



Department of Information Sciences and Technology
Volgenau School of Engineering
IT 223 Information Security Fundamentals
Spring 2018

Common Syllabus revised 01.19.2018

This syllabus contains information common to all sections of IT 223 for the Fall 2017 semester. Information specific to each section will be made available to registered students via the [Blackboard course management system](#).

University Policies

The [University Catalog](#) is the central resource for university policies affecting student, faculty, and staff conduct in university affairs. Unless explicitly noted, any conflict between the policies in the University Catalog and the content of this document is unintentional. Please notify the author to resolve any such conflicts.

Please note that the Academic Year runs from the Fall semester of one calendar year through the Fall and Fall semesters of the following calendar year. Please be sure to select the correct archived Catalog if appropriate.

Scheduled Sections: *Please note, Sniegowski is the professor for 006.*

Select	CRN	Subj	Crse	Sec	Cmp	Cred	Title	Days	Time	Cap	Act	Rem	WL	Instructor	Date (MM/DD)	Location	Part of term code
SR	11627	IT	223	001	FX	3.000	Information Security Fundament	M	07:20 pm-10:00 pm	40	20	0	0	Bobby T. Varghese (P)	01/22-05/16	R B224	1
C	10752	IT	223	002	FX	3.000	Information Security Fundament	R	07:20 pm-10:00 pm	50	50	0	0	Thomas G Winston (P)	01/22-05/16	AB 2003	1
C	10753	IT	223	003	FX	3.000	Information Security Fundament	F	01:30 pm-04:15 pm	40	40	0	2	Margaret Leary (P)	01/22-05/16	ENGR 1109	1
SR	10818	IT	223	004	PW	3.000	Information Security Fundament	T	01:30 pm-04:15 pm	40	38	2	0	Margaret Leary (P)	01/22-05/16	PW-BRH 259	1
SR	11198	IT	223	005	FX	3.000	Information Security Fundament	S	10:00 am-12:40 pm	40	12	28	0	Christopher B Porter (P)	01/22-05/16	ENGR 1109	1
SR	11900	IT	223	006	FX	3.000	Information Security Fundament	T	07:20 pm-10:00 pm	40	32	8	0	Raymond J Curts (P)	01/22-05/16	ENGR 1109	1
C	12648	IT	223	007	FX	3.000	Information Security Fundament	T	04:30 pm-07:10 pm	40	40	0	0	Brian K Ngac (P)	01/22-05/16	ENGR 1109	1
IT 223 DL1 is a distance education section and may require on-campus attendance for exams.																	
SR	11409	IT	223	DL1	NE	3.000	Information Security Fundament		TBA	40	39	1	0	Daun-Marie Curts Sniegowski (P)	01/22-05/16	ON LINE	1

Course Description

IT 223 - Information Security Fundamentals

Credits: 3

Limited to 2 Attempts

Introduces concept of information security. Discusses need for organizational policy to define required services such as confidentiality, authentication, integrity, nonrepudiation, access control, and availability, and mechanisms to implement those services. Covers different types of security including physical security, computer security, and network security; common threats to and attacks against information systems, including accidental damage, identity theft, malicious software, and "spam"; and defensive measures

Prerequisite(s): (IT 101 or IT 105) and (IT 103 or IT 104).

Prerequisite enforced by registration system.

Notes: Students cannot receive credit for both IT 221 and 223.

Hours of Lecture or Seminar per week: 3

From http://catalog.gmu.edu/preview_course.php?catoid=27&coid=279938

Prerequisites

The prerequisites for this course are ([IT 101](#) or [IT 105](#)) and ([IT 103](#) or [IT 104](#)). A grade of "C" or better **must** be achieved in each prerequisite course **before** a student is qualified to take this course. The prerequisite courses must be completed prior to, not concurrently with, this course.

This requirement will be **strictly enforced**. Any student who does not meet the prerequisite requirement (or receive a waiver) will be dropped from the course at the start of the semester and the student will be responsible for any consequences of being dropped.

Rationale

Security has become a global concern, especially since the events of September 11, 2001. Information security is an important aspect of this issue: increasing reliance on automated systems, the ubiquity of the Internet and the lack of security mechanisms in current network infrastructures place personal and organizational information at risk. Issues of concern include direct attacks (via malicious software and "hacking"), indirect threats (*e.g.* denial of service attacks, system failures) and human issues (*e.g.* lack of standards, procedures, and user awareness). This course is intended to develop awareness and understanding of the issues, introduce students to currently available technologies, and examine typical applications of those technologies to real-world systems.

Course Applicability

IT 223 is a Core Course in the [Bachelor of Science in Information Technology](#), and an Elective Course in the [Information Technology Minor](#) and the [Information Technology Undergraduate Certificate](#).

Objectives

On successful completion of this course, students will be able to:

- Define information security (IS) and information assurance (IA), and explain their relevance to information systems and information technology.
- Describe security services needed for modern information systems.
- Describe common threats to and attacks against information systems.
- Explain the need for an organization to define an information security policy describing the services required to secure the organization's information assets, and for information security technologies adopted by the organization to be consistent with the policy requirements.
- Describe and give examples of modern information security technologies.
- Give examples of current applications of information security technologies.

Office Hours: Will be announced by each instructor on first night of class.

Faculty and Staff

Course Coordinator:

Dr. Tom Winston

Instructors:

See **Scheduled Sections** above.

Teaching Assistants:

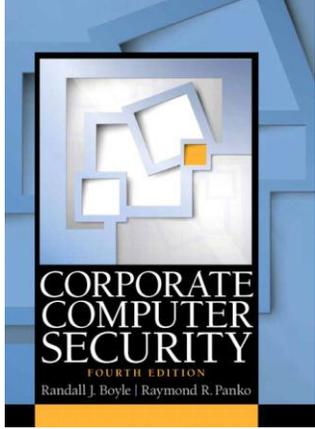
Devang Motwani (dmotwani@gmu.edu) Sections 001-006

Jennifer Henry (vjennife@gmu.edu) Sections 007, DL1

References

Textbooks

There is one required textbook for this course:

	<p><u>Corporate Computer Security</u>, 4th edition Randy J. Boyle & Raymond R. Panko © 2016, Prentice Hall</p> <p>Publisher's pricing (as of 10/14/2014): Hardcover \$156.80 Electronic \$62.99</p> <p>This textbook is available in an <i>electronic format</i> at a price significantly lower than the hardcover format. See the publisher's Web page for more information.</p>
---	--

Recommended – Essential Systems Administration (online, or nominal fee for download)

Grading

Raw scores may be adjusted by the Instructor to calculate final grades.

Grades will be awarded in accordance with the Mason Grading System for undergraduate students. See the [University Catalog](#), [Academic Policies](#), [AP.3.1 Undergraduate Grading](#) for more information.

The grading scale for this course is:

93 – 100%	A	Passing
90 – 92%	A-	Passing
86 – 89%	B+	Passing
80 – 86%	B	Passing
78 – 79%	B-	Passing but no credit for INFS conc. dep on cat year.
76 – 78%	C+	Passing but no credit for INFS conc, dep on cat year.
70 – 76%	C	Passing but no credit for INFS conc. dep on cat year.
60 – 69%	D	Failing, depending on catalog year
0 – 59%	F	Failing

- * Grades of "C-" and "D" are considered passing grades for undergraduate courses. However:
 - As of Catalog Year 2016-17 a minimum grade of "C" is required in all Core courses in the IT major.
 - A minimum grade of "C" is required in the IT major for any course that is a prerequisite for another course.
 - **Finally, a grade of "B" or higher is required for ALL INFS concentration students. Grades lower than B will require a retake.**

Final grades will be based on the following components:

In-class exercises	20%
Homework	10%
Exam 1	20%
Exam 2	20%
Exam 3	30%

Extra Credit: There will be at least one opportunity for extra credit during the semester, TBD.

In-class exercises. **The section professor reserves the right to cancel or remove the extra credit opportunity if there is evidence of cheating in any way on the extra credit.**

Exercises (including quizzes and other activities) will occur in selected class sessions throughout the semester. Exercises will **not** be announced in advance. Any student who misses an exercise due to an unexcused absence will receive zero (0) for that exercise.

Note: Online sections do not meet in person and will not have in-class exercises. Other coursework will be assigned for those sections to determine this grade component.

Homework

Homework will be assigned several times during the semester. Each assignment will count towards the final grade - there are no "optional" assignments. Each homework assignment is to be prepared and submitted as specified by the Instructor.

Homework is due the date and time listed by your instructor, in your section. There are ABSOLUTELY NO EXCEPTIONS to this. Homework assignments received after the due date and time will be disregarded. Homework that is not submitted by the date and time listed by your instructor is considered a 0, again – there are no exceptions to this rule, so please don't beg for one!

Exams:

Exam questions will be different every semester, and different across sections. Content areas will however be the same for all sections.

Final Grades

Final grades are not negotiable. Please do not attempt to bargain with, persuade, threaten, or otherwise coerce your instructor to change your grade. When you take the course, you agree to the terms of this syllabus. That said, grades are calculated using appropriate weightings in relation to the total percentage of 100 the grade equals, and NOT by adding together total of all deliverables and dividing by the raw number of deliverables. The section instructors use Excel spreadsheets or Blackboard grading/weighting tools to calculate the grades. Neither students nor instructors are perfect, and sometimes mistakes in grading occur. In such situations, it is necessary for students to notify their instructors as soon as possible to recheck grades. Instructors have 24 hours to get back to you regarding any perceived or real grading issue. Students in online sections are required to attend an on-campus exam (to be scheduled), or to arrange for a proctored exam.

Schedule

Lecture	Content	Reading*
1	Introductions, Logistics, Course Overview, Network and Information Security Basics	Slides - lecture 1
2	Threats, Attacks, and Countermeasures	Chapter 1
3	Organizational Security Planning and Policies, Legal and Ethical Issues	Chapter 2
4	Network Security I, Wireless Security, Network Attacks	Module A
	Exam 1 (after completion of lecture 4)	
5	Access Control	Chapter 5
6	Physical Security / Digital Forensics	Chapter 5
8	Cryptography I	Chapter 3.0-3.7
9	Cryptography II	Chapter 3.7-3.12; 5.7
	Exam 2 (after completion of lecture 8)	
10	Network Security II – Firewalls and Intrusion Detection	Chapter 4, 6
11	Application and Data security	Chapter 6, 8
12	Incident Response	Chapter 10
13	Data Protection and Host Hardening / Cloud Security	Chapter 9 and slides
14	Exam 3 / Final Review	Review
-	Exam 3 – Cumulative for whole semester	

* From the textbook

Exam 1 15 questions 30 minutes (Lectures 1-4)

Exam 2 15 questions 30 minutes (Lectures 5-9)

Exam 3 25 questions 45 minutes Cumulative) During Final exam period as specified by Registrar's Office.

Please note, the lecture numbers in the syllabus correspond to those on the slides.

The reading assignment shown for each lecture is to be completed *prior to* that lecture.

*This schedule is subject to revision before and throughout the course.
Registered students should see Blackboard for the latest class schedule.*

If a class is cancelled:

- The Provost may schedule a Make-Up Day, in which case the cancelled class will be held on that day, at the usual class time and in the usual classroom unless otherwise advised. Please note that the Make-Up Day may be on a different day of the week from the usual class day.
- If the Provost does not schedule a Make-Up Day the Instructor will schedule an *ad hoc* make-up session. The make-up session may be online – students will need Internet access and a compatible browser in order to participate in real time, but the session will be recorded for later viewing.

Important Dates

Please see the [Fall 2016 calendar](#) for important dates, including the last days to add and drop courses.

Religious Holidays

[A list of religious holidays](#) is published by [University Life](#). **Any student whose religious observance conflicts with a scheduled course activity must contact the Instructor at least 2 weeks in advance of the conflict date in order to make alternative arrangements.**

Attendance Policy

Students are expected to attend every class, to complete any required preparatory work (including assigned reading – see **Schedule** above) and to participate actively in lectures, discussions and exercises. As members of the academic community, all students are expected to contribute regardless of their proficiency with the subject matter.

Students are expected to make prior arrangements with Instructor if they know in advance that they will miss any class and to consult with the Instructor as soon as possible if they miss any class without prior notice. Any student who expects to miss more than one class session is **strongly advised** to drop the course and take it in a later semester when he/she can attend every class.

[Mason policy](#) requires students to take exams at the scheduled time and place, unless prior approval is granted by the student's academic dean or director. Failure to attend a scheduled exam will result in a score of zero (0) for that exam. Please note that exams may be re-scheduled by the Registrar to compensate for disruptions in the semester schedule and **students are required to be available throughout the exam period including the scheduled Make-up Day.**

Classroom conduct

Students are expected to conduct themselves in a manner that is conducive to learning, as directed by the Instructor. Any student who negatively impacts the opportunity for other students to learn may be asked to leave the classroom.

Electronic devices are potential distractions in the classroom environment. Except for note-taking, all electronic devices must be in silent mode, and not used. During exams, all electronic devices must be turned off and out of hands, stowed in bags under desk or pockets. Usage of these devices for ANY reason during an exam or quiz is grounds for an HCV, and instructors can fail you or penalize you further for such usage.

Communications

Registered students will be given access to a Blackboard section for this course. Blackboard will be used as the primary mechanism (outside of lectures) to disseminate course information, including announcements, lecture slides, homework and other assignments, and scores for homework and exams. Some announcements may be sent via Blackboard to students' Mason email accounts.

Communication with the Instructor on issues relating to the individual student only should be conducted using Mason email, via telephone, or in person - *not* in the public "Discussions" forums on Blackboard. To protect student privacy any communication related in any way to a student's status must be conducted using secure Mason systems – if you use email to communicate with the Instructor you *MUST* send messages from your Mason email account. Students must activate and monitor their Mason email accounts to receive important information from the University, including messages related to this class.

Lecture slides are complements to the lecture process, not substitutes for it - access to lecture slides will be provided in Blackboard as a courtesy to students *provided acceptable attendance is maintained*.

All course materials (lecture slides, assignment specifications, *etc*) are published on Blackboard in Adobe® Portable Document Format (PDF). This allows users of most computing platforms to view and print these files. Microsoft® Word (or a compatible word processing application) is required for preparing assignments – it is available on computers in the Mason open labs.

Online sections will use several tools through [the Blackboard course management system](#). Students are responsible for obtaining Internet access and a compatible platform. Appropriate computers are available on campus in open labs.

Privacy

Instructors respect and protect the privacy of information related to individual students.

As described above, issues relating to an individual student will be discussed via email, telephone or in person. Instructors will not discuss issues relating to an individual student with other students (or anyone without a need to know) without prior permission of the student.

Homework, quizzes, mid-term exams and other assessable work will be returned to individual students directly by the Instructor (or by a faculty member, staff member, or Teaching Assistant designated by the Instructor, or via another secure method). Under no circumstances will a student's graded work be returned to another student.

Instructors, staff, and Teaching Assistants will take care to protect the privacy of each student's scores and grades.

Disability Accommodations

[Disability Services](#) works with disabled students to arrange for appropriate accommodations to ensure equal access to university services. Any student with a disability of any kind is strongly encouraged to register with Disability Services as soon as possible and take advantage of the services offered.

Accommodations for disabled students *must* be made in advance – Disability Services cannot assist students retroactively. Any student who needs accommodation should contact the Instructor no later than the first class.

Campus Notifications

Students are encouraged to subscribe to the [Mason Alert system](#) to receive notifications of campus emergencies, closings, and other situations that could affect class activities.

Each classroom has a poster explaining actions to be taken in different types of crisis. Further information on emergency procedures is available at the [Campus Emergency Response Team](#) Web site. In the event of an emergency, students are encouraged to dial 911.

Other Resources

Mason provides many useful resources for students. The following resources may be particularly useful:

- The Writing Center
- The Academic Advising Center
- The University Libraries
- Counseling and Psychological Services
- University Career Services

See <http://www.gmu.edu/resources/students/> for a complete listing of Mason resources for students.

Academic Integrity

All members of the Mason community are expected to uphold the principles of scholarly ethics.

The IT major has been designed to achieve several specific outcomes. One of those outcomes is: *“An understanding of professional, ethical, legal, security, and social issues and responsibilities.”*

Graduating students are bound by the ethical requirements of the professional communities they join. The ethics requirements for some of the communities relevant to IT graduates are available via the following links:

- [ACM Code of Ethics and Professional Conduct](#)
- [IEEE Code of Ethics](#)
- [EC-Council Code of Ethics](#)

On admission to Mason, students agree to comply with the requirements of the Mason [Honor Code](#). The Honor Code will be **strictly enforced** in this course. Honor Code cases are heard by a panel of students – students who meet the requirements are encouraged to nominate themselves to serve on the Honor Committee.

Any use of the words or ideas of another person(s), without explicit attribution that clearly identifies the material used and its source in an appropriate manner, is **plagiarism** and will not be tolerated. The Instructor reserves the right to use manual and/or automated means (including such services as [SafeAssign](#)) to detect plagiarism in any work submitted by students for this course, and to direct Teaching Assistants and/or other faculty and/or staff members to do likewise in support of this course.

Instances of cheating whether perceived or real will result in actions to be determined by the instructor in accordance with University policies. This can include –

- 1. An Honor Code Violation**
- 2. A failure for the assignment in question**
- 3. A failure for the course.**

George Mason requires that instructors report all instances of perceived cheating to the Office of Academic Integrity.

For this course, the following requirements are specified:

- All assessable work is to be prepared by the individual student, unless the Instructor explicitly directs otherwise.
- No use of social media to post, discuss or share questions, answers or topics covered on exams, in any way, shape or form. Evidence of this will be considered an HCV. Some professors and course coordinators have special tools at their disposal to mine multiple social media outlets simultaneously; you have been warned. (Some examples include: Study Room, YikYak, and Reddit)
- No digital reproduction of any part of an exam or quiz. No posting quiz questions to online test outlets or social media sites. Electronic reproduction of any assessable work in this course is **PROHIBITED**, unless authorized by the course coordinator (not the section instructor).
- Usage of electronic devices is **STRICTLY PROHIBITED** during any period when there is assessable work in the students' possession – this includes exams, quizzes, and any other type of assessable work.
- During exams, and quizzes, students **MUST** put their cellphones away, with volume or ringers turned off. Laptops must be stowed safely under desks to keep paths between rows clear. Instructors have the option to collect cellphones at the front of the room during exam or quiz periods.
- Individual students must create all new work individually for this semester. Any usage of work developed for another course, or for this course in a prior semester, is strictly prohibited without prior approval from the Instructor.

Students may seek assistance with assigned work (and are encouraged to do so if they feel the need), **provided:**

- The directions for the assigned work do not prohibit such assistance.

- Such assistance is *explicitly acknowledged* in the submitted work, clearly identifying the person(s) giving assistance and the nature of the assistance given.
- Any work to be submitted is prepared entirely and exclusively by the student submitting it. Students are expressly prohibited from sharing any assessable work for this course in any manner with other students (except students assigned as Teaching Assistants or Undergraduate Peer Mentors to this course and the student's section), unless all students involved have had their work graded and returned by the Instructor, or the Instructor has explicitly approved such sharing.

Another aspect of academic integrity is the free exchange of ideas. Vigorous discussion and debate are encouraged in this course, with the firm expectation that all aspects of the class will be conducted with civility and respect for differing ideas, perspectives, and traditions. Please see the [Mason Diversity Statement](#) for more information on this topic.

Students are encouraged to ask for clarification of any issues related to academic integrity and to seek guidance from the Instructor, other faculty members, academic advisors, or the [Office for Academic Integrity](#).