Texas A&M University
Departmental Request for a New Course
Undergraduate • Graduate • Professional
• Submit original form and attach a course syllabus.

1. This request is submitted by the Department of Economics

2. Course prefix, number and complete title of course: Econ 680 - Financial Economics

3. Course description (not more than 50 words): Advanced theory of dynamic asset pricing utilizing the Economics of risk and uncertainty within a general equilibrium framework; stochastic calculus applications to the analysis of asset markets; theoretical foundations and empirical testing. Prerequisites: Econ 630 and 646.

4. Prerequisite(s) Econ 630 and 646

Cross-listed with

Cross-listed courses require the signature of both department heads.

5. Is this a variable credit course? ☐ Yes ☑ No If yes, from ______ to ______.

6. Is this a repeatable course? ☐ Yes ☑ No If yes, this course may be taken ______ times. Will the course be repeated within the same semester/term? ☐ Yes ☑ No

7. Has this course been taught as a 289/489/689? ☑ Yes ☐ No If yes, how many times? _____ Indicate the number of students enrolled for each academic period it was taught. 02c - 15 students enrolled

8. This course will be:
   a. required for students enrolled in the following degree program(s) (e.g., B.A. in history)

   b. an elective for students enrolled in the following degree program(s) (e.g., M.S., Ph.D. in geography)
      M.S. in Economics, Ph.D. in Economics

9. If other departments are teaching or are responsible for related subject matter, the course must be coordinated with these departments. Attach approval letters.

10. Prefix | Course # | Title (excluding punctuation) | Lect. | Lab | SCH | Subject Matter | Content Code | Admin. Unit | Acad. Year | FICE Code | Level
   ECON 680 | FINANCIAL ECONOMICS | 0300003450601001081007-08 | 00303632 |

Approval recommended by: [Signature] Nov. 2003

Head of Department Date

Chair, College Review Committee Date

Dean of College Date

Dean of College Date

Submitted to Coordinating Board by:

Director of Academic Support Services Date

Effective Date

Questions regarding this form should be directed to Sandra Williams at 845-8836.
OAR/AS – 04/97

1 of 5 C9
ECON 680: FINANCIAL ECONOMICS
FALL 2007

INSTRUCTOR: Hwagyun Kim (hagenkim@tamu.edu)

OFFICE HOURS: Monday, Wednesday 2:00 to 3:00 pm

COURSE DESCRIPTION: This course utilizes the Economics of risk and uncertainty to study
dynamic asset pricing theories within a general equilibrium framework. Topics include the
standard complete market asset pricing models, models with market frictions (transactions cost,
asymmetric information), and models with non-standard preferences (habit formation, recursive
preferences). We will also study cross-sectional behaviors of asset prices in an attempt to
integrate the dynamic aspects of asset markets with cross-sectional factors to explain asset
returns. Bonds and stocks will be the two main classes of assets to be covered. Time permitting,
some derivative assets will be introduced. The course will primarily utilize continuous time
mathematics, although there will be several papers or models addressed in a discrete time
framework. The course will have a two-fold focus: theoretical foundations and testable
implications of asset pricing models.

COURSE PREREQUISITES: Successful completion of the first year PhD level micro, macro,
and econometrics courses.

GRADING: You will be evaluated on the basis of (i) a series of five problem sets (30%), (ii)
two referee reports to be written on assigned articles (20%), and (iii) a comprehensive open-
book, open-note final exam (50%), scheduled December 11. The grading scale is as follows: 90-
100 = A; 80-89 = B; 70-79 = C; 60-69 = D; 59 and below = F.

REQUIRED TEXTBOOK: Dynamic Asset Pricing Theory by Darrell Duffie, 3rd edition,

OPTIONAL TEXTBOOKS: Asset Pricing by John Cochrane, Princeton, revised edition,

CLASS ROAD MAP (* MEANS A REQUIRED READING)

(1) An Intro to the World of Puzzles
   A. Lecture Note (to be distributed)*
   B. Cochrane (Chapter 19-21)

(2) Continuous Time Math Review
   A. Duffie (Appendix)*
   B. Cochrane (Appendix)
   C. Karatzas and Shreve (1991) (Chapter 1)
   D. Revuz and Yor (1991): Continuous Martingales and Brownian Motions

(3) No Arbitrage, Stochastic Discount Factors, Martingales, and Competitive Equilibrium
   A. Duffie (Chapters 5, 6)*
B. Cochrane (Chapters 1 to 7)

(4) Term-Structure Modeling: Part I
A. Duffie (Chapter 7)*
B. Cochrane (Chapter 19)
C. Duffie and Kani (1996, Mathematical Finance)*
D. Dai and Singleton (2000, JF)*
E. Cox, Ingersoll, and Ross (1985, Econometrica)

(5) Portfolio and Consumption Choice
A. Duffie (Chapter 9)*

(6) Dynamic and Stochastic General Equilibrium
A. Duffie (Chapter 10)*
B. Cochrane (Chapters 20 and 21)*

(7) New Class of Models (Lecture Notes and new reference list will be provided)
A. Funky Preferences
   • Habit Formation (Campbell and Cochrane)
   • Recursive Preference (Epstein-Zin, Duffie-Epstein, Bansal-Yaron)
   • Other Variants: Robustness, Ambiguity etc. (Hansen-Sargent)
B. Market Frictions
   • Transactions Cost (Constantinides, Vayanos)
   • Liquidity and Default Risk (Alvarez-Jermann)
   • Money (Kim)
C. Asset Pricing with Many Agents
   • Full Participation (Constantinides-Duffie)
   • Limited Participation (Vising-Jorgensonss, Santos-Veronesi, Kim)

D. Term Structure Models: Part II

(8) Explaining Cross Section of Asset Returns using Dynamic Asset Pricing Models
A. Fama-French Factors (Fama-French)
B. Momentum (Many…)
C. Liquidity (Pastor-Stambaugh, Amihud)
D. Macro Factors (Many…)
E. Performance Evaluation
   • Mutual Funds
   • Fixed Income
   • Hedge Funds

COURSE CALENDAR

Week One: An Intro to the World of Puzzles
Introduce important empirical facts in Financial Economics, especially Equity premium puzzle, Asset Allocation Puzzle, Expectations Hypothesis Puzzle, Cross Sectional Puzzle, Exchange Rate Puzzles etc.
Assignment: Homework One

Week Two: Continuous Time Math Review
Learn the important mathematical vehicles which will be used throughout the course. Stochastic process, Martingales, Brownian Motions and Ito Calculus
Week Three: No Arbitrage, Stochastic Discount Factor, and Martingale I
Introduce no arbitrage conditions, State price density (pricing kernel), Equivalent Martingale Measures, and Reduction of Gains process to martingale Process
Assignment: Homework Two

Week Four: No Arbitrage, Stochastic Discount Factor, and Martingale II
Use the concepts and results developed in week three to prove basic equivalence results between these and apply this concept to think about asset price processes. Also introduce the concept of market price of risk and market completeness.

Week Five: Term-Structure Modeling I
As the first application of the theory we developed, learn Term structure modeling of interest rates. Introduce important stylized facts and basic history of literature.

Week Six: Term-Structure Modeling: II
Develop a popular class of term structure models, called affine term structure models. Derive important implications on the model, especially in terms of market price of risk. Learn how to model market price of risk to think about expectations hypothesis puzzle.
Assignment: Homework Three

Week Seven: Portfolio and Consumption Choice I
Develop dynamic and stochastic portfolio choice problem (Merton model) and derive main results on myopic and hedging demand of portfolio choice. Adding time-varying returns and its predictability into the model, study the asset allocation puzzles.
Main method: Stochastic Dynamic Programming in Continuous time (Stochastic Control Theory)
Assignment: Homework Four

Week Eight: Portfolio and Consumption Choice II
Use the martingale approach to solve the portfolio choice problem to tackle more difficult problems such as horizon issues and market frictions.
Assignment: First Referee Report

Week Nine: Equilibrium I
Based on all the ingredients we have developed thus far, develop an equilibrium theory of asset prices.

Week Ten: Equilibrium II
Continued from the week nine, Consumption CAPM, and other types of multi factor asset pricing models are derived in a rigorous manner. Derive testable implications and compare with data. First tackle on equity premium and risk-free rate puzzles.

Week Eleven: New Class of Models (Habit Formation)
Introduce a new class of preferences. Habit formation utility function is used to explain time-varying equity premium and other asset pricing phenomena.
Assignment: Second Referee Report

Week Twelve: New Class of Models (Recursive Preference: Duffie-Epstein)
Introduce another class of preference which separates elasticity of intertemporal substitution and risk aversion. Together with stochastic volatility, another attempt to explain various asset pricing puzzles.

Week Thirteen: New Class of Models (Transactions Cost and Heterogeneous Agents)
Instead of tweaking preferences of investors/consumers, here emphasize the role of market frictions and the existence of heterogeneous traders in a way that their behaviors are not smoothed out by the law of large numbers. Introduce market incompleteness more explicitly.
Assignment: Homework Five

Week Fourteen: Explaining Cross Section of Asset Returns using Dynamic Asset Pricing Models
Use the models developed throughout the course. Attempt to explain cross sectional behaviors of asset prices. Related empirical papers will be assigned and discussed during class to think about how to understand these cross sectional behaviors of asset prices within the framework of dynamic stochastic general equilibrium models.
Final Exam: December 11

UNIVERSITY REGULATIONS
1) Aggie Honor Code
"An Aggie does not lie, cheat, or steal or tolerate those who do."
Upon accepting admission to Texas A&M University, a student immediately assumes a commitment to uphold the Honor Code, to accept responsibility for learning, and to follow the philosophy and rules of the Honor System. Students will be required to state their commitment on examinations, research papers, and other academic work. Ignorance of the rule does not exclude any member of the TAMU community from the requirements or the processes of the Honor System. For additional information, please visit www.tamu.edu/aggiehonor/

2) ADA Policy Statement
The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please contact the Department of Student Life. Services for students with Disabilities, in Cain Hall or call 845-1637.