To earn a Bachelor’s degree in computer information systems, a student must successfully complete 30 or more credit hours of College Information Systems. A student must complete at least 40 credit hours of upper A grade of Business Core Courses:

The prerequisite is CIS 2010: **Principles of Business Application Development** or Business Application Development with the business core course related to their major and adjust other business core courses accordingly. Department offices’ suggested planning guides for their majors.

It is required that students meet with an advisor in their major to plan their remaining 60 credit hours. It is recommended that students begin with the business core course related to their major and adjust other business core courses accordingly. Department offices’ will have suggested planning guides for their majors.

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### General Studies

All Business majors at Metropolitan State University of Denver (Metro) must complete the University’s minimum requirement of 33 hours of general studies courses. The College of Business requires 9 additional specific hours of general education for a total of 43 (PSY 1001 or SOC 1010, PSC 1010 or PSC 1020, and MTH 1320) should be used to meet the College of Business requirements. Students desiring a Bachelor of Science degree should complete these courses as part of their first 60 credit hours. The General Studies Written Communication, Oral Communication, and Quantitative Literacy courses (see other side) must be completed before enrolling in Business Core courses.

### Multicultural Course

The University's multicultural requirement may be satisfied by taking an approved multicultural course in general studies or electives portion of the degree requirement.

**GLOBAL DIVERSITY REQUIREMENT**: The University’s global diversity requirement may be satisfied by taking an approved global diversity course listed in the University Catalog: General Studies Requirements.

**CIS 2010**: The prerequisite is CIS/CSS 1010 with a grade of C- or better, or an appropriate score on the Computer Information Systems computer literacy screening test.

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### Business Core Courses

A grade of C- or better must be earned in each business core course to have that course count toward the Bachelor of Science degree.

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### Upper Division Courses

A student must complete at least 40 credit hours of upper-division courses (3000 or 4000 level) at Metro of which at least 8 hours must be in Computer Information Systems.

### College of Business Residency requirements

To earn a Bachelor’s degree in computer information systems, a student must successfully complete 30 or more credit hours of business core work at Metro. This 30-hour residency requirement can be met by completing any business courses with the prefix ACC, CIS, FIN, MGT and MKT except ACC 1010, CIS 1010, CIS 2300, CIS 3300, CIS 3320, CIS 3340, and FIN 2250.

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**College of Business Advising**: Administration Building, AD-540, 303-352-7270

http://www.msudenver.edu/business/advising/index.shtml

CIS Department: Administration Building, AD-590, 303-556-3122

Contact: Chairman Dr. Abel Moreno, morenoa@msudenver.edu

CIS Department Website: http://cis.msudenver.edu

Revised: 10/2016
Electives
General Studies
Written Communication
ENG 1010 Composing Arguments 3
ENG 1020 Freshman Composition: Analysis, Research, & Documentation 3
Quantitative Literacy
MTH 1310 Finite Mathematics for the Management & Social Sciences (prerequisite: one and one-half years of high school algebra or equivalent and an appropriate score on the mathematics preassessment placement test) 4
Oral Communication
CAS 1010 or CAS 1710 Interpersonal Communication 3
Historical
HIS Read the list of approved "Historical" courses in the General Studies courses list of your official catalog term)
Arts and Humanities
PHI 3340 Business Ethics (preferred course) 3
or PHI 1030 Ethics 3
or (Check catalog for Arts and Humanities elective)
Social & Behavioral Sciences I
ECO 2010 Principles of Economics-Macro (prerequisite: ENG 1010 or ENG 1020, and any 1000-level MTH course) 3
Social & Behavioral Sciences II
ECO 2020 Principles of Economics-Micro (prerequisite: ENG 1010 or ENG 1020, and any 1000-level MTH course) 3
Natural and Physical Sciences
CIS Capstone Group – Select ONE of the Following:
CIS 4xxx
CIS 3490
CIS 3460
CIS 3350
CIS 3310
CIS 3290
CIS 3280
CIS 3270
CIS 3220
CIS Approved Electives (Must be 3000 – 4000 level CIS Course) – Select TWO of the Following:
CIS 4050
CIS 3500
CIS 3145
CIS 3060
CIS 2110
CIS 2010
CIS 2020
CIS 1710
CIS 1010
CIS 3xxx Courses listed in the CIS Capstone Group.

Additional College of Business Requirements
PSY 1001 Introductory Psychology 3
or SOC 1010 Introduction to Sociology 3
or PSC 3020 Political Systems and Ideas 3
or MTH 1320 Calculus for the Management & Social Sciences (prerequisite: MTH 1310 or equivalent) 3
Total credit hours College of Business Requirements 9
Total Non-business General Studies required credits (minimum) 43
Business Core (A grade of "C" or better must be earned in each business core course to have that course count toward the Bachelor of Science degree in Computer Information Systems) (prerequisite: Completion of all the "General Studies Written Communication, Oral Communication, and Quantitative Literacy courses"

Course work in CIS Major
CIS 2110 Structured Problem Solving in Information Systems (prerequisite: CIS 2100) 3
CIS 3050 Fundamentals of Systems Analysis and Design (prerequisite: CIS 2110) 3
CIS 3060 Database Management Systems (prerequisite: CIS 2110) 3
CIS 3145 Business Application Development (prerequisite: CIS 2110) 3
CIS 3210 Telecommunication Systems and Networking (prerequisite: CIS 2110) 3
CIS 3500 Information Systems Security (prerequisite: CIS 3230) 3
CIS 3550 Systems Analysis & Design (prerequisite: CIS 3050, CIS 3060, CIS 3145, CIS 3230, CIS 3500, and senior standing) 3

Total credit hours for CIS major (minimum) 30

CIS Approved Electives (Must be 3000 – 4000 level CIS Course) – Select TWO of the Following: ***
CIS 3030 Business Web Page Development (prerequisite: CIS 2110) 3
CIS 3220 Analysis of Hardware, Software, and User Interfaces for Microcomputer Platforms (prerequisite: CIS 2110) 3
CIS 3270 Advanced Computer Applications for Business (prerequisite: CIS 2100) 3
CIS 3280 LAN and WAN Systems for Business (prerequisite: CIS 3230) 3
CIS 3290 Operating Systems for End Users (prerequisite: CIS 2100 and CIS 2110) 3
CIS 3310 Business Forecasting Methods (prerequisite: CIS 3300 and junior standing) 3
CIS 3350 Knowledge Discovery and Data Mining (prerequisite: CIS 3300 and at least junior standing) 3
CIS 3460 Data Warehouse and Mining (prerequisite: CIS 3060 or ACC 3300, and CIS 3300) 3
CIS 3490 Managing Business Information with Enterprise Systems (prerequisite: CIS 2010) 3
CIS 3990 Internship in Computer Information Systems 3
CIS 4xx Courses listed in the CIS Capstone Group. 3

CIS Capstone Group – Select ONE of the Following: ***
CIS 4030 Web Site Administration (prerequisite: CIS 3300) OR
CIS 4060 Advanced Database Management Systems (prerequisite: CIS 3060 and CIS 3145) OR
CIS 4160 Advanced Programming Seminar (prerequisite: CIS 3990 or CIS 3310) OR
CIS 4260 Database Administration (prerequisite: CIS 3060) OR
CIS 4280 Network Installation and Administration (prerequisite: CIS 3230) OR
CIS 4370 Data Science and Big Data Analytics (prerequisite: CIS 3300, CIS 3460, and at least junior standing) OR
CIS 4410 Management Information Systems (prerequisite: CIS 2110 and MGT 3000) OR
CIS 4500 Information Systems Security Tools and Techniques (prerequisite: CIS 3560, 3560 or senior standing) OR
CIS 4550 Information Systems Security Management and Information Assurance (prerequisite: CIS 3500) 3

Total credit hours for CIS major (minimum) 120

*** Can be used for the CIS Concentration. See the "Two Options for completing a CIS Degree" advising sheet for the available concentrations and the associated elective courses.

Electives

Total Electives 1

Total (minimum) credit hours for Bachelor of Science for CIS majors 120

1 A Multicultural Course must be taken as an Elective or General Studies course.
2 A Global Diversity course must be taken as a General Studies course.

Revised: 10/2016