

IA340 – Introduction to Information Assurance

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1 Course Description

This course provides an overview of design considerations involved with the security of site design. The course will also provide an understanding of the Levels of Trust and system accreditation/certification processes. Life cycle management of software, hardware, and physical plant, from planning through destruction will be examined and reinforced using case studies. Additionally understanding of the variety of security systems involving computers and networks and an ability to evaluate vulnerabilities will be discussed. Prerequisite C or higher in IS131 or CS140 or permission of instructor. (3 Credits)

2 Course Objectives

By the end of this course, students will be able to discuss the following issues at a management level:

- Recognize, define and use the technical terminology of information assurance (IA).
- Name, define and give illustrations of the fundamental concepts of IA and their breaches.
- Describe models and key elements of information warfare.
- Recognize, name, define and discuss computer crime techniques; present countermeasures for each type.
- Describe and discuss the criminal-hacker subculture.
- Recognize, name, define, and discuss techniques of denial-of-service (DoS) attacks and countermeasures.
- Recognize, name, define, and discuss physical (facilities) security vulnerabilities and defenses.
- Recognize, name, define, and discuss identification and authentication techniques.
- Discuss specific security issues pertaining to voice and data networks.
- Recognize, name, define, and discuss fundamentals of firewalls and of intrusion-detection systems.
- Recognize, name, define, and discuss fundamentals of modern cryptography.
- Evaluate requirements and techniques for backing up, archiving, storing, managing, and destroying electronic records.

3 Course Schedule & Location

- **Mondays, Wednesdays and Fridays in Dewey 106 & using NUoodle:**
Section B: 10:00:03 – 10:49:57
Section A: 15:00:03 – 15:49:47
- NUoodle < <https://nuoodle.norwich.edu/login/index.php> >

4 Text

- Bosworth, S., M. E. Kabay & E. Whyne (2014), eds. *Computer Security Handbook*, 6th Edition. Wiley (New York). ISBN 978-1118127063. Two volumes; 2040 pp. Index. Volume 1 is used for IA340; Volume 2 is used for IA342. AMAZON < <http://www.amazon.com/Computer-Security-Handbook-Seymour-Bosworth/dp/1118127064/> > or < <http://tinyurl.com/l dg9c8r> >
- Additional readings are provided on the course Web pages, through links in NUoodle, and in class handouts.

5 Course Web Site

Course materials are posted on the IA340 section of NUoodle. Students must visit NUoodle regularly for course news, changes, assignments, reading materials, and discussions. For current news and political rants, join me on Facebook <Mich Kabay > and use the hashtag #IA340nu for collected articles relevant to the course material.

6 Methods of Assessment

All assignments and quizzes are submitted using NUoodle. Deadlines for each assignment are posted in NUoodle and on the class Syllabus. NUoodle is accessible on or off campus < <https://nuoodle.norwich.edu/login/index.php> >

Responding punctually to professional responsibilities is part of the maturation of students. To encourage promptness, late submissions for any of the essay exams and assignments will result in reduction of grades by 10% per day from the total score allotted. However, because of the constraints on NUoodle quizzes, the time limits on quizzes have to be definite; therefore, quizzes close at their deadlines and cannot be taken or retaken after closure.

6.1 Review Quizzes: 15% of final grade

Using NUoodle, there will be 13 sets of weekly quizzes (each individual quiz will cover a week's assigned readings). These open-book, automatically graded quizzes will test for concepts and technical vocabulary and must be completed in 30 minutes or less. These quizzes are always open and close at the end of Sunday night (23:55) in the week *after* the topic was discussed.

6.2 Mid-term Multiple-Choice Exam: 15% of final grade

The mid-term exam will be an open-book multiple-choice exam taken via NUoodle and covering the material discussed from the start of the course until one week before the exam. Opening and closing dates are specified in the Syllabus and on NUoodle.

6.3 Mid-term Memo Question Exam: 10% of final grade

Students will complete an open-book take-home assignment requiring at least four management-level 400 ± 100 word memoranda responding to realistic questions raised by managers querying an information systems security officer (ISSO) or chief information security officer (CISO) about security issues. Mid-Term Memo Exam coverage is Weeks 1 through 5 of the course.

6.4 Final Multiple-Choice Exam: 20% of final grade

The final multiple-choice exam will be similar to the weekly quizzes but covering all the material in the course. The exam will be offered via NUoodle. Opening and closing dates are specified in the Syllabus and on NUoodle.

6.5 Final Memo Question Exam: 15% of final grade

Students will complete an open-book take-home assignment requiring at least six management-level 400 ± 100 word memoranda responding to realistic questions raised by managers querying an information systems security officer (ISSO) or chief information security officer (CISO) about security issues. Exam coverage is Weeks 6 through 13 of the course.

6.6 Term Project: 20% of final grade

- By the time specified in the Syllabus, students will submit their proposal for a research topic, subject to instructor approval. All submissions are via NUoodle.
- **Every day of delay** in meeting the required deadlines will result in subtraction of 1% point from the final score on the term project.
- As specified in the Syllabus, students must submit evidence of steady progress on their project:
 - Submission of a list of at least six substantive references in the area of research
 - A one-page outline with at least ten references and a clear structure for the report

- A draft version with at least 2000 words corresponding to what would be a final version in other courses; the instructors will make suggestions for improvement at no risk to the students (no grading)
- A final version meeting the word-count requirements (see below) integrating the corrections and suggestions from the instructors.
- The word limits are $3,500 \pm 500$ words (i.e., 3,000 to 4,000 words).
 - The upper word-count limit is intended to prevent students from unnecessarily expending more effort than required on their project. However, students who become enthusiastic about their research project may go beyond the 4,000 word upper limit if they wish without penalty.
 - Students violating the lower word count will have their project grade reduced; for example, a 2,000 word submission would receive 67% of whatever grade it would otherwise have received.
- The standards for grading are shown in the Grading Rubric available through the main Webpage and through the link on NUoodle.
- Exceptionally good essays may be chosen for publication.

6.7 Term-Paper Presentation: 5% of final grade

Students will present their research (with or without presentation materials) and lead discussion in class. Grading is not based on public-speaking criteria but rather on how clear and stimulating the presenters are.

6.8 Extra Work for Extra Points:

Students may submit extra work for extra points on their final grade with permission of the instructor. For example, the instructor will agree to accept suitable short essays such as summaries of interesting incidents, articles or books relevant to the course materials.

- The rate granted for extra work is 1 point added to the *final* grade for 500 words of professional-grade writing. Thus a 1,000 word essay could improve the final grade by 2 points.
- Particularly good articles may be considered for publication.
- Contributions to the online discussions can generate 0.1 pt on the final score per *good* contribution with references or an intelligent response to a posted message.
- Leading a discussion in class can earn 1 point added to the final grade. Student lecturers must rehearse their proposed discussion plan with the instructor for approval and possible improvement.
- The maximum available extra points from all sources is 10 percentage points on the final grade.

6.9 Make-up Exams & Replacement Quizzes

- A make-up exam covering the work of the material up to the mid-term exam will be offered after mid-term grades are posted;
- A make-up exam covering the materials from the mid-term to the end of course will be offered at the end of the semester.
- Each make-up exam will allow addition of up to 10% points to the *quiz* total if and only if the make-up exam score is higher than the current quiz score total.
 - E.g., if a student achieves 60% of the maximum on the quiz score (15 percentage points towards the final score) but gets 100% on the mid-term make-up exam and 100% on the end-of-semester make-up exam, their quiz score would rise to 80% of the quiz score (a value of 20 percentage points towards the final grade).
 - If that same student were to achieve only 50% on the make-up exams, there would be no improvement of the quiz grade.
- Make-up exams cannot lower existing grades.
- Weekly quizzes have replacement quizzes available at the same time as the original quiz that simply fully replace a lower grade by a higher grade. Thus a 60% grade on the original quiz followed by a 100% grade on the corresponding replacement quiz results in a quiz grade of 100% for that quiz.

7 Cheating and Plagiarism

- Students are graded on an individual basis and must therefore complete their own work.
- Students are reminded of the University's Policy against cheating and plagiarism (Chapter 2, Section V of the *Student Rules*):
< <http://www.norwich.edu/about/policy/StudentRulesRegs.pdf> >.
- Plagiarism consists of using someone else's text or ideas without using quotation marks to indicate exact duplication of the original and/or failing to indicate the source of reference materials and quotations.
- If in doubt as to what constitutes plagiarism, ask the instructor for a review of your work before submitting an assignment.
- All instances of cheating and of plagiarism must be reported to the *Academic Integrity Committee* by the instructor or by students who have observed the dishonesty.
- Penalties include expulsion from the University.
- **Ignorance of the University's Rules is not a valid defense against accusations of academic dishonesty.**

8 Additional Notes

- There will be no *grading on a curve*. There are no predetermined numbers of final letter grades. Students do not compete with each other for grades; if everyone gets A, great. If everyone fails, tough.
- Review questions (without answers) will be distributed to students throughout the term. These example questions will not limit the scope of actual exam questions, and are intended to help students in review and exam preparation.
- Students are encouraged to study together but may not collaborate during quizzes or exams. Students are individually responsible for all assigned essays and online discussion material, unless otherwise noted.
- Attendance Policy – no more than two unexcused absences.
 - University regulations stipulate that “Unless stated otherwise, the maximum number of permitted absences is the number of times the course meets per week. When the student has reached the maximum number of permitted absences, the faculty member will warn the student of impending dismissal from class with a grade of ‘F.’ This warning letter will include the course number and section and date(s) of absence(s). The letter will state that any future unexcused absences may result in recommendation to the Vice President of Academic Affairs through the course School Dean that the student be dismissed from the class with a grade of ‘F.’ A copy of the warning letter will go to the student's academic advisor and to the Commandant and Vice President of Student Affairs.” (See pp 69-70 of the PDF version of the *Academic Regulations* available online at < <http://catalog.norwich.edu/residentialprogramscatalog/academicregulations/> >.)
 - Therefore, students may miss exactly three sessions of this course without explanation; the fourth and subsequent unexcused absences will be reported as stipulated in the academic regulations and may lead to dismissal from the course with an F grade.
 - If you plan to be absent, discuss the absence with the instructor in advance.

9 Office Hours Contact Information & Instructor Biography

- Students are welcome to call the instructor at **(802) 479-7937** at *any time* (that number rings in his office or his cell phone but cannot disturb him); leave a voice-mail message with a return number if necessary.
- Students may also use Instant Messaging at any time using Skype (ID is **mekabay**).
- Office hours are posted on the class Web site, on NUoodle, and on the instructor's office door (Dewey 209). The **Dewey 209** office door is almost always open when the instructor is present; all students are most welcome to drop in without having to make appointments.
- See your prof's CV at <<http://www.mekabay.com/cv>> if you wish.