



BUSI 3502

Investments Fall 2019

Section B

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Section B: Wednesday 6:05pm – 8:55pm

Office hours: Wednesday 5:00pm-6:00pm or by appointment

Undergraduate Calendar Description

Procedures and methods of investment analysis. Stock and bond markets. Government regulation of securities markets. Valuation of common stocks and fixed income securities. Options, warrants, convertibles and commodities.

Prerequisites

BUSI 2505 with a grade of C+ or higher, STAT 2606 and ECON 2009 with a grade of C- or higher in each.

The School of Business enforces all prerequisites.

This course is a prerequisite to

BUSI 4500	(with a grade of C- or higher)
BUSI 4502	(with a grade of C- or higher)
BUSI 4510	(with a grade of C- or higher)
BUSI 4511	(with a grade of C- or higher)

Course Description

A rigorous quantitative and qualitative analysis of the money and capital markets is offered, with the primary focus on the North American markets. This course focuses primarily on an examination of the equity markets in North America. A detailed examination of the trading process and the function of securities markets are presented. This is followed by exposure to the concepts of risk and return, specifically analyzing the role played in security valuation and in portfolio diversification.

Learning Objectives

The objective of this course is to provide students with the tools necessary to become successful investors or portfolio/money managers. There is a detailed examination of how and where securities are traded and how they are valued, providing insight in to how investors appropriately allocate funds across different investment vehicles. It is expected that students will have a firm understanding of the different financial instruments available, and how they interact within a portfolio context. This skill is essential for success in BUSI 4502 and beyond.

Class Format

Classes will involve lectures, augmented with sample problems.

Laptops and Other Portable Devices: There is a closed-laptop policy (except at times when the Professor makes an exception). This policy also applies to other devices including cell phones, etc.

Punctuality & Conduct:

As Business students, you are expected to behave professionally in the classroom at all times. This includes arriving to class on time and being professional and courteous. Students who deviate from this policy will **lose marks**.

Required Text

Bodie et al., **Investments**, 9th Canadian Edition, McGraw-Hill, Ryerson, 2019.

Suggested Texts/Readings

Malkiel, B., **A Random Walk Down Wall Street**, Norton.

Graham, B., **The Intelligent Investor**

Graham, B., **Security Analysis**

Newspapers/Magazines: *Globe and Mail – ROB, Financial Post, Wall Street Journal, Barrons, The Economist*

Problem sets will be placed on CuLearn on a regular basis. It is expected that all students complete the sets to be adequately prepared.

Note: There is a required enrolment in Stocktrak for \$29.95USD per team (**no more than two students per team**). Registration info below.

Grading

Weighting

4 Quizzes (in-class – dates below)	10%
Midterm Exam (in-class Oct 16 th)	30%
Trading Project (see below)	10%
Python Assignment (Due Nov 13 th)	5%
Final Exam	45%
Total	100%

Bonus: Bloomberg Assignment	2%
Bonus: FinTech Presentation	2%

Quiz schedule:

Quiz 1	Quiz 2	Quiz 3	Quiz 4
Sep 18	Oct 2	Nov 13	Dec 4

The best 3 out of the 4 quizzes will be used to computer the 10% quiz marks. There will **be no make-up quizzes**, no exceptions.

The **Midterm Exam** will be held in class on October 16th. Material covered up to and including the class before the term test is eligible to be addressed in the term test. An equation sheet will be provided for use in the term test. A copy of the equation sheet will be posted on CULearn so students can see what it includes. A student who does not write the midterm exam will automatically receive a grade of zero unless this is due to a medical or otherwise **emergency** with the appropriate documentation (a cold does not qualify as an emergency).

The **Final Exam** will be a comprehensive test, covering material from the entire course. An equation sheet will be provided for use in the final exam. A copy of the equation sheet will be posted on CULearn so students can see what it includes. More information about the midterm and final will be provided in class as the term progresses.

Student Responsibilities

Students are responsible for reading each chapter listed in the course outline and knowing the material in those chapters whether specific mention of certain topics is made in class and regardless of whether topics are addressed in class. Because of time constraints, it is not possible to cover all the chapter material in class. Class time will be spent on the most important topics and on the topics from which students receive the most benefit from explanation in class.

Course Outline

Topic	Textbook chapter
Investment Environment	1
Financial Markets and Instruments <ul style="list-style-type: none"> • Money Market • Fixed Income • Equities • Derivatives 	2
Trading and Securities markets <ul style="list-style-type: none"> • Issuing Securities • Trading and Market Orders • Regulation 	3
Return and Risk <ul style="list-style-type: none"> • Utility Theory, Risk Aversion, and Portfolio Mathematics • Hedging and Insurance • Probability Theory Capital Allocation to Risky Assets	5, 6
Risky Portfolios <ul style="list-style-type: none"> • Risky Portfolios and the Risk-Free Asset • Efficient Allocation • Python 	7
CAPM	9
Index Models & Arbitrage Pricing Theory (APT)	8, 10
Market Efficiency <ul style="list-style-type: none"> • Technical/Fundamental analysis Behavioural Finance	11, 12
Bonds <ul style="list-style-type: none"> • Prices and Yields • Term Structure • Duration/convexity, portfolios 	14, 15, 16
Derivative Assets (time permitting) <ul style="list-style-type: none"> • Futures • Options • Valuation 	20, 21, 22
Portfolio Optimization Techniques/Active Management (time permitting)	24
Financial Technologies (FinTech) (time permitting)	Class notes

Trading Project – StockTrak

Suppose you inherited \$1,000,000. In order to keep the money, you must create a portfolio that is appropriate for your age in terms of asset allocation (local and international equities (US and ADRs), cash, etc.), is invested according to the required schedule below (temporary cash is ok if opportunities are being explored) and is worth more than \$1,000,000 by the end of the semester. You can trade on the North American exchanges only, you cannot trade on margin but you can short sell, and you will venture into options and futures trading toward the end of the semester to properly hedge (although we will not be covering options or futures until possibly the end of the semester – read chapters 20, 21, 22 to gain additional insights). As well, please read chapters 12, 17 & 18, and *Security Analysis* to get a better understanding of valuations. Your grade will be based on your total portfolio return and Sharpe ratio calculated at the end of the semester (see grid below). To fully understand the Sharpe Ratio, please read chapter 24. You can attempt this project alone, or you can team up with one other classmate; no more than **TWO** students per account, no exceptions. To register, please go to

https://www.stocktrak.com/members/registerstudent?className=BUSI3502B_F19

and follow the instructions, note the class name is ‘BUSI3502A_F19’. You will need to ensure your (or both) student name(s) is (are) listed fully in the registration, or the missing name will not receive marks at the end of the semester. Make sure that ‘BUSI3502A_F19’ is listed in the class name. I believe there is a discount code attached to the new Bodie/Kane book. The rules and instructions for trading are located on the right hand margin of that page, and on the pull down menus at the top.

Important notes:

- Registration opens on September 9th; trading begins on September 16th and ends on December 6th.
- Failure to register by September 21st will result in the deletion of your account and a zero on the project – no exceptions.
- Please read the trading restrictions on the website carefully.
 - o 300 trade limit through the period
 - o \$3 minimum stock price for trading
 - o No day trading
 - o Rationale for each trade must be provided
 - o Cash trading only, no margin
 - o liquidity restriction for trade requires fill order to be no more than 25% of daily volume
- The marking matrix is below – note that, as in real market conditions, your performance is relative to the other participants.
- Please read the trading schedule below carefully. Any deviations will result in a grade penalty.

	Top Value	2 nd Value	3 rd Value
Top Sharpe Ratio Tercile	10	8.5	7.5
2 nd Sharpe ratio	8.5	7.5	6.5
3 rd Sharpe ratio	7.5	6.5	6

Trading Schedule (by market close each day):

By Sep. 20th: Invest (long only) *at least* 40% of your portfolio (\$400,000) in at least 8 different securities (\$3.00 or higher) across at least 3 different sectors as defined by the S&P500. The stocks chosen do not have to be within the S&P500, just use the sector/industry guides. You can certainly invest more than this, and across different countries through ADRs, but all transactions must be long equity purchases only.

By Oct. 4th: While continuing to manage your long investments, increase equity stake to at least 70% of your total available cash. Continue to maintain exposure to at least 8 different securities over at least 3 different sectors. As well, you must now short at least 2 securities for sale amounts of at least \$20,000 each. Note that you are able to cover your short positions at any time after Oct. 4th.

By Oct 18th: keeping at least 70% long (you must maintain a 70% long exposure - 8 diff securities, 3 sectors min.), you can continue to hold your two (at least) short positions **and/or** you must now start to hedge with options. You do not need to maintain your shorts if you choose. The only available options strategy(s) you can attempt are as follows; A minimum of \$5k worth of the underlying, and no more than the total worth of the underlying placed into a protective put and/or a covered call.

A **protective put** is purchasing a put option contract on a stock (or index) that you presently own. It will protect against downside. If the stock (or index) rises, the put is worthless, but you've made money on the stock (or index). This will mitigate much risk. You cannot purchase a put that exposes you to more than the total quantity of shares you own. Recall that contracts are (usually) written on 100 shares of the underlying – make sure you are not overexposed - make sure that you are mindful of how many shares your contracts are tied to.

A **covered call** is selling (writing) a call on a stock (or index) that you own. It will generate a premium since you sold it, and it can help defer losses should the stock price fall. If the stock price rises, you deliver for a profit. Protective puts and covered calls are far cheaper than shorting, and can give you much added leverage to reduce exposure far more efficiently. Note that if you choose to keep your shorts, you still need to invest in options.

By Nov 8th: Keeping the previous 3 assignments in tune, maintaining at least a 70% long equity stake, and maintaining your shorts, your protective puts or your covered calls, you must now enter into options trades independent of your holdings. Choose any strategies you like, buying, writing, spreads, combos, etc., trading no less than \$5,000 and no more than \$20,000 worth of the underlying asset in each strategy (absolute values if you choose to write). *This does not mean \$20,000 worth of options, rather \$20,000 worth of the underlying!!*. If you wish to trim

down your shorts, protective puts or covered calls, you can as well, as long as you maintain at least \$5,000 covered or invested in some form of insurance (short, covered call, protective put).

By Nov. 22nd: Again, keeping all previous entries in check, enter into at least 2 futures contract transactions on any commodity only, with a notional value not to exceed \$50,000 each (i.e., not the margin amount, the underlying amount). At this point, your portfolio will consist of at least 70% long equity exposure across sectors, at least one form of a hedge worth at least \$5,000, and futures exposure on no more than \$50,000 notional.

By Dec. 6th: Window-dressing time now. Your trading assignment for this last installment is to package your portfolio so that the market sees what you're holding. In the real world, you would typically modify your holdings for your quarterly report so that it reflects what you want people to see, not necessarily what you have done. Use this as an opportunity to modify or liquidate so that you can solidify your ranking...but be careful...excessively volatile investments at this point may certainly give you an opportunity to increase your returns, but they will also decrease your Sharpe ratio.

NOTE: If, at any time, your portfolio does not satisfy the required parameters for the trading date, you will be penalized 1 mark per offense per trading period. In other words, if you do not trade in 2 futures contracts by Nov. 22nd, you will be docked 1 mark. Or, for example, if you do not have 70% of your portfolio invested long in equity in any given trading period, you will also be docked 1 mark, etc. The maximum amount of marks that you can be docked via trading penalties is limited to 6. In other words, it is possible to get 0 out of 10 on this project. However, if you satisfy all requirements, the minimum you can receive on this project is a 6 out of 10 regardless of your performance.

Bloomberg Market Concepts

To be eligible for the 2% bonus you must complete all modules and achieve at least a 70% on *each* of the modules, by **Friday, November 8th**. For verification purposes, note that Bloomberg will be emailing me your grades on November 9th. To sign up (it's free), please read the Bloomberg Market Concepts instruction document on CuLearn. Our class-assigned group code will be posted on the document on CuLearn.

Python Project

Python is quickly emerging as one of the key tools in the finance industry. Python has numerous features and user-written libraries – which expand regularly. To help you become more competitive on the job-market, you will have the chance to work on a Python project modelling an investment portfolio (your StockTrak portfolio!). For this project, you will work with your partner from StockTrak (or individually if you are managing your own portfolio). Details about the assignment will be posted on CuLearn. Late submissions will be penalized 10% per calendar day.

FinTech Presentation

This is a chance to earn up to an extra 2% bonus on the course if you choose to participate! The format will be a 10-minute PowerPoint presentation that you deliver in groups of 4-5 students. Presentations will take place in class on December 4th. You can form your own group and choose your own topic under the theme of FinTech and emerging topics in investments. There will be a sign-up sheet and topics will go on a first-come-first-served basis. This is your chance to have fun while teaching your classmates something new! Sample topic ideas include, but are not limited to:

- Cryptocurrencies
- Peer to peer lending
- Robo advising
- High-frequency and algorithmic trading
- Social media and financial blogs
- Machine learning

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 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. 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/>