

**University of the Cumberland**  
**School of Computer and Information Sciences**  
ISOL 531 – Access Control

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## Course Summary

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### Course Number and Name

ISOL 531 – Access Control

### Course Term and Delivery

2019 Spring – IG

Asynchronous Online Course

### Course Instructor

Dr. Dennis Backherms

Email: [dennis.backherms@ucumberlands.edu](mailto:dennis.backherms@ucumberlands.edu)

Office Hours: By appointment

### Course Description

The course provides an in-depth study of the three main security principles: availability, integrity and confidentiality. The course examines mechanisms used to control what resources an entity can access, and the extent of the entity's capabilities to interact with the resource. The course also examines approaches to auditing how the entity interacts with the resource.

### Course Objectives

1. Define the authorization and the access to an IT infrastructure based on an access control policy framework.
2. Mitigate risk to an IT infrastructure's confidentiality, integrity, and availability with sound access controls.
3. Analyze how a data classification standard impacts an IT infrastructure's access control requirements and implementation.
4. Develop an access control policy framework consisting of best practices for policies, standards, procedures, and guidelines to mitigate unauthorized access.
5. Assess the consequences of failed access controls and mitigate unauthorized access.
6. Apply various access control methods to solve a range of business challenges.
7. Define proper security controls for information systems within IT infrastructures.
8. Explore ways to secure the facilities that house sensitive resources and use biometric technology to verify identity.

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9. Design appropriate authentication solutions throughout an IT infrastructure based on user types and data classification standards.
10. Utilize policies, standards, guidelines, and procedures to implement and maintain access control.
11. Implement a secure remote access solution.

**Course Structure**

- Watch weekly lecture
- Participate in class discussion via forums
- Reading assigned texts
- Complete quizzes based on labs
- Complete homework assignments

## Learning Materials and References

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### Required Resources

#### **Textbook(s) Required:**

- Chapple, Mike, Ballard, Bill, Ballard, Tricia, and Banks, Erin K. Access Control, Authentication, and Public Key Infrastructure, Second Edition. Jones & Bartlett Learning, 2014.

### Recommended Materials/Resources

Please use the following author's names, book/article titles, Web sites, and/or keywords to search for supplementary information to augment your learning in this subject.

- Official (ISC)<sup>2</sup> Training Guide CISSP CBK, 2015
- Harris, Shon. All in One CISSP Exam Guide, Sixth Edition. McGraw-Hill, 2013.
- Rhodes-Ousley, Mark. The Complete Reference to Information Security, Second Edition. McGraw-Hill, 2013.

### **Professional Associations**

- International Association of Privacy Professionals (IAPP)  
This Web site provides opportunity to interact with a community of privacy professionals and to learn from their experiences. This Web site also provides valuable career advice.  
<https://www.privacyassociation.org/>
- International Information Systems Security Certification Consortium, Inc., (ISC)<sup>2</sup>®  
This Web site provides access to current industry information. It also provides opportunities in networking and contains valuable career tools.  
<http://www.isc2.org/>
- ISACA  
This Web site provides access to original research, practical education, career-enhancing certification, industry-leading standards, and best practices. It also provides a network of like-minded colleagues and contains professional resources and technical/managerial publications.  
<https://www.isaca.org/Pages/default.aspx>

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## Course Outline

**Note:** Assignments in the following table are listed when they are due.

Grading Category	Activity Title
<b><i>Week 1: Assessing Risk and the Access Control Framework</i></b>	
Required Readings	<ul style="list-style-type: none"> <li>▪ Chapter 1, “Access Control Framework”</li> <li>▪ Chapter 2, “Assessing Risk and Its Impact on Access Control”</li> </ul>
Discussion	Introduction
Lab #1	Configuring an Active Directory Domain Controller
Lab #1	Quiz
Lab #2	Managing Windows Accounts and Organizational Units
Lab #2	Quiz
<b><i>Week 2: Business Access Control Needs and Requirements</i></b>	
Required Readings	<ul style="list-style-type: none"> <li>▪ Chapter 3, “Business Drivers for Access Controls”</li> <li>▪ Chapter 4, “Access Control Policies, Standards, Procedures, and Guidelines”</li> </ul>
Discussion	Privacy and Compliance
Lab #3	Configuring Windows File System Permissions
Lab #3	Quiz
Assignment	Identification, Authentication, and Authorization Techniques
<b><i>Week 3: Security Breaches and Business Challenges</i></b>	
Required Readings	<ul style="list-style-type: none"> <li>▪ Chapter 5, “Security Breaches and the Law”</li> <li>▪ Chapter 6, “Mapping Business Challenges to Access Control Types”</li> </ul>
Discussion	Security Breach Evaluation
Lab #4	Managing Group Policy Objects in Active Directory
Lab #4	Quiz
Lab #5	Configuring Windows Firewall
Lab #5	Quiz

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Grading Category	Activity Title
<b><i>Week 4: Humans and Access Control</i></b>	
Required Readings	<ul style="list-style-type: none"> <li>▪ Chapter 7, “Human Nature and Organizational Behavior”</li> <li>▪ Chapter 8, “Access Control for Information Systems”</li> </ul>
Discussion	Mapping Business Challenges to Types of Control
Exam	Midterm Exam
<b><i>Week 5: Physical Security and Access Control</i></b>	
Required Readings	<ul style="list-style-type: none"> <li>▪ Chapter 9, “Physical Security and Access Control”</li> <li>▪ Chapter 10, “Access Control in the Enterprise”</li> </ul>
Discussion	Biometric System Evaluation
Lab #6	Managing Linux Accounts
Lab #6	Quiz
Assignment	Implementation of Authentication Process
<b><i>Week 6: Remote Workers and Access Control</i></b>	
Required Readings	<ul style="list-style-type: none"> <li>▪ Chapter 11, “Access Control System Implementations”</li> <li>▪ Chapter 12, “Access Control Solutions for Remote Workers”</li> </ul>
Discussion	Multilayer User Access Control
Assignment	Internet/Web Access Management
<b><i>Week 7: Public Key Infrastructure and Access Control</i></b>	
Required Readings	<ul style="list-style-type: none"> <li>▪ Chapter 13, “Public Key Infrastructure and Encryption”</li> <li>▪ Chapter 14, “Testing Access Control Systems”</li> </ul>
Discussion	Remote Access Method Evaluation
Assignment	PKI and Encryption at Work
<b><i>Week 8: Your Academic Journey Continues...</i></b>	
Discussion	Personal Reflection
Assignment	Executive Program Practical Connection
Exam	Final Exam

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## Evaluation and Grading

### Evaluation Criteria

The graded assignments will be evaluated using the following weighted categories:

Category	Weight
• Discussions	• 20
• Labs	• 20
• Assignments	• 20
• Midterm Exam	• 20
• Final Exam	• 20
• TOTAL	• 100%

### Grade Conversion

The final grades will be calculated from the percentages earned in the course, as follows:

Grade	Percentage
A	90–100%
B	80–89.5%
C	70–79.5%
F	<69.5%

## Course Expectations

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### Academic Integrity

At a Christian liberal arts University committed to the pursuit of truth and understanding, any act of academic dishonesty is especially distressing and cannot be tolerated. In general, academic dishonesty involves the abuse and misuse of information or people to gain an undeserved academic advantage or evaluation. The common forms of academic dishonesty include:

- a. cheating - using deception in the taking of tests or the preparation of written work, using unauthorized materials, copying another person's work with or without consent, or assisting another in such activities
- b. lying—falsifying, fabricating, or forging information in either written, spoken, or video presentations
- c. plagiarism—using the published writings, data, interpretations, or ideas of another without proper documentation

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Episodes of academic dishonesty are reported to the Vice President for Academic Affairs. The potential penalty for academic dishonesty includes a failing grade on a particular assignment, a failing grade for the entire course, or charges against the student with the appropriate disciplinary body.

#### Late Policy

Students are expected to submit classroom assignments by the posted due date and to complete the course according to the published class schedule. As adults, students, and working professionals I understand you must manage competing demands on your time. **Late assignments will not be accepted for a grade; no exceptions. Absolutely NO assignments will be accepted after the last day of the course.**

#### Students with Disabilities

University of the Cumberland accepts students with certified disabilities and provides reasonable accommodations for their certified needs in the online classroom or in other areas. For accommodations to be awarded, a student must submit a completed Accommodations Application form and provide documentation of the disability. Students who may have a disability meriting an academic accommodation should contact the Disability Services Coordinator (Nate Clouse, in Boswell Campus Center) to ensure that their needs are properly evaluated and that documentation is on file. Any accommodations for disabilities must be re-certified each bi-term by the Disability Services Coordinator before course adjustments are made by individual instructors.

#### Student Responsibilities

1. Students are expected to login several times per week to participate in class discussions.
2. Students are expected to find out if any changes have been made in the class or assignment schedule.
3. Students are expected to be self-motivating in an online, asynchronous course.