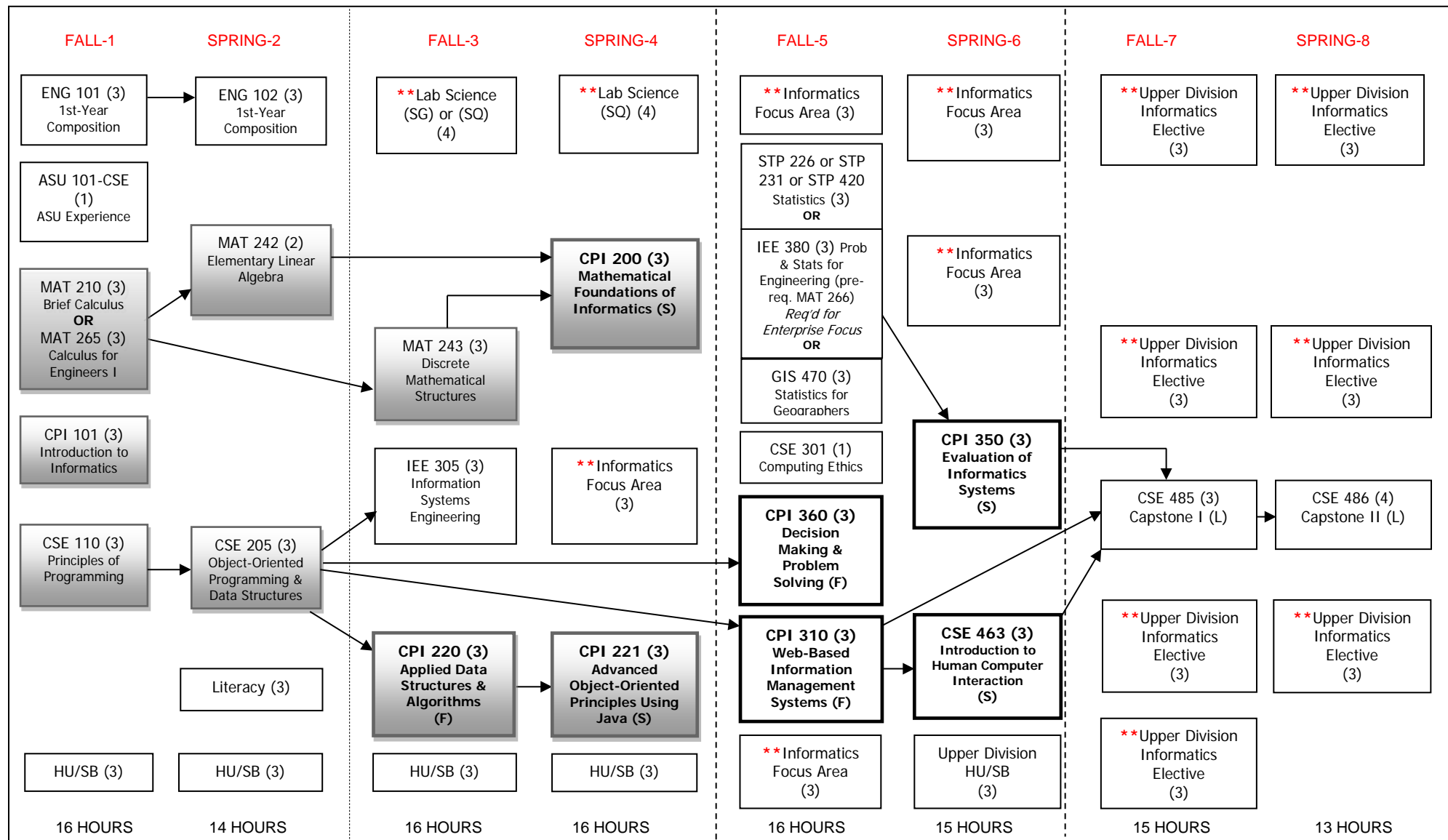


**Informatics, BS**  
**Bachelor of Science, 2019-2020 Catalog Year**  
 ESCPIBS



**Notes:**  
 (\*\*\*) See CIDSE Advising Center or CIDSE Website for approved lab science sequence courses, Informatics electives, or focus area courses.  
<http://cidse.engineering.asu.edu/degree/requirements/bsinform/>

Shaded courses designate critical requirements. Minimum "C" grade required in all CPI and CSE required courses.

**"Bolted" courses are only offered during certain semesters.**

Prerequisite →



### **Term 1**

**MAT 210: Brief Calculus** - Differential and integral calculus of elementary functions with applications. Not open to students with credit in MAT 260 or 270 or 290.

**Or MAT 265: Calculus for Engineers I** - Limits and continuity, differential calculus of functions of one variable, introduction to integration. Not open to students with credit in MAT 270.

**CPI 101: Introduction to Informatics** - Concepts, tools, techniques, and applications of informatics. Includes overview of programming, data management, visualization, modeling, and social implications.

**CSE 110: Principles of Programming** - Concepts of problem solving using Java, algorithm design, structured programming, fundamental algorithms and techniques, and computer systems concepts. Social and ethical responsibility.

**ASU 101-CSE: The ASU Experience**

**ENG 101: First-Year Composition**

**HU/SB:** Humanities, Fine Arts & Design or Social & Behavioral Sciences

### **Term 2**

**MAT 242: Elementary Linear Algebra** - Introduces matrices, systems of linear equations, determinants, vector spaces, linear transformations, and eigenvalues. Emphasizes development of computational skills.

**CSE 205: Object-Oriented Programming & Data Structures** - Problem solving by programming with an object-oriented programming language. Introduces data structures. Overview of computer science topics.

**ENG 102: First-Year Composition**

**Literacy:** General Studies

**HU/SB:** Humanities, Fine Arts & Design or Social & Behavioral Sciences

### **Term 3**

**MAT 243: Discrete Mathematical Structures** - Logic, sets, functions, elementary number theory and combinatorics, recursive algorithms, and mathematical reasoning, including induction. Emphasizes connections to computer science.

**IEE 305: Information Systems Engineering** - Overview of computer and information systems applications. Topics include client/server; distributed computing; networks; process modeling; e-commerce; enterprise applications; Internet.

**CPI 220: Applied Data Structures and Algorithms** - Thorough grounding in applied knowledge and skills related to algorithms and data structures used in the development of software designed to solve complex problems. Overview of computational and critical thinking skills that can be called upon to analyze and solve complex problems in multiple domains.

**Lab Science:** (SG or SQ) - See major map link for options.

**HU/SB:** Humanities, Fine Arts & Design or Social & Behavioral Sciences

### **Term 4**

**CPI 200: Mathematical Foundations of Informatics** - Practical introduction to the mathematics necessary for studies in informatics. Topics include discrete math, analytic geometry, calculus, and linear algebra.

**CPI 221: Advanced Object-Oriented Principles Using Java** - Advanced object oriented programming using the Java language. Design concepts and problem solving.

**Lab Science:** (SQ) - See major map for options

**HU/SB:** Humanities, Fine Arts & Design or Social & Behavioral Sciences

**Informatics Focus Area**

### **Term 5**

**CPI 360: Decision Making & Problem Solving** - Practical use of database systems, computer graphics, and modeling to inform decision making.

**CPI 310: Web-Based Information Management Systems** - Relational database design, entity-relationship modeling, relational algebra, SQL, database access through Web, Web data management, introduction to XML, fundamentals of Web application development, Web server architectures, lecture, in-class lab activities.

**CSE 301: Computing Ethics** - Ethics for computing majors: history of computing, intellectual property, privacy, ethical frameworks, professional ethical responsibilities, and risks of computer-based systems.

**STP 226: Elements of Statistics** - Basic concepts and methods of statistics, including descriptive statistics, significance tests, estimation, sampling, and correlation.

**Or STP 231: Statistics for Biosciences** - Concepts and methods of statistics; display and summary of data, interval estimation, hypothesis testing, correlation, regression. Applications to biological sciences.

**STP 420: Introductory Applied Statistic** - Introductory probability, descriptive statistics, sampling distributions, parameter estimation, tests of hypotheses, chi-square

**Or IEE 380: Probability and Statistics for Engineering Problem Solving** - Applications-oriented course with computer-based experience using statistical software for formulating and solving engineering problems.

**Or GIS 470: Statistics for Geographers** - Statistical techniques applied to the analysis of spatial distributions and relationships. Introduces models and theory in geography.

**Informatics Focus Area**

**Informatics Focus Area**

### **Term 6**

**CPI 350: Evaluation of Informatics Systems** - Methods for evaluation of informatics systems, including design of computational and human experiments, ethnography, and analytic techniques.

**CSE 463: Intro Human Computer Interaction** - Design, evaluate, and implement interactive software intended for human use.

**Informatics Focus Area**

**Informatics Focus Area**

**Upper Division HU/SB:** Humanities, Fine Arts & Design or Social & Behavioral Sciences

### **Term 7**

**CPI 485: Capstone I** - Team-based design of an informatics system; working with clients; development of requirements, use cases, class/object diagrams, and plans for quality assurance and other evaluations; technical communication; teamwork.

**Upper Division Informatics Elective**

**Upper Division Informatics Elective**

**Upper Division Informatics Elective**

**Upper Division Informatics Elective**

### **Term 8**

**CPI 486: Capstone II** - Implementation of the informatics system designed during CPI 485; work processes; keeping designs consistent with implementations; conducting QA and other evaluations; technical communication; teamwork.

**Upper Division Informatics Elective**

**Upper Division Informatics Elective**

**Upper Division Informatics Elective**