Date Submitted: 03/03/21 4:54 pm

Viewing: DTSCBS-GSDA : Data Science: Geospatial Data Analytics Concentration

Last approved: 05/08/20 12:50 pm

Last edit: 03/10/21 3:09 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** ~~kboston~~ Phone: **5-2264** ~~5-4622~~

Program Status Active

Academic Level Undergraduate

Type of proposal Concentration

Select a reason for this modification

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

Effective Catalog Year Fall 2021

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 Program Assessment and Review**
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. Provost's Office--Notification of Approval
17. Registrar Final
18. Catalog Editor Final

Approval Path

1. 03/04/21 12:29 pm Norman Dennis (ndennis): Approved for ENGR Dean Initial
2. 03/08/21 9:51 am Alice Griffin (agriffin): Approved

for Director of Program Assessment and Review
3. 03/10/21 3:09 pm Lisa Kulczak (lkulcza): Approved for Registrar Initial
4. 03/10/21 3:39 pm Gary Gunderman (ggunderm): Approved for Institutional Research
5. 03/10/21 3:58 pm Norman Dennis (ndennis): Approved for ENGD Chair
6. 03/10/21 5:06 pm Manuel Rossetti (rossetti): Approved for ENGR Curriculum Committee
7. 03/10/21 5:54 pm Norman Dennis (ndennis): Approved for ENGR Faculty
8. 03/10/21 5:56 pm Norman Dennis (ndennis): Approved for ENGR Dean
9. 03/10/21 9:15 pm Jeannie Hulen (jhulen): Approved for ARSC Dean
10. 03/16/21 2:42 pm Karen Boston (kboston):

Approved for WCOB Dean
11. 03/16/21 2:43 pm Suzanne Kenner (skenner): Approved for Global Campus
12. 03/29/21 11:14 am Terry Martin (tmartin): Approved for Provost Review

History

1. May 7, 2020 by Lisa Kulczak (lkulcza)
2. May 8, 2020 by Charlie Alison (calison)

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)
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 21

complete the program?

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	
ENGL 1013 Composition I (ACTS Equivalency = ENGL 1013) (Satisfies General Education Outcome 1.1)	3	
~~University Core Social Science~~	~~3~~	-
State Minimum Core Social Sciences Elective (Satisfies General Education Outcomes 3.2 and 3.3)2	**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

~~MATH 2564 Calculus II (ACTS Equivalency = MATH 2563)~~	~~4~~
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
~~Choose one of the following (recommend ENGL 1033)~~	~~3~~
ENGL 1033 Technical Composition II (ACTS Equivalency = ENGL 1023) (Satisfies General Education Outcome 1.2)	3
~~ENGL 1023 Composition II (ACTS Equivalency = ENGL 1023)~~	
Year Total:	15 17

Second Year	Units	
	Fall	Spring
DASC 2594 Multivariable Math for Data Scientists	4	
~~DASC 2103 Data Structures & Algorithms~~	~~3~~	~~-~~
DASC 2113 Principles and Techniques of Data Science	3	
GEOS 3543 Geospatial Applications and Information Science	3	
GEOS 3563 Geospatial Data Mining	3	
DASC 2213 Data Visualization and Communication	**3**	
DASC 2203 Data Management and Data Base		3
~~DASC 2213 Data Visualization and Communication~~	~~-~~	~~3~~
INEG 2313 Applied Probability and Statistics for Engineers I		3
or STAT 3013 Introduction to Probability		
DASC 2103 Data Structures & Algorithms		**3**
MGMT 2053 Business Foundations		3
State Minimum Core U.S. History or Government Elective (Satisfies General Education Outcome 4.2)		3
Year Total:	16	15

Third Year	Units	
	Fall	Spring
PHIL 3103 Ethics and the Professions (Satisfies General Education Outcome 5.1)	3	
DASC 3103 Cloud Computing and Big Data	3	
INEG 2333 Applied Probability and Statistics for Engineers II	3	
or STAT 3003 Statistical Methods		
GEOS 3553 Spatial Analysis Using ArcGIS	3	
GEOS 3593 Introduction to Geodatabases	3	
DASC 3203 Optimization Methods in Data Science		3
DASC 3213 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
Year Total:	15	16

Fourth Year	Units Fall	Spring
DASC 4892 Data Science Practicum I	2	
DASC 4113 Machine Learning	3	
DASC 4123 Social Problems in Data Science and Analytics	3	
GEOS 4653 GIS Analysis and Modeling	3	
~~University Core Fine Arts Elective~~	~~3~~	-
State Minimum Core Fine Arts Elective (Satisfies General Education Outcome 3.1)3	**3**	
DASC 4993 Data Science Practicum II (Satisfies General Education Outcome 6.1)		3
General Education Elective		3
~~University Core Social Science Elective~~	-	~~3~~
State Minimum Core Social Sciences Elective (Satisfies General Education Outcomes 3.3 and 4.1)4		**3**
GEOS 4263 Geospatial Data Science - Sources and Characteristics		3
Year Total:	14	12

Total Units in Sequence: 120

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

2The Social Science Elective courses which satisfy General Education Outcomes 3.2 and 3.3 include: HIST 1113, HIST 1113H, HIST 1123, HIST 1123H, HIST 2003, or HIST 2013. Note, courses cannot be counted twice in degree requirements.

3The Fine Arts Elective courses which satisfy General Education Outcome 3.1 include: ARCH 1003, ARHS 1003, COMM 1003, DANC 1003, LARC 1003, MLIT 1003, MLIT 1003H, MLIT 1013, MLIT 1013H, MLIT 1333, THTR 1003, THTR 1013, or THTR 1013H.

4The Social Sciences Elective courses which satisfy General Education Outcomes 3.3 and 4.1 include: ANTH 1023, COMM 1023, HDFS 1403, HDFS 2413, HIST 1113, HIST 1113H, HIST 1123, HIST 1123H, HIST 2093, HUMN 1114H, HUMN 2114H, INST 2013, INST 2813, INST 2813H, PLSC 2013, PLSC 2813, PLSC 2813H, RESM 2853, SOCI 2013, SOCI 2013H, or SOCI 2033.

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

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
Revised formatting of the eight semester degree plan. Inserted the General Education language. Also added footnotes and hyper-linked courses for access to course details.	To provide consistency with the General Education curriculum language. Footnotes provides list of courses that specifically meets each General Education Outcome on behalf of the college. Changes to the English requirement needs campus approval.AG
Exchanged Fall <--> Spring for DASC 2103 and DASC 2213.	Moved to provide training on visualization and communication earlier in the sequence.

Upload attachments

Reviewer Comments

Alice Griffin (agriffin) (03/08/21 9:51 am): ATTENTION: Due to changes to the English requirement, this minor program change will require campus approval.

Key: 748