## Computer Information Systems Major, B.S.

(Formerly called the Information Systems Technology major)
Department of Computer Science
The Computer Information Systems major is appropriate for students seeking a professional career in the information systems field. It is a multidisciplinary program that emphasizes the study of systems development methodology and technology for our rapidly changing information society. Graduates of this program are prepared for careers in the design and development of information. This major is also appropriate preparation for information systems graduate programs or MBA professional programs. Computer Information Systems majors are required to complete a minor in Business Administration.

## Typical Program of Study:

## Fall Semester

First Year
CS 1511 Computer Science I or CS 1581 Honors Computer Science I 5 cr
Comp 1120 College Writing 3 cr
Econ 1003 Economics \& Society ${ }^{\text {b1 }} 3$ cr
Liberal Education course

## Second Year

CS 2511 Software Analysis and Design 4 cr
Acct 2001 Principles of Financial Accounting or Acct 2005 Survey of Accounting ${ }^{\text {b2 }}$
Stat 3611 Probability \& Statistics
Liberal education course

## Third Year

CS 3121 Interactive Multimedia Technology 4 cr
CS 3211 Database System Concepts 4 cr
Business Administration minor elective ${ }^{\text {b3 }} 3 \mathrm{cr}$
Liberal education course $\quad \underline{3 \mathrm{cr}}$
14 cr
Fourth Year
CS 3011 Info Technology Hardware \& Software
4 cr
Business Administration minor elective ${ }^{\text {b3 }} 3$ cr
Liberal education courses $\quad \underline{8 \mathrm{cr}}$

## Spring Semester

CS 1521 Computer Science II 5 cr
Math 1296 Calculus I ${ }^{\text {a }}$
5 cr
FMIS 2201 Information Technology in Business 3 cr
Liberal Education course
3 cr 16 cr
Comm 1112 Public Speaking 3 cr

CS 3111 Computer Ethics 4 cr
Business Administration minor elective ${ }^{\mathrm{b} 3} \quad 3 \mathrm{cr}$
Liberal education course
4 cr
14 cr

| Comp 3150 Advanced Writing: Science |  |
| :--- | :--- |
| CS 4531 Software Engineering | 3 cr |
| Business Administration minor elective ${ }^{\text {b3 }}$ | 4 cr |
| Liberal education course | 3 cr |
|  | $\frac{6 \mathrm{cr}}{16 \mathrm{cr}}$ |
| CS 3221 Operating Systems Practicum | 4 cr |
| CS 4411 Data Communications, Network Tech | 4 cr |
| Business Administration minor elective <br> Liberal education course | 3 cr |
|  | $\underline{4 \mathrm{cr}}$ |
| 15 cr |  |

CS 4531 Software Engineering 4 cr
Business Administration minor elective ${ }^{\text {b3 }} 3 \mathrm{cr}$
6 cr 16 cr

CS 3221 Operating Systems Practicum 4 cr
CS 4411 Data Communications, Network Tech 4 cr
Business Administration minor elective ${ }^{\text {b3 }} \quad 3 \mathrm{cr}$
15 cr
${ }^{\text {a }}$ First math course is determined by math placement exam. This schedule presupposes placement into Math 1296.
${ }^{\mathrm{b}}$ CIS majors are required to complete a minor in Business Administration (minor for non-LSBE students.) Go to the Labovitz School of Business and Economics (LSBE) to apply for this minor. The following are required as minor courses:
${ }^{1}$ Choose one option: ECON 1003 Economics \& Society or ECON 1022 Principles of Economics: Macro and ECON 1023 Principles of Economics: Micro.
${ }^{2}$ Choose one option: Acct 2001 Principles of Financial Accounting or Acct 2005 Survey of Accounting are required.
${ }^{3}$ Five Business Administration minor elective: FMIS 3301 Production \& Operations Mgt (3), FMIS 3601 Corporation
Finance (3), MGTS 3401 Organizational Behavior and Mgt (3), MGTS 3701 Principles of Marketing (3), MGTS 3801 Human Resource Mgt (3).
${ }^{\text {c }}$ Or Comp 3121 Advanced Writing: Business and Organizations or Comp 3130 Advanced Writing: Engineering
Department of Computer Science
320 Heller Hall, 1114 Kirby Drive
Duluth, MN 55812-2496
218-726-7607
cs@d.umn.edu•http://www.d.umn.edu/cs

Computer Information Systems Major, B.S.

| MAJor Requirements | Credits | Prerequisites | $\begin{gathered} \hline \text { SEMESTER } \\ \text { TO BE } \\ \text { COMPLETED } \\ \hline \end{gathered}$ | Grade |
| :---: | :---: | :---: | :---: | :---: |
| YEAR 1 |  |  |  |  |
| CS 1511 Comp Science I (or CS 1581 Honors) CS 1521 Computer Science II | 5 3.5 years of HS math (and placement for honors) <br> 5 CS 1511 | $\begin{aligned} & \hline 3.5 \text { years of HS math (and placement for honors) } \\ & \text { CS } 1511 \\ & \hline \end{aligned}$ |  |  |
| Comp 1120 College Writing <br> Econ 1003 Economics \& Society + <br> OR <br> Econ 1022 Principles of Econ.: Micro <br> AND Econ 1023 Principles of Econ.: Macro | 3 |  |  |  |
|  | 3 |  |  |  |
|  | 33 |  |  |  |
|  |  |  |  |  |
| FMIS 2201 Info Technology in Business | 3 |  |  |  |
| Math 1296 Calculus I | 5 | At least a 'C-' in Math 1250 or math placement |  |  |
| YeAR 2 |  |  |  |  |
| Acct 2001 Principles of Financial Acct. * <br> OR <br> Acct 2005 Survey of Accounting | 3 |  |  |  |
|  |  |  |  |  |
|  | 3 |  |  |  |
| Comm 1112 Public Speaking | 3 |  |  |  |
| CS 2511 Software Analysis and Design CS 3111 Computer Ethics | 4 | $\begin{aligned} & \hline \text { CS } 1521 \\ & \text { CS } 2511 \end{aligned}$ |  |  |
|  |  |  |  |  |
| Stat 3611 Intro to Probability \& Statistics | 4 | At least a 'C-' in Math 1296 |  |  |
| Business Administration minor elective ^ | 3 |  |  |  |
| Year 3 |  |  |  |  |
| CS 3121 Interactive Multimedia Technology <br> CS 3211 Database System Concepts <br> CS 4531 Software Engineering | $\begin{aligned} & 4 \\ & 4 \\ & 4 \end{aligned}$ | CS 2511FMIS 2201 or SBE 1101; CS 2511FMIS 2201 or SBE 1101; CS 2511 |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Comp 3150 Advanced Writing: Science\% | 3 | Comp 1120; 60 credits |  |  |
| Business Administration minor elective $\wedge$ Business Administration minor elective $\wedge$ | 33 |  |  |  |
|  |  |  |  |  |
| YeAR 4 |  |  |  |  |
| CS 3011 Info Technology Hardware \& Software CS 3221 Operating Systems Practicum CS 4411 Data Comm \& Network Technology | $\begin{aligned} & 4 \\ & 4 \\ & 4 \end{aligned}$ | FMIS 2201 or SBE 1101; CS 2511 CS 3011; Junior standing or above CS 3011 |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Business Administration minor elective $\wedge$ Business Administration minor elective $\wedge$ | 33 |  |  |  |
|  |  |  |  |  |

CIS majors are required to complete a minor in Business Administration (minor for non-LSBE students.) Go to the Labovitz School of Business and Economics (LSBE) for more information and to apply for this minor. The following are required minor courses:

+ Choose one option: ECON 1003 Economics \& Society or ECON 1022 Principles of Economics: Macro and ECON 1023
Principles of Economics: Micro.
* Choose one option: Acct 2001 Principles of Financial Accounting or Acct 2005 Survey of Accounting are required.
$\wedge$ Five Business Administration minor elective: FMIS 3301 Production \& Operations Mgt (3), FMIS 3601 Corporation Finance (3), MGTS 3401 Organizational Behavior and Mgt (3), MGTS 3701 Principles of Marketing (3), MGTS 3801 Human Resource Mgt (3).

Note: In addition to the above courses, students must complete the liberal education program to earn the B.S. degree.

