

Program Change Request

Date Submitted: 12/22/21 2:05 pm

Viewing: **DTSCBS-GSDA : Data Science:**

Geospatial Data Analytics Concentration

Last approved: 05/18/21 6:52 pm

Last edit: 01/06/22 1:19 pm

Changes proposed by: schubert

Catalog Pages Using

this Program

[Data Science B.S. with Geospatial Data Analytics Concentration](#)

[Data Science \(DTSC\)](#)

Submitter: User ID: schubert Phone: 5-2264

Program Status Active

Academic Level Undergraduate

Type of proposal Concentration

Select a reason for this modification

Making Minor Changes to an Existing Certificate or Degree (e.g. changing 15 or fewer hours, changing admission/graduation requirements, adding/changing Focused Study or Track)

Effective Catalog Year Fall 2022

College/School Code
College of Engineering (ENGR)

Department Code
Department of Engineering Dean (ENGD)

Program Code DTSCBS-GSDA

Degree Bachelor of Science

CIP Code

In Workflow

1. ENGR Dean Initial
2. Director of Curriculum Review and Program Assessment
3. Registrar Initial
4. Institutional Research
5. ENGD Chair
6. ENGR Curriculum Committee
7. ENGR Faculty
8. ENGR Dean
9. ARSC Dean
10. WCOB Dean
11. Global Campus
12. Provost Review
13. University Course and Program Committee
14. Faculty Senate
15. Provost Final
16. Registrar Final
17. Catalog Editor Final

Approval Path

1. 12/23/21 2:24 pm
Kevin Hall (kdhall):
Approved for ENGR
Dean Initial
2. 01/05/22 1:09 pm
Alice Griffin
(agriffin): Approved
for Director of

- Curriculum Review
and Program
Assessment
3. 01/06/22 1:24 pm
Gina Daugherty
(gdaugher):
Approved for
Registrar Initial
 4. 01/06/22 3:51 pm
Doug Miles
(dmiles): Approved
for Institutional
Research
 5. 01/20/22 1:11 pm
Kevin Hall (kdhall):
Approved for ENGD
Chair
 6. 01/20/22 1:16 pm
Manuel Rossetti
(rossetti): Approved
for ENGR
Curriculum
Committee
 7. 01/20/22 3:21 pm
Kevin Hall (kdhall):
Approved for ENGR
Faculty
 8. 01/20/22 3:41 pm
Kevin Hall (kdhall):
Approved for ENGR
Dean
 9. 01/20/22 4:10 pm
Jeannie Hulen
(jhulen): Approved
for ARSC Dean
 10. 01/25/22 11:18 am
Karen Boston
(kboston):
Approved for WCOB
Dean

- 11. 01/25/22 11:22 am
Suzanne Kenner
(skenner): Approved
for Global Campus
- 12. 02/02/22 8:44 am
Ketevan
Mamiseishvili
(kmamisei):
Approved for
Provost Review
- 13. 02/28/22 4:52 pm
Alice Griffin
(agriffin): Approved
for University
Course and Program
Committee

History

- 1. May 7, 2020 by Lisa
Kulczak (lkulcza)
- 2. May 8, 2020 by
Charlie Alison
(calison)
- 3. May 18, 2021 by
Karl Schubert
(schubert)

30.3001 - Computational Science.

Program Title

Data Science: Geospatial Data Analytics Concentration

Program Delivery

Method

On Campus

Is this program interdisciplinary?

Yes

College(s)/School(s)

College/School Name
College of Engineering (ENGR)

College/School Name
Fulbright College of Arts and Sciences (ARSC)
Walton College of Business (WCOB)

Does this proposal impact any courses from another College/School?

No

What are the total hours needed to complete the program? 21

Program Requirements and Description

Requirements

Required Geospatial Data Analytics Concentration Courses

GEOS 3543	Geospatial Applications and Information Science	3
GEOS 3553	Spatial Analysis Using ArcGIS	3
GEOS 3563	Geospatial Data Mining	3
GEOS 3593	Introduction to Geodatabases	3
GEOS 4263	Geospatial Data Science - Sources and Characteristics	3
GEOS 4653	GIS Analysis and Modeling	3
Elective Geospatial Data Analytics Concentration Courses (Select 3 hours)		3
GEOS 3023	Introduction to Cartography	
GEOS 3213	Principles of Remote Sensing	
GEOS 4133	Radar Remote Sensing	
GEOS 4503	Advanced Cartographic Techniques & Production	
GEOS 4553	Introduction to Raster GIS	
GEOS 4593	Introduction to Global Positioning Systems and Global Navigation Satellite Systems	
Total Hours		21

8-Semester Plan

Data Science B.S. with Geospatial Data Analytics Concentration

Eight-Semester Program

FIRST Year	Units	
	Fall	Spring
MATH 2554 Calculus I (ACTS Equivalency = MATH 2405) (Satisfies General Education Outcome 2.1)	1	4
State Minimum Core Natural Science Elective with Lab (Satisfies General Education Outcome 3.4)	4	
ENGL 1013 Composition I (ACTS Equivalency = ENGL 1013) (Satisfies General Education Outcome 1.1)		3
State Minimum Core Social Sciences Elective (Satisfies General Education Outcomes 3.2 and 3.3)	3	-
DASC 1001 Introduction to Data Science		1
DASC 1104 Programming Languages for Data Science		4
MATH 2564 Calculus II (ACTS Equivalency = MATH 2505)		4
ECON 2143 Basic Economics: Theory and Practice (Satisfies General Education Outcome 3.3)	3	
ENGL 1033 Technical Composition II (ACTS Equivalency = ENGL 1023) (Satisfies General Education Outcome 1.2)		3
DASC 1204 Introduction to Object Oriented Programming for Data Science		4
DASC 1222 Role of Data Science in Today's World		2
State Minimum Core Natural Science Elective with Lab (Satisfies General Education Outcome 3.4)	-	4
Year Total:	16	16

Second Year	Units	
	Fall	Spring
DASC 2594 Multivariable Math for Data Scientists		4
INEG 2313 Course INEG 2313 Not Found	4	3
or STAT 3013 Introduction to Probability		
DASC 2213 Data Visualization and Communication		3
DASC 2113 Principles and Techniques of Data Science		3
GEOS 3543 Geospatial Applications and Information Science	3	-
GEOS 3563 Geospatial Data Mining	3	-
State Minimum Core Fine Arts Elective (Satisfies General Education Outcome 3.1)	2	3
SEVI 2053 Business Foundations (Data Science Majors-only section)		3
State Minimum Core U.S. History or Government Elective (Satisfies General Education Outcome 4.2)	-	3
INEG 2333 Applied Probability and Statistics for Engineers II	4	3
or STAT 3003 Statistical Methods		
DASC 2103 Data Structures & Algorithms		3
DASC 2203 Data Management and Data Base		3
INEG 2313 Course INEG 2313 Not Found	-	3
or STAT 3013 Introduction to Probability		
GEOS 3543 Geospatial Applications and Information Science		3
Year Total:	16	15

Third Year	Units	
	Fall	Spring

<u>PHIL 3103</u> Ethics and the Professions (Satisfies General Education Outcome 5.1)	3
<u>DASC 3103</u> Cloud Computing and Big Data	3
INEG 2333 Applied Probability and Statistics for Engineers II	3 -
or STAT 3003 Statistical Methods	
<u>GEOS 3553</u> Spatial Analysis Using ArcGIS	3
GEOS 3593 Introduction to Geodatabases	3 -
State Minimum Core Natural Science Elective with Lab (Satisfies General Education Outcome 3.4)	4
State Minimum Core Social Sciences Elective (Satisfies General Education Outcomes 3.2 and 3.3)	2
<u>DASC 3203</u> Optimization Methods in Data Science	3
<u>DASC 3213</u> Statistical Learning	3
ECON 2143 Basic Economics: Theory and Practice (Satisfies General Education Outcome 3.3)	- 3
Geospatial Data Analytics Elective	- 3
State Minimum Core Natural Science Elective with Lab (Satisfies General Education Outcome 3.4)	- 4
<u>GEOS 3593</u> Introduction to Geodatabases	3
State Minimum Core U.S. History or Government Elective (Satisfies General Education Outcome 4.2)	2
State Minimum Core Social Sciences Elective (Satisfies General Education Outcomes 3.3 and 4.1)	2
Year Total:	16 15

Fourth Year	Units
	FallSpring
<u>DASC 4892</u> Data Science Practicum I	2
<u>DASC 4113</u> Machine Learning	3
<u>DASC 4123</u> Social Problems in Data Science and Analytics	3
GEOS 4653 GIS Analysis and Modeling	3 -
State Minimum Core Fine Arts Elective (Satisfies General Education Outcome 3.1)	3 -
<u>GEOS 3563</u> Geospatial Data Mining	3
<u>GEOS 4263</u> Geospatial Data Science - Sources and Characteristics	3
<u>DASC 4993</u> Data Science Practicum II (Satisfies General Education Outcome 6.1)	3
<u>GEOS 4653</u> GIS Analysis and Modeling	3
Geospatial Data Analytics Concentration Elective	3
State Minimum Core Social Sciences Elective (Satisfies General Education Outcomes 3.3 and 4.1)	- 3
GEOS 4263 Geospatial Data Science - Sources and Characteristics	- 3
General Elective	3
Year Total:	14 12

Total Units in Sequence: 120

1 Students have demonstrated successful completion of the learning indicators identified for learning outcome 2.1, by meeting the prerequisites for MATH 2554.

2 Students must complete the State Minimum Core requirements as outlined in the Catalog of Studies. The courses that meet the state minimum core also fulfill many of the university's General Education

[requirements](#), although there are additional considerations to satisfy the general education learning outcomes. Students are encouraged to consult with their academic adviser when making course selections.

3 Students are required to complete 40 hours of upper-division courses (3000-4000 level). It is recommended that students consult with their adviser when making course selections.

4 Data Science Statistics and Computational Analytics Concentration students are advised to select [STAT 3013/STAT 3003](#) to meet the prerequisites required in the concentration.

Are Similar Programs available in the area?

No

Estimated Student Demand for Program See DTSCBS PLAN

Scheduled Program Review Date See DTSCBS PLAN

Program Goals and Objectives

Program Goals and Objectives

See DTSCBS PLAN

Learning Outcomes

Learning Outcomes

See DTSCBS PLAN

Description and justification of the request

Description of specific change	Justification for this change
Corrections were made to match the original Program-wide 8-semester plan.	Ensuring the Data Science Program cohorts are cohesive and managing student advising in the original Program-wide 8-semester plan.

Upload attachments

Reviewer Comments

Gina Daugherty (gdaugher) (01/06/22 1:19 pm): Adjusted inline course references.