Date Submitted: 03/03/21 4:53 pm

Viewing: **DTSCBS-DSST : Data Science: Data Science Statistics** Concentration

Last approved: 05/08/20 12:49 pm

Last edit: 03/10/21 3:08 pm

Changes proposed by: schubert

Catalog Pages Using
this Program

Data Science B.S. with Data Science Statistics Concentration

Data Science (DTSC)

Submitter: User ID: schubert ~~jrtipton~~   Phone:

5-2264 ~~5753351~~

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-DSST

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. **ARSC Dean**
9. **WCOB Dean**
10. **ENGR 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 9:50 am Alice Griffin (agriffin): Approved

for Director of
Program
Assessment and
Review

3. 03/10/21 3:08 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 9:15 pm
Jeannie Hulen
(jhulen): Approved
for ARSC Dean

9. 03/16/21 2:42 pm
Karen Boston
(kboston):
Approved for WCOB
Dean

10. 03/16/21 4:08 pm
Norman Dennis

(ndennis): Approved
for ENGR Dean

11. 03/16/21 4:10 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: Data Science Statistics **Concentration**

Program Delivery
Method

On Campus

Is this program interdisciplinary?

Yes

College(s)/School(s)

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

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

No

What are the total   21
hours needed to

complete the
program?

Program Requirements and Description

Requirements

Required Data Science Statistics Concentration Courses

STAT 3113	Introduction to Mathematical Statistics	3
STAT 4373	Experimental Design	3
STAT 4013	Statistical Forecasting and Prediction (Statistical Forecasting and Prediction)	3
STAT 4333	Analysis of Categorical Responses	3
Elective Data Science Statistics Concentration (Select 9 hours)		9
STAT 4023	Bayesian Methods (Bayesian Methods)	
STAT 5043	Sampling Techniques	
STAT 4033	Nonparametric Statistical Methods	
CSCE 4613	Artificial Intelligence	
GEOS 3013	Foundations of Geospatial Data Analysis	
GEOS 3543	Geospatial Applications and Information Science	
GEOS 3563	Geospatial Data Mining	
Total Hours		21

8-Semester Plan

Data Science B.S. with Statistics Concentration

Eight-Semester Program

First Year	Units	
	Fall	Spring
MATH 2554 Calculus I (ACTS Equivalency = MATH 2405) (Satisfies General Education Outcome 2.1)	4	
ENGL 1013 Composition I (ACTS Equivalency = ENGL 1013) (Satisfies General Education Outcome 1.1)	3	
State Minimum Core Natural Science Elective with Lab (Satisfies General Education Outcome 3.4)	4	
DASC 1104 Programming Languages for Data Science	4	
DASC 1001 Introduction to Data Science	1	
State Minimum Core U.S. History or Government (Satisfies General Education Outcome 4.2)		3
MATH 2564 Calculus II (ACTS Equivalency = MATH 2505)		4
DASC 1204 Introduction to Object Oriented Programming for Data Science		4
DASC 1222 Role of Data Science in Today's World		2

Course	Fall	Spring
~~Choose one of the following~~	-	~~3~~
~~ENGL 1023 Composition II (ACTS Equivalency = ENGL 1023)~~		
ENGL 1033 Technical Composition II (ACTS Equivalency = ENGL 1023) (Satisfies General Education Outcome 1.2)	3	
Year Total:	16	16

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	
Choose one of the following2	3	
STAT 3013 Introduction to Probability		
INEG 2313 Applied Probability and Statistics for Engineers I		
~~University Core Fine Arts Elective~~	~~3~~	-
State Minimum Core Fine Arts Elective (Satisfies General Education Outcome 3.1)3	**3**	
DASC 2213 Data Visualization and Communication	**3**	
MGMT 2053 Business Foundations		3
DASC 2203 Data Management and Data Base		3
~~DASC 2213 Data Visualization and Communication~~	-	~~3~~
STAT 3113 Introduction to Mathematical Statistics		3
DASC 2103 Data Structures & Algorithms		**3**
Choose one of the following2		3
STAT 3003 Statistical Methods (Statistical Methods (renumbered from STAT 4003))		
INEG 2333 Applied Probability and Statistics for Engineers II		
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	
STAT 4373 Experimental Design	3	
State Minimum Core Natural Science Elective with Lab (Satisfies General Education Outcome 3.4)	4	
~~University Core Social Science Elective~~	~~3~~	-
State Minimum Core Social Sciences Elective (Satisfies General Education Outcomes 3.2 and 3.3)4	**3**	
DASC 3203 Optimization Methods in Data Science		3
DASC 3213 Statistical Learning		3
STAT 4333 Analysis of Categorical Responses		3
ECON 2143 Basic Economics: Theory and Practice (Satisfies General Education Outcome 3.3)		3
~~University Core Social Science Elective~~	-	~~3~~
State Minimum Core Social Sciences Elective (Satisfies General Education Outcomes 3.3 and 4.1)5		**3**

	Units	
Year Total:	16	15

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	
STAT 4013 Statistical Forecasting and Prediction (Statistical Forecasting and Prediction)	3	
Concentration Elective	3	
DASC 4993 Data Science Practicum II (Satisfies General Education Outcome 6.1)		3
Concentration Elective		3
General Elective		3
Concentration Elective		3
Year Total:	14	12

Total Units in Sequence:	120

~~*Data Science Statistics Concentration students are advised to select STAT 3013/STAT 3003 in order to meet prerequisites required in the concentration.~~

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

2 Data Science Statistics Concentration students are advised to select STAT 3013/STAT 3003 in order to meet prerequisites required in the concentration.

3 The 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.

4 The 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.

5 The 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 DASCBS PLAN
Scheduled Program Review Date	See DASCBS PLAN

Program Goals and
Objectives

Program Goals and Objectives
See DASCBS PLAN

Learning Outcomes

Learning Outcomes
See DASCBS 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 9:50 am): ATTENTION: Due to changes to the English requirement, this minor program change will require campus approval.

Key: 736