

FINQ 762: INVESTMENTS MODELING

**UNIVERSITY OF NEVADA LAS VEGAS
DEPARTMENT OF FINANCE**

Contact Information

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Course Description:

This course deals with empirical issues and methodologies in asset pricing and investments. We start with an overview of asset pricing paradigms (EMH, CAPM, APT, behavioral models, etc.), and then examine, in detail, properties of asset prices and returns and empirical tests of asset pricing models. As the schedule permits, we will also introduce a few special topics such as market microstructure issues and investment performance evaluation.

The goal of this course is to expose you to various statistical/econometric methodologies as well as important issues in financial economics. There are assigned readings for each class. In addition to class lectures, you are required to present some of the readings in class. There are a series of assignments that involve writing/executing programs using statistical packages such as SAS and MATLAB, and processing commonly used financial datasets such as CRSP and COMPUSTAT.

Course prerequisites:

Admission in MSQF program or approval by Director of MSQF program;
FIN 710 and ECO 770.

Programming Skills: SAS and Matlab (Required), R (Recommended)

Students are expected to have his/her own computer and install SAS and Matlab from the OIT. Annual license for each is about \$50. Students can install R at no cost. R will be used for some time-series econometric analysis. The instructor will not teach basic programming skills, however. Students are expected to learn basic programming skills on their own.

Teaching Objectives

Upon completion of the course students will be able to

- Test the standard asset pricing models
- Backtest some market anomalies and examine investment feasibility and market efficiency of these market regularities
- Estimate non-linear models
- Conduct a corporate event study
- Forecast financial data using high-level econometric techniques and measure their effectiveness

Student learning outcomes

1. Analyze investments data with advanced statistical and econometric techniques.
2. Apply computer programming and statistical software to analyze investments data.
3. Think critically about investments problems and provide potential solutions.
4. Communicate effectively.

Textbooks (Required):

(CLM) The Econometrics of Financial Markets, by John Campbell, Andrew Lo, and Craig MacKinlay, Princeton University Press.

(RT) Ruey S. Tsay (2002). Analysis of Financial Time Series.

Additional Reference Books

1. Chris Brooks. Introductory econometrics for finance, Cambridge University Press. **(CB)**
3. Walter Enders (2003). Applied econometric time series, Wiley. **(WE)**
4. Hamilton, J. (1994), Time Series Analysis, Princeton University Press, Princeton. **(JH)**

Readings (10 Required and about 35 Recommended)

In addition to above textbooks, I will provide a list of papers as required and recommended readings.

Exam

There will be a final, open-book exam

Homework

Five graded homework set, including one event study and four replications of seminal papers, will be assigned throughout the semester. Homework is individual based and shall NOT be completed in groups. In addition, there will also be informal data and statistical exercises that are not graded and can be completed in groups.

Student Presentation

During the semester each student will be required to present/discuss several research papers in class. Students are expected to prepare slides using PowerPoint or other document format (e.g. Latex). The presentation should cover the following:

- 1) The basic idea of the paper, and the main motivation.
- 2) A review of related literature and the paper's relative contribution
- 3) Discussion of the empirical methodologies, hypotheses and data
- 4) Empirical results and conclusions.
- 5) Critical comments on the limitation and weakness of the analysis done in the paper and potential extensions.

When you are not scheduled to present the papers, you should still read those papers in advance, and you are encouraged to prepare a summary of your own addressing the above issues. You are required to actively participate in the discussion of the papers during and after the presentation.

Grade determination

- Home assignments (60%)
- Class participation and presentation (20%)
- Final exam (20%)

Tentative Schedule: (subject to change)

1. Introduction
2. Market efficiency: theory, empirical measures, and statistical test design
3. Portfolio efficiency and empirical tests of CAPM: econometrical issues with beta estimation in 2-stage FM and portfolio construction
4. Economic factor model (APT): theory and practice
5. Stock return predictability: size and BM effects
6. Stock return predictability: momentum and long-run reversal
7. Student presentations: recent empirical tests on asset pricing models
8. Stock return predictability: momentum and long-run reversal
9. Market frictions and market microstructure
10. Student presentations: Rational and behavioral explanations of stock return predictability
11. Conditional CAPM and ICAPM

12. Multifactor models: FF3, FF4, and FF5, and theoretical and empirical issues with various factor models derived from anomalies

13. Student presentations: application and limitation of factor models

University Policies:

Academic Misconduct—Academic integrity is a legitimate concern for every member of the campus community; all share in upholding the fundamental values of honesty, trust, respect, fairness, responsibility, and professionalism. By choosing to join the UNLV community, students accept the expectations of the Student Academic Misconduct Policy and are encouraged when faced with choices to always take the ethical path. Students enrolling at UNLV assume the obligation to conduct themselves in a manner compatible with UNLV's function as an educational institution. An example of academic misconduct is plagiarism. Plagiarism is using the words or ideas of another, from the Internet or any source, without proper citation of the sources. See the *Student Academic Misconduct Policy* (approved December 9, 2005) located at: <https://www.unlv.edu/studentconduct/student-conduct>.

Classroom Conduct—Students have a responsibility to conduct themselves in class and in the libraries in ways that do not interfere with the rights of other students to learn or of instructors to teach. Use of electronic devices such as pagers, cellular phones, or recording devices, or potentially disruptive devices or activities, are permitted only with the prior explicit consent of the instructor. The instructor may rescind permission at any time during the class. If a student does not comply with established requirements or obstructs the functioning of the class, the instructor may initiate an administrative drop.

Copyright—The University requires all members of the University Community to familiarize themselves with and to follow copyright and fair use requirements. You are individually and solely responsible for violations of copyright and fair use laws. The university will neither protect nor defend you, nor assume any responsibility for employee or student violations of fair use laws. Violations of copyright laws could subject you to federal and state civil penalties and criminal liability, as well as disciplinary action under University policies. Additional information can be found at: <http://www.unlv.edu/provost/copyright>.

Disability Resource Center (DRC)—The UNLV Disability Resource Center (SSC-A 143, <http://drc.unlv.edu/>, 702-895-0866) provides resources for students with disabilities. If you feel that you have a disability, please make an appointment with a Disabilities Specialist at the DRC to discuss what options may be available to you. If you are registered with the UNLV Disability Resource Center, bring your Academic Accommodation Plan from the DRC to the instructor during office hours so that you may work together to develop strategies for implementing the accommodations to meet both your needs and the requirements of the course. Any information you provide is private and will be treated as such. To maintain the confidentiality of your request, please do not approach the instructor in front of others to discuss your accommodation needs.

Final Examinations—The University requires that final exams given at the end of a course occur at the time and on the day specified in the final exam schedule. The general schedule is typically available at the start of the semester, and the classroom locations are available about a month before the end of the semester. See the schedule at: <http://www.unlv.edu/registrar/calendars>.

Incomplete Grades—The grade of “I”—Incomplete—can be granted when a student has satisfactorily completed three-fourths of course work for that semester/session but for reason(s) beyond the student's control, and acceptable to the instructor, cannot complete the last part of the course, and the instructor believes that the student can finish the course without repeating it. The incomplete work must be made up before the end of the following regular semester for undergraduate courses. Graduate students receiving

“I” grades in 500-, 600-, or 700-level courses have up to one calendar year to complete the work, at the discretion of the instructor. If course requirements are not completed within the time indicated, a grade of “F” will be recorded and the GPA will be adjusted accordingly. Students who are fulfilling an Incomplete do not register for the course but make individual arrangements with the instructor who assigned the “I” grade.

Library Resources—Librarians are available to consult with students on research needs, including developing research topics, finding information, and evaluating sources. To make an appointment with a subject expert for this class, please visit the Libraries’ Research Consultation website: <http://guides.library.unlv.edu/appointments/librarian>. You can also ask questions via chat and text message at <http://ask.library.unlv.edu/>.

Rebelmail—By policy, faculty and staff should email students’ Rebelmail accounts only. Rebelmail is UNLV’s official email system for students. As such, it is a primary way students receive official university communications such as information about deadlines, major campus events, and announcements. All UNLV students receive a Rebelmail account after they have been admitted to the university. **Emailing within WebCampus is acceptable.**

Missed Classwork—Any student missing class quizzes, examinations, or any other class or lab work because of observance of religious holidays shall be given an opportunity during that semester to make up missed work. The make-up will apply to the religious holiday absence only. It shall be the responsibility of the student to notify the instructor within the first 14 calendar days of the course for fall and spring courses (excepting modular courses), or within the first 7 calendar days of the course for summer and modular courses, of his or her intention to participate in religious holidays which do not fall on state holidays or periods of class recess. For additional information, please visit: <http://catalog.unlv.edu/content.php?catoid=6&navoid=531>.

In accordance with the UNLV Faculty Senate-approved policy regarding class time and assignments missed, students who represent UNLV in any official extracurricular activity shall also have the opportunity to make up assignments, provided that the student provides official written notification to the instructor no less than one week prior to the missed class(es).

The spirit and intent of the policy is to offer fair and equitable opportunities to all students, including those representing the university in extracurricular activities. Instructors should consider, for example, that in courses which offer a “drop one” option for the lowest assignment, quiz, or exam, assigning the student a grade of zero for an excused absence for extracurricular activity is both contrary to the intent of the Faculty Senate’s policy, and an infringement on the student’s right to complete all work and fairly earn her or his grade in the course.

This policy shall not apply in the event that completing the assignment or administering the examination at an alternate time would impose an undue hardship on the instructor or the university that could reasonably have been avoided. There should be a good faith effort by both faculty and student to come to a reasonable resolution. When disagreements regarding this policy do arise, they can be appealed to the department chair/unit director, college/school dean, and/or the Faculty Senate Academic Standards Committee.

For purposes of definition, extracurricular activities may include, but are not limited to: fine arts activities, competitive intercollegiate athletics, science and engineering competitions, liberal arts competitions, academic recruitment activities, and any other event or activity sanctioned by a college/school dean, and/or the Executive Vice President and Provost.

Transparency in Learning and Teaching—The University encourages students to use a transparency template to discuss with their instructors how assignments and course activities benefit student success: https://www.unlv.edu/sites/default/files/page_files/27/TILT-Framework-Students.pdf.

Tutoring and Coaching—The Academic Success Center (ASC) provides tutoring, academic success coaching and other academic assistance for all UNLV undergraduate students. For information regarding tutoring subjects, tutoring times, and other ASC programs and services, visit <http://www.unlv.edu/asc> or call

702-895-3177. The ASC building is located across from the Student Services Complex (SSC). Academic success coaching is located on the second floor of SSC A (ASC Coaching Spot). Drop-in tutoring is located on the second floor of the Lied Library and College of Engineering TBE second floor.

UNLV Writing Center—One-on-one or small group assistance with writing is available free of charge to UNLV students at the Writing Center, located in CDC-3-301. Although walk-in consultations are sometimes available, students with appointments will receive priority assistance. Appointments may be made in person or by calling 702-895-3908. The student's Rebel ID Card, a copy of the assignment (if <http://writingcenter.unlv.edu/>).