

## Program Map: BS in Data Analytics (College of Sciences and Technology)

Freshman	Fall Courses			Spring Courses			Notes	
	Course	Name	Hours	Course	Name	Hours		
	ENGL 1101 Core Area A1	Composition I Pre-requisite: None	3	ENGL 1102 Core Area A1	Composition II Pre-requisite: ENGL 1101	3		*These courses are meant to fulfill the Area D: <i>Natural Sciences, Mathematics, &amp; Technology</i> requirements.
	MATH 1111 Core Area A2	College Algebra Pre-requisite: None	3	DATA 1501*	Introduction to Data Science Pre-requisite: None	3		
	HUMN 1201 Core Area B	Critical Thinking & Communication Pre-requisite: None	3	DATA 2501**	Fundamentals of Matrix Algebra with Computer Applications Pre-requisite: None	3		
	ARTS 1101 Core Area C	Introduction to Visual Arts Pre-requisite: None	3	Core Area D* Lab Science	Select 1 from the Lab Sciences Courses Pre-requisite: None	4		
	CSCI 1130 or CILS 1130* Core Area D	Computer & its applications Pre-requisite: None	3	PHIL 2010 Core Area C	Introduction to Philosophy Pre-requisite: None	3		
COST/CLAS 1103	COST/CLASS Freshman Year Experience	2						
<b>Fall Milestones</b>			<b>Total</b>	<b>Spring Milestones</b>		<b>Total</b>		
			17			16		

Sophomore	Fall Courses			Spring Courses			Notes	
	Course	Name	Hours	Course	Name	Hours		
	HIST 2111 Area E Social Science Option	U.S. History to the Post-civil War Period† Pre-requisite: None	3	ECON 2105 Area E Social Science Option	Principles of Macro-Economics Pre-requisite: MATH 1111	3		† Alternative: HIST 2112: U.S. History from the Post-Civil War Period to Present
	POLS 1101 Area E Social Science Core	American Government Pre-requisite: None	3	SOCI 1160 Area E Social Science Option	Social Problems Pre-requisite: None	3		
	CILS 2109** Area F – COBA Req.	Introduction to Global Logistics, Transportation & International Business Pre-requisite: None	3	HSEM 2201** Area F –CLASS Req.	Research Method & Statistics Pre-requisite: None	3		**These courses are meant to fulfill Area F: Related to the Majors course requirements (18 credits)
	MATH 1401** Area F	Elementary Statistics Pre-requisite: None	3	DATA 2225** Area F	Introduction to R Programming Pre-requisite: DATA 2501; CSCI/CILS 1130; MATH 1401 or BUSA 2182 or SOCI 2101	3		
	AFRS 1501 Core Area B	Survey of African American Experience Pre-requisite: None	2	DATA 2113** Area F	Introduction to Data Analytics in Transportation and Logistics Pre-requisite: DATA 2501; CSCI 1130	3		
<b>Fall Milestones</b>			<b>Total</b>	<b>Spring Milestones</b>		<b>Total</b>		
Student should know their career track options and discuss with mentors.			14			15		

Junior	Fall Courses			Spring Courses			Notes	
	Course	Name	Hours	Course	Name	Hours		
	DATA 3190 Major Area	Data Visualization Pre-requisite: DATA 2501; CSCI/CILS 1130	3	POLS 3702 /MSCI 3702 Major Area	Introduction to Geographic Information Systems Pre-requisite:	3		‡ 15 credits towards a Career-Path track (3000- and 4000-level courses only). Must be advisor approved. Courses from major electives are highly recommended.
	DATA 3111 Major Area	Applied Statistics for Data Science Pre-requisite: DATA 2501; CSCI/CILS 1130; MATH 1401 or BUSA 2182 or SOCI 2101	3	DATA 3560 Major Area	Big Data Analysis in the Sciences Pre-requisite: BIOL 1107 or CSCI/CILS 1130 or DATA 2501 or ENV5 2401 or MSCI 2010K	3		
	DATA 3113 Major Area	Advanced Data Analytics in Transportation Pre-requisite: DATA 2113	3	CILS 3196 Major Elective	Supply Chain Analytics Pre-requisite: BUSA 2185; MGNT 3165	3		
	DATA 3010 Major Elective	Business Intelligence Pre-requisite: DATA 2501; CSCI/CILS 1130; MATH 1401 or BUSA 2182 or SOCI 2101	3	DATA 3109 Major Area	Introduction to Data Analytics & Mining Pre-requisite: DATA 2501; CSCI/CILS 1130; MATH 1401 or BUSA 2182 or SOCI 2101	3		
	ELEC	General Elective 2000 – 4000 Level	3	ELEC‡	Career-Path Track Elective 3000 – 4000 Level	3		
<b>Fall Milestones</b>			<b>Total</b>	<b>Spring Milestones</b>		<b>Total</b>		
			15			15		

Senior	Fall Courses			Spring Courses			Notes	
	Course	Name	Hours	Course	Name	Hours		
	DATA 3823 Major Elective	Data Analytics for Homeland Security and Emergency Management Decision Pre-requisite: MATH 1401 or HSEM 2201	3	ELEC	General Elective 2 2000 – 4000 Level	1		§ Alternative: POLS 3301; Research Methods in Political Science. Pre-requisite: POLS 1101 and POLS 2101
	DATA 4025 Major Area	Introduction to Machine Learning Pre-requisite: DATA 2501; CSCI/CILS 1130; MATH 1401 or BUSA 2182 or SOCI 2101	3	MSCI 3901§	Technical Writing and Seminar Pre-requisite: ENGL 1102	3		
	ELEC‡	Career-Path Track Elective 3000 – 4000 Level	3	ELEC‡	Career-Path Track Elective 3000 – 4000 Level	3		Does this Degree Program Require a Minor? <b>No</b>
	ELEC‡	Career-Path Track Elective 3000 – 4000 Level	3	ELEC‡	Career-Path Track Elective 3000 – 4000 Level	3		
	CILS 4137 Major Area	Database Design & Implementation Pre-requisite: CILS 2130	3	DATA 4902 Major Area	Senior Research/Internship in Data Analytics Pre-requisite: DATA 3109/DATA 3560/DATA 3190	3		Total Hours Required for this Degree Program: <u>120</u>
<b>Fall Milestones</b>			<b>Total</b>	<b>Spring Milestones</b>		<b>Total</b>		
			15			13		

## Core Curriculum – Program preferred options are in bold

### Area A1 – Communication Skills 6 Credit Hours

- i. ENGL 1101 English Composition I 3 hours
- ii. ENGL 1102 English Compositions II 3 hours

### Area A2 – Quantitative Skills 3 Credit Hours

- i. MATH 1111 College Algebra or  
MATH 1101 Quantitative Reasoning or  
MATH 1401 Elementary Statistics

### Area B – Institutional Options 5 Credit Hours

- i. AFRS 1501 Survey of African American Experience 2 hours
- ii. HUMN 1201 Critical Thinking and Communications 3 hours

### Area C – Humanities/Fine Arts and Ethics 6 Credit Hours

#### 1. Select one of the following:

- i. ENGL 2111 World Literature I 3 hours
- ii. ENGL 2121 British Literature I 3 hours
- iii. ENGL 2122 British Literature II 3 hours
- iv. ENGL 2131 American Literature I 3 hours
- v. ENGL 2132 American Literature II 3 hours
- vi. ENGL 2132 American Literature II 3 hours
- vii. **PHIL 2010 Introduction to Philosophy 3 hours**
- viii. PHIL 2030 Introduction to Ethics 3 hours

#### 2. Select one of the following:

- i. **ARTS 1101 Introduction to Visual Art 3 hours**
- ii. ENGL 2521 Introduction to Film Appreciation 3 hours
- iii. MUSC 1101 Introduction to Music 3 hours
- iv. THEA 2101 Introduction to Theatre 3 hours
- v. HUMN 2011 Humanities 3 hours

### Area D – Natural Science, Math & Technology 10 Credit Hours

#### 1. Select two of the following: 6 Credits Hours

- i. **DATA 1501 Introduction to Data Science 3 hours**
- ii. **CILS/CSCI 1130 Computer Applications 3 hours**
- iii. CSCI 1301 Computer Science I 3 hours

#### 2. Select one of the Following Lab Sciences: 4 Credit Hours

- i. BIOL 1103/1103L General Biology 4 hours
- ii. BIOL 1104/1104L Human Biology 4 hours
- iii. CHEM 1101K Introductory Chemistry 4 hours
- iv. ISCI 1111K Integrated Science 4 hours
- v. MSCI 1501K Introduction to Marine Biology 4 hours
- vi. PHYS 1111K Introductory Physics I 4 hours
- vii. GEOL 1011K Introduction to Geology 4 hours
- viii. GEOL 1121K Introduction to Geoscience 4 hours

### Area E – Social Science 12 Credit Hours

- i. POLS 1101 American Government 3 hours

#### 1. Select one of the following

- i. HIST 2111 U.S. History to the Post-Civil War Period 3 hours
- ii. HIST 2112 U.S. History from the Post-Civil War to Present 3 hours

#### 2. Select two of the following: 6 Credits Hours

- i. AFRS 2000 Introduction to African Studies 3 hours
- ii. ANTH 1101 Introduction to Anthropology 3 hours
- iii. **ECON 2105 Principles of Macro-Economics 3 hours**
- iv. GEOG 1101 Introduction to Human Geography 3 hours
- v. HIST 1111 World History to Early Modern Times 3 hours
- vi. HIST 1112 World History from Early Modern Times to Present 3 hours
- vii. POLS 2401 Global Issues 3 Hours
- viii. PSYC 1101 Intro to General Psychology 3 hours
- ix. PSYC 2103 Human Growth and Development 3 hours
- x. SOCI 1101 Introduction to Sociology 3 hours
- xi. **SOCI 1160 Social Problems 3 hours**

## Area F – Related to Majors 18 Credit Hours

- i. DATA 2501 Fundamentals of Matrix Algebra with Computer Applications 3 hours
- ii. **MATH 1401 Elementary Statistics\*\* or**  
BUSA 2182 Introduction to Business Statistics  
(\* If MATH 1401 was taken for Area A2, then  
HSEM 2201 or SOCI 2101 should be taken) 3 hours
- iii. CLASS Requirement: SOCI 1101 or **HSEM 2201 or** BEHV 1101  
3 hours
- iv. COST Requirement: DATA 2225 Introduction to R Programming  
3 hours
- v. COBA Requirement: **CILS 2109 or** BUSA 2185 or ECON 2105 or  
ACCT 2101 or CILS 2130 3 hours
- vi. DATA 2113 Introduction to Data Analytics in Transportation and  
Logistics 3 hours

## Major Area Courses – Common Curriculum 27 Credit Hours

- i. POLS/MSCI 3702 Intro. to Geographic Information Systems 3 hours
- ii. DATA/ENGT 3190 Data Visualization 3 hours
- iii. DATA/MSCI 3560 Big Data Analysis in the Sciences 3 hours
- iv. DATA/CILS 3109 Introduction to Data Analytics and Mining 3 hours
- v. DATA/CILS 3111 Applied Statistics for Data Science 3 hours
- vi. DATA 4025 Introduction to Machine Learning 3 hours
- vii. DATA/CIVT 3113 Advanced Data Analytics in Transportation 3 hours
- viii. DATA 4902 Senior Research/Internship in Data Analytics 3 hours
- ix. CILS 4137 Database Design and Implementation 3 hours

## Major Electives – Choose 3 from the following 9 Credit Hours

- i. **DATA/HSEM 3823 Data Analytics for Homeland Security and  
Emergency Management Decision Making 3 hours**
- ii. DATA/MATH 3115 Mathematical Data Analytics 3 hours
- iii. MATH 3000 Introduction to Bio-Statistics 3 hours
- iv. MKTG 3175 Principles of Marketing 3 hours
- v. MKTG 3179 Global Electronic Business 3 hours
- vi. CILS 3325 Data Communication and Computer Networks 3 hours
- vii. DATA/HSEM 4301 Urban Data Analytics and Visualization 3 hours
- viii. MKTG 4179 International Marketing 3 hours
- ix. MKTG 4116 Marketing Research 3 hours
- x. FINC 3155 Business Finance 3 hours
- xi. MGNT 3165 Management of Organizations 3 hours
- xii. MGNT 3185 Operations Management 3 hours
- xiii. BUSA 4126 Business Policy 3 hours
- xiv. BUSA 3145 Global Business Issues 3 hours
- xv. **CILS 3196 Supply Chain Analytics 3 hours**
- xvi. **DATA/CILS 3010 Business Intelligence 3 hours**
- xvii. POLS 3813 Introduction to Urban Planning 3 hours

## Select one of the following 3 Credit Hours

- i. **MSCI 3901 Technical Writing and Seminar or**
- ii. POLS 3301 Research Methods in Political Science 3 hours

## 15 Credit Hours towards a Career-Path Track by selecting courses from any major\*\*\* offered at SSU

- Courses must be from 3000/4000 level
- Must be advisor approved
- Classes from major elective courses are highly recommended.

\*\*\*The current focus of the program is Global Logistics and Supply Chain Analysis.

## General Electives 4 Credit Hours

- Courses must be from 2000/4000 level

## Total Semester Credit Hours: 120 Hours