



# Common Syllabus revised 3/30/2017

This syllabus contains information common to all sections of IT 466 for the Spring 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 Spring and Summer semesters of the following calendar year. Please be sure to select the correct archived Catalog if appropriate.

## Scheduled Sections

Section	Instructor	Campus	Day	Time
<a href="#">DL1</a>	<a href="#">Prof. Lyons</a>			<a href="#">Online</a>

## Course Description

### **IT 466 - Network Security II**

Detailed study of certain symmetric and asymmetric cryptographic schemes; analysis of network data (including "packet sniffing"); security at different network layers (including IPSec, SSL/TLS and Kerberos); and secure e-commerce. Teaches principles of designing and testing secure networks, including use of network partitioning, firewalls, intrusion detection systems, and vulnerability assessment tools.

From [http://catalog.gmu.edu/preview\\_course.php?catoid=29&coid=304894](http://catalog.gmu.edu/preview_course.php?catoid=29&coid=304894)

## **Prerequisites**

The prerequisites for this course are:

All of the following:

- A grade of "B" or better in [IT 223](#);
- A grade of "C" or better in [IT 206](#) or [CS 211](#);
- A grade of "C" or better in [IT 341](#);
- A grade of "C" or better in [IT 366](#);
- A grade of "C" or better in [IT 102](#) or [MATH 112](#) or [MATH 125](#);

The minimum grade as shown above **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 will be dropped from the course by the Instructor at the start of the semester and the student will be responsible for any consequences of being dropped.

## **Rationale**

Network-enabled information systems have become an essential part of daily life. Most systems utilize the Internet as the network backbone, which presents security concerns since the Internet essentially has no security. This course builds on the content of [IT 366 Network Security I](#) and examines in detail the design, implementation, operation and support of information security technologies applicable to networked environments.

## **Course Applicability**

IT 466 is an option in the Information Security (INFS) concentration of the [Bachelor of Science in Information Technology](#), and a Technical Focus Course in the [Information Technology Minor](#) and the [Information Technology Undergraduate Certificate](#).

## **Objectives**

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

- Describe the mathematical foundations of modern cryptographic algorithms.
- Describe selected cryptographic algorithms and their use in network-enabled applications.
- Describe and give examples of modern technologies for information security in networked environments.

## **Faculty and Staff**

Course Coordinator:

**Michael X. Lyons**

Instructor:

**Section DL1 Michael X. Lyons**

Teaching Assistant:

*To be assigned – see Blackboard*

Administrative support:

Department of Information Sciences and Technology

Fairfax campus

5400 Nguyen Engineering Building

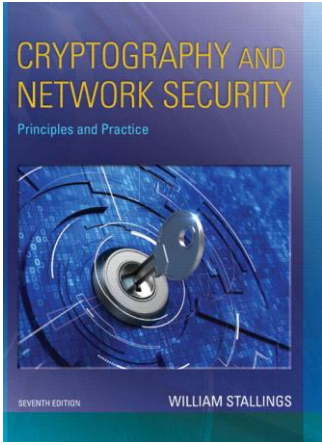
Email: [bsit@gmu.edu](mailto:bsit@gmu.edu)

Phone: 703-993-3565

## References

### Textbooks

There is one required textbook for this course:

	<p><u>Cryptography and Network Security: Principles and Practice</u>  <b>7<sup>th</sup> edition</b>          William Stallings          © 2017; Pearson Education, Inc.</p> <p>Publisher's pricing (as of 1/24/2017):          Hardcover \$160.09</p> <p>Note: There are significant differences between the editions of this textbook. Please ensure that you obtain the edition described above.</p> <p>The hardcover edition is available at a significant discount through <a href="#">the author's Web page</a></p>
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## Grading

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:

97 - 100%	A+	Passing
93 - 96%	A	Passing
90 - 92%	A-	Passing
87 - 89%	B+	Passing
83 - 86%	B	Passing
80 - 82%	B-	Passing
77 - 79%	C+	Passing
73 - 76%	C	Passing
70 - 72%	C-	<i>Passing*</i>
60 - 69%	D	<i>Passing*</i>
0 - 59%	F	<b>Failing</b>

\* Grades of "C-" and "D" are considered passing grades for undergraduate courses. However:

- As of Catalog Year 2015-16 a minimum grade of "C" is required in all Concentration courses in the IT major in order to apply those courses toward graduation.

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

Final grades will be based on the following components:

Lecture responses	15%
Homework	25%
Mid-term exam	30%
Final exam	30%

#### Lecture responses

Following each lecture students will be given a fixed period of time in which to post a response to a topic posted by the Instructor. These responses are intended to expand on the lecture content *and* to encourage students to keep up with the lecture material on a weekly basis.

There is no "grace period" for these responses  
– any response submitted late will not be graded.

#### 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.

Students are expected to submit work as scheduled by the Instructor. Any assignment submitted after the due date-time but within 24 hours of it will be graded with a penalty of 25% of the available credit. Any assignment submitted more than 24 hours late will not be graded.

#### Mid-term exam

The mid-term exam will be conducted on campus on a date to be advised. It will be based on topics addressed in the first 5 weeks of the course and will be "closed book" – no reference materials other than those provided with the exam paper will be permitted. Mid-term exams will be returned to students once all mid-term exams for all sections have been graded.

Students in online sections are required to attend the scheduled exam in person, or to arrange for a proctored exam.

#### Final exam

The final exam will be conducted on campus on a date to be advised during the final exam period (see the [Spring 2017 Final Exam Schedule](#)). It will be based on topics addressed throughout the entire course and will be "closed book" – no reference materials other than those provided with the exam paper will be permitted. Final exams will be retained by the [Department of Information Sciences and Technology](#) and will not be returned to students.

Students in online sections are required to attend the scheduled exam in person, or to arrange for a proctored exam.

Mid-term and final grades will be posted to [PatriotWeb](#), which is the only mechanism for students to obtain those grades. A student with a "hold" on his/her PatriotWeb account will be unable to access grades until the hold has been removed by the Registrar.

**Schedule**

Lecture	Content	Reading*
1	Introductions; Logistics; Course Overview Information security services	Chapters 0, 1
2	Randomness	Chapter 8
3	Number theory	Chapter 2
4	Abstract algebra	Chapter 2
5	Polynomial arithmetic Review for mid-term exam	Chapter 5
6	<b>Mid-term exam</b> Cryptographic functions	Chapter 2
7	Symmetric block ciphers	Chapters 3, 5, 6, 7
8	Asymmetric ciphers	Chapter 9, Section 10.2
9	Key management	Section 10.1, Chapter 14
10	Hash functions	Chapter 11
11	Message authentication code (MAC) functions	Chapter 12
12	Digital signatures	Chapter 13
13	Emerging technologies	<i>to be advised</i>
14	Review for final exam	
-	<b>Final exam</b>	

\* From the textbook

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.***

**Important Dates**

Please see the [Spring 2017 Semester 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. All electronic devices must be turned off or set to "silent" mode at all times unless the Instructors directs otherwise. In order to maximize student engagement the Instructor may prohibit use of such devices.

## **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.

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.
- All work must be newly created by the individual student for this course 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](#).