Date Submitted: 03/03/21 4:49 pm

Viewing: DTSCBS-CMPA : Data Science: Computational Analytics Concentration

Last approved: 05/08/20 12:48 pm

Last edit: 03/10/21 3:07 pm

Changes proposed by: schubert

Catalog Pages Using this Program

Data Science B.S. with Computational 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-CMPA
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 9:50 am Alice Griffin (agriffin): Approved

for Director of Program Assessment and Review
3. 03/10/21 3:07 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 2:42 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: Computational 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 Computational Analytics Concentration Courses

CSCE 3513	Software Engineering	3
CSCE 4143	Data Mining	3
CSCE 4613	Artificial Intelligence	3
Elective Computational Analytics Concentration Courses (Select 12 hours)		12
CSCE 3213	Cluster Computing	
CSCE 4013	Special Topics	
CSCE 4133	Algorithms	
CSCE 4253	Concurrent Computing	
CSCE 4853	Information Security	
DASC 4533	Information Retrieval	
Note: Other courses from CSCE and/or other concentrations of DASC can also be added to the concentration electives.		
Total Hours		21

8-Semester Plan

Data Science B.S. with Computational 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 Elective~~	~~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
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	
State Minimum Core U.S. History or Government Elective (Satisfies General Education Outcome 4.2)	3	
DASC 2213 Data Visualization and Communication	**3**	
DASC 2203 Data Management and Data Base		3
~~DASC 2213 Data Visualization and Communication~~	-	~~3~~
CSCE 3513 Software Engineering		3
DASC 2103 Data Structures & Algorithms		**3**
INEG 2313 Applied Probability and Statistics for Engineers IIn order to meet upper division prerequisites, students completing the Computational Analytics Concentration should select INEG 2313 and INEG 2333		3
or STAT 3013 Introduction to Probability		
MGMT 2053 Business Foundations		3
Year Total:	13	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 IIIn order to meet upper division prerequisites, students completing the Computational Analytics Concentration should select INEG 2313 and INEG 2333	3	
or STAT 3003 Statistical Methods		
CSCE 4613 Artificial Intelligence	3	
Computational Analytics Elective	3	
DASC 3203 Optimization Methods in Data Science		3
DASC 3213 Statistical Learning		3
CSCE 4143 Data Mining		3
State Minimum Core Natural Science Elective with Lab (Satisfies General Education Outcome 3.4)		4
ECON 2143 Basic Economics: Theory and Practice (Satisfies General Education Outcome 3.3)		3
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	
Computational Analytics Elective	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
Computational Analytics Electives		6
~~University Core Social Science Elective~~	-	~~3~~
State Minimum Core Social Sciences Elective (Satisfies General Education Outcomes 3.3 and 4.14		**3**
Year Total:	14	15

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

Key: 747