



**Carleton**  
University

**Sprett**  
School of Business

CARLETON UNIVERSITY  
BUSI 4502 B  
WINTER 2023  
PORTFOLIO MANAGEMENT

**Instructor:** Dr. Aldo Sandoval

**Office:**

**Office Hours:** Thursday from 5 – 6 p.m. and other days by virtual appointment.

**Email:** [aldosandoval@cunet.carleton.ca](mailto:aldosandoval@cunet.carleton.ca)

**Modality:** In-person.

**Class time:** Thursdays 6:05 - 8:55 p.m. (room CB 2104)

**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). **The School of Business enforces all prerequisites.**

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**Course Calendar description from the [2022/2023 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, long-short strategies, factor models, portfolio optimization, hedge funds, mutual funds, ETFs, investment management, and performance evaluation.

**Learning Outcomes**

1. Understand and apply discount 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
4. actual funds.
5. Provide students an opportunity to invest in a portfolio of securities in a situation which is as close to reality as possible.
6. Use real world data to implement trading strategies and to empirically test the content of the course.

**Textbook:**

Investments, Bodie, Kane, Marcus, Switzer, Boyko, Panasian, Stapleton, Tenth Canadian Edition, McGraw Hill Ryerson, 2021 (**BKM**). ISBN-10: 1260881253 ISBN-13: 9781260881257

Previous editions are fine, however be aware that the chapters might be different. The text is **optional** but recommended for those seeking careers in the financial sector.

**Office hours**

I will set aside time each week for students to drop in with any course related questions. My course office hours will be 5-6 pm on Thursday. If you wish to meet with me outside that time, send me an email so we can arrange a Zoom call.

**Group assignments**

At the beginning of the second week, I will assign students to teams with five members. Not later than the start of the third class, please send me an email containing the names 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 5 please use a blending of your last names

### 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](http://www.library.carleton.ca) and download the documents.

### Evaluation:

<u>Individual Assignments</u>	<u>30%</u>	
Assignment #1	15%	Feb. 2 <sup>nd</sup>
Assignment #2	15%	Mar 2 <sup>nd</sup>
<u>Investment challenge (breakdown):</u>	<u>25%</u>	
Portfolio (D) and investments plan & objectives report	5%	Feb. 9 <sup>th</sup>
Industry (I) and companies report	5%	Mar. 9 <sup>th</sup>
Portfolio returns	5%	April 1 <sup>st</sup>
Presentation	5%	April 6 <sup>th</sup>
Final Report	5%	April 12 <sup>th</sup>
Class participation	5%	
Final Exam	40%	TBD

### Individual assignments:

There will be TWO individual assignments. These assignments will be practical applications of the material covered in class and they will require calculations and some of them to use Excel (or other software) for statistical analysis. Any assignments you submit **must** be your own work. Assignments should be typed and submitted via Brightspace and are due at 5 pm of the indicated dates. 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 the participants to invest \$1,000,000 in simulated money. The details of the game and the participation rules are available to students from the

company which manages the investment challenge game. See Stock Trak Registration. A fixed fee is charged by the company which runs the challenge. This is a team/group project. Your team must open a Standard Account (cost \$29.95 USD). For this course, you are asked to invest the allocated amount over this period as described below (one hundred trade limit).

Allocate the initial investment in two portfolios: D and I; D for diversified (\$500,000) and I for Industry (\$450,000).

### **Portfolio Management for D and report:**

For the diversified portfolio D: You must have, at any point in time, at least 10 securities. You must start this portfolio on January 28 and start preparing a report on how and why you selected these securities. This report will be no more than 7 double spaced pages and a maximum of four one-page exhibits and must outline the overall outlook and your expectations for the portfolio and the securities that you have selected (due Feb. 9 and submitted via Brightspace). These securities must come from at least six industry sectors. If you have already decided on a strategy (i.e. buy and hold versus active trading, floor and ceiling amounts you will invest in each, etc.), and have thoughts on your expectations about performance (how will you measure it?), I expect to find it in this report. You must have invested, at least, \$200,000 in this portfolio by Jan. 28. Under no circumstances can your cash balance in the account fall below \$500,000 until you invest in portfolio I. Show the distribution of the stocks in your portfolio across the 10 basic industry categories. Have you constructed a growth, value, mixed or other portfolio; how do you classify each of your selected stocks? Provide (in an appendix) an initial stock analysis/valuation (SAV) report for your favorite\* portfolio

\*This is a stock on which you want to conduct a deep analysis.

### **Portfolio Management for I and report:**

For portfolio I: You must pick your favorite industry and then choose at least 4 companies from that industry. After Feb. 9 and by February 23, you must invest, at least, \$400,000 in this portfolio. Your report (no more than 15 double spaced pages and a maximum of four one-page exhibits) (due March 9 and submitted via Brightspace) will outline the outlook and reasons for choosing the industry and the individual stocks. Your final report will be compared with what is outlined in this report. By now you could invest up to \$995,000. Provide updates with respect to portfolio D. Update SAV above.

### **Final portfolio report:**

Your final report is due by April 12 and will contain the trading history and the corresponding reasons for the trades, the final value of the portfolio and a comparison with the intended strategies versus actual strategies, and any other relevant details. The final value of the portfolio will be as of Apr. 1 – the last day of the investment challenge/ project. Also, determine the  $E(r)$  and  $\beta$  for your portfolio. Provide (in an appendix) the final SAV

report for your favorite\* company. **DO NOT LIQUIDATE THE PORTFOLIO ON THE LAST DAY** (keep it intact and designed for the future).

### Portfolio performance results:

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

1 <sup>st</sup> quintile	5/5	3 <sup>rd</sup> quintile	3/5	5 <sup>th</sup> quintile	1/5
2 <sup>nd</sup> quintile	4/5	4 <sup>th</sup> 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.

### Tentative course schedule:

Date		References
Jan 12	Course Introduction and Review <ul style="list-style-type: none"> <li>• Syllabus</li> <li>• Investment environment</li> <li>• Statistics Review</li> </ul>	BKM: 1
Jan19	Portfolio Theory	BKM: 5,6 and 7
Jan26	Portfolio Theory Excel Application (bring laptop to class)	
Feb. 2	The Asset Management	BKM: 4
Feb. 9	Factor Theory	BKM: 8, 9 and 10
Feb. 16	Factor Theory Excel Application (bring laptop to class)	
Feb. 23	Reding week (NO CLASS)	

Mar. 2	Equity Factors	
Mar. 9	Market Efficiency	BKM: 11
Mar. 16	Portfolio Performance Evaluation	BKM: 24
Mar. 23	Theory of Active Portfolio Management	BKM: 27
Mar. 30	Fixed Income Portfolio Management	BKM: 14, 15 and 16
Apr. 6	Final presentations	

**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
<b>CHECK (X) ONE PER ROW</b>				
<b>BC1 Knowledge</b> <i>Graduates will be skilled in applying foundational business knowledge to appropriate business contexts.</i>				<b>X</b>
<b>BC2 Collaboration</b> <i>Graduates will be collaborative and effective contributors in team environments that respect the experience, expertise and interest of all members.</i>				<b>X</b>
<b>BC3 Critical Thinking</b> <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>				<b>X</b>
<b>BC4 Communication</b> <i>Graduates will be effective and persuasive in their communications.</i>				<b>X</b>

<b>BI5 Global Awareness (BIB ONLY)</b> <i>Graduates will be globally-minded.</i>				<b>X</b>
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### 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.

#### 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](https://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](https://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](mailto: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](https://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](https://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](https://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](mailto:bcom@sprott.carleton.ca) or at [bib@sprott.carleton.ca](mailto: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](https://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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**Covid-19 Information:**

It is important to remember that COVID is still present in Ottawa. The situation can change at any time and the risks of new variants and outbreaks are very real. There are [a number of actions you can take](#) to lower your risk and the risk you pose to those around you including being vaccinated, wearing a mask, staying home when you're sick, washing your hands and maintaining proper respiratory and cough etiquette.

**Feeling sick?** Remaining vigilant and not attending work or school when sick or with symptoms is critically important. If you feel ill or exhibit COVID-19 symptoms do not come to class or campus. If you feel ill or exhibit symptoms while on campus or in class, please leave campus immediately. In all situations, you must follow Carleton's [symptom reporting protocols](#).

**Masks:** Carleton has paused the [COVID-19 Mask Policy](#), but continues to strongly recommend masking when indoors, particularly if physical distancing cannot be maintained. It may become necessary to quickly reinstate the mask requirement if pandemic circumstances were to change.

**Vaccines:** Further, while proof of vaccination is no longer required as of May 1 to attend campus or in-person activity, it may become necessary for the University to bring back proof of vaccination requirements on short notice if the situation and public health advice changes. Students are strongly encouraged to get a full course of vaccination, including booster doses as soon as they are eligible, and submit their booster dose information in [cuScreen](#) as soon as possible. Please note that Carleton cannot guarantee that it will be able to offer virtual or hybrid learning options for those who are unable to attend the campus.

All members of the Carleton community are required to follow requirements and guidelines regarding health and safety which may change from time to time. For the most recent information about Carleton's COVID-19 response and health and safety requirements please see the [University's COVID-19 website](#) and review the [Frequently Asked Questions \(FAQs\)](#). Should you have additional questions after reviewing, please contact [covidinfo@carleton.ca](mailto:covidinfo@carleton.ca).

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