

**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.

# ISSC442

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## Course Summary

**Course :** ISSC442 **Title :** Wireless and Mobile Network Security

**Length of Course :** 8 **Faculty :**

**Prerequisites :** ISSC343 **Credit Hours :** 3

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## Description

### Course Description:

The mobile communication market has grown so rapidly keeping up security in wireless networks has become a challenge. Maintaining secure connectivity on mobile devices as well as retaining flexibility, mobility, and resilience are critical to keeping files, data, and information secure and private. This course explores security issues surrounding mobile cellular communication technologies. Hands-on labs are also included as practical examples of wireless network security. (Prerequisite: ISSC343)

### Course Scope:

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## Objectives

1. Categorize vulnerabilities and exploit types on wireless and mobile networks and identify the challenges of securing information on the Internet
  2. Review exploiting secured networks using WEP, WPA, WPA2, WPS, and popular authentication mechanisms. Examine the processes, best practices, and techniques to manage and prevent cybercrime
  3. Review special techniques and special tools such as Wireshark, Kismet, MDK3, TCPReplay, GHex, Hydra, Reaver, Cowpatty, and similar tools used to exploit encryption keys and vulnerabilities in wireless and mobile
  4. Discover wireless networks using Active and Passive Discovery methods
  5. Describe how Windows systems are compromised, their built-in tools, and how to exploit remote wireless networks
  6. Examine eavesdropping techniques, Bluetooth Classic exploits and susceptibility of Low Energy traffic
  7. Examine vulnerabilities in ZigBee Security
  8. Describe how Z-Wave Smart Homes can be compromised through eavesdropping or injection
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## Outline

### Week 1: Security Challenges for Wireless and Mobile Networks

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## **Learning Outcomes**

CO1

## **Required Readings**

Course includes weekly resources of various media types refer to reading and resources in lessons.

## **Assignments**

Assignment 1

Discussion Participation

**Recommended Optional Reading**

**Recommended Media**

## **Week 2: Exploiting Secure Networks and Preventing Cybercrime**

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## **Learning Outcomes**

CO2

## **Required Readings**

Course includes weekly resources of various media types refer to reading and resources in lessons.

## **Assignments**

Assignment 2

Discussion Participation

**Recommended Optional Reading**

**Recommended Media**

## **Week 3: Special Tools and Techniques to Exploit Secure Networks**

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## **Learning Outcomes**

CO3

## **Required Readings**

Course includes weekly resources of various media types refer to reading and resources in lessons.

## **Assignments**

Assignment 3

Discussion Participation

**Recommended Optional Reading**

**Recommended Media**

## **Week 4: Wireless Networks Using Active and Passive Discovery Methods**

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## **Learning Outcomes**

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CO4

### **Required Readings**

Course includes weekly resources of various media types refer to reading and resources in lessons.

### **Assignments**

Assignment 4

Discussion Participation

**Recommended Optional Reading**

**Recommended Media**

## **Week 5: Compromising Windows Systems**

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### **Learning Outcomes**

CO5

### **Required Readings**

Course includes weekly resources of various media types refer to reading and resources in lessons.

### **Assignments**

Final Term Paper Outline

Discussion Participation

**Recommended Optional Reading**

**Recommended Media**

## **Week 6: Eavesdropping Techniques**

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### **Learning Outcomes**

CO6

### **Required Readings**

Course includes weekly resources of various media types refer to reading and resources in lessons.

### **Assignments**

Assignment 5

Discussion Participation

**Recommended Optional Reading**

**Recommended Media**

## **Week 7: ZigBee Security Vulnerabilities**

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### **Learning Outcomes**

CO7

## **Required Readings**

Course includes weekly resources of various media types refer to reading and resources in lessons.

## **Assignments**

Assignment 6

Discussion Participation

**Recommended Optional Reading**

**Recommended Media**

## **Week 8: Z-Wave Smart Home Vulnerabilities**

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### **Learning Outcomes**

CO8

### **Required Readings**

Course includes weekly resources of various media types refer to reading and resources in lessons.

### **Assignments**

Final Term Paper

Discussion Participation

**Recommended Optional Reading**

**Recommended Media**

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## Evaluation

### Grading:

Name	Grade %
Weekly Assignments	30.00 %
Week 1 Assignment	5.00 %
Week 2 Assignment	5.00 %
Week 3 Assignment	5.00 %
Week 4 Assignment	5.00 %
Week 6 Assignment	5.00 %
Week 7 Assignment	5.00 %
Discussions	40.00 %
Discussion 1 Participation	5.00 %
Discussion 2 Participation	5.00 %
Discussion 3 Participation	5.00 %
Discussion 4 Participation	5.00 %
Discussion 5 Participation	5.00 %
Discussion 6 Participation	5.00 %
Discussion 7 Participation	5.00 %
Discussion 8 Participation	5.00 %
Final Term Paper	30.00 %
Final Term Paper	20.00 %
Final Term Paper Outline	10.00 %

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## Materials

**Book Title:** Practical Packet Analysis, 3E: Using Wireshark to Solve Real-World Network Problems - e-book available in the APUS Online Library; link also provided in the classroom Content section

**Author:** Sanders, Chris

**Publication Info:** No Starch Press

**ISBN:** 9781593278021

**Book Title:** Various resources from the APUS Library & the Open Web are used. Please visit [eReserve](#) to locate the course.\*

**Author:**

**Publication Info:**

**ISBN:** ERESERVE NOTE

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## Course Guidelines

### Citation and Reference Style

- Attention Please: Students will follow the APA Format as the sole citation and reference style used in written work submitted as part of coursework to the University. Assignments completed in a narrative essay or composition format must follow the citation style cited in the APA Format.

## **Tutoring**

- [Tutor.com](https://www.tutor.com) offers online homework help and learning resources by connecting students to certified tutors for one-on-one help. AMU and APU students are eligible for 10 free hours\* of tutoring provided by APUS. Tutors are available 24/7 unless otherwise noted. Tutor.com also has a SkillCenter Resource Library offering educational resources, worksheets, videos, websites and career help. Accessing these resources does not count against tutoring hours and is also available 24/7. Please visit the APUS Library and search for 'Tutor' to create an account.

## **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. The due date for each assignment is listed under each Assignment.
- Generally speaking, late work may result in a deduction up to 15% of the grade for each day late, not to exceed 5 days.
- As a working adult I know your time is limited and often out of your control. Faculty may be more flexible if they know ahead of time of any potential late assignments.

## **Turn It In**

- Faculty may require assignments be submitted to Turnitin.com. Turnitin.com will analyze a paper and report instances of potential plagiarism for the student to edit before submitting it for a grade. In some cases professors may require students to use Turnitin.com. This is automatically processed through the Assignments area of the course.

## **Academic Dishonesty**

- Academic Dishonesty incorporates more than plagiarism, which is using the work of others without citation. Academic dishonesty includes any use of content purchased or retrieved from web services such as CourseHero.com. Additionally, allowing your work to be placed on such web services is academic dishonesty, as it is enabling the dishonesty of others. The copy and pasting of content from any web page, without citation as a direct quote, is academic dishonesty. When in doubt, do not copy/paste, and always cite.

## **Submission Guidelines**

- Some assignments may have very specific requirements for formatting (such as font, margins, etc) and submission file type (such as .docx, .pdf, etc) See the assignment instructions for details. In general, standard file types such as those associated with Microsoft Office are preferred, unless otherwise specified.

## **Disclaimer Statement**

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

## **Communicating on the Discussion**

- Discussions are the heart of the interaction in this course. The more engaged and lively the exchanges, the more interesting and fun the course will be. Only substantive comments will receive credit. Although there is a final posting time after which the instructor will grade comments, it is not sufficient to wait until the last day to contribute your comments/questions on the discussion. The purpose of the discussions is to actively participate in an on-going discussion about the assigned content.
- “Substantive” means comments that contribute something new and hopefully important to the discussion. Thus a message that simply says “I agree” is not substantive. A substantive comment

contributes a new idea or perspective, a good follow-up question to a point made, offers a response to a question, provides an example or illustration of a key point, points out an inconsistency in an argument, etc.

- As a class, if we run into conflicting view points, we must respect each individual's own opinion. Hateful and hurtful comments towards other individuals, students, groups, peoples, and/or societies will not be tolerated.

### **Identity Verification & Live Proctoring**

- Faculty may require students to provide proof of identity when submitting assignments or completing assessments in this course. Verification may be in the form of a photograph and/or video of the student's face together with a valid photo ID, depending on the assignment format.
  - Faculty may require live proctoring when completing assessments in this course. Proctoring may include identity verification and continuous monitoring of the student by webcam and microphone during testing.
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## **University Policies**

### [Student Handbook](#)

- [Drop/Withdrawal policy](#)
- [Extension Requests](#)
- [Academic Probation](#)
- [Appeals](#)
- [Disability Accommodations](#)

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