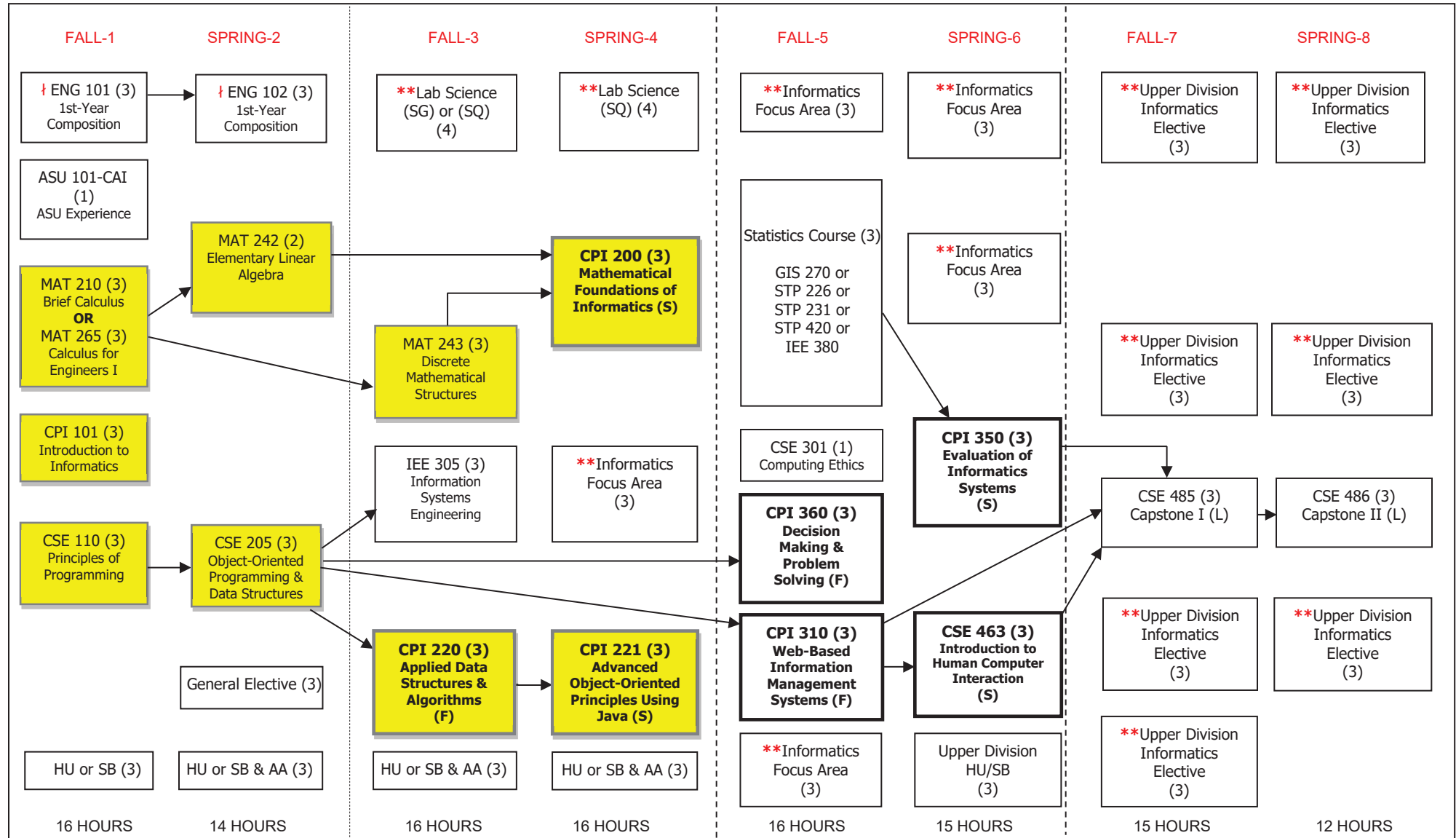# School of Computing & Augmented Intelligence
Informatics, BS (ESCPIBS)
Updated: 2023-2024 Catalog Year Requirements

Name: _____

Student ID#: _____

FALL-1	SPRING-2	FALL-3	SPRING-4	FALL-5	SPRING-6	FALL-7	SPRING-8
ǂ ENG 101 (3) 1st-Year Composition	ǂ ENG 102 (3) 1st-Year Composition	**Lab Science (SG) or (SQ) (4)	**Lab Science (SQ) (4)	**Informatics Focus Area (3)	**Informatics Focus Area (3)	**Upper Division Informatics Elective (3)	**Upper Division Informatics Elective (3)
ASU 101-CAI (1) ASU Experience	MAT 242 (2) Elementary Linear Algebra		CPI 200 (3) Mathematical Foundations of Informatics (S)	Statistics Course (3) GIS 270 or STP 226 or STP 231 or STP 420 or IEE 380	**Informatics Focus Area (3)	**Upper Division Informatics Elective (3)	**Upper Division Informatics Elective (3)
MAT 210 (3) Brief Calculus OR MAT 265 (3) Calculus for Engineers I		MAT 243 (3) Discrete Mathematical Structures					
CPI 101 (3) Introduction to Informatics		IEE 305 (3) Information Systems Engineering	**Informatics Focus Area (3)	CSE 301 (1) Computing Ethics	CPI 350 (3) Evaluation of Informatics Systems (S)	CSE 485 (3) Capstone I (L)	CSE 486 (3) Capstone II (L)
CSE 110 (3) Principles of Programming	CSE 205 (3) Object-Oriented Programming & Data Structures			CPI 360 (3) Decision Making & Problem Solving (F)			
		CPI 220 (3) Applied Data Structures & Algorithms (F)	CPI 221 (3) Advanced Object-Oriented Principles Using Java (S)	CPI 310 (3) Web-Based Information Management Systems (F)	CSE 463 (3) Introduction to Human Computer Interaction (S)	**Upper Division Informatics Elective (3)	**Upper Division Informatics Elective (3)
	General Elective (3)						
HU or SB (3)	HU or SB & AA (3)	HU or SB & AA (3)	HU or SB & AA (3)	**Informatics Focus Area (3)	Upper Division HU/SB (3)	**Upper Division Informatics Elective (3)	
16 HOURS	14 HOURS	16 HOURS	16 HOURS	16 HOURS	15 HOURS	15 HOURS	12 HOURS

NOTES: ǂ International students may take ENG 107 and ENG 108. Students placing in to ENG 105 will replace ENG 101 with a recommended course

** See SCAI Advising Center or SCAI Website (https://scai.engineering.asu.edu/informatics/) for degree requirements, focus area, and electives.

+ Upper division courses may require additional prerequisites. Please check the catalog for specific information.

All prerequisite coursework must be completed prior to taking CSE 485 (CSE 310; CSE 463; CPI 350; ENG 101, 105, or 107)

Shaded courses designate "Critical Requirements" and must be completed as described above to remain on‑track. Off‑track twice students will be required to change their major.

Minimum "C" grade is required in all major courses (see major map for details)

All ASU students must complete required general studies including, 2 lower division HU, 2 lower division SB, one upper division HU or SB and 1 class from each of the 3 Awareness Areas (AA)

Prerequisite ⟶

☐ Cultural   ☐ Global   ☐ Historical

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

General Elective or Awareness Area

HU or SB with Awareness Area: 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 or SB with Awareness Area: 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 or SB with Awareness Area: 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