MAJOR IN INFORMATION SYSTEMS

Tracks

Each Information Systems student must choose from one of the four tracks. The tracks help focus a student's course work around a real world career goal.

The four current tracks are in:

- **Data Analytics**: This track prepares students in fundamental concepts, techniques and tools of data analytics, focusing on real life experience in analyzing data from various domains, solving problems and making decisions based on data.
- **Systems**: This track prepares students in conceptualizing and developing robust and reliable information systems with a focus on key technical skills in information system analysis, design and development.
- **Business**: This track prepares students in integrating technology with business processes and strategies, focusing on business comprehension, core enterprise functions and the technological challenges in a multitude of businesses.
- **Interface Design**: This track prepares students in incorporating design and cognition into technology development with a focus on building screen interface layouts and physical devices that are appropriate for specific users, tasks and environments.

Requirements

All Information Systems majors must complete 74-77 units of major requirements including coursework from one of the following tracks: Business, Data Analytics, Interface Design or Systems.

Code	Title	Units
Required Courses		
CIS 211	FUNDAMENTALS OF INFORMATION SYSTEMS & TECHNOLOGY	3
CIS 239	ENTERPRISE SYSTEMS AND ARCHITECTURE	3
CIS 350	TELECOMMUNICATIONS	3
CIS 377	INTRODUCTION TO CYBERSECURITY	3
CIS 379	SYSTEMS ANALYSIS AND DESIGN	3
CIS 435	HUMAN-COMPUTER INTERACTION	3
CIS 458	ORGANIZATIONAL DATABASE MANAGEMENT	3
CIS 479	SOFTWARE PROJECT MNGT	3
COSC 236	INTRODUCTION TO COMPUTER SCIENCE I [1, 2]	4
COSC 237	INTRODUCTION TO COMPUTER SCIENCE II [2]	4
COSC 418	ETHICAL AND SOCIETAL CONCERNS OF COMPUTER SCIENTISTS	3
ITEC 231	FUNDAMENTALS OF WEB TECHNOLOGIES	3
Capstone		
CIS 475	INFORMATION SYSTEMS CAPSTONE	3
Required MATH Courses		
MATH 211	CALCULUS FOR APPLICATIONS [3]	3-4
or MATH 273	CALCULUS I	
MATH 231	BASIC STATISTICS	3-4
or MATH 330	INTRODUCTION TO STATISTICAL METHODS	
MATH 263	DISCRETE MATHEMATICS	3
Required Track Courses		**21-22**
Other Requirements		
Must be completed with a grade equivalent of 2.00 or higher.		
ENGL 317	WRITING FOR BUSINESS AND INDUSTRY (Core 9)	3
Total Units		**74-77**

1. COSC 175 is a prerequisite for COSC 236.
2. COSC 236 and COSC 237 must be taken together at the same institution.
3. MATH 273 is required for students in the Systems track.

Business Track

Code	Title	Units
Required Courses		
ACCT 201	PRINCIPLES OF FINANCIAL ACCOUNTING	3
CIS 334	DATA ORGANIZATION	3
ECON 201	MICROECONOMIC PRINCIPLES	3
Select two of the following:		6
CIS 328	INTRODUCTION TO DATA ANALYTICS	
CIS 397	INTERNSHIP IN CIS	
CIS 426	GAMING INTERFACE DESIGN	
CIS 428	TEXT ANALYTICS	
CIS 433	SELECT TOPICS INFO SYST	
CIS 440	SYSTEM DEVELOPMENT / E-COMMERCE	
CIS 468	APPLIED DATA MINING AND VISUAL ANALYTICS	
CIS 495	INDEPENDENT STUDY IN COMPUTER INFORMATION SYSTEMS	
ITEC 427	CLOUD COMPUTING FOR ENTERPRISES	
ITEC 433	CYBER SECURITY RISK MANAGEMENT	
Select one of the following course pairs:		6
ACCT 202 & ACCT 301	PRINCIPLES OF MANAGERIAL ACCOUNTING and INTERMEDIATE ACCOUNTING I	
ACCT 202 & ACCT 341	PRINCIPLES OF MANAGERIAL ACCOUNTING and MANAGEMENT ACCOUNTING I	
EBTM 365 & EBTM 419	PRINCIPLES OF OPERATIONS MANAGEMENT and SUPPLY-CHAIN MANAGEMENT	
EBTM 365 & EBTM 454	PRINCIPLES OF OPERATIONS MANAGEMENT and BUSINESS PROCESS MANAGEMENT	
HLTH 207 & HCMN 305	HEALTH CARE IN THE U.S. and HEALTH ADMINISTRATION	
MKTG 341 & MNGT 361	MARKETING AND CREATIVITY and LEADERSHIP AND MANAGEMENT	

MNGT 361 & MNGT 395	LEADERSHIP AND MANAGEMENT and MANAGEMENT OF ORGANIZATIONAL BEHAVIOR	
Total Units		**21**

Data Analytics Track

Code	Title	Units
Required Courses		
CIS 328	INTRODUCTION TO DATA ANALYTICS	3
CIS 334	DATA ORGANIZATION	3
CIS 428	TEXT ANALYTICS	3
CIS 468	APPLIED DATA MINING AND VISUAL ANALYTICS	3
ITEC 336	LEGAL AND POLICY ISSUES IN INFORMATION TECHNOLOGY	3
Select two of the following:		6
CIS 265	VISUAL BASIC PROGRAMMING	
CIS 397	INTERNSHIP IN CIS	
CIS 433	SELECT TOPICS INFO SYST	
CIS 436	E-GOVERNMENT	
CIS 495	INDEPENDENT STUDY IN COMPUTER INFORMATION SYSTEMS	
ITEC 427	CLOUD COMPUTING FOR ENTERPRISES	
Total Units		**21**

Interface Design Track

Code	Title	Units
Required Courses		
ART 102	2D PROCESS FOR NON-ART MAJORS	3
or ART 103	2D PROCESS	
ART 217	IMAGEMAKING: DIGITAL PROCESS	3
CIS 328	INTRODUCTION TO DATA ANALYTICS	3
CIS 334	DATA ORGANIZATION	3
CIS 445	UNIVERSAL USABILITY: DESIGNING COMPUTER INTERFACES FOR BLIND USERS	3
Select two of the following:		6
ART 365	DESIGN FOR THE WWW	
CIS 397	INTERNSHIP IN CIS	
CIS 425	DECISION SUPPORT SYSTEMS	
CIS 426	GAMING INTERFACE DESIGN	
CIS 428	TEXT ANALYTICS	
CIS 433	SELECT TOPICS INFO SYST	
CIS 436	E-GOVERNMENT	
CIS 468	APPLIED DATA MINING AND VISUAL ANALYTICS	
CIS 495	INDEPENDENT STUDY IN COMPUTER INFORMATION SYSTEMS	
DFST 101	INTRODUCTION TO DEAF STUDIES	
ITEC 433	CYBER SECURITY RISK MANAGEMENT	
Total Units		**21**

Systems Track

Code	Title	Units
Required Courses		
CIS 328	INTRODUCTION TO DATA ANALYTICS	3
COSC 336	DATA STRUCTURES AND ALGORITHM ANALYSIS	4
COSC 412	SOFTWARE ENGINEERING	3
COSC 436	OBJECT-ORIENTED DESIGN & PROGRAMMING	3
COSC 484	WEB-BASED PROGRAM	3
Select two of the following:		6
CIS 212	INTRO TO BUSINESS PROGRAMMING	
or CIS 265	VISUAL BASIC PROGRAMMING	
CIS 397	INTERNSHIP IN CIS	
CIS 426	GAMING INTERFACE DESIGN	
CIS 428	TEXT ANALYTICS	
CIS 433	SELECT TOPICS INFO SYST	
CIS 440	SYSTEM DEVELOPMENT / E-COMMERCE	
CIS 468	APPLIED DATA MINING AND VISUAL ANALYTICS	
CIS 495	INDEPENDENT STUDY IN COMPUTER INFORMATION SYSTEMS	
ITEC 345	SCRIPTING LANGUAGES	
ITEC 423	EMERGING INTERNET TECHNOLOGIES	
ITEC 427	CLOUD COMPUTING FOR ENTERPRISES	
ITEC 433	CYBER SECURITY RISK MANAGEMENT	
Total Units		**22**

Four-Year Plan of Study

Data Analytics Track Sample Four-Year Plan

The selected course sequence below is an example of the simplest path to degree completion. Based on course schedules, student needs, and student choice, individual plans may vary. Students should consult with their adviser to make the most appropriate elective choices and to ensure that they have completed the required number of units (120) to graduate.

Freshman

Term 1	Units	Term 2	Units
COSC 111	3	CIS 211	3
Core 1 or Core 2	3	COSC 236[1, 2]	4
Core 4	3	MATH 211 or 273 (Core 3)	3-4
Core 6	3	Core 2 or Core 1	3
Core 11	3	Core 5	3
	15		**16-17**

Sophomore

Term 1	Units	Term 2	Units
CIS 239	3	CIS 334	3
COSC 237[2]	4	CIS 379	3
ITEC 231	3	ENGL 317 (Core 9)	3
MATH 231 or 330	3-4	MATH 263	3
Core 10	3	Core 7	4
	16-17		**16**

Junior

Term 1	Units Term 2	Units
CIS 328	3 CIS 377	3
CIS 350	3 CIS 428	3
CIS 435	3 CIS 479	3
CIS 458	3 Elective (from CIS/ITEC list)	3
Elective (from CIS/ITEC list)	3 Core 8	4
	15	**16**

Senior

Term 1	Units Term 2	Units
CIS 468	3 CIS 475	3
ITEC 336	3 COSC 418 (Core 14)	3
Core 12	3 Core 13	3
Elective	3 Elective	2
Elective	3	
	15	**11**

Total Units 120-122

[1] COSC 175 is a prerequisite for COSC 236.

[2] COSC 236 and COSC 237 must be taken together at the same institution.

Business Track Sample Four-Year Plan

The selected course sequence below is an example of the simplest path to degree completion. Based on course schedules, student needs, and student choice, individual plans may vary. Students should consult with their adviser to make the most appropriate elective choices and to ensure that they have completed the required number of units (120) to graduate.

Freshman

Term 1	Units Term 2	Units
ACCT 201	3 CIS 211	3
COSC 111	3 COSC 236[1, 2]	4
ECON 201 (Core 6)	3 MATH 211 or 273 (Core 3)	3-4
Core 1 (or Core 2)	3 Core 2 (or Core 1)	3
Core 4	3 Core 5	3
	15	**16-17**

Sophomore

Term 1	Units Term 2	Units
CIS 239	3 CIS 334	3
COSC 237[2]	4 CIS 379	3
ENGL 317 (Core 9)	3 MATH 231 or 330	3-4
ITEC 231	3 Core 7	4
MATH 263	3 Core 10	3
	16	**16-17**

Junior

Term 1	Units Term 2	Units
CIS 350	3 CIS 377	3
CIS 435	3 CIS 479	3
CIS 458	3 Core 8	4
Elective (from CIS/ITEC list)	3 Elective (from CIS/ITEC list)	3
Elective	3	
	15	**13**

Senior

Term 1	Units Term 2	Units
Core 11	3 CIS 475	3
Core 12	3 COSC 418 (Core 14)	3
Elective (1 of 2 from Course Pair List)	3 Core 13	3
Elective	3 Elective	2
Elective	3 Elective (2 of 2 from Course Pair List)	3
	15	**14**

Total Units 120-122

[1] COSC 175 is a prerequisite for COSC 236.

[2] COSC 236 and COSC 237 must be taken together at the same institution.

Systems Track Sample Four-Year Plan

The selected course sequence below is an example of the simplest path to degree completion. Based on course schedules, student needs, and student choice, individual plans may vary. Students should consult with their adviser to make the most appropriate elective choices and to ensure that they have completed the required number of units (120) to graduate.

Freshman

Term 1	Units Term 2	Units
COSC 111	3 CIS 211	3
MATH 119 (optional - see footnote)[1]	4 COSC 236[2, 3]	4
Core 1 (or Core 2)	3 MATH 211 or 273 (Core 3)	3
Core 4	3 Core 2 (or Core 1)	3
Core 5	3 Core 6	3
	16	**16**

Sophomore

Term 1	Units Term 2	Units
CIS 239	3 CIS 379	3
COSC 237[3]	4 COSC 336	4
ENGL 317 (Core 9)	3 MATH 231 or 330	3-4
ITEC 231	3 Core 7	4
MATH 263	3	
	16	**14-15**

Junior

Term 1	Units Term 2	Units
CIS 350	3 CIS 479	3
CIS 435	3 COSC 436	3
CIS 458	3 COSC 484	3
COSC 412	3 Core 10	3
Core 8	4	
	16	**12**

Senior

Term 1	Units Term 2	Units
CIS 328	3 CIS 377	3

Core 11	3 CIS 475	3
Core 12	3 COSC 418 (Core 14)	3
Elective (from CIS / ITEC List)	3 Core 13	3
Elective (from CIS / ITEC List)	3 Elective	3
	15	**15**

Total Units 120-121

[1] Prerequisite for MATH 273: qualifying score on Math Placement exam or MATH 119.
[2] COSC 175 is a prerequisite for COSC 236.
[3] COSC 236 and COSC 237 must be taken together at the same institution.

Interface Design Track Sample Four-Year Plan

The selected course sequence below is an example of the simplest path to degree completion. Based on course schedules, student needs, and student choice, individual plans may vary. Students should consult with their adviser to make the most appropriate elective choices and to ensure that they have completed the required number of units (120) to graduate.

Freshman

Term 1	Units	Term 2	Units
ART 102 or 103 (Core 4)	3	ART 217	3
COSC 111	3	CIS 211	3
Core 1 (or Core 2)	3	COSC 236[1, 2]	4
Core 5	3	MATH 211 or 273 (Core 3)	3-4
		Core 2 (or Core 1)	3
	12		**16-17**

Sophomore

Term 1	Units	Term 2	Units
CIS 239	3	CIS 334	3
COSC 237[2]	4	CIS 379	3
ENGL 317 (Core 9)	3	MATH 231 or 330	3-4
ITEC 231	3	Core 7	4
MATH 263	3	Core 11	3
	16		**16-17**

Junior

Term 1	Units	Term 2	Units
CIS 350	3	CIS 445	3
CIS 377	3	CIS 479	3
CIS 435	3	Core 6	3
CIS 458	3	Core 8	4
Elective	3	Elective	3
	15		**16**

Senior

Term 1	Units	Term 2	Units
CIS 328	3	CIS 475	3
Core 10	3	COSC 418 (Core 14)	3
Elective (from approved list)	3	Core 12	3
Elective (from approved list)	3	Core 13	3
Elective	3	Elective	2
	15		**14**

Total Units 120-122

[1] COSC 175 is a prerequisite for COSC 236.
[2] COSC 236 and COSC 237 must be taken together at the same institution.

Learning Outcomes

1. Students can use their proficiency in information systems principles, practices and analytical techniques to solve a variety of problems.
2. Students can explain the technological, organizational and behavioral principles that underlie information systems.
3. Students will understand the ethical and societal concerns and dilemmas facing information systems professionals and can formulate appropriate solutions and courses of action.
4. Students can work effectively in teams and communicate effectively.