

COSC 216 Introduction to Cyber Security-CrsRvs-2019-03-23

- The workflow icon is no longer available. Please click on the Page Status after the orange circle icon near the page title. *

Form Information

 The page you originally access is the global template version. To access the template document that progresses through the workflow, please complete the following steps:

First Step: **ONLY** change the text in the [brackets] so it looks like this: **CRIM 101 Intro to Criminology-CrsRvs-2015-08-10**

- If DUAL LISTED list BOTH courses in the page title***

Second Step: Click “SAVE” on bottom right

- DO NOT TYPE ANYTHING INTO THE FIRST PAGE OTHER THAN THE TEXT IN BRACKETS***
- Please be sure to remove the Brackets while renaming the page***

Third Step: Make sure the word ***DRAFT*** is in yellow at the top of the proposal

Fourth Step: Click on “**EDIT CONTENTS**” (*not EDIT*) and start completing the template. When exiting or when done, click “**SAVE**” (*not Save Draft*) on bottom right

When ready to submit click on the workflow icon and hit approve. It will then move to the chair as the next step in the workflow.

**Indicates a required field*

Proposer*	Xinwen Wu	Proposer Email*	xwu@iup.edu
Contact Person*	Xinwen Wu	Contact Email*	xwu@iup.edu
Proposing Department/Unit*	Mathematical and Computer Sciences	Contact Phone*	7-2608

Course Level*	undergraduate-level
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Course Revisions

(Check all that apply; fill out categories below as specified; i.e. if only changing a course title, only complete Category A)

<p>Category A:</p> <p>catalog_desc_change course_prefix_number_change course_title_change mod_prereq</p>	<p>Category B:</p> <p>course_prefix_number_change course_revision</p> <p><i>* Teacher Education: Please complete the Teacher Education section of this form (below)</i></p> <p><i>* Liberal Studies: Please complete the Liberal Studies section of this form (below)</i></p> <p><i>* Distance Education: Please complete the Distance Education section of this form (below) - Please check the APPROVED DE Course List - ON DOCUMENTS PAGE before completing this section If already approved - you DO NOT need to do a DE proposal</i></p>
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Rationale for Proposed Changes (All Categories)

<p>(A) Why is the course being revised /deleted:*</p> <p><i>Please be specific - this should be have more detail than the Summary for the Senate.</i></p>	<p>This course is being revised to address recent changes in cyber security issues and technology. It is being changed to a 200-level, from 300-level, to better reflect the content that is being covered in the course.</p> <p>The original course name "Host Computer Security" implies large mainframe computers. It is now necessary to address security in a wider variety of computing devices. The prerequisite was modified to remove "or equivalent course, as approved by instructor."</p>
<p>(B) University Senate Summary of Rationale*</p>	<p><i>Please enter a single paragraph summary/rationale of changes or proposal for University Senate.</i></p> <p>This course is being revised to address recent changes in cyber security issues and technology. It is being changed to a 200-level, from 300-level, to better reflect the content that is being covered in the course.</p> <p>The original course name "Host Computer Security" implies large mainframe computers. It is now necessary to address security in a wider variety of computing devices. The prerequisite was modified to remove "or equivalent course, as approved by instructor."</p>
<p>(C) Implications of the change on the program, other programs and the Students:*</p>	<p>The change to a 200-level course will make room for additional 300-level courses in the future to address new, upcoming security threats. There are no other implications for the program or students.</p>

Current Course Information*	
Category A	
(D) Current Prefix*	COSC
Proposed Prefix	
(E) Current Number*	316
Proposed Number	216
(F) Current Course Title*	Host Computer Security
Proposed Course Title	Introduction to Cyber Security
(G) Prerequisite(s)	COSC 110 or equivalent course, as approved by instructor
Proposed Prerequisite(s)	COSC 110
(H) Current Catalog Description	An introduction to the theory and concepts of host computer security. Topics include security and policy guidelines, attack strategies and attacker profiles, users and groups security, file systems and security, integrity management, cryptography basics, back-up utilities, auditing and logging, and strategies for defending user accounts. A practical hands-on course.
Proposed Catalog Description	Introduces the fundamental theory and concepts for cyber security including security principles, ethical and professional issues in cyber security, attack strategies, risk management, access control, integrity management, cryptography basics, security protocols, and strategies for defending computers and networks. Includes practical hands-on learning activities to enhance understanding and to apply the theory and concepts.
<i>If changing Category A, no further action required.</i>	
Category B (if no change, leave blank)	

<p>(I) Repeatable Course</p> <p>This is for a course that can be repeated</p> <p>Multiple times e.g. Internship</p>	<p>If YES, please complete the following:</p> <p>Number of Credits that May be Repeated:</p> <p>Maximum Number of Credits Allowed to be Repeated:</p>																				
<p>Proposed Repeatable Course</p>	<p>If YES, please complete the following:</p> <p>Number of Credits that May be Repeated:</p> <p>Maximum Number of Credits Allowed to be Repeated:</p>																				
<p>(J) Number of Credits</p>	<p>Class Hours per week:3</p> <p>Lab Hours:0</p> <p>Credits:3</p>																				
<p>Proposed Number of Credits</p>	<p>Class Hours:Lab Hours:Credits:</p>																				
<p>(K) Current Course Student Learning Outcomes (SLOs)</p>	<ol style="list-style-type: none"> 1. Write a suitable set of security policies for different scenarios. 2. Apply various access control techniques. 3. Compare the basic tools and techniques used to attack systems. 4. Explain the different types of attacks. 5. Specify procedures for password/username management. 6. Explore the use of security tools in defending user/group accounts. 7. Explore techniques for integrity management. 8. Demonstrate the use of logging, auditing, and backup techniques for security. 9. Explain the basic cryptography concepts. 																				
<p>(L) Proposed Course Student Learning Outcomes (SLOs)</p> <p>For each outcome, describe how the outcome will be achieved</p>	<p>Note that the text box in the table expands</p> <table border="1" data-bbox="263 1184 1484 1556"> <thead> <tr> <th data-bbox="263 1184 354 1262">SLO #</th> <th data-bbox="354 1184 1219 1262">Outcome</th> <th data-bbox="1219 1184 1484 1262">How outcome is assessed</th> </tr> </thead> <tbody> <tr> <td data-bbox="263 1262 354 1331">1</td> <td data-bbox="354 1262 1219 1331">Recognize and assess professional and ethical responsibilities to apply security policies for different scenarios</td> <td data-bbox="1219 1262 1484 1331">Assignments, Exams, Lab Projects</td> </tr> <tr> <td data-bbox="263 1331 354 1400">2</td> <td data-bbox="354 1331 1219 1400">Compare and apply access control techniques, security tools, and protocols in defending cyber systems against attacks.</td> <td data-bbox="1219 1331 1484 1400">Assignments, Exams, Lab Projects</td> </tr> <tr> <td data-bbox="263 1400 354 1444">3</td> <td data-bbox="354 1400 1219 1444">Analyze and evaluate techniques for integrity management and risk mitigation.</td> <td data-bbox="1219 1400 1484 1444">Assignments, Exams</td> </tr> <tr> <td data-bbox="263 1444 354 1514">4</td> <td data-bbox="354 1444 1219 1514">Demonstrate logging, auditing, and backup techniques for security.</td> <td data-bbox="1219 1444 1484 1514">Assignments, Exams, Lab Projects</td> </tr> <tr> <td data-bbox="263 1514 354 1556">5</td> <td data-bbox="354 1514 1219 1556">Explain basic cryptography concepts.</td> <td data-bbox="1219 1514 1484 1556">Assignments, Exams</td> </tr> </tbody> </table>			SLO #	Outcome	How outcome is assessed	1	Recognize and assess professional and ethical responsibilities to apply security policies for different scenarios	Assignments, Exams, Lab Projects	2	Compare and apply access control techniques, security tools, and protocols in defending cyber systems against attacks.	Assignments, Exams, Lab Projects	3	Analyze and evaluate techniques for integrity management and risk mitigation.	Assignments, Exams	4	Demonstrate logging, auditing, and backup techniques for security.	Assignments, Exams, Lab Projects	5	Explain basic cryptography concepts.	Assignments, Exams
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**(M)
Previous
Brief
Course
Outline**

*(It is
acceptable
to copy*

*from old
syllabus)*

As outlined by the federal definition of a "credit hour", the following should be a consideration regarding student work - For every one hour of classroom or direct faculty instruction, there should be a minimum of two hours of out of class student work.

1. Overview of computer security
 - a. Definition and discussion of computer security
 - b. Security problems in computing
2. Attacks to Host Computer Systems
 - a. Attacker profiles
 - b. Attacking strategies
3. Introduction to an operating system
 - a. The operating systems overview
 - b. Operating system utilities
 - c. Operating system user administrative commands
4. Identification and Authentication
 - a. Managing username and passwords
 - b. Password management utilities
 - c. Authentication techniques
 - d. Use of password cracking tools
5. File systems and access control
 - a. File ownership and user groups
 - b. Strategies for defending group accounts
 - c. working with files/directories
 - d. Using File Manager
6. Integrity Management
 - a. Immutable and append only files
 - b. Read only files
 - c. Checksum and signatures
 - d. Use of integrity checking tools
7. File System and security
 - a. Access control through file permissions
 - b. Setting up access control lists
 - c. Other file protection schemes
 - d. Basic computer forensics methods
 - e. Electronic records management
 - f. Electronic evidence
8. Auditing, logging, backup
 - a. Log file utilities
 - b. Rotating and tracking log files
 - c. Protecting and viewing log files
 - d. Operating system specific tools for auditing and logging
 - e. Backup file systems
 - f. Linux tools for backup
9. Encryption for Host System
 - a. Symmetric encryption
 - b. Asymmetric encryption
10. Policies and guidelines
 - a. Policy development
 - b. Planning for security needs
 - c. Outsourcing policy development
11. Overview of physical security
 - a. Physical controls vs technical controls
 - b. Copying with natural and artificial disasters
12. Student presentation on security tools
13. Two in class exams
14. Final Exam

<p>(N) Brief Course Outline</p> <p><i>(Give sufficient detail to communicate the content to faculty across campus. It is not necessary to include specific readings, calendar or assignments)</i></p>	<p><i>As outlined by the federal definition of a "credit hour", the following should be a consideration regarding student work - For every one hour of classroom or direct faculty instruction, there should be a minimum of two hours of out of class student work.</i></p> <ol style="list-style-type: none"> 1. Introduction to cyber security 2. The need for security 3. Threats and attacks to computers and networks 4. Physical security 5. Firewalls and VPNs 6. Access control 7. Risk management 8. Intrusion detection and prevention systems 9. Cryptography 10. Security protocols 11. Cyber security policies 12. Legal, ethical, and professional issues in cyber security
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Distance Education Section

- Complete this section only if adding Distance Education to a New or Existing Course

If Completing this Section, Check the Box to the Right:	NOTE: you must check this box if the Course has previously been approved for Distance Education
Course Prefix/Number	
Course Title	
Type of Proposal	<i>See CBA, Art. 42.D.1 for Definition</i>
Brief Course Outline	<p><i>Give an outline of sufficient detail to communicate the course content to faculty across campus. It is not necessary to include specific readings, calendar or assignments</i></p> <p><i>As outlined by the federal definition of a "credit hour", the following should be a consideration regarding student work - For every one hour of classroom or direct faculty instruction, there should be a minimum of two hours of out of class student work.</i></p>
Rationale for Proposal (Required Questions from CBA)	
How is/are the instructor(s) qualified in the Distance Education delivery method as well as the discipline?	
For each outcome in the course, describe how the outcome will be achieved using Distance Education technologies.	

How will the instructor-student and student-student interaction take place? (if applicable)	
How will student achievement be evaluated?	
How will academic honesty for tests and assignments be addressed?	

Liberal Studies Section

- Complete this section only for a new Liberal Studies course or Liberal Studies course revision

If Completing this Section, Check the Box to the Right:	NOTE: you must check this box if the Course/Program has previously been approved for Liberal Studies
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Liberal Studies Course Designations (Check all that apply)															
Learning Skills:															
Knowledge Area:															
Liberal Studies Elective	<i>Please mark the designation(s) that apply - must meet at least one</i>														
Expected Undergraduate Student Learning Outcomes (EUSLOs) Map the Course Outcome to the EUSLO's	<p><i>Map each course outcome to the appropriate EUSLOs that apply. Fill in the course outcome number</i></p> <p><i>See https://www.iup.edu/liberal/faculty-and-staff/euslos/ for additional information regarding mapping EUSLOs</i></p> <table border="1"> <thead> <tr> <th>Informed Learners demonstrate:</th> <th>Course SLO #</th> </tr> </thead> <tbody> <tr> <td>• the ways of modeling the natural, social and technical worlds</td> <td></td> </tr> <tr> <td>• The aesthetic facets of human experience</td> <td></td> </tr> <tr> <td>• the past and present from historical, philosophical and social perspectives</td> <td></td> </tr> <tr> <td>• the human imagination, expression and traditions of many cultures</td> <td></td> </tr> <tr> <td>• the interrelationships within and across cultures & global communities</td> <td></td> </tr> <tr> <td>• the interrelationships within and across disciplines</td> <td></td> </tr> </tbody> </table>	Informed Learners demonstrate:	Course SLO #	• the ways of modeling the natural, social and technical worlds		• The aesthetic facets of human experience		• the past and present from historical, philosophical and social perspectives		• the human imagination, expression and traditions of many cultures		• the interrelationships within and across cultures & global communities		• the interrelationships within and across disciplines	
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Empowered Learners demonstrate:	Course SLO #
<ul style="list-style-type: none"> • effective oral and written communication abilities 	
<ul style="list-style-type: none"> • ease with textual, visual and electronically-mediated literacies 	
<ul style="list-style-type: none"> • problem solving skills using a variety of methods and tools 	
<ul style="list-style-type: none"> • information literacy skills including the ability to access, evaluate, interpret and use information from a variety of sources 	
<ul style="list-style-type: none"> • the ability to transform information into knowledge and knowledge into judgement and action 	
<ul style="list-style-type: none"> • the ability to work within complex systems and with diverse groups 	
<ul style="list-style-type: none"> • critical thinking skills including analysis, application and evaluation 	
<ul style="list-style-type: none"> • reflective thinking and the ability to synthesize information and ideas 	
Responsible Learners demonstrate:	Course SLO #
<ul style="list-style-type: none"> • intellectual honesty 	
<ul style="list-style-type: none"> • concern for social justice 	
<ul style="list-style-type: none"> • civic engagement 	
<ul style="list-style-type: none"> • an understanding of the ethical and behavioral consequences of decisions and actions on themselves, on society, and on the physical world 	
<ul style="list-style-type: none"> • an understanding of themselves and a respect for the identities, histories and cultures of others 	

How will each outcome be measured

(note should mirror (L) Student Learning

Outcomes* (SLO) from the course proposal

Narrative on how the course will address the Selected Category Content

Course SLO #	Assessment Tool to be used to measure the outcome
1	
2	
3	

All Liberal Studies courses are required to include perspectives on cultures and have a supplemental reading.

Please answer the following questions.

<p>Liberal Studies courses must include the perspectives and contributions of ethnic and racial minorities and of women whenever appropriate to the subject matter. Please explain how this course will meet this criterion.</p>	
<p>Liberal Studies courses require the reading and use by students of at least one non-textbook work of fiction or non-fiction or a collection of related articles. Please describe how your course will meet this criterion.</p>	

Teacher Education Section

- Complete this section only for a new Teacher Education course or Teacher Education course revision

<p>If Completing this Section, Check the Box to the Right:</p>	<p>NOTE: you must check this box if the Course/Program has previously been approved for Teacher Education related items</p>
<p>Course Designations:</p>	
<p>Key Assessments</p>	
	<p>For both new and revised courses, please attach (see the program education coordinator):</p> <ul style="list-style-type: none"> • The Overall Program Assessment Matrix • The Key Assessment Guidelines • The Key Assessment Rubric <p style="text-align: center;">File Modified</p> <hr/> <p>No files shared here yet.</p> <ul style="list-style-type: none"> • Drag and drop to upload or browse for files 
<p>Narrative Description of the Required Content</p>	<p><i>How the proposal relates to the Education Major</i></p>

Please scroll to the top and click the Page Status if you are ready to take action on the workflow. Please submit an ihelp if you have any questions <http://ihelp.iup.edu>