Instructor: Ahmed Doha
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Phone Number: (613) 520-2600 ext. 1909
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Teaching Assistant (TA): TBA
Teaching Assistant Email: TBA
Teaching Assistant Office Hours: To be announced. By appointment only.

Schedule: Tuesdays 2:35 pm - 5:25 pm.

Delivery mode: In-class (note: one or two classes might be offered on Zoom)

Lecture Room: NI 1020 (might be changed by university – check before start of classes)

Pre-requisites & precluded Courses: third-year standing,
and BUSI 2204 or BUSI 2208, and BUSI 3103 with a grade of C- or higher in each.

Course Calendar description from the 2023/2024 University calendar: Integration of technology and strategy; design of technological strategy; development of new business around new technology; and management of corporate research and development, including pre-competitive consortia.

Course Description: Innovation is the spark that ignites the development of new products, processes, and services, which directly contribute to efficient operation, prosperity, economic growth, and job creation. Innovation is a process and this course aims at understanding the process and best practices of technology and innovation management at the firm level. This course is delivered in three modules to achieve this goal

1. Dynamics of Technological Innovation, which covers the foundations of technological innovation, gaining an in-depth understanding of how and why innovation occurs in an industry, and why some innovations rise to dominate others.

2. Strategic Management of Innovation, which discusses the formulation of firms' technological innovation strategy. This includes strategic analysis of current position and future direction, competitive vs. collaborative strategies for innovation, and mechanisms for profiting from innovation.

3. Special Topics in Management of Technological Innovation, which examines two important domains of innovation that complement technological innovation. Those are service innovation and business model innovation.

READING(S)/TEXTBOOK(S)/REQUIRED MATERIALS:

Textbook:

Mandatory: Melissa Schilling, Strategic Management of Technological Innovation, 7th edition 2023, McGraw-Hill, New York, NY. ISBN10: 126408093X | ISBN13: 9781264080939

Optional: Learning with Cases, 2005, 3rd edition. Louise A Mauffette-Leenders, James A Erskine, and Michiel R Leenders. Published by the Richard Ivey School of Business, University of Western Ontario. (Available at the library. HF1111 .M38 2005, Floor 4 Books)

Course pack: All cases, articles, and tools used in this course are available from the library through Ares, which is accessible through students BrightSpace accounts (no additional cost). The course pack includes the following:

Cases (abstract of the cases is included at the end of this course outline)

1. Artificial Intelligence and the Machine Learning Revolution in Finance: Cogent Labs and the Google Cloud Platform (GCP)
2. Kodak and the Digital Revolution (A)
3. Adobe Systems, Inc.
4. Netflix
5. Google Inc.
6. Matching Dell
7. Innovation at Progressive (A): Pay-As-You-Go Insurance
8. TopCoder (A): Developing Software through Crowdsourcing

Articles

1. The Imitator's Dilemma: Why Imitators Should Break Out of Imitation. Journal of Product Innovation Management. Journal of Product Innovation Management.
2. Creating New Markets Through Service Innovation. MIT Sloan Management Review.
3. Creating Value through Business Model Innovation. MIT Sloan Management Review.

Tools

1. The Case Analysis Coach: a mandatory course material to be self-studied to help students with case analysis and reporting. It presents a comprehensive and concise framework for analyzing, discussing, and writing about cases. Delivered entirely online, it shows students how to establish a knowledge base about a case.

Presentation slides: Slides will be minimally used in this course, and where used, the instructor will share them via cuLearn.

COURSE REQUIREMENTS & METHODS OF EVALUATION (INCLUDING DUE DATES):

Grade Distribution

In-Class Participation	10%
Two In-Class Presentations	10%
Case Presentation	20%
Case Report	20%
Term Paper	40%

Term Paper Technology Platforms
Seven technology platforms were carefully selected for student teams in this course to conduct their term paper coursework on. These platforms face distinct challenges in their quest to deliver on their vision and growth goals. Each student team is expected to be the "in-house experts" in one of the selected technology platforms. This expertise is expected to be accumulated through the first five weeks. By the sixth week, each student team is expected to have crafted a tutorial (using an appropriate software tutorial maker) on its assigned technology platform and to make an in-class live presentation of the tutorial to showcase their expertise (Tutorial and presentation weigh 5% of overall grade). Thereafter, student teams are expected to develop a consulting piece advising their respective technology platform on ways to capitalize on the opportunities and threats in their environment. In doing so, students will combine their hands-on expertise on the technology platforms and the theoretical and analytical frameworks learnt throughout the term to identify the opportunities, threats, strengths, and weaknesses in the firms' internal and external environments. A student team will be assigned a technology platforms as outlined in the following table.

In-Class Participation (10%)
This course relies solely on cases for teaching. Case-based teaching requires intensive class participation, which is essential for the individual's and collective learning experience. This explains the relatively high weight of this activity in the grade distribution (10% of overall grade). You are expected to read the material before class and come prepared for engaged, informed, and well-reasoned discussions. Both the quantity and quality of your contributions will determine your class participation grade. Quality contributions go beyond merely stating the facts and repeating information from the readings to generating intellectually stimulating remarks and questions that help the classroom engage more with the course material. Uninformed contributions that indicate unpreparedness can harm rather than help one's grade. The instructor's role in the classroom is generally to facilitate class discussions and drive the concepts and ideas home. Attendance will be taken electronically using Poll Everywhere supported by Carleton's Educational Development Center. You need to register on Poll Everywhere using your cmail account (get in touch with EDC for any technical problems). A connected device such as a smartphone, tablet, or laptop is required in class to register attendance. In order to get the full participation mark, a student should not miss more than two classes AND electronically answer the Poll Everywhere attendance question in class. Missing more than two classes is highly discouraged and will result in 50% reduction in the overall attendance grade.

Presentation # 1: Technology Platform Tutorial Presentation (5%)
A student team will develop a 20-min video tutorial on the assigned technology platform. The tutorial should demonstrate an in-depth knowledge and expertise on the technology and business model of of the assigned technology platform. This exercise is foundational to working on the term paper. Use one of the free online screen-casting tools such as Jing or Camstudio to create video tutorials. The video tutorial should address the rubrics published under the course BrightSpace page. The presentation will be followed by a 10-min Q&A session. Submit your presentation by 11:59 pm the night of the presentation. Late submissions will be deducted 20% of the mark for each day of delay.

Case Presentation (20%)
A student team will analyze the assigned case in the team package and present it in class according to the course schedule. This is a 30-min team presentation. The presentation will be followed by a 30-min Q&A discussion mainly with another student team reporting in writing on the case. In their presentation and discussion of the case, the presenting student team should engage the case itself as well as the reading material (textbook, articles, etc). Marking the presentation will be based on the presentation quality in addressing the rubrics and how well the Q&A discussion period was managed by the team. Clear, well-thought, and well-articulated presentation of the case is important and will weigh in grading. PowerPoint presentations are expected and a team should submit them to the instructor by email by 11:59 pm the night of class. The case presentation should address the rubrics published under the course BrightSpace page. Late case presentation slides submissions will not be accepted and will receive a mark of zero.

Case Report (20%)
Each student in a given team is required to submit a written case analysis report for the assigned case as shown in the team package in the following table. Each student will work independently and submit a separate and original report. The report should come in no more than 10 pages (double line spacing), including a one-page references list. The report should be sent by email to the instructor by 11:59 pm the night of class. The team responsible for the case report in a given class will be the primary discussants of the case against the case presentation team. Marking the case report will be based on the extent and quality of addressing the rubrics and also the depth and quality of the Q&A discussion with the case presentation team. The case report should address the rubrics published under the course BrightSpace page. All references are to be included and properly cited. Late case report submissions will not be accepted and will receive a mark of zero.

Term Paper (40%)
In the term paper, student teams will develop a consulting piece that builds on the knowledge accumulated about the technology platform and the theoretical and analytical frameworks learnt in the course. Having understood the patterns of innovation and competitive strategy of the assigned technology platform, student teams are expected to propose a set of innovations and strategic changes that could improve the competitive position, market share, and/or profit performance of the assigned technology platform. The rubrics for the term paper will be made available on BrightSpace and will represent the benchmark for evaluation. Student teams will make in-class presentations of their term papers during the last class (weigh 5% of overall grade). The term paper should address the rubrics published under the course BrightSpace page.

Submit your term paper as a Microsoft Word document and the PowerPoint presentation slides by email to the instructor's email address at the top of this document to ahmed.doha@carleton.ca. The deadline to submit the term paper and the presentation slides is 11:59 pm the night of the presentation. Late submissions will be deducted 20% of the mark for each day of delay. Students who do not obtain at least 50% on their term work prior to writing the term paper will not be allowed to write a term paper and will thus fail the course.

Presentation # 2: In-Class Term Paper Presentation (5%)
In this 30-min presentation, a student team will present their term paper. This is followed by a 10-min Q&A period.

Team Package	Case Presentation	Case Report	Term Paper - Technology Platform
1	Case: Kodak and the Digital Revolution (A)	Case: Netflix	Netflix (Entertainment)
2	Case: Artificial Intelligence	Case: Matching Dell	Ethereum (FinTech)
3	Case: Adobe Systems, Inc.	Case: Artificial Intelligence	Etsy (Art & Design)
4	Case: Netflix	Case: Innovation at Progressive (A): Pay-As-You-Go Insurance	Expedia (Travel)
5	Case: Google Inc	Case: TopCoder (A): Developing Software through Crowdsourcing	Uber (Transportation)
6	Case: Matching Dell	Case: Kodak and the Digital Revolution (A)	Airbnb (Accommodation)
7	Case: Innovation at Progressive (A): Pay-As-You-Go Insurance	Case: Google Inc	Shopify (e-Commerce)
8	Case: TopCoder (A): Developing Software through Crowdsourcing	Case: Adobe Systems, Inc.	LinkedIn.com (Social Media)

GENERAL GUIDELINES

Student Groups
- There will be eight student teams. During the first class, the instructor will randomly assign students to one of the teams. No change of teams permitted.

Attendance
- Class attendance is highly important and is part of the class participation grade. Attendance will be taken electronically using Poll Everywhere supported by Carleton's Educational Development Center. A connected device such as a smartphone, tablet, or laptop is required to register attendance. In order to get the full participation mark, a student needs to attend at least 11 classes AND electronically answer the Poll Everywhere attendance question. Missing more than two classes is highly discouraged and will result in 50% reduction in the overall class participation grade.

Valid Excuses
- Only excuses deemed by university policy as valid will be assessed for missing a deadline and must be filed with supporting documents. Any other reason (such as travel, etc…) will not be considered. Missing a deadline for a reason that is not deemed as valid by university policy will receive a mark of zero.

Communication
Students should use their "first.last@carleton.ca" email account and not any other email accounts to communicate with the instructor or the TA.

TENTATIVE SCHEDULE

Wk	Date	Topic	Readings / Cases
1	Sep 06, 2023	▪ Introduction	▪ **Reading:** Chapter 1 (textbook)
2	Sep 13, 2023	▪ Learning with Cases ▪ Model Case Analysis	▪ **Reading:** Learning with Cases, 2005, 3rd edition. ▪ **Case:** Artificial Intelligence and the Machine Learning Revolution in Finance: Cogent Labs and the Google Cloud Platform (GCP).
Module I: Dynamics of Technological Innovation			
3	Sep 20, 2023	▪ Types and Patterns of Innovations	▪ **Reading:** Chapter 3 (textbook) ▪ **Case:** Kodak and the Digital Revolution (A).
4	Sep 27, 2023	▪ Dominant Design	▪ **Reading:** Chapter 4 (textbook) ▪ **Case:** Adobe Systems, Inc.
5	Oct 04, 2023	▪ Timing of Entry	▪ **Reading:** Chapter 5 (textbook) ▪ **Case:** Netflix.
6	Oct 11, 2023	**Student Presentations: Technology Platform Tutorial Presentations**	
7	Oct 18, 2023	**Student Presentations: Technology Platform Tutorial Presentations**	
8	Oct 25, 2023	**Fall Break: Classes Suspended**	
Module II: Strategic Management of Technological Innovation			
9	Nov 01, 2023	▪ Defining the Organization's Strategic Direction	▪ **Reading:** Chapter 6 (textbook) ▪ **Case:** Google Inc.
10	Nov 08, 2023	▪ Competitive Strategies	▪ **Reading:** The Imitator's Dilemma: Why Imitators Should Break Out of Imitation. Journal of Product Innovation Management ▪ **Case:** Matching Dell
Module III: Special Topics in Management of Innovation			
11	Nov 15, 2023	▪ Service Innovation	▪ **Reading:** Creating New Markets Through Service Innovation. MIT Sloan Management Review Article. ▪ **Case:** Innovation at Progressive (A): Pay-As-You-Go Insurance.
12	Nov 22, 2023	▪ Business Model Innovation	▪ **Reading**: Creating Value through Business Model Innovation. MIT Sloan Management Review Article. ▪ **Case:** TopCoder (A): Developing Software through Crowdsourcing.
13	Nov 29, 2023	**Student Presentations: Term Paper Presentations**	

14	Dec 05, 2023	**Student Presentations: Term Paper Presentations**

CASE ABSTRACTS

Case: Artificial Intelligence and the Machine Learning Revolution in Finance: Cogent Labs and the Google Cloud Platform (GCP) (2018)
Product #: 218080-PDF-ENG
Lauren H. Cohen, Christopher J. Malloy, William Powley (Harvard Business School)

This case examines the intersection of two firms (Cogent Labs-a machine learning software firm in Tokyo; and Google, the technology infrastructure giant) attempting to exploit the benefits of artificial intelligence and machine learning in the financial services sector. The case protagonist, David Malkin, known as the "AI Architect" at Cogent Labs, must decide how best to position his firm for growth. Malkin knew that artificial intelligence had great potential to revolutionize several aspects of the financial services industry, but he also knew that artificial intelligence's greatest achievements to date were in very narrow functions. Malkin further knew that large, sophisticated financial service clients owned a vast array of proprietary datasets that were impossible to replicate. Meanwhile the major "cloud" providers like Google, Amazon, and Microsoft had large-scale computing infrastructures and multi-billion-dollar research and development budgets with which they could (and did) generate innovative artificial intelligence software of their own. Malkin wondered how a small software firm like Cogent Labs without its own proprietary datasets, or a large-scale computing infrastructure, or a multi-billion R&D budget could fit in? Would Cogent Labs' current approach of developing their own proprietary machine learning applications to run on the cloud and sell directly to financial services firms in Tokyo prove to be a sustainable model? Or would Cogent Labs ultimately need to partner/merge with one of the major cloud providers in order to provide the expertise necessary to customize their offerings for financial services clients? Or, was the future even more uncertain; would software firms like Cogent eventually need to create and own new datasets of their own, and build their own infrastructures to host their own new data, in order to avoid being disintermediated in the future if (and when) machine learning expertise became truly commoditized?

Case: Kodak and the Digital Revolution (A) (2004)
Product #: 705448-PDF-ENG
Giovanni Gavetti; Rebecca M. Henderson; Simona Giorgi Tripsas (Harvard Business School)

The introduction of digital imaging in the late 1980s had a disruptive effect on Kodak's traditional business model. Examines Kodak's strategic efforts and challenges as the photography industry evolves. After discussing Kodak's history and its past strategic moves in the new landscape, the case 'Kodak and the Digital Revolution' questions how CEO Daniel Carp can use digital imaging to revitalize Kodak. A rewritten version of an earlier case.

Adobe Systems, Inc. (2000)
Product #: 801199-PDF-ENG
Mary Tripsas (Harvard Business School)

Examines Adobe's battle with Microsoft to establish de facto standards in the emerging eBook space.

Netflix (2007)
Product #: 607138-PDF-ENG
Willy Shih; Stephen P. Kaufman; David Spinola (Harvard Business School)

Reed Hastings founded Netflix with a vision to provide a home movie service that would do a better job satisfying customers than the traditional retail rental model. But as it encouraged challenges it underwent several major strategy shifts, ultimately developing a business model and an operational strategy that were highly disruptive to retail video rental chains. The combination of a large national inventory, a

recommendation system that drove viewership across the broad catalog, and a large customer base made Netflix a force to be reckoned with, especially as a distribution channel for lower-profile and independent films. Blockbuster, the nation's largest retail video rental firm, was initially slow to respond, but ultimately rolled out a hybrid retail/online response in the form of Blockbuster Online. Aggressive pricing pulled in subscribers, but at a price to both it and Netflix. But a new challenge was on the horizon: video-on-demand. How should Netflix respond?

Google Inc. (2010)
Product #: 910036-PDF-ENG
Benjamin Edelman; Thomas R. Eisenmann (Harvard Business School)

The case 'Google Inc.' describes Google's history, business model, governance structure, corporate culture, and processes for managing innovation. It reviews Google's recent strategic initiatives and the threats they pose to Yahoo!, Microsoft, and others. It also asks what Google should do next. One option is to stay focused on the company's core competence, i.e., developing superior search solutions and monetizing them through targeted advertising. Another option is to branch into new arenas; for example, build Google into a portal like Yahoo! or MSN; extend Google's role in e-commerce beyond search, to encompass a more active role as an intermediary (like eBay) facilitating transactions; or challenge Microsoft's position on the PC desktop by developing software to compete with Office and Windows.

Matching Dell (1999)
Product #: 799158-PDF-ENG
Jan W. Rivkin; Michael E. Porter (Harvard Business School)

After years of success with its vaunted "Direct Model" for computer manufacturing, marketing, and distribution, Dell Computer Corp. faces efforts by competitors to match its strategy. The case 'Matching Dell' describes the evolution of the personal computer industry, Dell's strategy, and efforts by Compaq, IBM, Hewlett-Packard, and Gateway 2000 to capture the benefits of Dell's approach. Students are called on to formulate strategic plans of action for Dell and its various rivals.

Innovation at Progressive (A): Pay-As-You-Go Insurance (2002)
Product #: 602175-PDF-ENG
Frances X. Frei; Hanna Rodriguez-Farrar (Harvard Business School)

Consumer auto insurance is a price-sensitive industry in which customers rarely pay a premium to a provider even for additional service features. Progressive spends more on additional service features than its competitors do; consumers don't pay extra for these features, yet the company makes money on a product its competitors often do not. Central to Progressive's success is its ability (a) to turn operational savings into value-added service and (b) to capitalize on its unique competencies through clever service design. Progressive is considering a national rollout of Autograph, a pay-as-you-go insurance service offering that recently completed a successful pilot in Texas.

TopCoder (A): Developing Software through Crowdsourcing (2010)
Product #: 610032-PDF-ENG
Karim R. Lakhani; David A. Garvin; Eric Lonstein (Harvard Business School)

TopCoder's crowdsourcing-based business model, in which software is developed through online tournaments, is presented. The case highlights how TopCoder has created a unique two-sided innovation platform consisting of a global community of over 225,000 developers who compete to write software modules for its over 40 clients. Provides details of a unique innovation platform where complex software is developed through ongoing online competitions. By outlining the company's evolution, the challenges of building a community and refining a web-based competition platform are illustrated. Experiences and perspectives from TopCoder community members and clients help show what it means to work from within or in cooperation with an online community. In the case, the use of distributed innovation and its potential

merits as a corporate problem-solving mechanism is discussed. Issues related to TopCoder's scalability, profitability, and growth are also explored.

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 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**

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 is 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. 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. 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 student services office, located in 710 Dunton Tower, offers academic advising, study skills advising, and overall academic success support. If you are having a difficult time with this course or others, or just need some guidance on how to successfully complete your Sprott degree, please drop in any weekday between 8:30am and 4:30pm. Our advisors are happy to discuss grades, course selection, tutoring, concentrations, and will ensure that you get connected with the resources you need to succeed! http://sprott.carleton.ca/students/undergraduate/learning-support/

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 hard 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 http://carleton.ca/ccs/students/