

STUDENT WARNING: This course syllabus is from a previous semester archive and serves only as a preparatory reference. Please use this syllabus as a reference only until the professor opens the classroom and you have access to the updated course syllabus. Please do NOT purchase any books or start any work based on this syllabus; this syllabus may NOT be the one that your individual instructor uses for a course that has not yet started. If you need to verify course textbooks, please refer to the online course description through your student portal. This syllabus is proprietary material of APUS.

American Public University System

The Ultimate Advantage is an Educated Mind

School of Science and Technology
Department of Information Technology
ISSC641: Telecommunications and Network Security
3 Credit Hours
8 Week Course
Prerequisite(s): None

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Instructor Information

Instructor:

Email:

Phone:

Office Hours:

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Course Description (Catalog)

Telecommunications networks are a critical component of the global economic and social infrastructures. Securing critical infrastructure is an established priority within Information Security Management. This course examines the field of secure telecommunications networks, including emerging threats, system vulnerability, network evolution, and network defense mechanisms. [3 Semester Hours]

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Course Objectives

A successful student will fulfill the following learning objectives:

- Examine the principles of network security and cellular architecture.
- Evaluate emerging threats and system vulnerability.
- Assess vulnerabilities in telephony, short messaging service (SMS), cellular data networks, and in Voice over IP (VoIP).
- Identify the open questions posited by network evolution and defense mechanisms.
- Evaluate the process for securing current and next generation telecommunications networks.
- Examine the challenges faced in securing networks and telecommunications.
- Examine the trends in Telecommunications and Network Systems security.

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Course Delivery Method

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 discussion question), 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.

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Course Materials

Required Text and Reading

Traynor, P., McDaniel, P., & La Porta, T. (2008). *Security for Telecommunications Networks: Advances in Information Security*. Springer ISBN: 0387724419

Conklin, W., & Hirsch, W. (2006). *Computer Security Lab Manual (Information Assurance & Security Series)* ISBN: 0072255080 – This book is required only after a possible lab environment is implemented. Otherwise it is just a recommendation.

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

Additional required supplemental peer-reviewed reading articles in .pdf format are provided under the Course Materials area.

Recommended Web-based Readings and Additional Web Resources for Telecommunications & Network Security can be found under the Additional Web Resources file.

Software Requirements

1. Microsoft Office (MS Word, MS Excel, MS PowerPoint)
2. MS Office Visio – any version used for diagramming UMLs)
3. Adobe Acrobat Reader ([Click here for free download](#))
4. Additional lab and testing software pending availability of a virtual lab

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Evaluation Procedures

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

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 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.
2. 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'

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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 19% (2.5% for week's 1-7 and 1.5% for week 8 discussion postings) of the final grade.

- There will be one project paper (15%) and three project prep mini-assignments each worth 2 %. Total paper with prep weight is 21%

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	26	26%
Project Paper	15	15%
TOTAL	100 Points	100%

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COURSE OUTLINE & OVERVIEW

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 dues at Week 7

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Grading Scale

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

Policies

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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

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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

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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.
- **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.

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Selected Bibliography

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1. Network Security Objectives and Attacks
 - <http://dsdl2.computer.org/comp/mags/sp/2007/01/j1036.pdf>
 - http://www2.tech.purdue.edu/cit/courses/cpt443/resources/assignments/CA_Security_Mgmt.pdf
2. Wireless Multiplexing Technologies
 - http://authors.phptr.com/tanenbaumcn4/samples/section04_04.pdf
 - <http://www.wlana.org/pdf/highspeed.pdf>
3. Carrier Sense Multiple Access
 - [www.cs.ucdavis.edu/~aksoy/couse/s06/Lectures/link\(2.1\).ppt](http://www.cs.ucdavis.edu/~aksoy/couse/s06/Lectures/link(2.1).ppt)
4. Password Authentication Protocol (PAP)
 - <http://h20331.www2.hp.com/Hpsub/downloads/WWAN-Security.pdf>

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 strategic approach in presenting	Student exhibits a good command of critical thinking skills in the presentation of material and supporting statements. Assignment	Student takes a common, conventional approach in guiding the reader through various linkages and connections presented in	Student demonstrates beginning understanding of key concepts, but overlooks critical details. Learner is unable to apply information in	20

APUS Assignment Rubric Graduate Level 600+	EXEMPLARY LEVEL 4	ACCOMPLISHED LEVEL 3	DEVELOPING LEVEL 2	BEGINNING LEVEL 1	TOTAL POINTS
	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.	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.	assignment. However, student presents a limited perspective on key concepts throughout assignment. Student appears to have problems applying information in a problem-solving manner.	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
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

APUS Assignment Rubric Graduate Level 600+	EXEMPLARY LEVEL 4	ACCOMPLISHED LEVEL 3	DEVELOPING LEVEL 2	BEGINNING LEVEL 1	TOTAL POINTS
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. Student 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