



# Bethesda University

730 North Euclid Street, Anaheim, California 92801 Tel: (714)517-1945, Fax: (714)683-1440

## IT 425 Advanced Topic of Network Spring 2015

Professor : James Koo	
Class Hour: Tue 6:50 PM–9:20PM	Class Room: #301
Office: #301	Phone: 714-514-4533
Office Hours/ Consultation: Wed 6:50 PM–9:20PM	E-mail: dr.jameskoo@hotmail.com
TA: TBA (To Be Arranged)	Credit Unit: 3

### A. Mission Statement

#### 1. Bethesda University

##### **Mission of the Bethesda University**

Bethesda University is a Christ-centered community of higher education preparing Korean/English speaking men and women with professional competence, academic excellence, and spiritual integrity to be servant leaders in the Church, community, and global society.

#### 2. Bethesda University General Education Mission Statement

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### B. Course's Academic Level and Place in Curriculum:

This is one of general education courses for all undergraduate students. There is no pre-requisite to take this course. This course may be taken at anytime. But, it fits best if it is taken at the first stage of your course of study.

### C. Course Description

The goal of this course is to expose students to recent advanced topics in networks, with focus on the architectural and protocol aspects underlying the design and operation of these networks.

The course covers protocols related to medium access, routing, quality-of-service provisioning, traffic control, and media streaming in various networked systems, including IP-based Internet, wireless LANs, ad hoc networks, sensor networks, dynamic spectrum access (DSA) networks, etc.



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In the process of learning network architectures and protocols, students will be exposed to various analytical methods that are used in the design and engineering of next-generation networks. They will also use simulations to evaluate the performance of various design concepts.

## D. Course Objectives & Student Outcomes

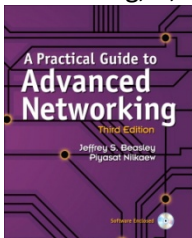
- 1) Provide a broad coverage of some new advanced topics in the field of computer networks (wireless networks, mobile networks, VPN networks, Mobile IP, etc.)
- 2) Understand the main abstract concepts related to Networking
- 3) Understand basics and principles of new generation of computer networks
- 4) Analyze and implement some of the most advanced routing and control algorithms.
- 5) Evaluate the performances of computer networks

Expected Student Outcomes	
Spiritually	<a href="#">Click here to enter text.</a>
Intellectually	<a href="#">Click here to enter text.</a>
Socio-Emotively	<a href="#">Click here to enter text.</a>
Vocationally	<a href="#">Click here to enter text.</a>

## E. Class Formation

Practice network simulators

## F. Required Textbook(s)

No.	Title	Author	Publisher	Library code	Year
1	Practical Guide to Advanced Networking, A, 3/E 	Jeffrey S. Beasley, Piyasat Nilkaew	Pearson	ISBN-13: 978078974904 8	2013

## G. Recommended Reading and Other Course Resources (All reserved for reading)

Please, provide at least 5-10 recommended book on the subject and prioritize by importance and popularity. The library will try to buy those books if not already there.



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No.	Title	Author	Publisher	Library code	Year
1	Wireless Communications & Networks, 2 <sup>nd</sup> Edition	William Stallings	Prentice-Hall Pearson,	ISBN-13: 978-0131918351	2005
2	Mobile Communication, 2 <sup>nd</sup> Edition	Jochen Schiller,	Addison Wesley	ISBN-13: 978-0321123817	2003
3	Computer Networks Networks, 5 <sup>th</sup> Edition	Andrew S. Tanenbaum	Prentice Hall,	ISBN-13: 978-0132126953	2010
4	Computer Networks, Fifth Edition: A Systems Approach	Peterson & Davie	Morgan Kaufmann	ISBN-13: 978-0123850591	2011
5					
6					
7					

## H. Course Calendar/Schedule, include the following

N	Date	Theme	Reading	Assignments
1	2/24	Introduction to networking		Teaching materials and course schedules
2	3/3	Layered communication architecture		
3	3/10	Advanced Routing algorithms		
4	3/17	Advanced Network Congestion Control algorithms		
5	3/24	Quality of service		
6	3/31	Real Time Transport Protocol		
7	4/7	Easter Reading Week		
8	4/14	Internet Networking		
9	4/21	Performance Issues		
10	4/28	Overview on VPN networks		
11	5/5	Overview on Wireless Networks and Mobile Networks		
12	5/12	LAN, PAN, Sensor Networks, Ad_hoc Networks		
13	5/19	Mobile IP, Mobile TCP, IP Security		
14	5/26	Applications: DNS, HTTP		
15	6/2	Advanced Topics: Network Intrusion Detection, SNMP		
16	6/9	Final Exam and Report		Subject Evaluation, Concluding Thoughts



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## I. Assignments

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## J. Evaluation/Assessment Rationale for Grade Determination

### 1. Grade Assessment

Requirements	Points
Attendance	10%
Participation	10%
Book Reviews	10%
Skill Test	30%
Exam	40%
Projects	0%
Total	100

### 2. Grade definition

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### 3. Grade scale

Letter Grade	Numerical Grade	Grade Points	Quality of Performance
A	95-100	4.0	Outstanding
A-	90-94	3.7	Excellent
B+	87-89	3.3	Good +
B	84-86	3.0	Good
B-	80-83	2.7	Good
C+	77-79	2.3	Satisfactory +
C	74-76	2.0	Satisfactory
C-	70-73	1.7	Satisfactory
D+	67-69	1.3	Poor
D	64-66	1.0	Very Poor
D-	60-63	0.7	Extremely Poor
F	59 or lower	0	Failure

## K. Course Policies

### 1. Attendance, Preparation, and Participation:

If student miss over 20% of the class sessions, "F" will be given.



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2. **Deadlines:**

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3. **Advance Assistance:**

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4. **Assignment Options:**

The assignments that have work to be assessed will be given to the students in separate documents including the due date and appropriate reading material.

5. **Make up work:**

Make-up work will be offered for valid reasons only. Make-up work may be different from regular exams in content and format.

6. **Extra-credit work:**

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7. **Emergency procedures:**

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8. **Other policies on Withdrawal and Grade Permanence, Academic Integrity, and Appeals and Grievance procedures refer to the Student Handbooks and Catalog.**

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**L. Support Services**

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**M. Bibliography**

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