



Carleton
University

Sprett
School of Business

CARLETON UNIVERSITY
BUSI 4502 A
FALL 2023
PORTFOLIO MANAGEMENT

Instructor: Aldo Sandoval, PhD
Office: N/A
Office Hours: Online over zoom
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TA: To be determined
Office Hours: To be determined.
Email: To be determined

Modality: In-Person

Pre-requisites & precluded Courses: fourth-year standing, BUSI 3500, BUSI 3502, and BUSI 3512 (with a grade of C- or higher in each), and STAT 2602 or STAT 2607 (with a grade of C- or higher).

Course Calendar description from the [2023/2024 University calendar](#): Analysis of investment requirements for individuals and institutional investors: liquidity, risk and return; portfolio design, construction, management and control; performance measurement; capital market theory.

Course Description:

The objective of this course is to understand both the theory and the application of investment products and strategies. It develops concepts and quantitative tools for understanding asset allocation, diversification, factor models, portfolio optimization, hedge funds, mutual funds, ETFs, investment management, and performance evaluation.

Learning Outcomes:

1. Understand and apply factor models that describe expected returns in a cross-section of assets and the implications of these models for the behavior of asset returns over time.



2. Construct portfolios and/or trading strategies based on these models, including mean-variance optimal portfolios.
3. Evaluate the performance of trading strategies, both model-based and those used by actual funds.
4. Provide students an opportunity to invest in a portfolio of securities in a situation which is as close to reality as possible.
5. Use real world data to empirically test the content of the course.

Recommended textbooks:

Previous editions are fine, however be aware that the chapters might be different. The textbooks are **optional** but at least having one of them is recommended for those seeking careers in the financial sector.

- Investments, Bodie, Kane, Marcus, Switzer, Boyko, Panasian, Stapleton, Tenth Canadian Edition, McGraw Hill Ryerson, 2021 (**BKM**).
- Modern Portfolio Theory and Investment Analysis, Elton, Gruber, Brown, Goetzmann, Ninth Edition, Wiley (**EGBG**).

For those students looking to improve their coding skills specifically in the field of finance, I highly recommend the following book:

- Tidy Finance with R, Christoph Scheuch, Stefan Voigt, Patrick Weiss, First Edition, Chapman & Hall.

Office hours

I will set aside time each week for students to drop in with any course-related questions. If you wish to meet with me, send me an email so we can arrange a Zoom call.

Excel and financial data

Students are expected to have a high degree of proficiency in Excel, and classes and individual assignments will provide ample opportunity to learn new tools available and practice using them. For some classes, the financial data will be posted ahead of time on Brightspace. For some of the assignments, students will have to download financial data from some financial database.

Assigned readings

For some classes students will be asked to read journal articles to be discussed in the next class. These readings are available on-line (library) or on Brightspace. With the full reference for an article, students can go the library's homepage www.library.carleton.ca and download the documents.

Evaluation:

		Due date
<u>Individual Assignments</u>	<u>30%</u>	
Assignment #1	15%	Oct. 6 th
Assignment #2	15%	Nov 17 th
<u>Investment challenge (breakdown):</u>	<u>25%</u>	
Portfolio returns	5%	Nov. 22 nd
Presentation	5%	Nov 29 th
Final Report	15%	Dec 8 th
<u>Class participation</u>	<u>5%</u>	
Final Exam	40%	TBD

Individual assignments:

There will be TWO individual assignments. These assignments will involve practical applications of the material covered in class and will require calculations, with some requiring the use of Excel (or other software) for statistical analysis. All submitted assignments **must be your own work**. They can be either typed or handwritten and should be submitted via Brightspace by 5 pm on the indicated due dates, along with any Excel files used. Late assignments will not be graded.

Class participation:

Part of your ‘homework’ is showing up prepared for class, be ready to discuss the assigned readings, to ask questions (any course related question is welcome), comment on the course material, etc. Failing to do so can result in up to 5% deducted from your total grade.

INVESTMENT CHALLENGE:

The investment challenge allows participants to invest \$500,000 in simulated money. Details of the game and participation rules are available to students from the company managing the investment challenge game; see Stock Trak Registration. The company running the challenge charges a fixed fee. This is a group project, and **your team must open a Standard Account (cost \$29.95 USD)**. I will provide the link to join the investment challenge. You should form into groups of 3 or 4 (not larger); 2 is okay and some students may choose to work alone. Not later than the start of the third class, please send me an email containing the names, student IDs and email addresses of the members of your group as well as your Stock Trak registration name(s). Note, Stock Trak only allows the specification of 2 names; for groups of 3 or 4, please use a blending of your last names.

The main objective of this challenge is to construct a diversified portfolio. At any point in time, you must have at least 10 securities, and these must come from at least six different industry sectors. You must start this portfolio on September 20th, and by September 29th you must have invested at least \$400,000. The last day of the investment challenge is

November 22nd. **ON THE LAST DAY, DO NOT LIQUIDATE THE PORTFOLIO;** keep it intact and designed for the future.

Final portfolio report:

Your final report is due by December 8th, and the final value of the portfolio will be as of November 22nd – the last day of the investment challenge/project. The report must be no more than 25 double-spaced pages and a maximum of five one-page exhibits. It should clearly outline the strategy followed (e.g., buy/hold vs. active portfolio management), the type or style of the portfolio constructed (i.e., value, growth, or mixed portfolio), and any changes made to the investment strategy or portfolio style. Additionally, classify each of the stocks selected based on different criteria used, and show the final distribution across the six basic industry categories. Include a summary of the trading history highlights, explaining key trades made during the investment challenge period and their corresponding reasons. Include relevant information such as the date of the trade, the security traded, the type of trade (buy/sell), the price of the security at the time of the trade, and the number of shares traded.

Calculate and present some performance measures for your portfolio. At a minimum, provide the return and beta (β) of your portfolio, but other performance measures such as the Sharpe Ratio, Treynor-ratio, M-squared, etc., are encouraged. Explain how these measures were calculated, the units in which they are depicted, and analyze what they indicate about the portfolio's risk and return profile. Also, interpret your results, including any strengths and weaknesses of your portfolio's performance, and compare it to relevant benchmarks or market indexes and your initial expectations.

Finally, in an appendix, please provide a detailed report of your favorite stock. This appendix is in addition to the 25 pages of text. In this section, conduct a comprehensive analysis of the current and past performance of your chosen stock. Highlight what makes the company a good choice, examining aspects such as financial performance and fundamentals, unique characteristics, and growth potential. Additionally, offer insights into the industry to which the company belongs, exploring trends, and other relevant factors that may have influenced your decision.

Portfolio performance results:

The marks (based on the Sharpe Ratio) will be calculated on the quantile rankings of the groups using the following breakdown:

1 st quintile	5/5	3 rd quintile	3/5	5 th quintile	1/5
2 nd quintile	4/5	4 th quintile	2/5		

Final presentation:

Each team is required to make a 5–7-minute Power Point presentation discussing the trading strategy of their portfolio and its performance. At the end of the presentation, your classmates will have the opportunity to ask questions for 2-3 minutes for a total of 10 minutes. All presentations must be emailed to me by 4 pm on the day of the presentation so they can be loaded. All presentations will be posted on Brightspace for the benefit of the class.

Final Exam

The final exam will be a closed book cumulative exam that will focus on the material covered in the class during the semester, including the assigned readings. The exam will consist of multiple choice and some short questions that would require some calculations. When indicated, the procedure and a short explanation should be included and not just the answer. Failure to do so will result in marks being deducted. The exam will be closed book, and closed notes. You may use a financial calculator, but laptops or other electronic devices are strictly prohibited. The final exam will be scheduled during the university examination period.

Course Schedule:

Date		References
Sep 6 th	Course Introduction and Review <ul style="list-style-type: none"> • Syllabus • Introduction • Math and Excel Review (bring laptop to class) 	BKM: 1; EGBG: 2,3
Sep. 13 th	Portfolio Theory	BKM: 5,6; EGBG: 4,5
Sep. 20 th	Portfolio Theory Excel Application (bring laptop to class)	BKM: 7; EGBG: 6
Sep. 27 th	The Asset Management	BKM: 4; EGBG: 25
Oct. 4 th	Factor Theory	BKM: 8, 9; EGBG: 13,16
Oct. 11 th	Factor Theory Excel Application (bring laptop to class)	BKM: 10; EGBG: 10
Oct. 18 th	Equity Factors (bring laptop to class)	
Oct. 25 th	Reading week (no class)	
Nov. 1 st	Market Efficiency	BKM: 11; EGBG: 17
Nov. 8 th	Portfolio Performance Evaluation	BKM: 24; EGBG: 26
Nov. 15 th	Theory of Active Portfolio Management	BKM: 27
Nov.22 nd	Fixed Income Portfolio Management	BKM: 14, 15, 16; EGBG: 21,22
Nov. 29 th	Final presentations I	
Dec. 6 th	<ul style="list-style-type: none"> • Final presentations II (if needed) • Final Review 	

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 <i>Graduates will be skilled in applying foundational business knowledge to appropriate business contexts.</i>				X
BC2 Collaboration <i>Graduates will be collaborative and effective contributors in team environments that respect the experience, expertise and interest of all members.</i>				X
BC3 Critical Thinking <i>Graduates will be discerning critical thinkers, able to discuss different viewpoints, challenge biases and assumptions, and draw conclusions based on analysis and evaluation.</i>				X
BC4 Communication <i>Graduates will be effective and persuasive in their communications.</i>				X
BI5 Global Awareness (BIB ONLY) <i>Graduates will be globally-minded.</i>				X

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 Spratt 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.

Grading

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/>
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