Algorithms
CSC 211 Programming in Java I
CSC 212 Programming in Java II
CSC 319 Database Technology
CSC 323 Data Analysis and Statistical Software I
CSC 324 Data Analysis and Statistical Software II

Choose 1 course from Computer Science (CS):
CSC 328 Data Analysis for Experimenters
CSC 334 Advanced Data Analysis

E-Commerce Technology Minor

CSC 210 Introduction to Data Representations and Algorithms
CSC 211 Programming in Java I
ECT 250 Survey of E-Commerce Technology
ECT 270 Client Side Web Application Development
ECT 353 Server Side Web Application Development
ECT 355 E-Commerce Web Application Models
HCI 310 Introduction to Human-Computer Interaction

Human-Computer Interaction Minor

GPH 211 Perceptual Principles for Digital Environments I
HCI 310 Introduction to Human-Computer Interaction
HCI 312 Analysis and Design for HCI
HCI 360 Evaluating for HCI
PSY 105 Introductory Psychology I

Choose 3 courses from the following list:
GPH 212 Perceptual Principles for Digital Environments II
GPH 329 Computer Graphics Development
GPH 338 Computer Animation Survey
GPH 339 Advanced Rendering Techniques
GPH 371 Computer Graphics Survey
HCI 315 Theory and Perception of Color
HCI 332 User-Centered Web Development
HCI 350 Usability in Computer Systems

Information Systems Minor

CSC 201 Introduction to Information Systems
CSC 210 Introduction to Data Representations and Algorithms
CSC 211 Programming in Java I
CSC 319 Database Technology
ECT 250 Survey of E-Commerce Technology
HCI 310 Introduction to Human-Computer Interaction
IS 315 Analysis and Design Techniques

Choose 1 course from Information Systems (IS):
IS 371 Introduction to IT System Management
IS 372 Fundamentals of Software Management
IS 373 Introduction to Large Systems Implementation
IS 374 Management Support Systems

Network Technology Minor

CSC 210 Introduction to Data Representations and Algorithms
CSC 211 Programming in Java I
CSC 212 Programming in Java II
ECT 250 Survey of E-Commerce Technology
TDC 361 Basic Communication Systems
TDC 362 Principles of Data Communications
TDC 363 Introduction to Local Area Networks
One 300 level CTI course

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.