# 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:<br>5-2264 | User ID: | schubert | Phone: |

| | |
|---|---|
| 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 | |

### 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):

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) |
| 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 |
| MATH 2554 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 | |
| ENGL 1013 Composition I (ACTS Equivalency = ENGL 1013) (Satisfies General Education Outcome 1.1) | | 3 | |
| DASC 1001 Introduction to Data Science | | 1 | |
| DASC 1104 Programming Languages for Data Science | | 4 | |

| | Fall | Spring |
|---|---|---|
| MATH 2564 Calculus II (ACTS Equivalency = MATH 2505) | 4 | |
| ECON 2143 Basic Economics: Theory and Practice (Satisfies General Education Outcome 3.3) | 3 | |
| ENGL 1033 Technical Composition II (ACTS Equivalency = ENGL 1023) | 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 | 16 |

| Second Year | Units | |
|---|---|---|
| | Fall | Spring |
| DASC 2594 Multivariable Math for Data Scientists | 4 | |
| INEG 2313 Applied Probability and Statistics for Engineers I4 | 3 | |
| or STAT 3013 Introduction to Probability | | |
| DASC 2213 Data Visualization and Communication | 3 | |
| DASC 2113 Principles and Techniques of Data Science | 3 | |
| State Minimum Core Fine Arts Elective (Satisfies General Education Outcome 3.1)2 | 3 | |
| SEVI 2053 Business Foundations (Data Science Majors-only section) | | 3 |
| INEG 2333 Applied Probability and Statistics for Engineers II4 | | 3 |
| or STAT 3003 Statistical Methods | | |
| DASC 2103 Data Structures & Algorithms | | 3 |
| DASC 2203 Data Management and Data Base | | 3 |
| ACCT 2013 Accounting Principles | | 3 |
| or ACCT 2023 Accounting Principles II | | |
| Year Total: | 16 | 15 |

| Third Year | Units | |
|---|---|---|
| | Fall | Spring |
| PHIL 3103 Ethics and the Professions | 3 | |
| DASC 3103 Cloud Computing and Big Data | 3 | |
| DASC 3223 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 | |
| DASC 3203 Optimization Methods in Data Science | | 3 |
| DASC 3213 Statistical Learning | | 3 |
| ISYS 4013 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 | |
|---|---|---|
| | Fall | Spring |

| | | |
|---|---|---:|
| 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 |

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.

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          45
Demand for Program

Scheduled Program          2022-2023
Review Date

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