



CARLETON UNIVERSITY

**BUSI 4404 A**  
***IT Infrastructure***  
**Winter 2015**

**Instructor: Teddy Boyce**

**Office: TBA**

**Office Hours: Thursday 10:30 – 11:30**

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**Phone Number: 520-2600 Ext. TBA**

**Course Website: <http://culearn.carleton.ca>**

**Schedule: Thursday 11:35 – 14:25. Lectures three hours a week.**

**Location: River Building 1200**

**Prerequisites: Third-year standing and BUSI 2400 (with a grade of C- or better).**

**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 de-registration. 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 portend significant management challenges. Businesses now depend on information and

telecommunications technologies and services for 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 issues and technologies and the challenges and opportunities associated with them. While it does cover some technical issues related to 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.

### **Required Text Book**

Fitzgerald, J. and Dennis, A. (2011) Business Data Communications and Networking, 11<sup>th</sup> Edition, John Wiley and Sons.

The e-book can be purchased directly online at: <http://ca.wiley.com/WileyCDA/Section/id-814611.html>

### **Other References**

1. White, C. (2009) Data Communications and Computer Networks, Thomson-Course Technology. 5<sup>th</sup> Edition.
2. Dennis, Alan (2002) Networking in the Internet Age, New York: John Wiley & Sons.
3. Rowe II, S. H., (2002) Telecommunications for Managers, Upper Saddle River, New Jersey: Prentice Hall. 5<sup>th</sup> Edition.
4. Stallings, W. (2001) Business Data Communications. Upper Saddle River, New Jersey: Prentice Hall, 4<sup>th</sup> Edition.

### **Online References**

Light Reading ([www.lightreading.com](http://www.lightreading.com)), Dark Reading ([www.darkreading.com](http://www.darkreading.com)), Network Computing ([www.networkcomputing.com](http://www.networkcomputing.com)), Network World ([www.networkworld.com](http://www.networkworld.com)), Whatis.com ([www.whatis.com](http://www.whatis.com)), Information Week ([www.informationweek.com](http://www.informationweek.com)), Datamation ([www.datamation.com](http://www.datamation.com)).

## **Evaluation and Grading**

Grades will be based three (3) assignments and up to two (2) quizzes, a midterm exam, a group project, and a final exam. The distribution of marks towards the final grade will be as follows:

Individual Assignments and Quizzes	20%
Midterm	25%
Group Project	25%
Final Exam	30%
<b>Total</b>	<b>100%</b>

### **Individual Assignments**

Students will do three individual assignments. At least one will be hands-on and used to reinforce some of the more abstract concepts covered in the lectures. Source and due dates for the assignments are listed in the Course Schedule below.

### **Quizzes**

Up to two (2) quizzes may be given during the term. Quizzes may be given unannounced. They will cover material in both the previous chapters and the chapter that is being covered on that particular day. There is no make-up for missed quizzes.

### **Group Project**

For the team project, students working in group of three or four people (groups of two will **not** be allowed) will conduct a case study of a local company, not-for-profit organization, or government entity faced with a specific IP infrastructure management challenge (technical or operational) which can be solved by upgrading some part of the IT infrastructure. Each group will develop a proposal which details the planned solution and roadmap to implementation. The proposal must be in a form that will be presented to upper management in order to secure sponsorship, support, and funding for the plan. Therefore, the proposal must include key elements such as cost-benefit analysis, budget, etc.

### **Project Deliverables**

Deliverables for the team project include the following: a project proposal, project report, project presentation, and a peer evaluation.

1. **Team Project Proposal: (10% of project grade)** The proposal should outline what the team plans to investigate and report on. It should contain the following: a title for the project, a short description and rationale, possible sources of information, resources that may be needed, and a project management schedule for the team's project (not the final implementation of the proposal). I will review each project proposal to verify its appropriateness for the course. The proposals must be submitted by the third class meeting.
2. **Project Report: (60% of project grade)** The project report should be constructed as a proposal for upgrade and request for funding, targeted at, and delivered in the language of, upper management. The proposal should contain at least the following: a title page; an executive summary page; table of contents and list of figures; departmental/company overview (i.e. how the affected department fits within, and contributes to, the overall organization); description of the problem and how it is negatively impacting the operations of the department/company; scope and requirements of proposed solution; short-list of vendors and vendor selection criteria (if applicable); informal cost-benefit analysis for proposed solution (**do not** include items: discounting/net present value/time value of money, uncertainty/sensitivity analysis; but **do** include an estimated payback period with a minimum analysis horizon of one year); proposed implementation plan for the proposed solution (including budget and timeline); references; and appropriate appendices and illustrations. The report should not be more than 4000 words in length, excluding appendices and illustrations. **You will lose 1 point for every 100 words over the allowed limit for the report.**
3. **Project Presentation: (30% of project grade)** Each team will give an in-class presentation of its project lasting no more than 15 minutes. This will consist of 12 minutes for the actual presentation and 3 minutes for questions. The limited presentation time makes it imperative for the group to organize what is to be presented. Visual aids should be used to enliven the presentations. However, these must be well designed and clear. All team members should take part in the presentation.
4. **Peer Evaluation:** Each student will be required to perform a peer evaluation of his or her peers' involvement and performance in the project team (involvement and performance in the project preparation and presentation, and team formation and development). The peer evaluation must be submitted by 18:00, April 6, 2015 via cuLearn. The peer evaluation will be used to adjust your project grade downward by a maximum of 20 points. **Failure to submit an evaluation will lead to a loss of 10% of your project grade.** The peer evaluation forms can be downloaded from the course resources page on cuLearn.

**Example Project Focus Areas (Not an exhaustive list):**

- Data and Telecommunications strategy
- LAN equipment and hardware provision
- Voice over IP telephone services
- Remote and mobile network access services
- Network management services

- Security and disaster recovery services
- Desktop management and support services
- Virtual Private Network
- Cloud Computing
- Managed Web hosting services

**Assignment Submission**

All written assignments should be submitted to the Instructor by **6:00 p.m., CuLearn**, on the day 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.

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      WDN = Withdrawn from the course

ABS = Student absent from final exam

DEF = Deferred

FND = (Failed, no Deferred) = Student could not pass the course even with 100% on final exam

**Class news and updates to class outline and schedule**

Please check the class webpage at <http://culearn.carleton.ca> for regular news and updates.

**Class Schedule – Winter 2015**

<b>Dates</b>	<b>Topic</b>	<b>Group Assignment</b>	<b>Readings/ Individual Assignment</b>
January 8	Introduction to Data Communications		Chapter 1
15	Application Layer		Chapter 2

22	Physical Layer		Chapter 3 <b>Project Proposal Due</b> <b>Assignment 1 given</b>
29	Data Link Layer		Chapter 4 <b>Assignment 1 Due</b>
February 5	Network and Transport Layer		Chapter 5 <b>Assignment 2 given</b>
12	Local Area Networks (Wired & Wireless)  Backbone Networks		Chapter 6  Chapter 7 <b>Assignment 2 Due</b>
<b>19</b>	<b>Winter Break</b>		<b>No Class</b>
<b>26</b>	<b>Midterm Exam</b>		
March 5	Wide Area Networks  The Internet		Chapter 8  Chapter 9
12	Network Security		Chapter 10 <b>Assignment 3 given</b>
19	Network Design		Chapter 11 <b>Assignment 3 Due</b>
26	Network Management		Chapter 12
<b>31</b>	<b>Project Report</b>	<b>Project Report Due</b>	
April 2	Project Presentations	<b>In-class Project Presentations Due</b>	
April 6	Peer Evaluation		<b>Peer Evaluations Due</b>
TBA	<b>Final Examination</b>		As per Exam Schedule

## **IMPORTANT ADDITIONAL INFORMATION**

### **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.

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### **Academic Regulations, Accommodations, Etc.**

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 Accommodations**

#### **Academic Accommodations for Students with Disabilities**

The Paul Menton Centre for Students with Disabilities (PMC) provides services to students with Learning Disabilities (LD), psychiatric/mental health disabilities, Attention Deficit Hyperactivity Disorder (ADHD), Autism Spectrum Disorders (ASD), chronic medical conditions, and impairments in mobility, hearing, and vision. If you have a disability requiring academic accommodations in this course, please contact PMC at 613-520-6608 or [pmc@carleton.ca](mailto:pmc@carleton.ca) for a formal evaluation. If you are already registered with the PMC, contact your PMC coordinator to send me your *Letter of Accommodation* at the beginning of the term, and 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 me to ensure accommodation arrangements are made.

The deadline for contacting the Paul Menton Centre regarding accommodation for final exams for the April 2015 exam period is March 6, 2015.

*For Religious Obligations:*

Students requesting academic accommodation on the basis of religious obligation should make a formal, written request to their instructors for alternate dates and/or means of satisfying academic requirements. Such requests should be made during the first two weeks of class, or as soon as possible after the need for accommodation is known to exist, but no later than two weeks before the compulsory event.

Accommodation is to be worked out directly and on an individual basis between the student and the instructor(s) involved. Instructors will make accommodations in a way that avoids academic disadvantage to the student.

Students or instructors who have questions or want to confirm accommodation eligibility of a religious event or practice may refer to the Equity Services website for a list of holy days and Carleton's Academic Accommodation policies, or may contact an Equity Services Advisor in the Equity Services Department for assistance.

*For Pregnancy:*

Pregnant students requiring academic accommodations are encouraged to contact an Equity Advisor in Equity Services to complete a letter of accommodation. The student must then make an appointment to discuss her needs with the instructor at least two weeks prior to the first academic event in which it is anticipated the accommodation will be required.

**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. Penalties may include expulsion; suspension from all studies at Carleton; suspension from full-time studies; a refusal of permission to continue or to register in a specific degree program; academic probation; and a grade of Failure in the course, amongst others. 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 <http://www2.carleton.ca/sasc/advisingcentre/academic-integrity/>.

**Assistance for Students:**

Student Academic Success Centre (SASC): [www.carleton.ca/sasc](http://www.carleton.ca/sasc)

Writing Tutorial Services: <http://www1.carleton.ca/sasc/writing-tutorial-service/>

Peer Assisted Study Sessions (PASS): [www.carleton.ca/sasc/peer-assisted-study-sessions](http://www.carleton.ca/sasc/peer-assisted-study-sessions)

**Important Information:**

- Students must always retain a hard copy of all work that is submitted.
  - All final grades are subject to the Dean's approval.
  - Please note that you will be able to link your CONNECT (MyCarleton) account to other non-CONNECT accounts and receive emails from us. However, 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 CONNECT address. Therefore, it would be easier to respond to your inquiries if you would send all email from your connect account. If you do not have or have yet to activate this account, you may wish to do so by visiting <https://portal.carleton.ca/>
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**Important Dates & Deadlines – Winter 2015****January 5**

Winter-term classes begin. [Late Charges](#) now apply.

**January 16**

Last day for registration for winter term courses.

Last day to change courses or sections (including auditing) for winter term courses.

Students who have not deposited (via automated upload) the final copy of their thesis to the office of the Faculty of Graduate and Postdoctoral Affairs must register.

**January 31**

Last day for a [fee adjustment](#) when withdrawing from Winter term courses or the Winter portion of two-term courses. Withdrawals after this date will create no financial change to Winter term fees (financial withdrawal).

**February 13**

April examination schedule available online.

**February 13-21**

Fall-term deferred examinations will be held

**February 16**

Statutory holiday, University closed.

**February 16-20**

Winter Break. Classes are suspended.

**March 1**

Last day for UHIP refund applications for International Students who will be graduating this academic year.

Last day for receipt of applications from potential spring (June) graduates.

**March 6**

Last day to submit, to the Paul Menton Centre for Students with Disabilities, Formal Examination Accommodation Forms for April examinations.

**Late March (Date TBA)**

[Last day to pay any remaining balance on your Student Account](#) to avoid a hold on access to marks through Carleton Central and the release of transcripts and other official documents. An account balance may delay Summer 2015 course selection.

**April 3**

Statutory holiday, University closed.

**April 8**

Last day of fall/winter and winter-term classes.

Last day for academic withdrawal from fall/winter and winter-term courses.

Last day for handing in term work and the last day that can be specified by a course instructor as a due date for term work for fall/winter and winter-term courses.

**April 9-10**

No classes or examinations take place

**April 11-23**

Final examinations in winter term and fall/winter courses may be held. Examinations are normally held all 7 days of the week.

**June 8-18 (including Saturdays)**

Fall/winter and winter term deferred final examinations will be held.