

## FINA-5511D INVESTMENTS FALL 2017

Instructor:	Jesus A. Sierra Jimenez, Ph.D.
Office:	DT919-3
Class time and location:	Thursdays, 6:00 p.m. – 9:00 p.m., Dunton Tower DT-328
Phone:	ext. 3248, or (343)-777-8308
Email:	<a href="mailto:JesusJimenez@cunet.carleton.ca">JesusJimenez@cunet.carleton.ca</a>
Office Hours:	Thursdays, 5:45-5:55 pm; 9:05-9:30pm

### Course calendar entry from 2016/2017 graduate calendar:

The analytical foundations and tools necessary for successful decision making by investment managers and analysts and by individual investors. Includes a significant hands-on component.

### Course Prerequisites: FINA-5502

The study of investments is inherently quantitative. Knowledge of basic statistics (means, variances, covariances, multiple regression, matrix multiplication and inversion, etc.) is indispensable, *assumed*, and used repeatedly throughout the course. Although we will have a brief stats review, I expect you to spend the time necessary to refresh your statistical knowledge, as these concepts will be used in class (without hesitation). In addition, you should be very comfortable with basic algebra and calculus. Also, it is *assumed* the student knows how to use Excel to calculate such basic statistics, perform a multivariate linear regression, multiply vectors and invert a matrix. Programming in R will be encouraged.

**Course Description:** The aim of the course is to introduce the student to the theory and empirical evidence relevant for investing. The course material is biased toward equity markets, although we will briefly discuss the main risk/return concepts for fixed-income and options (time permitting). The main topics covered are: portfolio choice under uncertainty; equilibrium and arbitrage/factor asset pricing models (CAPM and APT); the basics of fixed-income securities; and, if time permits, some introductory notions on active portfolio management and options. Instead of trying to cover many topics, the course will concentrate on the core theories and concepts/tools used to evaluate the risk and return profiles of different investments, and to do portfolio allocation. In addition, although the course will not require a project, hands-on empirical work will be done through the weekly homeworks, where the students are expected to *apply* the concepts learned in class to evaluate investments, using real data downloaded from the web (or elsewhere). Although knowledge of Excel is *assumed and sufficient* to perform all the required quantitative exercises, I will provide, as we go along, sample R code that will illustrate the concepts and techniques covered in class. By the end of the course, the student who is willing to learn how to use R will leave the course with a set of tools that can be used to perform portfolio evaluation more efficiently. The R software and its graphic interface, RStudio, are available for free at: <https://www.r-project.org/>, and <https://www.rstudio.com/>.

**FINA-5511D  
INVESTMENTS  
FALL 2017**

**Textbook:** Bodie, Z., Kane, A., Marcus A.J., Perrakis, S., Ryan, P.J. and Switzer, L.N, *Investments*, Eight Canadian Edition, McGraw-Hill Ryerson, 2015 (BKMPRS)

In addition to BKMPRS, I may assign complementary readings for specific sessions, which will be indicated beforehand (if applicable), and will be available either from the course website, or sent via email. Books with similar material are:

- Fama, E. "*Foundations of Finance*", 1976, Basic Books, available (for free) at: <http://faculty.chicagobooth.edu/eugene.fama/research/index.htm>
- Huang, Chi-fu, and Litzenberger, R. H, "*Foundations for financial economics*", 1988
- Campbell, J. Y; Lo, A. W and MacKinlay, A. C., "*The econometrics of financial markets*", 1997, Princeton University Press
- Cvitanic, J. and Zapatero, F., "*Introduction to the Economics and Mathematics of Financial Markets*", 2004, MIT Press

**Final Exam date:** Thursday, November 2<sup>nd</sup>, 6:00-9:00 p.m., DT328. Note: in general, there will be no make-ups for missed exams

**Drop Course Policy:** The deadline for academic withdrawal is the last day of classes (each term).

<b>Grading Scheme:</b>	Contribution to Class Discussion	5%
	Homeworks	40%
	Final Exam	55%
	<b>TOTAL</b>	<b>100%</b>

**Homework policy:** Homeworks must be handed in, in *paper/hard copy form*, at the beginning of the class. Although collaboration with other students is encouraged, every student has to submit *her/his own homework*. In general, emailed electronic copies are not accepted. Any special cases need to be consulted with me.

**Preparation and participation:** It is expected that the student will read the the slides (and assigned readings, if applicable) before class. Participation is also expected.

**Deferred Final Examination:**

Students unable to write a final examination because of illness or other circumstances beyond their control must contact the instructor and the MBA office in writing to request a deferred exam. Permission may be granted when the absence is supported by a medical certificate and or appropriate document/s to support the reason for the deferral.

**FINA-5511D  
INVESTMENTS  
FALL 2017**

**Course Schedule:** This is a tentative/approximate schedule. The specific topics/book chapters covered in each session might deviate slightly, depending on progress and emphasis.

Week	Date	Topic	Book chapters	Deliverables
1	Thu, Sept 14 <sup>th</sup>	Investment Environment, Markets and Instruments, Trading	1, 2, 3	N/A
2	Thu, Sept 21 <sup>th</sup>	Statistics review + Return and Risk History, Capital Allocation, Optimal Risky Portfolios	4, 5,6	N/A
3	Thu, Sept 28 <sup>th</sup>	CAPM, Index models and APT, Empirical Evidence, Market Efficiency*	7, 8 , 11, 9*	Hmwk # 1
4	Thu, Oct 5 <sup>th</sup>	Active Portfolio Management	21, 22, 23	Hmwk # 2
5	Thu, Oct 12 <sup>th</sup>	Fixed-Income Securities	12, 13, 14	Hmwk # 3
6	Thu, Oct 19 <sup>th</sup>	Options*	18*,19*,20*	Hmwk # 4

\* = time permitting

	Thu, Nov 2 <sup>nd</sup>	FINAL EXAM	All material	N/A
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### Course Sharing Websites

Student or professor materials created for this course (including presentations and posted notes, 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).

### Policy on Mobile Devices

The use of mobile devices IS NOT PERMITTED in this class. It is disruptive to the instructor and class members. If you carry such a device to class, please make sure it is turned off. If an emergency situation requires you to keep it turned on, please discuss this with your instructor prior to class.

### 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, followership and other group skills. Group assignments are also good for learning integrative skills for putting together a complex task. Your instructor 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.*

### Person with Disabilities

The Paul Menton Centre for Students with Disabilities (PMC) provides services to students with Learning Disabilities (LD), psychiatric/mental health disabilities, Attention Deficit Hyperactivity Disorder (ADHD),

## **FINA-5511D INVESTMENTS FALL 2017**

Autism Spectrum Disorders (ASD), chronic medical conditions, and impairments in mobility, hearing, and vision. If you have a disability requiring academic accommodations in this course, please contact PMC at 613-520-6608 or [pmc@carleton.ca](mailto:pmc@carleton.ca) for a formal evaluation. If you are already registered with the PMC, contact your PMC coordinator to send me your Letter of Accommodation at the beginning of the term, and no later than two weeks before the first in-class scheduled test or exam requiring accommodation (if applicable). Requests made within two weeks will be reviewed on a case-by-case basis. After requesting accommodation from PMC, meet with me to ensure accommodation arrangements are made. Please consult the PMC website ([www.carleton.ca/pmc](http://www.carleton.ca/pmc)) for the deadline to request accommodations for the formally-scheduled exam (if applicable).

### **Religious Observance**

Students requesting academic accommodation on the basis of religious observance should make a formal, written request to their instructors for alternate dates and/or means of satisfying academic requirements. Such requests should be made during the first two weeks of class, or as soon as possible after the need for accommodation is known to exist, but no later than two weeks before the compulsory academic event. Accommodation is to be worked out directly and on an individual basis between the student and the instructor(s) involved. Instructors will make accommodations in a way that avoids academic disadvantage to the student.

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

### **Pregnancy**

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

### **Academic Integrity**

Violations of academic integrity are a serious academic offence. Violations of academic integrity – presenting another's ideas, arguments, words or images as your own, using unauthorized material, misrepresentation, fabricating or misrepresenting research data, unauthorized co-operation or collaboration or completing work for another student – weaken the quality of the degree and will not be tolerated. Penalties may include expulsion; suspension from all studies at Carleton; suspension from full-time studies; a refusal of permission to continue or to register in a specific degree program; academic probation; and a grade of Failure in the course, amongst others. Students are expected to familiarize themselves with and follow the Carleton University Student Academic Integrity Policy which is available, along with resources for compliance at: <http://carleton.ca/studentaffairs/academic-integrity/>.