

Program Change Request

New Program Proposal

Date Submitted: 02/08/22 3:49 pm

Viewing: **DTSCBS-CYDA : Data Science:**

Cybersecurity Data Analytics Concentration

Last edit: 02/11/22 8:17 am

Changes proposed by: schubert

Submitter:	User ID:	schubert	Phone:
5-2264			
Program Status	Active		
Academic Level	Undergraduate		
Type of proposal	Concentration		
Select a reason for this new program	Adding New Concentration		
Effective Catalog Year	Fall 2022		
College/School Code	College of Engineering (ENGR)		
Department Code	Department of Engineering Dean (ENGD)		
Program Code	DTSCBS-CYDA		
Degree	Bachelor of Science		
CIP Code			

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. ARSC Dean
9. ENGR Dean
10. WCOB Dean
11. LAWW Dean
12. Global Campus
13. Provost Review
14. University Course and Program Committee
15. Faculty Senate
16. Provost Final
17. Registrar Final
18. Catalog Editor Final

Approval Path

1. 03/04/21 12:32 pm
Norman Dennis (ndennis): Rollback to Initiator
2. 02/10/22 4:14 pm
Kevin Hall (kdhall):

- Approved for ENGR
Dean Initial
3. 02/10/22 8:22 pm
Alice Griffin
(agriffin): Approved
for Director of
Curriculum Review
and Program
Assessment
 4. 02/11/22 8:17 am
Gina Daugherty
(gdaugher):
Approved for
Registrar Initial
 5. 02/11/22 9:53 am
Doug Miles
(dmiles): Approved
for Institutional
Research
 6. 02/11/22 11:13 am
Kevin Hall (kdhall):
Approved for ENGD
Chair
 7. 02/11/22 11:14 am
Manuel Rossetti
(rossetti): Approved
for ENGR
Curriculum
Committee
 8. 02/11/22 11:14 am
Kevin Hall (kdhall):
Approved for ENGR
Faculty
 9. 02/11/22 4:02 pm
Jeannie Hulen
(jhulen): Approved
for ARSC Dean
 10. 02/11/22 4:47 pm
Kevin Hall (kdhall):

- Approved for ENGR Dean
- 11. 02/11/22 4:49 pm
Alan Ellstrand (aellstra): Approved for WCOB Dean
- 12. 02/11/22 5:25 pm
Tiffany Murphy (tiffanym):
Approved for LAWW Dean
- 13. 02/11/22 5:27 pm
Suzanne Kenner (skenner): Approved for Global Campus
- 14. 02/13/22 11:09 am
Ketevan Mamiseishvili (kmamisei):
Approved for Provost Review
- 15. 02/28/22 4:52 pm
Alice Griffin (agriffin): Approved for University Course and Program Committee

30.3001 - Computational Science.

Program Title

Data Science: Cybersecurity Data Analytics 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)
School of Law (LAWW)

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

Yes

College(s)/School(s)

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

What are the total hours needed to complete the program? 21

Program Requirements and Description

Requirements

Required Cybersecurity Data Analytics Concentration Courses

Required Courses:		15
ACCT 2013	Accounting Principles	
or ACCT 2023	Accounting Principles II	
DASC 3223	Course DASC 3223 Not Found (Cyber Crime and Cyber Terrorism)	
ISYS 4013	Principles of Data and Cybersecurity	
ISYS 4023	Network and Data Security in a Changing World	
ISYS 4043	Cybersecurity, Crime and Data Privacy Law Fundamentals	
Elective Cybersecurity and Data Concentration Courses (Choose 2 of the following):		6
ISYS 4033	Advanced Information Security Management	
ISYS 4053	Advanced Cybersecurity, Crime and Privacy Law	
ISYS 4173	Blockchain Fundamentals	
Total Hours		21

8-Semester Plan

First Year

Units

	Fall	Spring
<u>MATH 2554</u> Calculus I (ACTS Equivalency = MATH 2405) (Satisfies General Education Outcome 2.1)1	4	
State Minimum Core Natural Science Elective with Lab (Satisfies General Education Outcome 3.4)	4	
<u>ENGL 1013</u> Composition I (ACTS Equivalency = ENGL 1013) (Satisfies General Education Outcome 1.1)	3	
<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>ECON 2143</u> Basic Economics: Theory and Practice (Satisfies General Education Outcome 3.3)	3	
<u>ENGL 1033</u> Technical Composition II (ACTS Equivalency = ENGL 1023)	3	
<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	
Year Total:	16	16
Second Year		
	Units	FallSpring
<u>DASC 2594</u> Multivariable Math for Data Scientists	4	
<u>INEG 2313</u> Course INEG 2313 Not Found4	3	
or <u>STAT 3013</u> Introduction to Probability		
<u>DASC 2213</u> Data Visualization and Communication	3	
<u>DASC 2113</u> Principles and Techniques of Data Science	3	
State Minimum Core Fine Arts Elective (Satisfies General Education Outcome 3.1)2	3	
<u>SEVI 2053</u> Business Foundations (Data Science Majors-only section)	3	
<u>INEG 2333</u> Applied Probability and Statistics for Engineers II4	3	
or <u>STAT 3003</u> Statistical Methods		
<u>DASC 2103</u> Data Structures & Algorithms	3	
<u>DASC 2203</u> Data Management and Data Base	3	
<u>ACCT 2013</u> Accounting Principles	3	
or <u>ACCT 2023</u> Accounting Principles II		
Year Total:	16	15
Third Year		
	Units	FallSpring
<u>PHIL 3103</u> Ethics and the Professions	3	
<u>DASC 3103</u> Cloud Computing and Big Data	3	
<u>DASC 3223</u> Course DASC 3223 Not Found (Cyber Crime and Cyber Terrorism)	3	
State Minimum Core Natural Science with Lab (Satisfies General Education Outcome 3.4)	4	
State Minimum Core Social Sciences Elective (General Education Outcomes 3.2 and 3.3)2	3	
<u>DASC 3203</u> Optimization Methods in Data Science	3	
<u>DASC 3213</u> Statistical Learning	3	
<u>ISYS 4013</u> Principles of Data and Cybersecurity	3	

State Minimum Core U.S. History or Government Elective (Satisfies General Education Outcome 4.2)2	3
State Minimum Core Social Sciences Elective (Satisfied General Education Outcomes 3.3 and 4.1)2	3
Year Total:	16 15
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
ISYS 4023 Network and Data Security in a Changing World	3
ISYS 4043 Cybersecurity, Crime and Data Privacy Law Fundamentals	3
DASC 4993 Data Science Practicum II	3
Concentration Elective	3
Concentration Elective	3
General Education Elective3	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](#).

2Students 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.

3Students 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.

4Data Science Statistics and Computational Analytics Concentration students are advised to select [STAT 3013/STAT 3003](#) to meet the prerequisites required in the concentration.

Program Costs

See DTSCBS PLAN

Library Resources

N/A

Instructional

Facilities

N/A

Faculty Resources

Faculty are existing faculty in the Information Systems, Sociology and Criminal Justice Departments, and School of Law.

List Existing Certificate or Degree Programs that Support the Proposed Program

Program(s)
DTSCBS - Data Science, Bachelor of Science

Are Similar Programs available in the area?

No

Estimated Student Demand for Program 45

Scheduled Program Review Date 2022-2023

Program Goals and Objectives

Program Goals and Objectives

The concentration is designed to develop Data Science graduates able to help organizations assess, detect, and analyze threats, while securing and protecting data and data-driven systems against a myriad of threats such as malicious software, hacking, insider threats, and other cybercrimes.

Learning Outcomes

Learning Outcomes

Upon completion of the program, students will:

- Have mastered the technical strategies, tools and techniques commonly used to secure data and information in the enterprise.
- Understand and be able to apply cybersecurity, crime, tort, and privacy law to the management of data and systems.
- Understand disclosure, notification, breach, and other privacy and transparency obligations under state, federal, and international law.
- Be able to detect and identify common malicious software and attack protocols.
- Be able to apply critical thinking to creatively and systematically solve problems and meet challenges of the ever-evolving environments of cyber security.
- Understand the state of cybersecurity nationally and globally.
- Be able to apply data and cybersecurity management techniques to their fields of study.

Description and Justification for this request

Description of request	Justification for request

Description of request	Justification for request
To add a Cybersecurity Concentration in the Data Science program.	To provide a concentration for students interested in helping organizations assess and detect threats while securing and protecting data and data-driven systems.

Upload attachments

Reviewer Comments

Norman Dennis (ndennis) (03/04/21 12:32 pm): Rollback: Please allow the Data Science program to submit this concentration. It is currently under review by their program committee and Karl can submit it and include the necessary Gen Ed program changes.

Alice Griffin (agriffin) (02/10/22 8:02 pm): DASC 3223 has completed approval.

Alice Griffin (agriffin) (02/10/22 8:06 pm): ACCT 2013 and ACCT 2023 impacts courses from WCOB. Added WCOB to the list of colleges impacted by program proposal. However, WCOB is already listed in approval. Thus, the request will not be rolled back to add WCOB. Inserted WCOB on the submitter's behalf.

Gina Daugherty (gdaugher) (02/11/22 8:17 am): Added 'Concentration' to title of the program to keep consistent with naming convention. Added 'choose 2 courses' in elective section at request of submitter. Linked inline courses in footnote #4.

Key: 795