

Date Submitted: 03/03/21 4:55 pm

Viewing: **DTSCBS-OPNA : Data Science:****Operations Analytics Concentration**

Last approved: 05/08/20 12:51 pm

Last edit: 03/10/21 3:09 pm

Changes proposed by: schubert

Catalog Pages Using  
this Program[Data Science B.S. with Operations 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-OPNA

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 9:52 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
- 13. 04/16/21 4:41 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)

30.3001 - Computational Science.

Program Title

Data Science: Operations 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 complete the program? 21

## Program Requirements and Description

Requirements

### Required Operations Analytics Concentration Courses

<a href="#">INEG 2413</a>	Engineering Economic Analysis	3
<a href="#">INEG 3613</a>	Introduction to Operations Research	3
<a href="#">INEG 3623</a>	Simulation	3
<a href="#">INEG 4553</a>	Production Planning and Control	3
Elective Operations Analytics Concentration Courses		9

Select 6 hours from the following:

- [INEG 4453](#) Productivity Improvement
- [INEG 4543](#) Facility Logistics
- [INEG 4633](#) Transportation Logistics
- [INEG 4683](#) Decision Support in Industrial Engineering

Any Supply Chain Management (SCMT) course at the 2000 level or higher from the Supply Chain Analytics Concentration

Select 3 hours from the following:

- [INEG 4123](#) Global Engineering and Innovation
- [INEG 4433](#) Systems Engineering and Management
- [INEG 4443](#) Project Management

Total Hours 21

8-Semester Plan

## Data Science B.S. with Operations Analytics Concentration

### Eight-Semester Program

First Year	Units
	Fall/Spring
<a href="#">MATH 2554</a> Calculus I (ACTS Equivalency = MATH 2405) (Satisfies General Education Outcome 2.1)	4
<a href="#">FNGL 1013</a> Composition I (ACTS Equivalency = FNGL 1013) (Satisfies General Education Outcome	3

<del>ENGL 1013</del> Composition I (ACTS Equivalency = ENGL 1013) (Satisfies General Education Outcome 1.1)	3	-
<b>University Core Social Science Elective</b>	<b>3</b>	<b>-</b>
<b>State Minimum Core Social Sciences Elective (Satisfies General Education Outcomes 3.2 and 3.3)</b>	<b>3</b>	
<u>DASC 1001</u> Introduction to Data Science	1	
<u>DASC 1104</u> Programming Languages for Data Science	4	
<u>MATH 2564</u> Calculus II (ACTS Equivalency = MATH 2505)	4	
<u>DASC 1204</u> Introduction to Object Oriented Programming for Data Science	4	
<u>DASC 1222</u> Role of Data Science in Today's World	2	
State Minimum Core Natural Science Elective with Lab (Satisfies General Education Outcome 3.4)	4	
<del>Choose one of the following (recommend ENGL 1033)</del>	<del>-</del>	<del>3</del>
<u>ENGL 1033</u> Technical Composition II (ACTS Equivalency = ENGL 1023) (Satisfies General Education Outcome 1.2)	3	
<del>ENGL 1023 Composition II (ACTS Equivalency = ENGL 1023)</del>		
Year Total:	15	17
Second Year		Units
		FallSpring
<u>DASC 2594</u> Multivariable Math for Data Scientists	4	
<del>DASC 2103 Data Structures &amp; Algorithms</del>	<del>3</del>	<del>-</del>
<u>DASC 2113</u> Principles and Techniques of Data Science	3	
<u>INEG 2413</u> Engineering Economic Analysis	3	
<b>DASC 2213 Data Visualization and Communication</b>	<b>3</b>	
<u>DASC 2203</u> Data Management and Data Base	3	
<del>DASC 2213 Data Visualization and Communication</del>	<del>-</del>	<del>3</del>
<u>INEG 2313</u> Applied Probability and Statistics for Engineers I or <u>STAT 3013</u> Introduction to Probability	3	
<b>DASC 2103 Data Structures &amp; Algorithms</b>	<b>3</b>	
<u>MGMT 2053</u> Business Foundations	3	
State Minimum Core U.S. History or Government Elective (Satisfies General Education Outcome 4.2)	3	
Year Total:	13	15
Third Year		Units
		FallSpring
<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	
<u>INEG 2333</u> Applied Probability and Statistics for Engineers II or <u>STAT 3003</u> Statistical Methods	3	
<u>INEG 3613</u> Introduction to Operations Research	3	
<u>INEG 3623</u> Simulation	3	
<u>DASC 3203</u> Optimization Methods in Data Science	3	
<del>DASC 3313 Statistical Learning</del>	<del>3</del>	

<a href="#">DASC 3213</a> Statistical Learning	5
<a href="#">INEG 4553</a> Production Planning and Control	3
<a href="#">ECON 2143</a> Basic Economics: Theory and Practice (Satisfies General Education Outcome 3.3)	3
State Minimum Core Natural Science Elective with Lab (Satisfies General Education Outcome 3.4)	4
Year Total:	15 16

Fourth Year	Units
	FallSpring
<a href="#">DASC 4892</a> Data Science Practicum I	2
<a href="#">DASC 4113</a> Machine Learning	3
<a href="#">DASC 4123</a> Social Problems in Data Science and Analytics	3
Operations Analytics Elective5	3
<del>University Core Fine Arts Elective</del>	<del>3 -</del>
<b>State Minimum Core Fine Arts Elective (Satisfies General Education Outcome 3.1)3</b>	<b>3</b>
<a href="#">DASC 4993</a> Data Science Practicum II (Satisfies General Education Outcome 6.1)	3
General Education Elective5	3
<del>University Core Social Science Elective</del>	<del>- 3</del>
<b>State Minimum Core Social Sciences Elective (Satisfies General Education Outcomes 3.3 and 4.1)4</b>	<b>3</b>
Operations Analytics Elective5	6
Year Total:	14 15

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**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.

**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 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](#).

**5**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.

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

<b>Program Goals and Objectives</b>
See DTSCBS PLAN

Learning Outcomes

<b>Learning Outcomes</b>
See DTSCBS PLAN

Description and justification of the request

<b>Description of specific change</b>	<b>Justification for this change</b>
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 9:52 am):** ATTENTION: Due to changes to the English requirement, this minor program change will require campus approval.