Curriculum - Informatics, BS

Catalog Year: 2026 - 2027 **General Studies Gold**

Degree: Bachelor of Science, BS

College/School: Ira A. Fulton Schools of Engineering

Plan Code: ESCPIBS

Minimum credit hours: 120

Upper division minimum credit hours: 57

Requirement	Minimum Grade	Credit Hours
All major required courses may not be available every term		
Students may select from other focus areas for informatics electives as well as from the additional informatics electives list below.		
Please see our degree requirements website for links to our flowcharts and our most up to date course lists. https://scai.engineering.asu.edu/informatics/informatics-degree-requirements/		

Informatics Lower Division

CSE 110 Principles of Programming	C	3
CSE 205 Object-Oriented Programming and Data Structures	C	3
MAT 243 Discrete Mathematical Structures	C	3
CPI 101 Introduction to Informatics (QTRS)	C	3
CPI 200 Mathematical Foundations of Informatics (MATH)	C	3
CPI 220 Applied Data Structures and Algorithms **OR** **CSE 310 Data Structures and Algorithms**	C	3

Requirement	Minimum Grade	Credit Hours
CPI 221 Advanced Object-Oriented Principles Using Java	C	3
MAT 210 Brief Calculus (MATH) OR MAT 265 Calculus for Engineers I (MATH) OR MAT 251 Calculus for Life Sciences (MATH) OR MAT 270 Calculus with Analytic Geometry I (MATH)	C	3 - 4
MAT 242 Elementary Linear Algebra OR MAT 342 Linear Algebra OR MAT 343 Applied Linear Algebra	C	2

Informatics Upper Division

CSE 300 Ethics for the Information Age (proposed) **AND** Global Communities, Societies, and Individuals (GCSI)	C	3
CSE 463 Introduction to Human Computer Interaction	C	3
CSE 485 Computer Science Capstone Project I	C	3
CSE 486 Computer Science Capstone Project II	C	3
CPI 350 Evaluation of Informatics Systems	C	3
CPI 360 Decision Making and Problem Solving	C	3
CPI 310 Web-Based Information Management Systems	C	3
IEE 305 Information Systems Engineering	C	3

Informatics Focus Area

Upper Division Informatics Focus Area - Data Science	C	15

- CSE 450 Design and Analysis of Algorithms
- CSE 467 Data and Information Security
- CSE 471 Introduction to Artificial Intelligence

Requirement	Minimum Grade	Credit Hours
CSE 475 Foundations of Machine Learning		
CSE 476 Introduction to Natural Language Processing		
DAT 300 Mathematical Tools for Data Science		
DAT 301 Exploring Data in R and Python		
DAT 401 Statistical Modeling and Inference for Data Science		
DAT 402 Machine Learning for Data Science		
OR Upper Division Informatics Focus Area - Digital Culture Studies		
300-Level AME Elective		
400-Level AME Elective		
ART 345 Visualization and Prototyping		
ART 348 Animation Motion Studies		
ART 394 Topic: Digital Photography for Non-Majors		
ART 424 Stop Motion Animation		
ART 440 Experimental Video Art		
ART 494 Topic: Visual Prototyping		
CIS 300 Web Design and Development		
EDT 440 Creating and Marketing Mobile Apps		
MDC 311 Composing and Performing for Hybrid Ensembles		
OR Upper Division Informatics Focus Area - Enterprise Informatics		
IEE 376 Operations Research Deterministic Techniques/Applications **AND** IEE 385 Engineering Statistics: Probability **AND** IEE 470 Stochastic Operations Research **AND** MAT 266 Calculus for Engineers II (MATH)		

Requirement	Minimum Grade	Credit Hours

Select one course from the below list

IEE 461 Production Control IEE 421 Urban Operations Research IEE 426 Operations Research in Healthcare IEE 474 Quality Control IEE 475 Simulating Stochastic Systems (QTRS) IEE 477 System Dynamics and Thinking SCM 300 Global Supply Operations (SUST)

OR **Upper Division Informatics Focus Area - Game Informatics**

Select one course from the below list

CPI 394 Topic: Game Design Fundamentals CPI 411 Graphics for Games CPI 421 3-D Modeling and Texturing CPI 462 Design for Learning in Virtual Worlds FMS 365 Video Games and Narrative

OR **Upper Division Informatics Focus Area - Geo-Informatics**

Select two courses from the below list

ABS 485 GIS in Natural Resources GCU 442 Geographical Analysis of Transportation GIS 202 Drones to Satellites: Observing Earth from Above (QTRS) GIS 222 Programming Principles in GIS I 300-Level GIS Elective 400-Level GIS Elective **AND** Not from GIS 484, GIS 492, GIS 493, GIS 499, GIS 494 "GIS Methods for Non-Majors"

Additional Informatics Electives

Upper Division Additional Informatics Electives

Students may take additional coursework from their selected focus area or any course in another focus area as Informatics Electives in addition to the courses listed below:

AME 394 Topic: Philosophies of Technology

BIO 355 Introduction to Computational Molecular Biology

Requirement	Minimum Grade	Credit Hours
BIO 411 Quantitative Methods in Conservation and Ecology		
CIS 308 Advanced Excel in Business		
CIS 310 Business Data Visualization		
CIS 405 Business Intelligence		
CIS 407 Business Database Systems Development		
CPI 394 Special Topics		
CSE 408 Multimedia Information Systems		
CSE 412 Database Management		
CSE 434 Computer Networks		
CSE 445 Distributed Software Development		
CSE 446 Software Integration and Engineering		
CSE 460 Software Analysis and Design		
CSE 464 Software Quality Assurance and Testing		
CSE 470 Computer Graphics		
CSE 471 Introduction to Artificial Intelligence		
CSE 476 Introduction to Natural Language Processing		
CSE 477 Introduction to Computer-Aided Geometric Design		
CSE 494 Special Topics		
FSE 301 Entrepreneurship and Value Creation		
FSE 404 EPICS Gold: EPICS in Action		
GIT 335 Computer Systems Technology		
GIT 340 Information Design and Usability		
IEE 380 Probability and Statistics for Engineering Problem		

Requirement	Minimum Grade	Credit Hours
Solving (QTRS)		
IEE 385 Engineering Statistics: Probability		
MAE 318 System Dynamics and Control I		
MAE 417 System Dynamics and Control II		
MAT 300 Mathematical Structures		
MAT 342 Linear Algebra **OR** MAT 343 Applied Linear Algebra		
MAT 421 Applied Computational Methods (MATH)		
SER 316 Software Enterprise: Construction and Transition		
SER 334 Operating Systems and System Programming		
SOC 334 Technology and Society (SOBE)		
STS 304 Science, Technology and Society (SOBE)		
TEL 313 Technology in an Educational Setting		
TEL 494 Topic: Introduction to Computer Science for Educators		
TWC 414 Advanced Data Visualization		
TWC 444 User Experience and Usability Research		

AND Students may select from other focus areas for informatics electives as well as from the list below

Informatics Major GPA

Check: Minimum 2.0 Major GPA

Informatics Statistics

GIS 270 Statistics for Geography and Planning	C	3
OR IEE 380 Probability and Statistics for Engineering Problem		

Solving (QTRS)

OR STP 226 Elements of Statistics (QTRS)

OR STP 231 Statistics for Life Science (QTRS)

OR STP 420 Introductory Applied Statistics (QTRS)

ASU 101 or College-Specific First-Year Seminar

ASU 101 or college-specific equivalent First-Year Seminar required of all first-year students.

ASU 101-CAI The ASU Experience	C	1

First-Year Composition

ENG 101 First-Year Composition AND ENG 102 First-Year Composition OR ENG 105 Advanced First-Year Composition OR ENG 107 First-Year Composition AND ENG 108 First-Year Composition	C	6

Notes

All baccalaureate degree students must fulfill university graduation requirements, including a minimum of 120 credit hours, with at least 45 credit hours in upper-division courses.

All undergraduate students must complete General Studies requirements.

Mathematics Placement Assessment score determines placement in first mathematics course.

Students should work with their academic advisor, and consider course prerequisites, in order to complete all degree requirements in four years.

General Studies designations listed next to courses were valid for the 2026 - 2027 academic year. Please refer to the course catalog for current General Studies designations at time of class

registration. General Studies credit is applied according to the designation the course carries at the time the class is taken.