# HomeCOURSE INFORMATION Fall 2015

# 03-60-467 Network Security

# School of Computer Science, University of Windsor

***Instructor*:**

Dr. Robert D. Kent, School of Computer Science. **Email: rkent@uwindsor.ca**

Room: 5100 LT Tel: 519-253-3000 ext. 2993

**Office Hours:** Mondays & Wednesdays, 10:00am – 12:00noon, LT 5100.

Dr. Kent will set up appointments with students who cannot meet during scheduled office hours. Dr. Kent often uses email to answer many questions from students. Students are advised to use proper English spelling and grammar in email communications. Students must use the official University of Windsor student email account and identify the course 60-467 in the Subject field.

## Purpose of the course and learning resources:

This course will introduce students to advanced topics in network security. Topics will include encryption and authentication techniques, detection and analysis of intrusions, and the security of electronic mail and web access. (Restricted to Computer Science students) (Prerequisite: 60-367.)

Students must be aware that courses may only be taken a maximum of two times in order to achieve a passing grade. Failure to obtain a passing grade upon the second attempt may require that the student withdraw from their program of study

**Required Textbook**

***Cryptography and Network Security: Principles and Practice***, (6th Edition)

By William Stallings

Publisher:  Prentice Hall (Pearson Ed.) 2014

[**http://williamstallings.com/NetSec/NetSec4e.html**](http://williamstallings.com/NetSec/NetSec4e.html)

**Some Additional Recommended References: (Not Required)**

- *Cryptography and Network Security: Principles and Practice* (5th Edition)

By William Stallings Publisher:  Prentice Hall

William Stallings website:

<http://williamstallings.com/Crypto/Crypto5e.html>

- *Applied Cryptography: Protocols, Algorithms, and Source Code in C*

By Bruce Schneier Publisher: John Wiley and Sons.

- *Penetration testing: A Hands-On Introduction to Hacking*

by Georgia Weidman Publisher: No Starch Press, San Francisco 2014

- *Practical Malware Analysis*

by Michael Sikorski and Andrew Honig. Publisher: No Starch PRess, San Francisco 2012

### Course notes and web page

Course notes, lecture slides, assigned laboratory exercises, essay topics and other announcements will be done using the ~~Blackboard Learning Management System (LMS)~~. NOTE: Subsequent to the initial release of this course outline, due to technical issues, the Instructor decided to post all notes on the website:

 **http://rkent.myweb.cs.uwindsor.ca/cs467/**

Students are advised that lecture slides are intended to provide basic coverage of course material **only**. Within the lecture these slides will be substantially embellished with additional material provided orally or using notes or computer examples (non-published). Readings will be assigned from the textbook and students are responsible for this assigned material as it will be tested.

## Tentative Topics

* Overview
* Symmetric Encryption and Message Confidentiality
* Public-Key Cryptography and Message Authentication
* Key Distribution and User Authentication
* Transport-Level Security
* Wireless Network Security
* Electronic Mail Security
* IP Security
* Intruders
* Malicious Software
* Firewalls

### Requirements Evaluation Scheme and Schedule

Assessment of students taking 60-467 consists of various components, weighted as follows in the calculation of the final grade. Note that the Midterm Exams will be held during the scheduled lecture times. There is no Final Examination in this course. All communications during evaluation procedures must be in English.

|  |  |  |
| --- | --- | --- |
| Midterm Exam #1 | %20 | Thursday November 12 - in lecture room |
| Individual research essay  | %20 | Sunday November 22 (23:59:59ET) - Submitted by email to Instructor |
| Individual presentation | %10 | TBA – Seminar presentation to class, in lecture |
| Projects I (groups) | %25 | Reports, presentations, implementations, etc – Due Date: TBA - ) - Submitted by email to Instructor |
| Projects II (groups) | %25 | Reports, presentations, implementations, etc – Due Date: TBA - ) - Submitted by email to Instructor |

Students who wish to appeal a mark on any course evaluation component should do so immediately after receiving their mark and within the time period specified by the instructor (usually one week). For Final Examinations students must follow the procedure outlined in the University Calendar for the appeal of a course grade. Numerical errors in adding marks on examinations or assignments or project will be corrected when identified and approved by the instructor. The instructor’s decision will be final, subject to a Formal Appeal which must be done, following the course and final grade assignment and using the procedures outlined in the University Calendar and Senate Bylaws. All students must attend lectures regularly in order to learn and achieve academic success. The website notes are abbreviated versions of the full discussions given in the lectures.

**Missed or Delayed Submission of Requirements**

In case of a missed exam, or delayed submission of any other requirement, valid reason must be provided along with supporting documentation; the supporting document is the "Student Medical Certificate". For a missed or delayed requirement, students must see the Instructor to arrange for making up the work. In case of delayed submission without valid excuse, penalties will be applied. Without proper documentation, no credit will be given for a missed assignment, exam or other requirement.

**Missed Midterm**

Students who miss the midterm examination for an acceptable excuse will have their grade calculated based on re-weighting of the midterm to other requirements.

**Missed assignment, essay or presentation**

Students who do not submit a course evaluation component for assignment, essay or presentation work will receive a mark of zero (0) for each missed assignment or project. If individual problems arise that may affect completion of work, students are advised to contact the Instructor as soon as possible.

**Teaching Evaluations**

Student Evaluation of Teaching (SET) forms will be administered during the last two weeks of the class schedule.

### Weekly work schedule

In order to keep up with the work required for this course it is a good idea for students to write down a weekly schedule, such as the following, filling in the time and location column accordingly. Reading and Lectures are weekly activities, while Essay and Practicum may be unevenly spaced through the semester.

|  |  |
| --- | --- |
| *Task* | ***Duration (minimum)*** |
| Reading of lecture notes, textbook | 3 hours |
| Lectures | 3 hours |
| Individual essay library work, writing and presentation | 1.5 hours |
| Group Lab – meetings, preparation and work | 1.5 hours |
| Weekly TOTAL (excluding revision for tests and exam) | 9 hours |

## Computing resources:

The following computing resources will be available for students taking this course:

* A distributed-computing network, accessible through a graphic interface provided by workstations located in dedicated laboratories on the 3rd floor of Lambton Tower and Erie Hall, or through PCs in an open laboratory in the Computer Centre, or, for students who have the necessary equipment, from campus and home using network connectivity.
* State-of-the-art parallel-processing computer servers.

## Marks/Grades Descriptors:

The University of Windsor uses a percentage marking and grading scale. For a more detailed explanation, students are directed to the webpage: [www.uwindsor.ca/calendar](http://www.uwindsor.ca/calendar) and from there, follow the link to **Examinations, Grading and Graduation** and then to the link **MARKS/GRADES DESCRIPTORS**.

**Student Disability Services**

Students with various documented disabilities attend University with success. Student Disability Services provides a variety of services and supports to students with documented disabilities (including: learning disabilities, attention deficit/hyperactivity disorder, acquired brain injuries, vision, hearing and mobility impairments, chronic medical conditions and psychiatric issues), who have registered with SDS. If you have, or think you may have a disability, you may wish to visit Student Disability Services  to learn how best to meet your academic goals.

The SDS office is located in Room 117, Dillon Hall, (519) 253-3000 ext. 3288 or online at:

 [www.uwindsor.ca/disability](http://www.uwindsor.ca/disability).<http://www.uwindsor.ca/disability>

**Important Notes**

Students should keep the instructor informed about any difficulties with the course. The University of Windsor allows students to take a course only twice. If a student fails to get the specified minimum grade in a required course after two attempts, the student may be asked to withdraw from the program. The Dean's office has to grant permission to take a course more than twice. Students must note that such permission is granted only under exceptional circumstances. Any student who is taking a course for the second time and having difficulties with the course must seek counseling before the last day to withdraw voluntarily from a course.