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The Ultimate Advantage is an Educated Mind

School of Science and Technology
Department of Information Technology
ISSC660: Information Assurance
3 Credit Hours
8 Week Course
Prerequisite(s): None

Table of Contents

Instructor Information	Evaluation Procedures
Course Description	Grading Scale
Course Objectives	Course Outline
Course Delivery Method	Policies
Course Materials	Academic Services
Selected Bibliography	

Instructor Information

Instructor:
Email:
Phone:
Office Hours:

NOTE: IT IS IMPORTANT THAT THE STUDENT READ THE ENTIRE STUDENT SYLLABUS THOROUGHLY. THIS DOCUMENT DETAILS MY GOALS AND EXPECTATIONS FOR THIS COURSE AND PROVIDES ALL OF THE NECESSARY INFORMATION CONCERNING ASSIGNMENTS, GRADING AND ADDITIONAL COURSE REQUIREMENTS. PAY VERY CLOSE ATTENTION TO THE CLASS ANNOUNCEMENTS. UPDATES TO THIS SYLLABUS, DIRECTIONS, AND ADDITIONAL INSTRUCTIONS, FOR WHICH YOU WILL BE ACCOUNTABLE FOR WILL BE SHOWN IN DETAIL THERE.

Course Description (Catalog)

[TOC](#)

The course analyzes computer and systems security measures by examining a model for information assurance; it also examines the components of a comprehensive Information Assurance plan. Topics included are: asset identification, human factors, compliance with regulations, personnel security, risk assessment and ethical considerations, IA policy, as well as computer and network security tools. [3 Semester Hours]

Course Objectives

[TOC](#)

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A successful student will fulfill the following learning objectives:

- Examine the scope, domain, and components of organizational security policy and planning.
- Define and profile IA infrastructure.
- Investigate asset management and develop a plan for business continuity.
- Assess legal and regulatory compliance requirements within an information assurance security policy.
- Appraise access controls, operations security, and network security within the operational and technical domain of information assurance.
- Analyze IA principles and practices for application security and system software security.
- Appraise and conduct operational risk assessment and audit.
- Evaluate the ethical issues related to Information assurance.

Course Delivery Method

[TOC](#)

This is an 8 week course delivered in the APUS Educator; via distance learning will enable students to complete academic work in a flexible manner, completely online. Course materials and access to an online learning management system will be made available to each student. **Online assignments are due by the last day of each week** and include Forum questions (accomplished in groups through a threaded Forum), examinations and quizzes (mostly graded electronically), and individual assignments (submitted for review by the Faculty Member). Assigned faculty will support the students throughout this eight-week course.

Course Materials

[TOC](#)

Required Text and Reading

Schou, C., Shoemaker, D. (2006). *Information Assurance for the Enterprise: A Roadmap to Information Security*. McGraw-Hill Career Education, ISBN: 0072255242

Willett, K. (2008). *Information Assurance Architecture*. CRC Press – Auerbach Publications, Taylor & Francis Group (2008), ISBN: 9780849380679

Reference: Blackley, J. A., Peltier, J., & Peltier, T. (2003) *Information Security Fundamentals, 1st Edition*. Boca Raton, FL. Auerbach Publications. ISBN: 0849319579/9780849319570

Reference: American Psychological Association. (2010). *Publication manual of the American Psychological Association* (6th edition). Washington, DC: Author. ISBN: 1-4338-0561-8

Software Requirements

1. Microsoft Office (MS Word, MS Excel, MS PowerPoint)
2. MS Office Visio – Any version any edition of Visio is sufficient (Visio will be used for diagramming UMLs)
3. Adobe Acrobat Reader ([Click here for free download](#))

Evaluation Procedures

[TOC](#)

The grading will be based on eight graded homework assignments, eight weekly Forum postings, an individual project paper and its prep work, and an open book final examination.

1. There will be eight homework assignments (5% each) counting a total of 40% of the final grade. The homework assignments will follow each of the major portions of the course. These assignments will be problems or questions from the text. They are selected to provide the student with information to understand the concepts discussed. Assignments should be prepared in Microsoft Word or an

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equivalent word processor program and uploaded into the student folder by the due date. Visio diagrams should be incorporated within the Word document as part of the document.

- There will be eight weekly Forum postings you will need to respond to. Answers should be a paragraph with a **topic sentence** that **restates the question** and **supporting sentences** using the terms, concepts, and theories from the required readings. Each answer should be a **minimum of 100 words** (about 6 or 7 sentences). You may **attack, support** or **supplement** other students' answers using the terms, concepts and theories from the required readings. All responses should be a **courteous paragraph** that contains a **topic sentence** with good **supporting sentences**. You may respond multiple times with a continuous discussion with points and counter points. The key requirement is to express your idea and then **support your position** using the terms, concepts and theories from the required readings to demonstrate to me that you understand the material. The Forum postings will count as 24% (3% for each week's discussion postings) of the final grade.
- There will be one project paper (15%) and three project prep mini-assignments each worth 21 %. Total paper with prep weight is 36%

Grade Instruments	Points Possible	% of Final Grade
Weekly Assignments 1 – 8 (5 points each)	40	40%
Weekly Forum Posts 1 - 8 (3 points each)	24	24%
Proposal, Outline, and Annotated Bibliography (5,8, and 8, points respectively)	21	21%
Project Paper	15	15%
TOTAL	100 Points	100%

COURSE OUTLINE & OVERVIEW

[TOC](#)

WEEK	DATES	LESSON SUBJECT	ASSIGNMENT – (*Graded)
1	Monday to Sunday of Week 1	Knowing What to Secure Assessing Risks	Reading: Chapter 1 & 2 from Schou text and Presentation Slides (Ch1&2) Introductions Discussion Question #1b* Assignment #1*
2	Monday to Sunday of Week 2	Security Policy Building and Documenting an Information Assurance Framework	Reading: Chapter 3 & 4 from Schou text and Presentation Slides (Ch3&4) Discussion Question #2* Assignment #2* Project Proposal Due*
3	Monday to Sunday of Week 3	Maintaining Security of Operations Ensuring Controlled Access	Reading: Chapter 5 & 6 from Schou text and Presentation Slides (Ch5&6) Discussion Question #3* Assignment #3*
4	Monday to Sunday of Week 4	Personal and Physical Security	Reading: Chapter 7 & 8 from Schou text and Presentation Slides (Ch7&8) Discussion Question #4* Assignment #4* Project Outline Due*
5	Monday to Sunday of Week 5	Assuring against Software Vulnerabilities Continuity Planning and Disaster Recovery	Reading: Chapter 9 & 10 from Schou text and Presentation Slides (Ch 9&10) Discussion Question #5* Assignment #5*
6	Monday to	Laws, Regulations, and	Reading: Chapter 11 & 1 2 from Schou text and

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	Sunday of Week 6	Crime Network Security Basics: Malware & Attacks	Presentation Slides (Ch 11&12) <i>Discussion Question #6*</i> <i>Assignment #6*</i> <i>Annotated Bibliography Due*</i>
7	Monday to Sunday of Week 7	Cryptography Ensuring the Secure Use of Software	Reading: Chapter 13 & 14 from Schou text and Presentation Slides (Ch13&14) <i>Discussion Question #7*</i> <i>Assignment #7*</i> <i>Project Paper Due*</i>
8	Monday to Sunday of Week 8	Human Factors: Ensuring Secure Performance Information Ethics and Codes of Conduct	Reading: Chapter 15 & 16 from Schou text and Presentation Slides (Ch15&16) <i>Discussion Question #8*</i> <i>Assignment #8*</i> <i>Comprehensive Final Exam Due*</i>

Course Overview

Course Deadlines/Milestones

- Participation in discussions is required for Week 1 through Week 8
- Assignments required to be turned in for Weeks 1 through 8
- Project paper proposal due at Week 2, Outline at Week 4, and Annotated Bibliography at Week 6
- Project Paper due at Week 7
- Final Exam due by the last day of the class at Week 8

Grading Scale

[TOC](#)

Please see the [student handbook](#) to reference the University's [grading scale](#).

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Course Outline - by Week-by-Week

[TOC](#)

WEEK 1

Week 1 Topic: Overview of Information Assurance - Knowing What to Secure and Assessing Risks

Please start by reading Week 1 Lecture Notes first.

Reading Assignments

1. Information Assurance for the Enterprise: A Roadmap to Information Security, by Corey Schou and Dan Shoemaker - Read Chapters 1 & 2
2. Information Assurance Architecture by Keith Willett - Read Chapter 1
3. Chapter 1 and Chapter 2 PowerPoint Presentations [These are pdf files found under course materials - please locate them and read them as requested during each week]

Week 1 Discussion Questions:

Part 1 - Introductions:

Please introduce yourselves. Here are things you might like to include:

- Your name and how you would like to be addressed
- Your city/state
- Your time zone
- Your background
- The degree/specialization you currently pursue at AMU
- How many classes you have taken or how many left
- Your hobbies and interests
- After you have posted this discussion, please respond to at least one additional posting of a peer learner

Part 2 - Week 1 Discussion Question #1b (3%)[13-1]

A) What is an information asset baseline and why is it critical to create one before embarking on an information assurance process? Illustrate. (2%)

B) After posting your main response to this question, respond to at least one peer discussion post. (1%)

Assignments:

Assignment #1: (5%)

Complete the Case Exercise on page 56. Create a Word file, include the case requirements and givens, then provide a solution for each of the five organizational control concerns individually. Upload the completed file as an attachment to this assignment.

Please make sure to save the file in the following format:

FirstName_LastName_ISSC660_Assignment1.doc(x) Also, please provide at least one reference to support your solution, and properly cite from the reference(s). The answers within your solution should each be comprised of at least 100 words.

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WEEK 2

Week 2 Topic: Security Policy and Building and Documenting an Information Assurance Framework

Please start by reading Week 2 Lecture Notes first.

Reading Assignments

1. Information Assurance for the Enterprise: A Roadmap to Information Security, by Corey Schou and Dan Shoemaker - Read Chapters 3 & 4
2. Information Assurance Architecture by Keith Willett - Read Chapter 2
3. Chapter 3 and Chapter 4 PowerPoint Presentations [pdf files found under course materials]

Week 2 Discussion Question #2 (3%)[111-3]

A) Based on the five pillars of information assurance (first state what these are), why are operational controls so important to security, and what purpose do they serve? (2%)

B) After posting your main response to this question, respond to at least one peer discussion post. (1%)

Assignments:

Assignment #2: (5%)

Complete the Case Exercise on page 112. Create a Word file, include the conditions and issues as described in the case scenario. Prepare a complete and coherent set of procedures to address the ten issues identified for the facility. Upload the completed file as an attachment to this assignment.

Please make sure to save the file in the following format:

FirstName_LastName_ISSC660_Assignment2.doc(x) Also, please provide at least one reference to support your solution, and properly cite from the reference(s). The answers within your solution should each be comprised of at least 100 words.

Project Milestones:

Project Proposal: (5%)

Here are common parts of your proposal and what should go in it:

1. Title Page/Cover Sheet (includes title, name, school info, date, and the purpose of the project – 50 to 100 word brief synopsis of the project)
2. Executive Summary (1 page brief but clear summary of your project – important part of the proposal that gives the reader buy-in power to accept and support the project)
3. Statement of Problem or Need (1 sentence that must be specific and concrete to address why the project is needed, and what benefits it could spurt?)
4. Goals, Objectives, and Scope (1 or 2 sentences to detail the project's intention to achieve, expected outcomes, and inclusions – or exclusions if any)
5. Procedures/Methodology (describe in a ½ page the planned project details that tells the reader that you have a fairly good idea what you are doing)

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WEEK 3

Week 3: Maintaining Security of Operations and Ensuring Controlled Access

Please start by reading Week 3 Lecture Notes first.

Reading Assignments

1. Information Assurance for the Enterprise: A Roadmap to Information Security, by Corey Schou and Dan Shoemaker - Read Chapters 5 & 6
2. Information Assurance Architecture by Keith Willett - Read Chapter 3
3. Chapter 5 and Chapter 6 PowerPoint Presentations [pdf files found under course materials]

Week 3 Discussion Question #3 (3%)[162]

A) Compare and contrast the three common access control models. Be sure to name them, describe them, and list the advantages and disadvantages of each model. (2%)

B) After posting your main response to this question, respond to at least one peer discussion post. (1%)

Assignments:

Assignment #3: (5%)

Complete the Case Exercise on page 173. Create a Word file, include the case requirements and givens, then suggest a substantive area of access control to address the five Pentagon concerns as stated. Upload the completed file as an attachment to this assignment

Please make sure to save the file in the following format:

FirstName_LastName_ISSC660_Assignment3.doc(x) Also, please provide at least one reference to support your solution, and properly cite from the reference(s). The answers within your solution should each be comprised of at least 100 words.

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WEEK 4

Week 4: Personnel & Physical Security

Please start by reading Week 4 Lecture Notes first.

Reading Assignments

1. Information Assurance for the Enterprise: A Roadmap to Information Security, by Corey Schou and Dan Shoemaker - Read Chapters 7 & 8
2. Information Assurance Architecture by Keith Willett - Read Chapter 4
3. Chapter 7 and Chapter 8 PowerPoint Presentations [pdf files found under course materials]
4. Here's a fun read [Hack a lock](#)

Week 4 Discussion Question #4(3%)[228-8]

- A) Explain defense in depth in the physical universe. What are possible components of a layered defense? (2%)
- B) After posting your main response to this question, respond to at least one peer discussion post. (1%)

Assignments:

Assignment #4: (5%)

Complete the Case Exercise on page 203. Create a Word file, include the case requirements and givens, then prepare a complete policy manual to secure the personnel who work at the said building. Consider the seven areas of concern in the order of relative priority, as identified and documented in the case exercise. Upload the completed file as an attachment to this assignment.

Please make sure to save the file in the following format:

FirstName_LastName_ISSC660_Assignment4.doc(x) Also, please provide at least one reference to support your solution, and properly cite from the reference(s). The answers within your solution should each be comprised of at least 100 words.

Project Milestones:

Week 4 Project outline for the Week 8 Project Paper (8%)

Compose an outline with complete headers and brief 1-sentence paragraphs towards the Week 8 Project Paper assignment found under Assignments.

Submit for my review and approval. The outline should be complete with all headers and subheaders planned to be used for the final project.

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WEEK 5

Week 5: Assuring Against Software Vulnerabilities & Continuing Planning and Disaster Recovery

Please start by reading Week 5 Lecture Notes first.

Reading Assignments

1. Information Assurance for the Enterprise: A Roadmap to Information Security, by Corey Schou and Dan Shoemaker - Read Chapters 9 & 10
2. Information Assurance Architecture by Keith Willett - Read Chapter 5
3. Chapter 9 and Chapter 10 PowerPoint Presentations [pdf files found under course materials]
4. Just for fun: What is Joomla? Look for DR for Joomla on <http://www.drplanning.org/portal/>

Week 5 Discussion Question #5 (3%)[255-10]

A) What is the difference between a vulnerability and a hidden vulnerability? Why is the latter so potentially dangerous? (2%)

B) After posting your main response to this question, respond to at least one peer discussion post. (1%)

Assignments:

Assignment #5: (5%)

Complete the Case Exercise on page 281. Create a Word file, include the case requirements and givens, then provide a written solution for each of the three organizational control concerns individually. Consider all the given assumptions within your solution for a disaster continuity plan. Upload the completed file as an attachment to this assignment.

Please make sure to save the file in the following format:

FirstName_LastName_ISSC660_Assignment5.doc(x) Also, please provide at least one reference to support your solution, and properly cite from the reference(s). The answers within your solution should each be comprised of at least 100 words.

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WEEK 6

Week 6: Laws, Regulations, and Crime & Network Security Basics

Please start by reading Week 6 Lecture Notes first.

Reading Assignments

1. Information Assurance for the Enterprise: A Roadmap to Information Security, by Corey Schou and Dan Shoemaker - Read Chapters 11 & 12
2. Information Assurance Architecture by Keith Willett - Read Chapter 6
3. Chapter 11 and Chapter 12 PowerPoint Presentations [pdf files found under course materials]

Week 6 Discussion Question #6 (3%)[337-10] A) What potential ways can a Trojan horse attack your computer? How are Trojan horses delivered over networks? What special property of a Trojan horse makes it particularly dangerous to Internet users? (2%)

B) After posting your main response to this question, respond to at least one peer discussion post. (1%)

Assignments:

Assignment #6: (5%)

Complete the Case Exercise on page 309. Create a Word file, and referring to Appendix A on TADS, prepare a catalogue of all relevant laws and regulations towards compliance issues and to perform the four tasks outlined in the case exercise. Upload the completed file as an attachment to this assignment.

Please make sure to save the file in the following format:

FirstName_LastName_ISSC660_Assignment6.doc(x) Also, please provide at least one reference to support your solution, and properly cite from the reference(s). The answers within your solution should each be comprised of at least 100 words.

Project Milestones:

Week 6 Annotated Bibliography for the Week 8 Project Paper (8%)

Search, review, and compile 10-15 references to be used for your Project Paper. APA-format these references, put them on a Word document along with a short abstract or review of each of the reference with its content and how you will be using them in your Project Paper. I expect to see at least 10 APA-formatted references, each followed by a 1-paragraph review of the article.

Submit for my review and approval on the Sunday of Week 6.

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WEEK 7

Week 7: Cryptography & Ensuring the Secure Use of Software

Please start by reading Week 7 Lecture Notes first.

Reading Assignments

1. Information Assurance for the Enterprise: A Roadmap to Information Security, by Corey Schou and Dan Shoemaker - Read Chapters 13 & 14
2. Information Assurance Architecture by Keith Willett - Read Chapters 7 & 8
3. Chapter 13 and Chapter 14 PowerPoint Presentations [pdf files found under course materials]

Week 7 Discussion Question #7 (3%)[365-2]

A) What is the role of the Certificate Authority in a PKI? How are certificate authorities authenticated? (2%)

B) After posting your main response to this question, respond to at least one peer discussion post. (1%)

Assignments:

Assignment #7: (5%)

Consider the eleven generic areas of security outlined under application security common criteria, on page 383. Create a Word file, name these 11 areas, briefly describe them, and explain why each one is important in ensuring the security of the use of software. Upload the completed file as an attachment to this assignment.

Please make sure to save the file in the following format:

FirstName_LastName_ISSC660_Assignment7.doc(x) Also, please provide at least one reference to support your solution, and properly cite from the reference(s). Your answers should be comprised of at least 500 words.

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WEEK 8

Week: Human Factors: Ensuring Secure Performance & Information Ethics and Codes of Conduct

Please start by reading Week 8 Lecture Notes first.

Reading Assignments

1. Information Assurance for the Enterprise: A Roadmap to Information Security, by Corey Schou and Dan Shoemaker - Read Chapters 15 & 16
2. Information Assurance Architecture by Keith Willett - Read Chapters 9 & 10
3. Chapter 15 and Chapter 16 PowerPoint Presentations [pdf files found under course materials]

Week 8 Discussion Question #8 (3%)[439-5]

A) What is the difference between moral, legal, and ethical? Explain and illustrate with personal experiences or viewpoint. (2%)

B) After posting your main response to this question, respond to at least one peer discussion post. (1%)

Assignments:

Assignment #8: (5%)

Complete the Case Exercise on page 417. Create a Word file, include the case requirements and givens, then provide complete instructions to ensure that company employees follow proper information assurance procedures. Consider the three tasks outlined in the case exercise. Make sure to justify your selections. Upload the completed file as an attachment to this assignment.

Please make sure to save the file in the following format:

FirstName_LastName_ISSC660_Assignment8.doc(x) Also, please provide at least one reference to support your solution, and properly cite from the reference(s). The answers for each of the three tasks should be comprised of at least 100 words.

Week 8 – Final Project Paper

The deliverables for your Project Paper Assignment include a Word document that answers the questions described below. Your final paper should be between 10 to 15 pages long. Be sure the report is in MS Word, Arial 12-pt font, with double spacing and 1 inch margins all-around, no additional spaces allowed. Cover page and references pages are also required.

Heavy Metal Engineering, a manufacturing organization that creates metal shell casings for very high-end washer and dryer products has suppliers and customers world-wide, as well as world-wide offices. HME the US Corporate office in NY hires you as a professional Information Assurance consultant. Your task is to create a systematic plan based on IA Architecture for HME. Please refer to your "Information Assurance Architecture" textbook by Keith Willett to use the templates for completing the following:

1. Based on the IAA Framework, use the IAA Process Template to define the solution and its purpose (App-A) (2%)
2. Create an IAA view to show IA Core Principles (App-B) (1%)
3. Create an IAA view to show Organizational Context Framework (App-B) (1%)
4. Create an IAA view to show Risk Management (App-B) (1%)
5. Create a complete IA Quantification Process (App-C)(2%)

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6. Create a complete Root Cause Analysis Report for HME (App-H)(5%)
7. Make sure to cover the nine IA core principles and how they apply to HME on a global scale, the risks to each and its mitigation objective - be specific (330)(3%)
8. Your personal reflection/recommendation to HME - include your justifications for you selections and decision for the recommendation (2%)

You may use web resources as references, however make sure to include all your resources and cite from them with author, year of publication, and the corresponding page or paragraph numbers. Format your paper content, references, and citations in APA-style.

You must accompany the paper with an acceptable turnitin.com originality report. Here are the originality report requirements:

1. The originality report must be less than 15% match excluding quoted and bibliography
2. No single source shall be above 2%
3. You must submit the originality report with your paper to your AMU classroom

If you don't follow these three requirements you will get a 0 for your project assignment. I will give you the chance to rework your papers until the acceptable level of match is achieved.

Final Exam: There is no final exam for this course

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Policies

[TOC](#)

Please see the [student handbook](#) to reference all University policies. Quick links to frequently question asked about policies are listed below.

- [Drop/Withdrawal Policy](#)
- [Plagiarism Policy](#)
- [Extension Process and Policy](#)

WRITING EXPECTATIONS

All written submissions should be submitted in a font and page set-up that is readable and neat. It is recommended that students try to adhere to a consistent format, which is described below.

- Typewritten in double-spaced format with a readable style and font and submitted inside the electronic classroom (unless classroom access is not possible and other arrangements have been approved by the professor).
- Arial 11 or 12-point font or Times New Roman styles.
- Page margins Top, Bottom, Left Side and Right Side = 1 inch, with reasonable accommodation being made for special situations and online submission variances.

CITATION AND REFERENCE STYLE

Assignments completed in a narrative essay or composition format must follow APA guidelines. This course will require students to use the citation and reference style established by the American Psychological Association (APA), in which case students should follow the guidelines set forth in *Publication Manual of the American Psychological Association* (6th ed.). (2010). Washington, D.C.: American Psychological Association.

LATE ASSIGNMENTS

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. Should you need additional time to complete an assignment please contact me before the due date so we can discuss the situation and determine an acceptable resolution. Routine submission of late assignments is unacceptable and may result in points deducted from your final course grade.

DISCLAIMER STATEMENT

Course content may vary from the outline to meet the needs of this particular group.

Academic Services

[TOC](#)

ONLINE LIBRARY RESEARCH CENTER & LEARNING RESOURCES

The Online Library Resource Center is available to enrolled students and faculty from inside the electronic campus. This is your starting point for access to online books, subscription periodicals, and Web resources that are designed to support your classes and generally not available through search engines on the open Web. In addition, the Center provides access to special learning resources, which the University has contracted to assist with your studies. Questions can be directed to orc@apus.edu.

- **Charles Town Library and Inter Library Loan:** The University maintains a special library with a limited number of supporting volumes, collection of our professors' publication, and services to search and borrow research books and articles from other libraries.
- **Electronic Books:** You can use the online library to uncover and download over 50,000 titles, which have been scanned and made available in electronic format.
- **Electronic Journals:** The University provides access to over 12,000 journals, which are available in electronic form and only through limited subscription services.

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- **Turnitin.com** is a tool to improve student research skills that also detect plagiarism. Turnitin.com provides resources on developing topics and assignments that encourage and guide students in producing papers that are intellectually honest, original in thought, and clear in expression. This tool helps ensure a culture of adherence to the University's standards for intellectual honesty. Turnitin.com also reviews students' papers for matches with Internet materials and with thousands of student papers in its database, and returns an Originality Report to instructors and/or students.
- **Smarthinking:** Students have access to 10 free hours of tutoring service per year through [Smarthinking](#). Tutoring is available in the following subjects: math (basic math through advanced calculus), science (biology, chemistry, and physics), accounting, statistics, economics, Spanish, writing, grammar, and more. Additional information is located in the Online Research Center. From the ORC home page, click on either the "Writing Center" or "Tutoring Center" and then click "Smarthinking." All login information is available.

Selected Bibliography

[TOC](#)

Web Resources for Telecommunications & Network Security:

1. Methodology of an Attack
 - www.schneier.com/paper-attacktrees-ddj-ft.html
2. OSI Reference Model
 - http://www.cisco.com/univercd/cc/td/doc/cisintwk/ito_doc/introint.htm#wp1020580
3. Internet Protocol
 - <http://www.protocols.com/pbook/tcpip2.htm#IP>
4. IPv6
 - <http://www.protocols.com/pbook/tcpip2.htm#IPv6>
5. Threats
 - <http://www.fcc.gov/voip>
 - <http://www.whitedust.net/article/30/VoIP%20Security:%20Uncovered/>
 - <http://communication.howstuffworks.com/ip-telephony.htm>
6. Centralized Remote User Authentication
 - http://publib.boulder.ibm.com/infocenter/pseries/v5r3/index.jsp?topic=/com.ibm.aix.security/doc/security/radius_server.htm
 - <http://www.untruth.org/~josh/security/radius/radius-auth.html>
7. Kerberos Authentication
 - <http://web.mit.edu/kerberos/>
 - <http://tools.ietf.org/html/rfc1510>
8. Directory Services
 - <http://www.ehsco.com/reading/19961215ncf1.html>
9. Configuration Services
 - <http://tools.ietf.org/html/rfc2131>
10. Storage Data Services
 - <http://www.phptr.com/articles/article.asp?p=169578&rl=1>
11. Printing Services
 - <http://tools.ietf.org/html/rfc2910>
 - <http://tools.ietf.org/html/rfc1179>

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- <http://www.cups.org/>

12. Countermeasures

- <http://www.dnssec.net/>

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Appendix A – Grading Rubric

All written assignments will be assessed according to this rubric. Note that a score of 0 may be assigned in any category where your work does not meet the criteria for the beginning level.

APUS Assignment Rubric Graduate Level 600+	EXEMPLARY LEVEL 4	ACCOMPLISHED LEVEL 3	DEVELOPING LEVEL 2	BEGINNING LEVEL 1	TOTAL POINTS
FOCUS/THESIS	Student exhibits a defined and clear understanding of the assignment. Thesis is clearly defined and well constructed to help guide the reader throughout the assignment. Student builds upon the thesis of the assignment with well-documented and exceptional supporting facts, figures, and/or statements.	Establishes a good comprehension of topic and in the building of the thesis. Student demonstrates an effective presentation of thesis, with most support statements helping to support the key focus of assignment.	Student exhibits a basic understanding of the intended assignment, but the thesis is not fully supported throughout the assignment. While thesis helps to guide the development of the assignment, the reader may have some difficulty in seeing linkages between thoughts. While student has included a few supporting facts and statements, this has limited the quality of the assignment.	Exhibits a limited understanding of the assignment. Reader is unable to follow the logic used for the thesis and development of key themes. Introduction of thesis is not clearly evident, and reader must look deeper to discover the focus of the writer. Student's writing is weak in the inclusion of supporting facts or statements.	10
CONTENT/SUBJECT KNOWLEDGE	Student demonstrates proficient command of the subject matter in the assignment. Assignment shows an impressive level of depth of student's ability to relate course content to practical examples and applications. Student provides comprehensive analysis of details, facts, and concepts in a logical sequence.	Student exhibits above average usage of subject matter in assignment. Student provides above average ability in relating course content in examples given. Details and facts presented provide an adequate presentation of student's current level of subject matter knowledge.	The assignment reveals that the student has a general, fundamental understanding of the course material. Whereas, there are areas of some concern in the linkages provided between facts and supporting statements. Student generally explains concepts, but only meets the minimum requirements in this area.	Student tries to explain some concepts, but overlooks critical details. Assignment appears vague or incomplete in various segments. Student presents concepts in isolation, and does not perceive to have a logical sequencing of ideas.	20
CRITICAL THINKING SKILLS	Student demonstrates a higher-level of critical thinking necessary for 300-400 level work. Learner provides a	Student exhibits a good command of critical thinking skills in the presentation of material and supporting	Student takes a common, conventional approach in guiding the reader through various linkages and	Student demonstrates beginning understanding of key concepts, but overlooks critical details. Learner is	20

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APUS Assignment Rubric Graduate Level 600+	EXEMPLARY LEVEL 4	ACCOMPLISHED LEVEL 3	DEVELOPING LEVEL 2	BEGINNING LEVEL 1	TOTAL POINTS
	strategic approach in presenting examples of problem solving or critical thinking, while drawing logical conclusions which are not immediately obvious. Student provides well-supported ideas and reflection with a variety of current and/or world views in the assignment. Student presents a genuine intellectual development of ideas throughout assignment.	statements. Assignment demonstrates the student's above average use of relating concepts by using a variety of factors. Overall, student provides adequate conclusions, with 2 or fewer errors.	connections presented in assignment. However, student presents a limited perspective on key concepts throughout assignment. Student appears to have problems applying information in a problem-solving manner.	unable to apply information in a problem-solving fashion. Student presents confusing statements and facts in assignment. No evidence or little semblance of critical thinking skills.	
ORGANIZATION OF IDEAS/FORMAT	Student thoroughly understands and excels in explaining all major points. An original, unique, and/or imaginative approach to overall ideas, concepts, and findings is presented. Overall format of assignment includes an appropriate introduction (or abstract), well- developed paragraphs, and conclusion. Finished assignment demonstrates student's ability to plan and organize research in a logical sequence. Student uses at least of 5-7 references in assignment.	Student explains the majority of points and concepts in the assignment. Learner demonstrates a good skill level in formatting and organizing material in assignment. Student presents an above average level of preparedness, with a few formatting errors. Assignment contains less than 5 resources.	Learner applies some points and concepts incorrectly. Student uses a variety of formatting styles, with some inconsistencies throughout the paper. Assignment does not have a continuous pattern of logical sequencing. Student uses less than 3 sources or references.	Assignment reveals formatting errors and a lack of organization. Student presents an incomplete attempt to provide linkages or explanation of key terms. The lack of appropriate references or source materials demonstrates the student's need for additional help or training in this area. Student needs to review and revise the assignment.	20

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APUS Assignment Rubric Graduate Level 600+	EXEMPLARY LEVEL 4	ACCOMPLISHED LEVEL 3	DEVELOPING LEVEL 2	BEGINNING LEVEL 1	TOTAL POINTS
WRITING CONVENTIONS (GRAMMAR & MECHANICS)	Student demonstrates an excellent command of grammar, as well as presents research in a clear and concise writing style. Presents a thorough, extensive understanding of word usage. Student excels in the selection and development of a well-planned research assignment. Assignment is error-free and reflects student's ability to prepare a high-quality academic assignment.	Student provides an effective display of good writing and grammar. Assignment reflects student's ability to select appropriate word usage and present an above average presentation of a given topic or issue. Assignment appears to be well written with no more than 3-5 errors. Student provides a final written product that covers the above-minimal requirements.	Assignment reflects basic writing and grammar, but more than 5 errors. Key terms and concepts are somewhat vague and not completely explained by student. Student uses a basic vocabulary in assignment. Student's writing ability is average, but demonstrates a basic understanding of the subject matter.	Topics, concepts, and ideas are not coherently discussed or expressed in assignments. Student's writing style is weak and needs improvement, along with numerous proofreading errors. Assignment lacks clarity, consistency, and correctness. Student needs to review and revise assignment.	20
USE OF COMPUTER TECHNOLOGY/ APPLICATIONS	Student provides a high-caliber, formatted assignment. Learner exhibits excellent use of computer technology in the development of assignment. Quality and appropriateness of stated references demonstrate the student's ability to use technology to conduct applicable research. Given assignment includes appropriate word processing, spreadsheet and/or other computer applications as part of the final product.	Assignment presents an above-average use of formatting skills, with less than 3 errors. Students has a good command of computer applications to format information and/or figures in an appropriate format. Student uses at least two types of computer applications to produce a quality assignment.	Student demonstrates a basic knowledge of computer applications. Appearance of final assignment demonstrates the student's limited ability to format and present data. Resources used in assignment are limited. Student may need to obtain further help in the use of computer applications and Internet research.	Student needs to develop better formatting skills. The student may need to take additional training or obtain help from the Educator Help Desk while preparing an assignment. Research and resources presented in the assignment are limited. Student needs to expand research scope. The number of formatting errors is not acceptable.	10
TOTAL POINTS					100