2024 - 2025 Major Map
Data Science, BS

School/College: The College of Liberal Arts and Sciences
LADATSCIBS

Term 1 - A 0 - 7 Credit Hours Critical course signified by	Hours	Minimum Grade	Notes
ASU 101-LA: The ASU Experience	1		• ASU 101 or college-specific equivalent First-Year Seminar required of all first-year students. • Select your Career Interest Communities and play me3@ASU.
MAT 265: Calculus for Engineers I (MATH OR MA)	3	C	
ENG 101 or ENG 102: First-Year Composition OR ENG 105: Advanced First-Year Composition OR ENG 107 or ENG 108: First-Year Composition	3	C	
Term hours subtotal:	7		

Term 1 - B 7 - 14 Credit Hours Critical course signified by	Hours	Minimum Grade	Notes
CSE 110: Principles of Programming (QTRS OR CS)	3	C	• View ASU Online first-year student registration information here.
Scientific Thinking in Natural Sciences (SCIT)	4		
Term hours subtotal:	7		

Term 2 - A 14 - 20 Credit Hours Critical course signified by	Hours	Minimum Grade	Notes
MAT 266: Calculus for Engineers II (MATH OR MA)	3	C	• Meet with your academic advisor to reflect on your first year of classes and map your coursework towards a timely graduation. • Join a student club or professional organization.
ENG 101 or ENG 102: First-Year Composition OR ENG 105: Advanced First-Year Composition OR ENG 107 or ENG 108: First-Year Composition	3	C	
Term hours subtotal:	6		

Term 2 - B 20 - 29 Credit Hours Critical course signified by	Hours	Minimum Grade	Notes
CSE 205: Object-Oriented Programming and Data Structures (QTRS OR CS)	3	C	• Some upper-division track courses require prerequisites. It is recommended that students consult with their advisors and use electives to complete appropriate course prerequisites.
Humanities, Arts and Design (HUAD)	3		
Elective	3		
Complete ENG 101 OR ENG 105 OR ENG 107 course(s).			
Term hours subtotal:	9		

Term 3 - A 29 - 38 Credit Hours Critical course signified by	Hours	Minimum Grade	Notes

❗	MAT 343: Applied Linear Algebra	3	C	• Minimum grade of C required in all required classes in the major; grade of B or better strongly correlated with timely graduation. • Meet with your academic advisor to discuss summer internship and/or Research Opportunities for Undergraduates (REU).
	DAT 250: Data Science and Society	3	C	
	Elective	3		
	Term hours subtotal:	9		

Term 3 - B 38 - 45 Credit Hours Critical course signified by ❗	**Hours**	**Minimum Grade**	**Notes**
Scientific Thinking in Natural Sciences (SCIT)	4		
Elective	3		
❗ Complete First-Year Composition requirement.			
Complete Mathematics (MATH) requirement.			
Term hours subtotal:	7		

Term 4 - A 45 - 51 Credit Hours Critical course signified by ❗	**Hours**	**Minimum Grade**	**Notes**
❗ DAT 300: Mathematical Tools for Data Science	3	C	• Meet with your academic advisor to discuss options for adding a minor, certificate, or concurrent major to your degree program. • Students must choose and complete a minimum of 21 credit hours in their selected track. Track options are Behavioral Sciences, Biosciences, Business Analytics, Computer Sciences, Mathematics, Social Sciences, or Spatial Sciences. • Some track courses may require additional prerequisites, so students will work with an assigned academic advisor in their track as well as the School of Mathematical and Statistical Sciences to select electives to satisfy necessary prerequisites.
Required Track Courses	3	C	
Term hours subtotal:	6		

Term 4 - B 51 - 57 Credit Hours	**Hours**	**Minimum Grade**	**Notes**
Complete 2 courses: Elective	6		
Term hours subtotal:	6		

Term 5 - A 57 - 64 Credit Hours Necessary course signified by ★	**Hours**	**Minimum Grade**	**Notes**
★ DAT 301: Exploring Data in R and Python	4	C	• Minimum grade of C required in all DAT classes; grade of B or better strongly correlated with timely graduation.
Upper Division Required Track Courses	3	C	

Term hours subtotal:	7	

Term 5 - B 64 - 73 Credit Hours	Hours	Minimum Grade	Notes
Required Track Courses	3	C	
Humanities, Arts and Design (HUAD)	3		
Upper Division Elective	3		
Term hours subtotal:	9		

Term 6 - A 73 - 82 Credit Hours Necessary course signified by ★	Hours	Minimum Grade	Notes
★ DAT 401: Statistical Modeling and Inference for Data Science	3	C	• Minimum grade of C required in all required classes in the major; grade of B or better strongly correlated with timely graduation. • Develop your professional online presence.
Upper Division Required Track Courses	3	C	
Social and Behavioral Sciences (SOBE)	3		
Term hours subtotal:	9		

Term 6 - B 82 - 91 Credit Hours	Hours	Minimum Grade	Notes
Upper Division Required Track Courses	3	C	
Upper Division Science and Society Elective	3	C	
American Institutions (AMIT)	3		
Term hours subtotal:	9		

Term 7 - A 91 - 96 Credit Hours Necessary course signified by ★	Hours	Minimum Grade	Notes
★ DAT 402: Machine Learning for Data Science	3	C	• Minimum grade of C required in all required courses; grade of B or better strongly correlated with timely graduation. • Complete an in person or virtual practice interview.
Upper Division Elective	2		
Term hours subtotal:	5		

Term 7 - B 96 - 105 Credit Hours	Hours	Minimum Grade	Notes
Upper Division Required Track Courses	3	C	
Governance and Civic Engagement (CIVI)	3		
Upper Division Elective	3		
Term hours subtotal:	9		

Term 8 - A 105 - 111 Credit Hours	Hours	Minimum Grade	Notes
Upper Division Elective OR DAT 484: Internship	3		
Global Communities, Societies and Individuals (GCSI)	3		
Term hours subtotal:	6		

Term 8 - B 111 - 120 Credit Hours Necessary course signified by ⭐	Hours	Minimum Grade	Notes
⭐ DAT 490: Data Science Capstone (L) OR Disciplinary Capstone from selected track	3-2	C	• Students pursuing the Spatial Sciences track will complete a two credit hour capstone course; all other tracks require three credits of capstone coursework.
Sustainability (SUST)	3		
Upper Division Elective	3		
Term hours subtotal:	9-8		

- All students pursuing a BS or BSP degree in The College of Liberal Arts and Sciences must complete two courses from the Science and Society list found at https://thecollege.asu.edu/resources/science-society. At least one of the two courses must be upper-division and students must earn a C or better in the courses. Both Science and Society courses (i.e., all six credits) may count towards any major, minor, related fields, and ASU General Studies requirements.
  - Behavioral Sciences Track: In cooperation with an assigned academic advisor, students must complete five required courses from the initial group of courses displayed in the track and one additional required course from the remaining list. Students must also complete three credit hours of DAT 490 or a 400-level disciplinary capstone course drawn from the CDE, FAS, or PSY subject areas.
  - Biosciences Track: Students are required to complete BIO 439, BIO 440, a Bioethics related course from the provided list and three credit hours of DAT 490 Data Science Capstone. An additional three courses (minimum of 9 credit hours) are chosen from the remaining track electives.
  - Business Analytics Track: Students are to complete all courses in the track plus three credit hours of DAT 490 Data Science Capstone.
  - Computer Science Track: In consultation with advisor, students must complete four required courses (12 credit hours) and pick two related courses (6 credit hours). In addition, they must complete three credit hours in the DAT 490 Data Science Capstone.
  - Mathematics Track: Students are to complete MAT 267 and MAT 275. In cooperation with an academic advisor, students must also select four courses from the remaining courses in the track list below. In addition, students need to complete three credit hours in DAT 490 Data Science Capstone.
  - Social Sciences Track: In consultation with an assigned academic advisor, students will select six courses for a minimum of 18 credit hours from the track list below, at least 12 credit hours of which must be upper division. In addition, students must complete three credit hours of DAT 490 Data Science Capstone or a disciplinary-specific capstone course.
  - Spatial Sciences Track: Students must complete six courses listed in the track. In addition, they will complete two credit hours of DAT 490 Data Science Capstone or a 400-level GIS capstone course chosen in consultation with an assigned academic advisor.

Hide Course List(s)/Track Group(s)

Behavioral Sciences Track	Biosciences Track	Business Analytics Track
Complete four courses from list below:	**Complete three courses from list below:**	**Complete all courses below:**
CDE 232: Human Development (SOBE OR SB) or FAS 101: Personal Growth and	BIO 312: Bioethics (HUAD OR HU) or PHI 320: Bioethics (HUAD OR HU) or BIO	CIS 235: Introduction to Information Systems

Relationships (SOBE OR SB) or PSY 101: Introduction to Psychology (SOBE OR SB)

PSY 290: Research Methods (SCIT OR L or SG) or FAS 361: Applied Research Methods (SOBE OR L or SB)

PSY 330: Statistical Methods (QTRS OR CS)

SOC 390: Social Statistics I (QTRS OR CS)

Choose two elective courses from list below:

CDE 312: Adolescence (SOBE OR SB)

CDE 418: Aging and the Life Course (SOBE OR SB & H)

CDE 430: Infant and Toddler Development in the Family (SOBE OR SB)

CDE 450: Childhood Disorders and Family Functioning (L)

FAS 301: Introduction to Parenting

FAS 331: Modern Family Relationships (SOBE OR SB)

FAS 332: Human Sexuality (SOBE OR SB)

PSY 315: Personality Theory and Research (SOBE OR SB)

PSY 320: Learning and Motivation

PSY 324: Memory and Cognition

PSY 341: Developmental Psychology (SOBE OR SB)

PSY 350: Social Psychology (SOBE OR SB)

316: History of Biology: Conflicts and Controversies (HUAD OR H) or HPS 330: History of Biology: Conflicts and Controversies (HUAD OR H) or BIO 317: History of Science II (HUAD OR HU & H) or HPS 323: History of Science II (HUAD OR HU & H) or BIO 318: History of Medicine (HUAD OR HU & H) or HPS 331: History of Medicine (HUAD OR HU & H) or BIO 416: Biomedical Research Ethics (L) or HPS 410: Biomedical Research Ethics (L)

BIO 439: Computing for Research

BIO 440: Functional Genomics or MBB 440: Functional Genomics

Choose three elective courses from list below:

BIO 355: Introduction to Computational Molecular Biology (CS)

BIO 411: Quantitative Methods in Conservation and Ecology

BIO 415: Statistical Models for Biology (QTRS OR CS)

BIO 494: Data Analysis in Neuroscience

BIO 498: Genomics Research Experience

CIS 407: Business Database Systems Development

CIS 409: Business Data Warehouses and Dimensional Modeling

CIS 412: Business Machine Learning

CIS 415: Big Data Analytics in Business

WPC 300: Problem Solving and Actionable Analytics (QTRS)

Computer Science Track

Complete four courses from list below:

CSE 240: Introduction to Programming Languages

CSE 310: Data Structures and Algorithms

CSE 365: Information Assurance

MAT 243: Discrete Mathematical Structures

Choose two elective courses from the list below:

CSE 450: Design and Analysis of Algorithms

CSE 471: Introduction to Artificial Intelligence

CSE 475: Foundations of Machine Learning

Mathematics Track

Complete both courses below:

MAT 267: Calculus for Engineers III (MATH OR MA)

MAT 275: Modern Differential Equations (MATH OR MA)

Choose four elective courses from the list below:

ACT 301: Risk Management and Insurance (SOBE OR SB)

ACT 302: Fundamentals of Enterprise Risk Management

DAT 431: Industry Tools for Data Science

DAT 435: Exploration and Analysis of Environmental Data

DAT 484: Internship

STP 420: Introductory Applied Statistics (QTRS OR CS)

Social Sciences Track

Complete one course from list below:

POS 401: Political Statistics (QTRS OR CS) or SGS 401: Political Statistics (QTRS OR CS)

Choose five elective courses from list below:

ACO 100: All About Data: Design, Query, and Visualization (QTRS OR CS)

ASM 201: Epidemics and Outbreaks

COM 308: Advanced Research Methods in Communication (L)

COM 407: Advanced Critical Methods in Communication

CRJ 303: Statistical Analysis (QTRS OR CS)

ECN 441: Public Economics (CIVI OR SB)

FAS 361: Applied Research Methods (SOBE OR L or SB)

GCU 325: Geography of Europe (GCSI

OR SB & G)

GCU 426: Geography of Russia and Surroundings (SB & G)

MKT 352: Marketing Research (L)

PUP 424: Planning Methods

SGS 305: Empirical Political Inquiry (SOBE OR SB) or POS 301: Empirical Political Inquiry (SOBE OR SB)

SOS 212: Systems, Dynamics and Sustainability (QTRS)

TWC 411: Principles of Visual Communication (L)

Spatial Sciences Track

Complete all four courses below:

GIS 205: Geographic Information Science I (QTRS OR CS)

GIS 211: Geographic Information Science II (QTRS OR CS)

GIS 311: Geographic Information Science III (QTRS OR CS)

GIS 322: Programming Principles in GIS II

Complete one course below:

GIS 469: Multivariate Statistics for Social Sciences

GIS 470: Advanced Statistics for Geography and Planning (QTRS OR CS)

GIS 471: Spatial Statistics for Geography and Planning

Complete one course below:

GIS 202: Drones to Satellites: Observing Earth from Above (QTRS OR CS)

GIS 451: Geodesign and Urban Planning

GIS 494: GIS and Public Health

GIS 494: GIS for Climate Change Science

GIS 494: Landscape Analysis Using GIS

- **Total Hours:** 120
- **Upper Division Hours:** 45 minimum
- University Undergraduate Graduation Requirements

Notes:

Mathematics Placement Assessment score determines placement in first mathematics course.

Please keep in mind that the applicability of a specific transfer course toward an ASU degree program depends on the requirements of the department, division, college or school in which you are enrolled at ASU. Transfer agreements that guarantee the completion of university level requirements do not necessarily meet college and major requirements. Please consult with an advisor for more information.

General Studies designations listed next to courses on the major map were valid for the 2024 - 2025 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.