

**PROPOSAL TO CREATE CYBERSECURITY UNDERGRADUATE CERTIFICATE****CURRICULUM:**

A grade of 'C' or higher is required in all coursework for this academic certificate.

**Required Courses** **21**

CS 150 Computer Organization and Architecture

CS 240 Computer Operating Systems

CS 270 Systems Software

CS 336 Introduction to Information Assurance

CS 438 Network Security

CS 439 Applied Security Concepts

CS 447 Computer and Network Forensics

**Courses to total 21 credits**

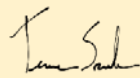
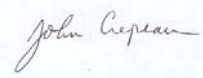
## PROGRAM COMPONENT (Group B) OR NON-SUBSTANTIVE MINOR REQUEST FORM (Short Form)

**Instructions:** Please use one form for each request/action. Clearly mark all changes using either (1) Track Change or (2) strikethroughs for deletions and underlines for additions. Yellow indicates a required field. Green are fields that are optional depending on the change you are requesting. Following the appropriate department and college approvals the department chair will e-mail the completed form to [provost@uidaho.edu](mailto:provost@uidaho.edu).

**Deadline:** This form must be submitted by **October 1** for inclusion in the next available General Catalog and to be available for scheduling beginning with the next summer session.

**When applicable, a Curriculum Change Form and Course Approval Forms must accompany the short form. Incomplete forms will be returned.**

### Submission Information

Dept Chair Name:	<u>Terence Soule</u>	Email:	<u>tsoule@uidaho.edu</u>
Department/Unit:	<u>Department of Computer Science</u>		
College:	<u>College of Engineering</u>		
Dept/Unit Curriculum Committee Approval Date:	<u>2018 September 20</u>	Vote Record:	<u>Total votes: 15. Approve: 12 (80%); Reject: 2 (13%); Abstain: 1 (7%). Total current faculty members 19 with two on sabbatical this semester.</u>
Dept Chair Signature of Approval			
College Curriculum Committee Approval Date:	28 Sept 2018	Vote Record:	7 Approve, None against
Dean Signature of Approval			
Primary Point of Contact:	<u>James Alves-Foss</u>	Email:	<u>jimaf@uidaho.edu</u>
Briefly describe the change you are requesting:	<u>We are proposing the addition of an undergraduate academic certificate titled "Cybersecurity".</u>		

#### What is the financial impact of the requested change?

Greater than \$250,000 per FY:	<input type="checkbox"/>	Less than \$250,000 per FY:	<input checked="" type="checkbox"/>
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**\*\*Note: If financial impact is greater than \$250,000, you must complete a Program Proposal form.**

Describe the financial impact: All courses required within this proposed Cybersecurity undergraduate academic certificate are already taught on a continuous basis in the department.

### Rationale for Program Component Request or Name Change

Explain the change you are requesting, and provide a rationale for this request. Include an explanation of how the department will manage the added workload for a new program component; describe whether the program component curriculum and admissions requirements remain the same; describe the rationale for a name change or degree designation change, if applicable.

We propose the creation of an undergraduate academic certificate in cybersecurity for College of Engineering and other students wishing to pursue a designated cybersecurity focus on their transcripts. Using a certificate option allows students in computer science, computer engineering, and other disciplines to select this focus. Courses included in this certificate are already offered on a regular basis, and a regularly assessed. The impact will be a minor increase in workload for tracking students selecting this option.

Since 1999, the University of Idaho has been designated a National Center of Academic Excellence in Information Assurance and Cyber Defense (CAE/CD). To maintain this designation, we now need a specified required course path, and a transcript designation for all students selecting the cybersecurity area of study. This certificate will allow us to meet these accreditation requirements with minimal impact on resources.

### Name or Degree Change Only Requests

Leave blank if not making a name and/or degree change only request

This section to be completed **ONLY** for changes to the name of: degree, major, minor, option, emphasis, certificate, teaching endorsement.

Current Name:	
New Name:	
Current Degree:	
New Degree:	
Other Details:	
Effective Date:	

Please indicate if any course or curriculum changes are occurring as a result of this name or degree change request:  No  
 If there are accompanying curriculum or course changes, complete the next section and attach the curriculum and/or course forms.

**\*\*Note:** A substantive change to a program degree, major, or program component may require a program proposal form.

Please indicate whether 25% or more of the program learning outcomes are changing:  Yes  No

**\*\*Note:** If you answered YES to this question, complete the table below:

	List Old Learning Outcomes	New Learning Outcome, if changed (if no change, write N/A and move to next outcome)	New Direct Measure (list student work product and explain how it will be evaluated)	Have you updated the assessment cycle to include this change? (yes/no)
SLO#1	N/A	An ability to apply security principles and practices to the environment, hardware, software, and human aspects of a system.	Exam questions and/or assignments in CS 439: Will provide and measure given answers for hands-on laboratories demonstrating ability to apply cybersecurity principles, practices and tools. Answers will be evaluated for accuracy and completeness.	Yes (assessed annually)
SLO#2	N/A	An ability to analyze and evaluate systems with respect to maintaining operations in the presence of risks and threats.	Exam questions and/or assignments in CS 438: Will provide and measure given answers for scenario-based questions and/or assignments. These will provide students with a system evaluation scenario, student solutions will be evaluated for completeness, accuracy, and impact of proposed cybersecurity solutions.	Yes (assessed annually)
SLO#3	N/A	Recognize professional responsibilities and make informed judgments in computing practice based on legal and ethical principles.	Exam questions and/or assignments in CS 336: Will provide and measure given answers for questions and/or assignments specifically focused on security, privacy, legal, and ethical aspects of computing and their potential impacts on society.	Yes (assessed annually)

### Program Component Request

Leave blank if not adding, discontinuing, or modifying a program component. Program components consist of option, emphasis, minor, academic certificate less than 30 credits, or teaching endorsement

Clearly mark all changes to existing program components by using either (1) Track Change or (2) strikethroughs for deletions and underlines for additions. A curriculum change form and/or course approval forms associated with this request are required to be submitted with this short form.

<input checked="" type="checkbox"/>	Create New	<input type="checkbox"/>	Discontinue	Implementation Date:	<u>UI catalog for 2019-2020 (Summer 2019)</u>		
<input type="checkbox"/>	Graduate Level	<input checked="" type="checkbox"/>	Undergraduate Level	<input type="checkbox"/>	Law Level	Credit Requirement:	<u>21</u>
Are new courses being created: (circle your response)				<u>No</u>	If yes, how many courses will be created:		<u>N/A</u>

If the request is for an option or emphasis, enter the associated major and degree:

Major:	<u>N/A</u>	CIP Code:	<u>11.1003</u>	Degree:	<u>N/A</u>
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Enter the name of the program component in the appropriate row:

Option:	<u>N/A</u>
Emphasis:	<u>N/A</u>
Minor:	<u>N/A</u>
Academic Certificate less than 30 credits:	<u>Undergraduate Academic Certificate: Cybersecurity</u>
Teaching Endorsement (Major/Minor):	<u>N/A</u>

Provide a summary/description of the program component using 50 words or less:

The Cybersecurity undergraduate academic certificate provides graduates with the knowledge, skills, and abilities needed to succeed when performing professional and technical work in cybersecurity. The certificate provides a strong foundational knowledge and practical hands-on skills for securing modern computing systems and networks.

### Learning Outcomes and Assessment Information

This section must be completed if program component request section is completed

1. List the intended learning outcomes for the program component. Use learner centered statements that indicate what will students know, be able to do, and value or appreciate as a result of completing the program:

1. Graduates will be able to apply security principles and practices to the environment, hardware, software, and human aspects of a system.

2. Graduates will be able to analyze and evaluate systems with respect to maintaining operations in the presence of risks and threats.

3. Graduates will be able to recognize professional responsibilities and make informed judgments in computing practice based on legal and ethical principles.

2. Describe the assessment process that will be used to evaluate how well students are achieving the intended learning outcomes of the program component:

The University of Idaho is designated a National Center of Academic Excellence in Information Assurance and Cyber Defense (CAE/CD). This designation requires an annual assessment of students in the program. The UI internal CAE committee will review the direct measures and survey information each year, discuss results, and take corrective actions if needed. Assessment of program component learning outcomes will be performed based on the direct mapping of program learning outcomes to courses. Learning outcomes will be assessed in each course as described in point 4.

3. How will you ensure that the assessment findings will be used to improve the program?

As part of our assessment process for the CAE annual review, we will examine the results of the assessments and discuss changes to course materials, presentations, assignments, and laboratories to ensure the program is meeting the student learning outcomes and is improving.

4. What direct and indirect measures will be used to assess student learning?

For learning outcome 1: Exam questions and/or assignments in CS 439: Will provide and measure given answers for hands-on laboratories demonstrating ability to apply cybersecurity principles, practices and tools. Answers will be evaluated for accuracy and completeness.

**For learning outcome 2: Exam questions and/or assignments in CS 438: Will provide and measure given answers for scenario-based questions and/or assignments. These will provide students with a system evaluation scenario, student solutions will be evaluated for completeness, accuracy, and impact of proposed cybersecurity solutions.**

**For learning outcome 3: Exam questions and/or assignments in CS 336: Will provide and measure given answers for questions and/or assignments specifically focused on security, privacy, legal, and ethical aspects of computing and their potential impacts on society.**

5. When will assessment activities occur and at what frequency?

**The size and scope of this program, plus the CAE/CD requirements, dictate that we will collect the assessment data during the courses and the survey data each Spring. Every Fall semester the UI internal CAE committee will evaluate the assessment data and take corrective actions if needed.**

### Distance Education Availability

**This section must be completed if program component request section is completed**

To comply with the requirements of the Idaho State Board of Education (SBOE) and the Northwest Commission on Colleges and Universities (NWCCU), the University of Idaho must declare whether 50% or more of the curricular requirements of a program may be completed via distance education. **If the program component is to be offered via distance education, additional or different formwork may be required.** Contact [provost@uidaho.edu](mailto:provost@uidaho.edu) for assistance.

The U.S. Department of Education defines distance education as follows:

*Distance education means education that uses one or more of the technologies listed below to deliver instruction to students who are separated from the instructor and to support regular and substantive interaction between the students and the instructor, either synchronously or asynchronously. The technologies may include--*

- (1) The internet;
- (2) One-way and two-way transmissions through open broadcast, closed circuit, cable, microwave, broadband lines, fiber optics, satellite, or wireless communications devices;
- (3) Audio conferencing; or
- (4) Video cassettes, DVDs, and CD-ROMs, if the cassettes, DVDs, or CD-ROMs are used in a course in conjunction with any of the technologies listed in paragraphs (1) through (3).

Can 50% or more of the curricular requirements of this program component be completed via distance education?	Yes*	<input type="checkbox"/>	No	<input checked="" type="checkbox"/>
*If Yes, can 100% of the curricular requirements of this program component be completed via distance education?	Yes	<input type="checkbox"/>	No	<input checked="" type="checkbox"/>

### Geographical Area Availability

**This section must be completed if program component request section is completed**

Identify the geographical area(s) this program component can be completed in:

Moscow	<input checked="" type="checkbox"/>		
Coeur d'Alene	<input type="checkbox"/>		
Boise*	<input type="checkbox"/>		
Idaho Falls*	<input type="checkbox"/>		
Other**	<input type="checkbox"/>	Location(s):	<input type="text"/>

\*Note: Programs offered in locations other than Moscow may require additional formwork from the State Board of Education. Contact the Office of the Provost and Executive Vice President for additional information.

\*\*Note: If Other is selected, identify the specific area(s) this program component will be offered.