

Program Change Request

Date Submitted: 12/22/21 2:04 pm

Viewing: **DTSCBS-BMHI : Data Science:
Biomedical and Healthcare Informatics
Concentration**

Last approved: 05/18/21 6:51 pm

Last edit: 01/06/22 11:17 am

Changes proposed by: schubert

Catalog Pages Using
this Program

[Data Science B.S. with Biomedical and Healthcare Informatics Concentration](#)
[Data Science \(DTSC\)](#)

Submitter: 5-2264 User ID: schubert Phone:

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-BMHI

Degree Bachelor of Science

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

CIP Code

- Curriculum Review
and Program
Assessment
3. 01/06/22 1:23 pm
Gina Daugherty
(gdaugher):
Approved for
Registrar Initial
 4. 01/06/22 3:50 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 11:12 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: Biomedical and Healthcare Informatics 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 Biomedical and Healthcare Informatics Concentration Courses

Students completing the Biomedical and Healthcare Informatics Concentration must select [CHEM 1103](#) and [PHYS 2054](#) for the State Minimum Core Science Electives.

BMEG 2614	Introduction to Biomedical Engineering	4
CHEM 1123	University Chemistry II (ACTS Equivalency = CHEM 1424 Lecture)	3
BIOL 2213	Human Physiology (ACTS Equivalency = BIOL 2414 Lecture)	3
BMEG 3801	Clinical Observations and Needs Finding	1
Elective Biomedical and Healthcare Informatics Concentration (Select 10 credit hours)		10
BMEG 4713	Cardiovascular Physiology and Devices	
BMEG 4973	Regenerative Medicine	
BMEG 4413	Tissue Engineering	
BMEG 4403	Biomedical Microscopy	
BMEG 4513	Biomedical Optics and Imaging	
BMEG 4523	Biomedical Data and Image Analysis	
BMEG 4983	Genome Engineering and Synthetic Biology	
BIOL 2211L	Human Physiology Laboratory (ACTS Equivalency = BIOL 2414 Lab)	
CHEM 1121L	University Chemistry II Laboratory (ACTS Equivalency = CHEM 1424 Lab)	

Total Hours

21

8-Semester Plan

Data Science B.S. with Biomedical and Healthcare Informatics

Data Science B.S. with Biomedical and Healthcare Informatics**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
CHEM 1103 University Chemistry I (ACTS Equivalency = CHEM 1414 Lecture)		4
& CHEM 1101L University Chemistry I Laboratory (ACTS Equivalency = CHEM 1414 Lab)		
ENGL 1013 Composition I (ACTS Equivalency = ENGL 1013) (Satisfies General Education Outcome 1.1)		3
Satisfies General Education Outcome 3.4:		
DASC 1001 Introduction to Data Science		1
DASC 1104 Programming Languages for Data Science		4
MATH 2564 Calculus II (ACTS Equivalency = MATH 2505)		4
PHYS 2054 University Physics I (ACTS Equivalency = PHYS 2034) (Satisfies General Education Outcome 3.4)		4
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
Year Total:		16 17
Second Year	Units	
	Fall	Spring
DASC 2594 Multivariable Math for Data Scientists		4
INEG 2313 Course INEG 2313 Not Found		4
or STAT 3013 Introduction to Probability		
DASC 2213 Data Visualization and Communication		3
DASC 2113 Principles and Techniques of Data Science		3
BMEG 2614 Introduction to Biomedical Engineering		4
SEVI 2053 Business Foundations (Data Science Majors-only section)		3
INEG 2333 Applied Probability and Statistics for Engineers II		3
or STAT 3003 Statistical Methods		
DASC 2103 Data Structures & Algorithms		3
DASC 2203 Data Management and Data Base		3
CHEM 1123 University Chemistry II (ACTS Equivalency = CHEM 1424 Lecture)		3
Year Total:		17 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
BIOL 2213 Human Physiology (ACTS Equivalency = BIOL 2414 Lecture)	3
ECON 2143 Basic Economics: Theory and Practice (Satisfies General Education Outcome 3.3)	3
State Minimum Core Social Sciences Elective (Satisfies General Education Outcomes 3.2 and 3.3)2	3
State Minimum Core Fine Arts Elective (Satisfies General Education Outcome 3.1)3	3 -
DASC 3203 Optimization Methods in Data Science	3
DASC 3213 Statistical Learning	3
BMEG 3801 Clinical Observations and Needs Finding	1
ECON 2143 Basic Economics: Theory and Practice (Satisfies General Education Outcome 3.3)	- 3
State Minimum Core Social Sciences Elective (Satisfies General Education Outcomes 3.3 and 4.1)2	3
State Minimum Core Fine Arts Elective (Satisfies General Outcome 3.1)2	3
Year Total:	15 13
Fourth Year	Units
	FallSpring
DASC 4892 Data Science Practicum I	2
DASC 4113 Machine Learning	3
DASC 4123 Social Problems in Data Science and Analytics	3
Concentration Elective Course	1
Concentration Elective Course	3
DASC 4993 Data Science Practicum II (Satisfies General Education Outcome 6.1)	3
Concentration Elective Course	3
Concentration Elective Course	3
State Minimum Core U.S. History or Government Elective (Satisfies General Education Outcome 4.2)2	3
General Elective Course3	3
Concentration Elective Course(s)5	- 4
Year Total:	12 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 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.	
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

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

Alice Griffin (agriffin) (01/05/22 12:44 pm): Changed one of the concentration electives from 3 to 1 hour in the fall semester of the fourth year and changed the general elective from 1 hour to 3 hours to be consistent with the concentration requirements. Consulted with the submitter before making the change.

Gina Daugherty (gdaugher) (01/06/22 11:17 am): Adjusted inline course references.