

CSU-Pueblo 2019-2020 Course Catalog pages for Cyber Security Emphasis PoS

in which the artifact was collected to determine students' level of mastery. Each learning outcome has been separated into sub-skills, or "measurable objectives", that are components of the overall learning objectives. Students' level of mastery is assessed using rubrics which have been developed for this purpose. To ensure inter-rater reliability, we implement processes whereby raters meet before and after artifacts are assessed. In addition, for follow-up (loop-closing) activities on subsequent artifact evaluation, the same raters are utilized when possible, for consistency and reliability.

The CIS program includes a senior capstone project course required of all majors. This course requires students to apply the communication, problem solving, and technical skills they have learned during the completion of the CIS program. Each team of students is assigned a live project in the Pueblo community (or sometimes surrounding areas). The team is evaluated on not only the final IT product they develop, but the process they follow in completing the project.

Finally, the CIS program meets annually with the CIS Industrial Advisory Committee to get feedback on the effectiveness of the CIS curriculum in meeting the needs of the IT industry along the Colorado Front Range. The CIS program also requires CIS graduates to complete a survey to determine the effectiveness of the program and curriculum in preparing them for jobs in IT.

Computer Information Systems, Bachelor of Science: Cyber Security Emphasis

General Requirements

- Students majoring in computer information systems must maintain grades of C or higher in all CIS courses. In addition, all required CIS prerequisites must be completed with a grade of C or higher.
- Students must complete at least 120 semester hours in an approved program of study, including 52 hours in the major.
- Students must complete a minimum of 21 credits of CIS upper-division course work. At least 16 of these upper-division CIS credits must be taken in residence.
- Students must complete a course planning worksheet and participate in the advisement process with a CIS faculty adviser.

Specific Requirements

CIS majors complete a total of 120 credits. These credits include 36 credit hours of general education, 52 credits in CIS major courses, 10 credits of quantitative analysis, 9 credits of required related non CIS courses and 13 credits of electives. CIS majors are encouraged to complete a minor in Business Administration or another Business-related minor. The minor may be completed within the 13 elective credits. The general elective courses must include the specific courses listed below.

Course	Title	Credits
General Education		
See General Education below for specific requirements		36
Quantitative Analysis Requirement		
MATH 220	Quantitative Analysis for Business	4
BUSAD 265	Inferential Statistics and Problem Solving	3
BUSAD 360	Advanced Business Statistics	3
Required Related Courses		

BUSAD 270	Business Communications	3
MGMT 201	Principles of Management	3
MGMT 368	Project Management	3
Open Electives ¹		13
CIS Major Courses		
CIS 100	Introduction to Word	1
CIS 103	Introduction to PowerPoint	1
CIS 104	Introduction to Excel Spreadsheets	1
CIS 105	Introduction to Access DBMS	1
CIS 150	Computer, Ethics, and Society	3
CIS 171	Introduction to Java Programming	4
CIS 185	PC Architecture	3
CIS 240	Systems Analysis and Design	3
CIS 271	Advanced Program Design with Java	4
CIS 289	Network Concepts	3
CIS 311	Introduction to Web Development	3
CIS 315	Linux Fundamentals	3
CIS 350	Database Management	3
CIS 432	Senior Professional Project	6
CIS 493	Senior Seminar	1
CIS 3/400	Emphasis Area Electives	12
Total Credits		120

¹ CIS majors may select one of the following emphasis areas and complete the indicated required courses (12 credits of 3/400 upper division electives) within the chosen emphasis.

Cyber Security Emphasis Area Electives

Course	Title	Credits
CIS 401	Network Systems Administration	3
CIS 460	Cyber Security & Defense	3
CIS 461	IT Security Risk Management	3
CIS 462	Computer Forensics	3
Total Credits		12

General Education

The general education requirement for graduation includes a total of 35 semester credits in two categories: Skills Component and Knowledge Component. Please see the General Education Requirement section under Academic Policies for more information.

Please refer to the General Education Requirements in the *Undergraduate Programs* section of this catalog. In meeting CSU-Pueblo's general education requirement, CIS majors must include the following:

Course	Title	Credits
Humanities		
COMR 103	Speaking and Listening (or equivalent)	3
Social Science		
ECON 201 & ECON 202	Principles of Macroeconomics and Principles of Microeconomics	6
Mathematics		
MATH 121	College Algebra	4

Special Projects and Internships will not be substituted for required CIS Major courses. They may count only as electives. CIS majors who do not

claim any emphasis area need to choose 12 credits from the following upper division electives.

Business Environment

In addition to the requirement to complete (BUSAD 265 Inferential Statistics and Problem Solving (3 c.h.), BUSAD 270 Business Communications (3 c.h.), BUSAD 360 Advanced Business Statistics (3 c.h.), ECON 201 Principles of Macroeconomics (3 c.h.), ECON 202 Principles of Microeconomics (3 c.h.), MGMT 201 Principles of Management (3 c.h.), MGMT 368 Project Management (3 c.h.), MATH 121 College Algebra (4 c.h.) and MATH 220 Quantitative Analysis for Business (4 c.h.)), CIS majors are strongly encouraged to complete a minor in Business Administration.

Summary of Graduation Requirements (CIS)

General Education: 36¹

Quantitative Analysis Requirement: 10

Required Related: 9

Open Electives: 13

Major: 52

TOTAL (minimum credits): 120

¹ Must include COMR 103 Speaking and Listening (3 c.h.) or equivalent; ECON 201 Principles of Macroeconomics (3 c.h.) and ECON 202 Principles of Microeconomics (3 c.h.), and MATH 121 College Algebra (4 c.h.).

CIS Minor

Non-CIS majors who wish to minor in CIS have several options. They may build their own minor based on the completion of seven core courses and a minimum of nine credits of 3/400 upper-division CIS courses.

Program Objectives CIS PSOs, not Cyber Sec PLOs

The program seeks to develop a deeper understanding of the role of information systems within organizations and the processes that support technology-enabled business development.

At the conclusion of the CIS program, students will demonstrate the ability to:

1. Analyze, design, implement, and maintain an information system.
2. Communicate clearly and effectively in writing and speaking.
3. Work effectively as a team member for a common purpose.
4. Identify ethical issues and provide alternatives or solutions.

Computer Information Systems, Bachelor of Science: Data Analytics Emphasis

General Requirements

- Students majoring in computer information systems must maintain grades of C or higher in all CIS courses. In addition, all required CIS prerequisites must be completed with a grade of C or higher.
- Students must complete at least 120 semester hours in an approved program of study, including 52 hours in the major.

- Students must complete a minimum of 21 credits of CIS upper-division course work. At least 16 of these upper-division CIS credits must be taken in residence.
- Students must complete a course planning worksheet and participate in the advisement process with a CIS faculty adviser.

Specific Requirements

CIS majors complete a total of 120 credits. These credits include 36 credit hours of general education, 52 credits in CIS major courses, 10 credits of quantitative analysis, 9 credits of required related non CIS courses and 13 credits of electives. CIS majors are encouraged to complete a minor in Business Administration or another Business-related minor. The minor may be completed within the 13 elective credits. The general elective courses must include the specific courses listed below.

Course	Title	Credits
General Education		
See General Education below for specific requirements		36
Quantitative Analysis Requirement		
MATH 220	Quantitative Analysis for Business	4
BUSAD 265	Inferential Statistics and Problem Solving	3
BUSAD 360	Advanced Business Statistics	3
Required Related Courses		
BUSAD 270	Business Communications	3
MGMT 201	Principles of Management	3
MGMT 368	Project Management	3
Open Electives ¹		13
CIS Major Courses		
CIS 100	Introduction to Word	1
CIS 103	Introduction to PowerPoint	1
CIS 104	Introduction to Excel Spreadsheets	1
CIS 105	Introduction to Access DBMS	1
CIS 150	Computer, Ethics, and Society	3
CIS 171	Introduction to Java Programming	4
CIS 185	PC Architecture	3
CIS 240	Systems Analysis and Design	3
CIS 271	Advanced Program Design with Java	4
CIS 289	Network Concepts	3
CIS 311	Introduction to Web Development	3
CIS 315	Linux Fundamentals	3
CIS 350	Database Management	3
CIS 432	Senior Professional Project	6
CIS 493	Senior Seminar	1
CIS 3/400	Emphasis Area Electives	12
Total Credits		120

¹ CIS majors may select one of the following emphasis areas and complete the indicated required courses (12 credits of 3/400 upper division electives) within the chosen emphasis.

Data Analytics Emphasis Area Electives

Course	Title	Credits
CIS 410	Data Analytics with Python	3
CIS 450	Advanced Data Analytics	3

Choose two of the following: