ISS/EGR3073: Networking and Security
(3 units)
Fall 2019

Point Loma Nazarene University
College of Natural and Social Sciences

PLNU Mission
Point Loma Nazarene University exists to provide higher education in a vital Christian community where minds are engaged and challenged, character is modeled and formed, and service is an expression of faith. Being of Wesleyan heritage, we strive to be a learning community where grace is foundational, truth is pursued, and holiness is a way of life.

Instructor:

Dr. Benjamin Mood
bmood@pointloma.edu
619 849 2269
RS 216

Meeting Times and Locations:

Lecture:

T/R: 9:30 – 10:45 RS 365

Office Hours:

M: 11:00am – 12:00pm (Caf) 1:15 – 4:15pm (office)
T:
W: 8:30am – 9:30am (Caf) 11:00am – 12:00pm (Caf) 1:15 – 2:15pm (office)
R: 11:00am – 12:00pm (Caf)
F: 11:00am – 12:00pm (Caf) 1:15 – 2:15pm (office)

Books

Computer Networking: A top down approach by Kurose and Ross

Course Description:

This course provides an introduction to modern computer network technologies. Students gain an understanding of networking fundamentals including layering and the old OSI model, protocols, standards, and network services. LANS, MANS, WANS, Internet and wireless networks are covered. The class will also cover the basics of network security. The class includes hands-on activities. Alternating Years. Offered 2019-20.

Learning Outcomes:
Students will analyze the interaction between hardware and software.

Students will use information management as a tool to support decision making in business environments.
Students will be able to apply their technical knowledge to solve problems.

Department Mission:

The Mathematical, Information, and Computer Sciences department at Point Loma Nazarene University is committed to maintaining a curriculum that provides its students with the tools to be productive, the passion to continue learning, and Christian perspectives to provide a basis for making sound value judgments.

Additional Course Information:

Homework Quizzes: Most classes there is a problem assigned on the syllabus. However, this homework problem will not be turned in. Instead, a problem covering the same concepts **might** be given in class as a quiz. If more than 10 quizzes are given in the semester, the top 10 quizzes will count toward the grade.

Programming Homework: There will be programming assignments. Post programming assignment quizzes may also be given. The final grade on each programming assignment will be a function of the assignment's grade and quiz grades. Late homework will be penalized.

Missed Classes: Homework missed due to PLNU activities (i.e., sports teams, choirs, etc), can be turned in the day after the student is back. Missed exams due to emergencies can be made up once the dean of students informs Dr. Mood that PLNU has approved the reason. Non-emergency missed exams will result in a zero. It is the student's responsibility to inform the professor of when they will be gone. Missed class activities, which are due to a non-dean of students approved-emergency situation, will result in a zero.

Be Courteous and Respectful.

Cheating: PLNU requires that each student turns in their own work. Turning in someone else's work or turning in work that you do not understand or how to solve the problems is cheating. In computer science, we recognize this is sometimes a grey area as we sometimes encourage people to discuss homeworks, labs, and projects together. If Dr. Mood suspects that students are not turning in their own work or work they do not understand or did not create themselves or Dr. Mood suspects for any other reasons, they will have the privilege of explaining to Dr. Mood the assignment, project, or exam in question as well as closely related questions to demonstrate they really do understand the material. Failure to correctly explain this will result in a 0 and/or any other consequences.

Grading:

Homework Quizzes	20%
Programming Assignments	20%
Midterm	25%
Final	35%

Grades are based on the number of points accumulated throughout the course with the following exception. A student must pass at least one exam in order to pass the class. That is, a score of 60% must be achieved on one of the examinations, or else the final grade will be an F regardless of all other point totals.

Grading scale	
93 – 100%	A
90 – 92%	A-
87 – 89%	B+
83 – 86%	B
80 – 82%	B-
77 – 79%	C+
73 – 76%	C
70 – 72%	C-
67 – 69%	D+
63 – 67%	D
60 – 62%	D-
0 – 59%	F

PLNU Policies

Attendance:
Attendance is expected at each class session. In the event of an absence you are responsible for the material covered in class and the assignments given that day.

Regular and punctual attendance at all classes is considered essential to optimum academic achievement. If the student is absent from more than 10 percent of class meetings, the faculty member can file a written report which may result in de-enrollment. If the absences exceed 20 percent, the student may be de-enrolled without notice until the university drop date or, after that date, receive the appropriate grade for their work and participation. See http://catalog.pointloma.edu/content.php?catoid=24&navoid=1581#Class_Attendance in the Undergraduate Academic Catalog.

Class Enrollment:
It is the student's responsibility to maintain his/her class schedule. Should the need arise to drop this course (personal emergencies, poor performance, etc.), the student has the responsibility to follow through (provided the drop date meets the stated calendar deadline established by the

university), not the instructor. Simply ceasing to attend this course or failing to follow through to arrange for a change of registration (drop/add) may easily result in a grade of F on the official transcript.

Academic Accommodations:
While all students are expected to meet the minimum standards for completion of this course as established by the instructor, students with disabilities may require academic adjustments, modifications or auxiliary aids/services. At Point Loma Nazarene University (PLNU), these students are requested to register with the Disability Resource Center (DRC), located in the Bond Academic Center. (DRC@pointloma.edu or 619-849-2486). The DRC's policies and procedures for assisting such students in the development of an appropriate academic adjustment plan (AP) allows PLNU to comply with Section 504 of the Rehabilitation Act and the Americans with Disabilities Act. Section 504 (a) prohibits discrimination against students with special needs and guarantees all qualified students equal access to and benefits of PLNU programs and activities. After the student files the required documentation, the DRC, in conjunction with the student, will develop an AP to meet that student's specific learning needs. The DRC will thereafter email the student's AP to all faculty who teach courses in which the student is enrolled each semester. The AP must be implemented in all such courses.

If students do not wish to avail themselves of some or all of the elements of their AP in a particular course, it is the responsibility of those students to notify their professor in that course. PLNU highly recommends that DRC students speak with their professors during the first two weeks of each semester about the applicability of their AP in that particular course and/or if they do not desire to take advantage of some or all of the elements of their AP in that course.

Academic Honesty:
Students should demonstrate academic honesty by doing original work and by giving appropriate credit to the ideas of others. Academic dishonesty is the act of presenting information, ideas, and/or concepts as one's own when in reality they are the results of another person's creativity and effort. A faculty member who believes a situation involving academic dishonesty has been detected may assign a failing grade for that assignment or examination, or, depending on the seriousness of the offense, for the course. Faculty should follow and students may appeal using the procedure in the university Catalog. See http://catalog.pointloma.edu/content.php?catoid=24&navoid=1581#Academic_Honesty for definitions of kinds of academic dishonesty and for further policy information.

Final Exam: 12/17 at 10:30am
The final exam date and time is set by the university at the beginning of the semester and may not be changed by the instructor. This schedule can be found on the university website and in the course calendar. No requests for early examinations will be approved. Only in the case that a student is required to take three exams during the same day of finals week, is an instructor authorized to consider changing the exam date and time for *that* particular student.

Copyright Protected Materials:
Point Loma Nazarene University, as a non-profit educational institution, is entitled by law to use materials protected by the US Copyright Act for classroom education. Any use of those materials outside the class may violate the law.

Credit Hour:
In the interest of providing sufficient time to accomplish the stated course learning outcomes, this class meets the PLNU credit hour policy for a 3-unit class delivered over 15 weeks. Specific details about how the class meets the credit hour requirements can be provided upon request.

The following schedule is approximate and may change.

Monday	Tuesday	Wednesday	Thu	Fri
Sep 2 (No Class) Labor Day	3	4	5 Intro & The layers	6
9	10 Packet/Circuit (activity example) 1.R12	11	12 Delay and Speeds 1.P24	13
16	17 Intro to Layer 5 & Java Programming Applications 2.R3	18	19 In depth protocols (activity example). 2.R10	20
23	24 Web 2.R13	25	26 DNS (activity example). 2.P4	27
30	Oct 1 Web security I (crypto) (activity example motivation) 8.R1	2	3 Web security II (privacy) [wireshark] 8.R3	4
7	8 Email & P2P 2.R11	9	10 End to End sec 8.P1	11
14	15 App security	16	17 Layer 4 intro 3.R3	18
21	22 UDP/TCP (activity example).	23	24 TCP (activity example).	25

	3.P3		3.R4	
28	29 TCP Congestion Control 3.P7	30	31 **Midterm** 3.P40	Nov 1
4	5 Routers & IP 4.R1	6	7 IP & Forwarding 4.P1 (a only)	8
11	12 Routing 5.R3	13	14 BGP 5.R7	15
18	19 Network layer security 5.P3	20	21 Link Layer 6.R1	22
25	26 Link Layer 6.R9	27	28 (No Class) Thanksgiving	29
2	3 Wifi /Cell 7.R2	4	5 Net-sec 7.P1	6
9	10 TBD	11	12 TBD	13
16	17 **Final**	18	19	20