# 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 Area C | Composition I Pre-requisite: None | 3 | ENGL 1102 Area C | Composition II Pre-requisite: ENGL 1101 | 3 | *These courses are meant to fulfill the *Area T: Technology, Mathematics & Sciences* requirements. |
| DATA 1501* Area T | Introduction to Data Science Pre-requisite: None | 3 | MATH 1111 Area M | College Algebra Pre-requisite: None | 3 | |
| HUMN 1201 Area I | Critical Thinking & Communication Pre-requisite: None | 3 | DATA 2501** Field of Study | Fundamentals of Matrix Algebra with Computer Applications Pre-requisite: None | 3 | |
| ARTS 1101 Area A | Introduction to Visual Arts Pre-requisite: None | 3 | Core Area T* Lab Science | Select 1 from the Lab Sciences Courses Pre-requisite: None | 4 | |
| CSCI 1130 or CILS 1130* Area T | Computer & its applications Pre-requisite: None | 3 | PHIL 2010 Area A | Introduction to Philosophy Pre-requisite: None | 3 | |
| COST/CLAS 1103 | COST/CLASS Freshman Year Experience | 2 | | | | |
| **Fall Milestones** | | **Total** | **Spring Milestones** | | **Total** | |
| | | 17 | | | 16 | |

## Sophomore

| Fall Courses | | | Spring Courses | | | Notes |
|---|---|---|---|---|---|---|
| **Course** | **Name** | **Hours** | **Course** | **Name** | **Hours** | |
| HIST 2111 Area P | U.S. History to the Post-civil War Period† Pre-requisite: None | 3 | ECON 2105 Area P | 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 P | American Government Pre-requisite: None | 3 | SOCI 1160 Area P | Social Problems Pre-requisite: None | 3 | |
| CILS 2130** Field of Study – COBA Req. | Business Information Systems Pre-requisite: CILS 1130 or CSCI 1130 | 3 | HSEM 2201** Field of Study – CLASS Req. | Research Method & Statistics Pre-requisite: None | 3 | **These courses are meant to fulfill *Field of Study* requirements (18 credits) |
| MATH 1401** Field of Study | Elementary Statistics Pre-requisite: None | 3 | DATA 2225** Field of Study – COST Req. | Introduction to R Programming Pre-requisite: DATA 2501; CSCI/CILS 1130; MATH 1401 or BUSA 2182 or SOCI 2101 | 3 | |
| AFRS 1501 Area I | Survey of African American Experience Pre-requisite: None | 2 | DATA 2113** Field of Study | Introduction to Data Analytics in Transportation and Logistics Pre-requisite: DATA 2501; CSCI 1130 | 3 | |
| **Fall Milestones** | | **Total** | **Spring Milestones** | | **Total** | |
| Student should know their career track options and discuss with mentor. | | 14 | Student should have completed a research experience relevant to their career track. | | 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 ENVS 2401 or MSCI2010K | 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 | |
| **Fall Milestones** | | **Total** | **Spring Milestones** | | **Total** | |
| | | 15 | Student should have completed an internship or research experience relevant to their career track. | | 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 ProgramRequire a Minor? No |
| 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 thisDegree Program: 120 |
| **Fall Milestones** | | **Total** | **Spring Milestones** | | **Total** | |
| Application completed for further graduate/professional studies relevant to your career track. | | 15 | Job applications and/or additional grad/professional program applications. | | 13 | |

## Core Curriculum – Program preferred options are in bold

### Area C – Communicating in Writing            6 Credit Hours
i.  ENGL 1101 English Composition I     3 hours
ii. ENGL 1102 English Compositions II    3 hours

### Area M – Mathematics & Quantitative Skills     3 Credit Hours
i.  MATH 1111 College Algebra **or**
    MATH 1101 Quantitative Reasoning **or**
    MATH 1401 Elementary Statistics

### Area I – Institutional Priority            5 Credit Hours
i.  AFRS 1501 Survey of African American Experience 2 hours
ii. HUMN 1201 Critical Thinking and Communications 3 hours **or**
    POLS 2401 Global Issues 3 Hours **or**
    AFRS 2000 Introduction to Africana Studies 3 hours

### Area A – Arts, Humanities & Ethics          6 Credit Hours
Select two of the following:

i.    ENGL 2111 World Literature I   3 hours
ii.   ENGL 2112 World Literature II   3 hours
iii.  ENGL 2121 British Literature I   3 hours
iv.   ENGL 2122 British Literature II   3 hours
v.    ENGL 2131 American Literature I   3 hours
vi.   ENGL 2132 American Literature II   3 hours
vii.  ENGL 2140 African American Literature 3 hours
viii. ENGL 2521 Introduction to Film Appreciation 3 hours
ix.   **ARTS 1101 Introduction to Visual Art 3 hours**
x.    HUMN 2011 Humanities 3 hours
xi.   MUSC 1101 Introduction to Music 3 hours
xii.  THEA 2101 Introduction to Theatre 3 hours
xiii. DNCE 2010 Dance Appreciation
xiv.  **PHIL 2010 Introduction to Philosophy 3 hours**
xv.   PHIL 2030 Introduction to Ethics 3 hours

### Area T – Technology, Mathematics & Sciences   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 or**
        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 P – Political Sciences & U. S. History  6 Credit Hours
i.  POLS 1101 American Government 3 hours
ii. HIST 2111 U.S. History to the Post-Civil War Period 3 hours **or**
    HIST 2112 U.S. History from the Post-Civil War to Present 3 hours

### Area S – Social Sciences              6 Credit Hours
Select two of the following
i.    AFRS 2000 Introduction to Africana 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**

### Freshman Year Experience 2 Credit Hours
Select one of the following

i.  CLAS 1103 Freshman Year Experience 2 hours
ii. COST 1103 Freshman Year Experience 2 hours

### Area Field of Study                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 M, 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 2130** *or* BUSA 2185 *or* ECON 2105 *or* ACCT 2101 *or* CILS 2109 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*
    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