

# DATA SCIENCE, BS

## Program Description

The Bachelor of Science degree in Data Science is an interdisciplinary program combining a core of Computer Science, Mathematics, and Statistics with concentrations in application fields such as Bioinformatics, Business Analytics, Chemistry Informatics, and health Informatics.

Graduates with a Bachelor of Science in Data Science work in government and public policy, marketing, advertising, and industrial and university research. Graduates will fill one of the nation's largest gaps between demand for job candidates and highly trained professionals.

## Program Learning Outcomes

Upon graduation, majors in Data Science will be equipped to:

- Identify problems that may be solved using data analysis;
- Collect, organize, and validate data relevant to the solution of a problem;
- Extract variables and their characteristics to construct approaches and models;
- Use models and approaches to identify patterns and results;
- Assess results and their limitations to evaluate the developed solutions;
- Present data, models, results, and analysis of solutions;
- Apply Ethical standards in all aspects of the use and analysis of data in their chosen concentration.

## Degree Requirements

Code	Title	Hours
<b>Support Courses</b>		
LIBR 102	Found Info Science/Col Success	2
EVRN 131	Introduction to GIS and GPS	3
<b>Computer Science</b>		
CSCI 105	Intro to Computer Programming	3
CSCI 115	Introduction to Data Science	3
CSCI 121	Principles of Programming	4
CSCI 201	Data Structures and Algorithms	4
CSCI 211	Database Applications	4
CSCI 265	Int to Artificial Intelligence	3
CSCI 342	Adv Programming Techniques	4
CSCI 411	Data Analytics	3
<b>Mathematics</b>		
MATH 151	Calculus I	4
MATH 261	Intro to Numerical Methods	3
MATH 305	Linear Algebra	3
<b>Total Hours</b>		<b>43</b>

Complete one of the following concentrations:

### Bioinformatics

Code	Title	Hours
BIOL 131	General Biology: Cells	4
BIOL 132	General Biology: Organisms	4

BIOL 220	Genetics	4
BIOL 280	Biostatistics	3
BIOL 337	General Ecology	3
BIOL 490	Ind Study in (Discipline)	3-4
BIOL Elective		3-4
CHEM 115	General Chemistry I	5

**Total Hours 29-31**

### Business Analytics

Code	Title	Hours
ACTG 132	Principles of Accounting I	4
ACTG 133	Principles of Accounting II	4
BUSN 121	Introduction to Business	3
BUSN 211	Business Statistics	3
ECON 202	Principles Microeconomics	3
MRKT 281	Marketing Principles/ Strategy	3
MRKT 381	Consumer Behaviors	3
BUSN 466	Business Policy	3

Select one of the following: 3-4

ECON 302	Managerial Economics	
ECON 307	Environmental Economics	
FINC 443	Insurance	
MGMT 371	Operations/Business Analytics	
MRKT 480	Marketing Research	

**Total Hours 29-30**

### Chemistry Informatics

Code	Title	Hours
CHEM 115	General Chemistry I	5
CHEM 116	General Chemistry II	5
CHEM 225	Organic Chemistry I	4
CHEM 231	Quantitative Analysis	4
CHEM 326	Organic Chemistry II	4
CHEM 332	Instrumental Analysis	4
CHEM 351	Introductory Biochemistry	4

Select one of the following: 4-5

CHEM 410	Molecular Spectroscopy	
CHEM 361 & CHEM 363	Physical Chemistry I and Phy Chem Lab:Kinetic/Reac Dy	
CHEM 499	Senior Seminar	1

**Total Hours 35-36**

### Geosystems Modeling

Code	Title	Hours
GEOL 121	Physical Geology	4
GEOL 122	Historical Geology	4
NRES 299	Sophomore Seminar	1
NRES 399	Research Project Design	1
GEOL 495	Senior Project	2
NRES 499	Senior Capstone	1

Select ten credits from the following in consultation with an advisor: 10

GEOL 223	Earth Materials	
GEOL 308	Structural Geology Systems	

GEOL 315	Geoenvironmental Systems
GEOL 322	Geochemical Systems
GEOL 334	Hydrologic Sys: Sur/Grd Water
GEOL 355	Stratigraphy and Sedimentation
GEOL 431	Geophysical Systems
GEOL 440	Technology in Geology
GEOL 450	Geology Seminar I
GEOL 451	Geology Seminar II
<b>Total Hours</b>	<b>23</b>

**General Education:** All LSSU bachelor's degree candidates must complete the LSSU General Education Requirements.

**A minimum of 124 credits (at the 100 level or higher) must be earned for graduation with a cumulative gpa of 2.00 or higher. A gpa of 2.50 or higher is required in your Major and Concentration, and a gpa of 2.00 or higher is required in your General Education Requirements.**

## Health Informatics

Code	Title	Hours
HLTH 101	Intro to Medical Terminology	2
HLTH 150	Introduction to Public Health	3
HLTH 210	Into Hlth Care Concepts/Issues	3
HLTH 235	Healthcare Informatics	2
HLTH 490	Independent Study in Health	2-4
KINS 332	Health Promotions	3
MATH 207	Prin of Statistical Methods	3
PHIL 220	Biomedical Ethics	3
SOCY 266	Medical Sociology	4
<b>Total Hours</b>		<b>25-27</b>

## Robotics

Code	Title	Hours
EGRS 105	Robotics Applications & Trends	1
EGRS 215	Introduction to Robotics	2
EGRS 372	Mobile Robotics	4
EGRS 380	Robotics Technology	2
EGRS 381	Robotics Technology Lab	1
EGRS 430	Sys Integration/Machine Vision	4
EGRS 480	Manufacturing Automation	3
EGRS 481	Manufacturing Automation Lab	1
EGNR 496	Senior Directed Project	3
PHYS 221	Principles of Physics I	4
<b>Total Hours</b>		<b>25</b>

## Spatial Analytics

Code	Title	Hours
EVRN 225	Intermediate GIS	3
EVRN 325	Geospatial Analysis	3
EVRN 355	GIS Programming & Applications	4
EVRN 365	App Geospatial Technologies	4
EVRN 445	Remote Sensing & Spatial Stats	4
NRES 499	Senior Capstone	1
Select one of the following:		3-4
NRES 398 & NRES 497	Plan Experiential Lrn Project and Experiential Learning Project	
NRES 399 & EVRN 495	Research Project Design and Senior Project	
<b>Total Hours</b>		<b>22-23</b>

**Electives to reach 124 credits**