Carleton University
Sprott School of Business
BUSI4404A
Winter 2022
IT Infrastructure

Instructor: Dr. Ajit Thomas
Office: N/A
Office Hours: TBD
Email: ajit.thomas@carleton.ca
Phone Number: 613-407-6520 (mobile)
TA: TBD

Class meets: Wednesday 18:05 – 20:55, AT101 (starts Jan 10, 2022)

Pre-requisites: Third year standing and BUSI2400 (with a grade of C- or higher).

The School of Business enforces all prerequisites. It is your responsibility to ensure you meet the prerequisite requirements for this course. If you have taken a course or courses that you think is/are equivalent to the prerequisites specified for this course, you must show proof to the Undergraduate Adviser. Please bring in your transcript and course description(s). Failure to document this requirement will lead to mandatory deregistration. Only the School of Business can waive prerequisite requirements.

Course Description:

Challenges and issues managers face in assembling the infrastructure for IT service delivery. IT Service levels, data communications, networks (LAN, MAN, WAN, wireless), internetworking, web services, XaaS, server and storage virtualization, network security, business continuity and disaster recovery.

Introduction:

Telecommunications and data networking technologies are transforming how IT services are delivered in organizations. People and organizations increasingly are conducting their work and operations across time and space using computing and telecommunication networks. The technologies and applications afforded by these networks present unique management challenges. Businesses now depend on information and telecommunications

technologies and services for both their survival and profitability. The strategic impact of IT infrastructure on the firm's value chain is enormous. Managers therefore, must become familiar and conversant with the technologies underpinning IT Infrastructure and how best to apply and exploit them in generating business value.

Course Objectives:
The course is designed for business students who need to develop an understanding of IT infrastructure technologies as well as the challenges and opportunities associated with them. While it does cover some technical aspects of data and telecommunications, the course is not designed to train computer and telecommunications networking engineers.

The course will:

- enable students to develop an understanding of the fundamental concepts of telecommunications, data communications and networking.
- familiarize students with network technologies, protocols and standards.
- explore the managerial considerations surrounding telecommunications and networking applications design, procurement and deployment.
- address issues related to the impact of telecommunications and networking technologies on the globalization of business activity and electronic commerce.

Reading(s)/Textbook(s):

Fitzgerald, J. and Dennis, A. (2017) Business Data Communications and Networking, 13th Edition, John Wiley and Sons. The e-book can be purchased directly online at: https://www.wiley.com/en-ca/Business+Data+Communications+and+Networking%2C+13th+Edition-p-9781119368830

Note: The 12th edition is a lot cheaper and that is what I am going to be using so you can save some $$$.

Other References:

1. White, C. (2009) Data Communications and Computer Networks, Thomson Course Technology. 5th Edition.
2. Dennis, Alan (2002) Networking in the Internet Age, New York: John Wiley & Sons.
3. Stallings, W. (2001) Business Data Communications. Upper Saddle River, New Jersey: Prentice Hall, 4th Edition.

Other References:
Network Computing (www.networkcomputing.com), Network World (www.networkworld.com), Whatis.com (www.whatis.com), Datamation (www.datamation.com), Information Week (www.informationweek.com)

EVALUATION AND GRADING

Grades will be based on 4 in-class quizzes, a midterm exam, one group project, and a final exam. The distribution of marks towards the final grade will be as follows:

Individual Research Paper 30% (5% of the grade is for your presentation)
Midterm 25%
Final Exam 40%
Class Participation 5% (based on in-class and project participation)
Total 100%

Individual Research Paper

Each student will choose an interesting technology topic and write a paper that will cover the topic from its emergence to current and potential future uses. You are free to choose topics that are no longer in vogue (e.g. the Enigma Bombe machine, Roman cryptography etc.) and if the technology is obsolete, explain the circumstances that caused these technologies to no longer be used. This course typically has a group project component but given the circumstances, group work is challenging so I have decided to scrap the group project and make the individual assignment more substantial.

Please note that the paper must not be a simple regurgitation of Google searches. I would like you to really understand the technology are you have chosen and explain it in a way that someone who is not familiar with it at all will be able to gain a solid understanding of it from reading your paper alone. If you use material that is not your own, you must cite the sources. I don't like plagiarism and intellectual dishonesty. If you have a unique idea of how the technology can be used, tell me about it – that will be interesting – I like innovative ideas. Another way you can approach this assignment is if the technology is new and has applicability to a real business, one part of your paper (not all) can consider how the technology would be implemented in your workplace (real or fictional) and provide a plan to convince management to invest in the technology. Since you are asking for money, you would need to provide some support (biz-stuff like increased ROI, competitive advantage etc.).

The paper is due after the midterm so you should have it ready to go as I will pick the presenters in each class at random so have your presentation material ready. Students will make short (10-15 min) peer-evaluated presentations of their topics to the rest of the class. If I pick your name and you are not ready to go, I will not be happy.

Examples of emerging technical areas (Not an exhaustive list, you can pick something else):

- Big Data / Hadoop etc.
- Office automation / IoT
- Robotics
- RFID
- Mobility solutions

- Neural networks
- AI / Machine Learning
- Blockchain
- Business Intelligence / Business Analytics
- VOIP networks / telephony
- Social media integration
- Satellite / GPS
- Remote work / Virtual Private Network
- Data Centers / Virtualization
- Managed Hosting
- XaaS Frameworks
- Network management services
- Security and disaster recovery services
- Desktop management and support services
- Cloud / Distributed Computing
- 3rd party Authentication services (RSA etc.)
- Encryption
- Augmented reality
- Real-time access to data

3. Peer Evaluation: Each student will be required to perform a peer evaluation of every other student's individual assignment. You will assess their understanding of the topic, how well they presented and answered questions etc. The peer evaluation must be submitted at the end of the class for the presentations that were made in the session. Failure to submit an evaluation will lead to a loss of 10% of your grade. The peer evaluation form will be made available through the course portal.

Assignment Submission

All written assignments must be submitted to the Instructor by 6:00 p.m. on the portal, on the day that they are due. It is the student's responsibility to ensure that all assignments are received in an accessible format on or before the due date. Assignments are due at the time indicated. Late assignments will be marked down by 10% for every calendar day late (only when late submissions are allowed). All documents should have the student's name, number, and course section.

Satisfactory In-term Performance

To receive a passing grade in this class, students must complete all deliverables and receive a minimum average of 50% across all in-term course work.

Course Schedule: (subject to change)

DATE	DESCRIPTION	Content	Deliverable(s)
JAN 12	INTRO. TO DATA COMMUNICATIONS	CHAPTER 1	
JAN 19	APPLICATION LAYER	CHAPTER 2	
JAN 26	PHYSICAL LAYER	CHAPTER 3	
FEB 2	DATA LINK LAYER, NETWORK AND TRANSPORT LAYERS	CHAPTER 4, 5	
FEB 9	NETWORK DESIGN WIRED AND WIRELESS LAN	CHAPTER 6	
FEB 16	BACKBONE NETWORKS	CHAPTER 7	
FEB 21-25	WINTER BREAK		
MAR 2	MIDTERM EXAM	CH 1 – 7	IN CLASS (TBD)
MAR 9	WIDE AREA NETWORKS	CHAPTER 8	**INDIVIDUAL PAPER DUE** INDIVIDUAL PRESENTATIONS
MAR 16	INTERNET	CHAPTER 9	INDIVIDUAL PRESENTATIONS
MAR 23	NETWORK SECURITY	CHAPTER 10	INDIVIDUAL PRESENTATIONS
MAR 30	NETWORK MANAGEMENT	CHAPTER 11,12	INDIVIDUAL PRESENTATIONS
APR 6	REVIEW		INDIVIDUAL PRESENTATIONS
TBD	FINAL EXAM		

Contribution to Learning Goals of the Program (BCom, BIB):

Program Learning Goal	Competencies Not Covered	Competencies Introduced (only)	Competencies Taught But Not Assessed	Competencies Taught and Assessed
	CHECK (X) ONE PER ROW			
BC1 Knowledge *Graduates will be skilled in applying foundational business knowledge to appropriate business contexts.*				X
BC2 Collaboration *Graduates will be collaborative and effective contributors in team environments that respect the experience, expertise and interest of all members.*		X		
BC3 Critical Thinking *Graduates will be discerning critical thinkers, able to discuss different viewpoints, challenge biases and assumptions, and draw conclusions based on analysis and evaluation.*		X		
BC4 Communication *Graduates will be effective and persuasive in their communications.*				X
BI5 Global Awareness (BIB ONLY) *Graduates will be globally-minded.*				

ADDITIONAL INFORMATION

Course Sharing Websites
Materials created for this course (including presentations and posted notes, labs, case studies, assignments and exams) remain the intellectual property of the author(s). They are intended for personal use and may not be reproduced or redistributed without prior written consent of the author(s).

Required calculator in BUSI course examinations
If you are purchasing a calculator, we recommend any one of the following options: Texas Instruments BA II Plus (including Pro Model), Hewlett Packard HP 12C (including Platinum model), Staples Financial Calculator, Sharp EL-738C & Hewlett Packard HP 10bII

Group work
The Sprott School of Business encourages group assignments in the school for several reasons. They provide you with opportunities to develop and enhance interpersonal, communication, leadership, follower-ship and other group skills. Group assignments are also good for learning integrative skills for putting together a complex task. Your professor may assign one or more group tasks/assignments/projects in this course. Before embarking on a specific problem as a group, it is your responsibility to ensure that the problem is meant to be a group assignment and not an individual one.

In accordance with the Carleton University Undergraduate Calendar (p 34), the letter grades assigned in this course will have the following percentage equivalents:

A+ = 90-100	B+ = 77-79	C+ = 67-69	D+ = 57-59
A = 85-89	B = 73-76	C = 63-66	D = 53-56
A - = 80-84	B - = 70-72	C - = 60-62	D - = 50-52
F = Below 50			

Grades entered by Registrar:
WDN = Withdrawn from the course
DEF = Deferred

Academic Regulations
University rules regarding registration, withdrawal, appealing marks, and most anything else you might need to know can be found on the university's website, here:
http://calendar.carleton.ca/undergrad/regulations/academicregulationsoftheuniversity/

Requests for Academic Accommodation
You may need special arrangements to meet your academic obligations during the term. For an accommodation request, the processes are as follows:

Pregnancy Accommodation
Please contact your instructor with any requests for academic accommodation during the first two weeks of class, or as soon as possible after the need for accommodation is known to exist. For more details, visit the Equity Services website:

carleton.ca/equity/wp-content/uploads/Student-Guide-to-Academic-Accommodation.pdf

Religious obligation
Please contact your instructor with any requests for academic accommodation during the first two weeks of class, or as soon as possible after the need for accommodation is known to exist. For more details, visit the Equity Services website:
carleton.ca/equity/wp-content/uploads/Student-Guide-to-Academic-Accommodation.pdf

Academic Accommodations for Students with Disabilities
If you have a documented disability requiring academic accommodations in this course, please contact the Paul Menton Centre for Students with Disabilities (PMC) at 613-520-6608 or pmc@carleton.ca for a formal evaluation or contact your PMC coordinator to send your instructor your Letter of Accommodation at the beginning of the term. You must also contact the PMC no later than two weeks before the first in-class scheduled test or exam requiring accommodation (if applicable). After requesting accommodation from PMC, meet with your instructor as soon as possible to ensure accommodation arrangements are made. **carleton.ca/pmc**

Survivors of Sexual Violence
As a community, Carleton University is committed to maintaining a positive learning, working and living environment where sexual violence will not be tolerated, and its survivors are supported through academic accommodations as per Carleton's Sexual Violence Policy. For more information about the services available at the university and to obtain information about sexual violence and/or support, visit: **carleton.ca/sexual-violence-support**

Accommodation for Student Activities
Carleton University recognizes the substantial benefits, both to the individual student and for the university, that result from a student participating in activities beyond the classroom experience. Reasonable accommodation must be provided to students who compete or perform at the national or international level. Please contact your instructor with any requests for academic accommodation during the first two weeks of class, or as soon as possible after the need for accommodation is known to exist.
https://carleton.ca/senate/wp-content/uploads/Accommodation-for-Student-Activities-1.pdf

For more information on academic accommodation, please contact the departmental administrator or visit: **students.carleton.ca/course-outline**

Academic Integrity
Violations of academic integrity are a serious academic offence. Violations of academic integrity – presenting another's ideas, arguments, words or images as your own, using unauthorized material, misrepresentation, fabricating or misrepresenting research data, unauthorized co-operation or collaboration or completing work for another student – weaken the quality of the degree and will not be tolerated.

Process: If an alleged violation occurs, all relevant documentation will be forwarded to the Dean. If the allegation proves true, the penalties may include; a grade of Failure on the submitted work and/or course; academic probation; a refusal of permission to continue or to register in a specific degree program; suspension from full-time studies; suspension from all studies at Carleton; expulsion from Carleton, amongst others. **For a first offence, at a minimum, the penalty assigned will normally be a zero on the submitted work and at least a minimum full grade reduction of the final course grade. For a second offence, at a minimum, the penalty assigned will normally lead to a suspension from studies.**

Students are expected to familiarize themselves with and follow the Carleton University Student Academic Integrity Policy which is available, along with resources for compliance at: https://carleton.ca/registrar/academic-integrity/.

Sprott Student Services

The Sprott Undergraduate Student Services Office offers program advising and overall student success support. Our team is available to discuss your academic goals and your program progression plans. We can also work with you to develop strategies for success, including study skills for Business. If you experience any difficulty this term or if you would like to access support, please contact our team at bcom@sprott.carleton.ca or at bib@sprott.carleton.ca.

Centre for Student Academic Support

The Centre for Student Academic Support (CSAS) is a centralized collection of learning support services designed to help students achieve their goals and improve their learning both inside and outside the classroom. CSAS offers academic assistance with course content, academic writing and skills development. Visit CSAS on the 4th floor of MacOdrum Library or online at: carleton.ca/csas.

Important Information:

- Students must always retain a copy of all work that is submitted.
- All final grades are subject to the Dean's approval.
- For us to respond to your emails, we need to see your full name, CU ID, and the email must be written from your valid CARLETON address. Therefore, in order to respond to your inquiries, please send all email from your Carleton CMail account. If you do not have or have yet to activate this account, you may wish to do so by visiting **https://carleton.ca/its/get-started/new-students-2/**