

The Undergraduate Certificate in Finance (UCF) Program

Bendheim Center for Finance



Program Representative: Harrison Hong
Program Administrator: Ellen DiPippo

How to Apply

- Download the application form at <http://www.princeton.edu/bcf>
 - *HARD COPY* can be dropped off at Bendheim Center for Finance, 2nd Floor
 - *E-MAIL form* can be sent to:
Ellen DiPippo: edipippo@princeton.edu
(follow up with *HARD COPY*)
- Application deadline: **May 31st***
 - * If this date falls on Saturday/Sunday, the deadline is the following Monday

What is finance?

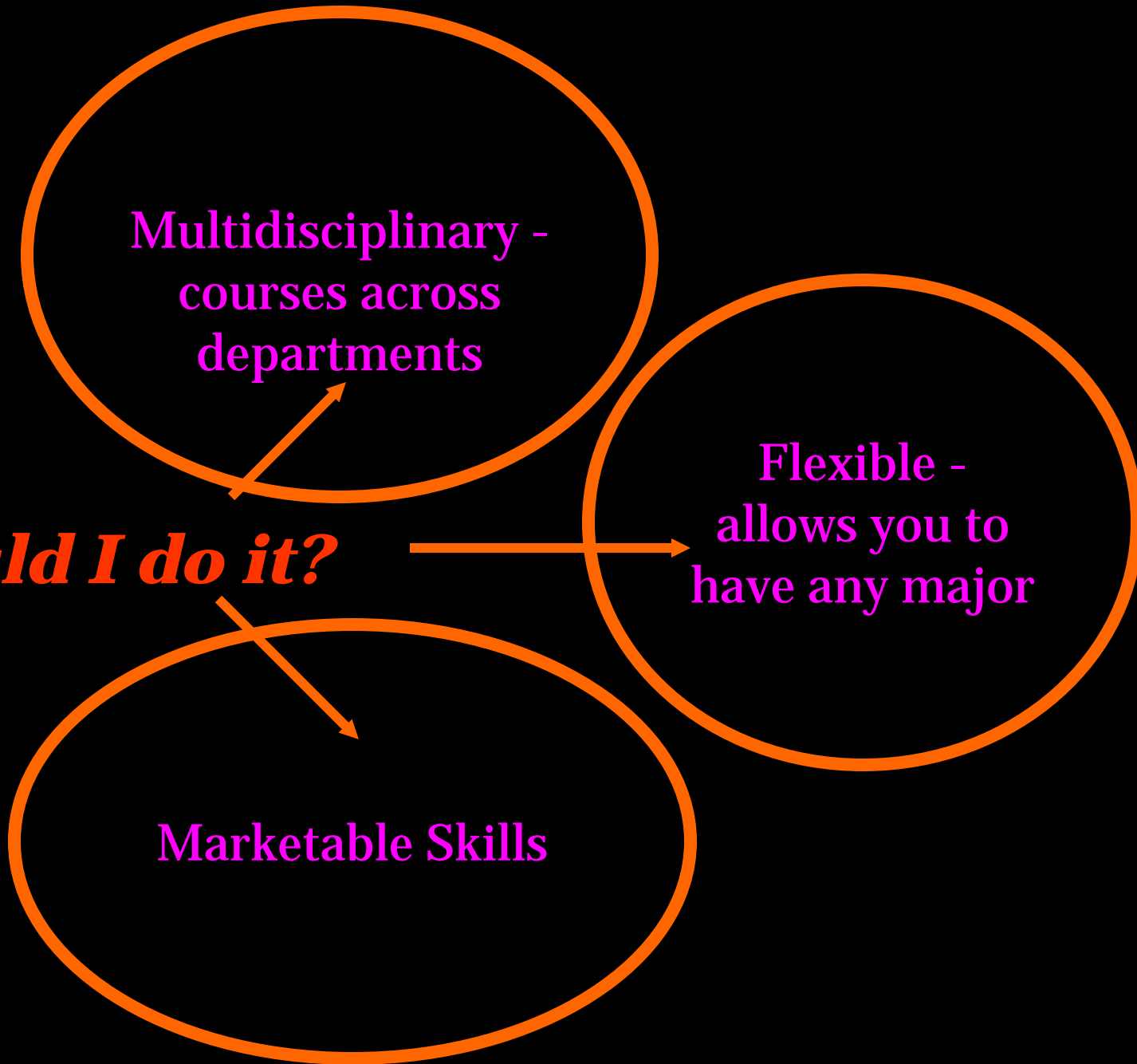
- How are financial securities such as stocks, bonds, currencies and derivative assets priced?
- How to manage a portfolio of financial and real assets?
- How should a corporation or other business finance its real assets?
- How should corporations be organized?
- What should businesses invest in?

Why should I do it?

Multidisciplinary -
courses across
departments

Flexible -
allows you to
have any major

Marketable Skills



Who Can Apply?

Economics,
ORFE


Engineering,
Physics,
Math,
Molecular Biology

**Certificate
in Finance**

Architecture,
Music,
Religion, History,
English, Art

Woodrow Wilson,
Politics

What does the certificate accomplish?

- 
- The certificate attests to your **proficiency in finance**
 - Upon graduation you will receive a degree (e.g. A.B., B.S.E.) as well as this certificate
 - You enter the program in your junior (and in special cases, senior) year

How do I obtain an UCF?

- Prerequisites
 - Mathematics
 - Probability and statistics
 - Economics
- Two required core courses in finance
- Three additional electives
- Senior thesis must be finance related

Requirements

Prerequisites:

Math
Statistics
Economics
➤ *B+ average**
≥ B in all

Core Courses:

ECO 362
ECO 363
≥ B average

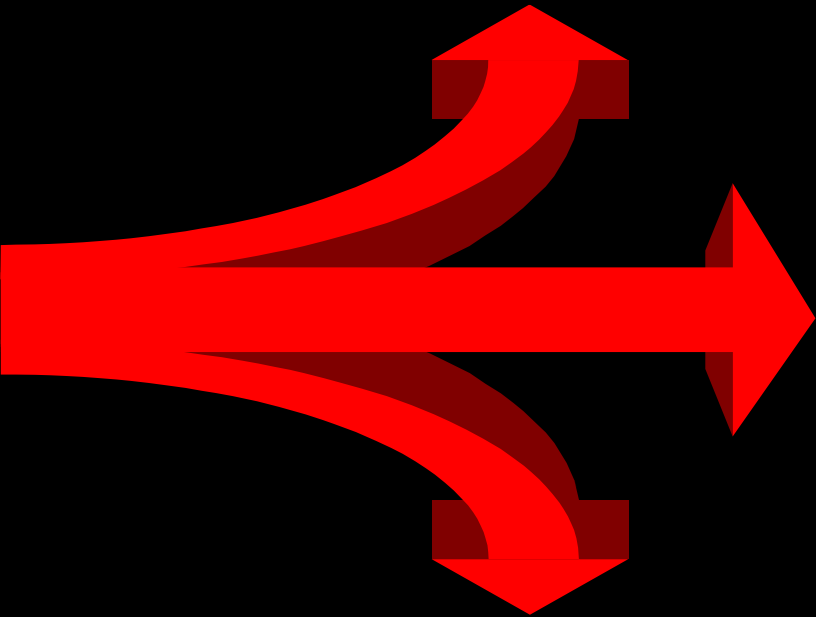
Electives:

3
≥ B average

*Grade requirements
for ECO/ORF majors

Prerequisites

ECO 310



ECO 202/MAT 222/ORF245/
PHY301/POL 345/PSY251/
SOC301/WWS332

MAT200 *or* {MAT201 *and* MAT202}

ORF245:

Fundamentals of
Engineering
Statistics

ECO202:

Statistics and Data
Analysis for
Economists

WWS332:

Quantitative
Analysis for
Public Policy

MAT222:

Introduction to
Statistics
OR
PHY301 & PHY312

PSY251:

Quantitative
Methods
OR
SOC301,
POL345

Economics and Mathematics

- ECO 310: Microeconomic Theory: A Mathematical Approach
- MAT 200 OR {MAT 201 and MAT202}

ECO 362:

Investments

Fall Term Only

ECO 363:

Corporate Finance

Spring Term Only

Total of 3 electives

List 1 Electives

*At least 2 for
Eco/Orfe;
1 for all others*

List 2 Electives

List 1 - Financial Applications


- **EAP 402:** The Japanese Financial System
- **ECO 207:** Financial Accounting
- **ECO 342:** Money and Banking
- **ECO 353:** International Monetary Economics
- **ECO 414:** Introduction to Economic Dynamics
- **ECO 461:** Trading and Securities Markets
- **ECO 462:** Portfolio Theory and Asset Management
- **ECO 463:** International Financial Markets
- **ECO 464:** Corporate Restructuring
- **ECO 465:** Options, Futures and Financial Derivatives
- **ECO 466:** Fixed Income: Models and Applications
- **ECO 467:** Institutional Finance
- **ECO 468:** Behavioral Finance
- **ECO 469:** Valuation and Security Analysis
- **ORF 335:** Introduction to Financial Engineering
- **ORF 435:** Financial Risk Management
- **POL348:** Politics and Finance
- **WWS 321:** The Psychology of Decision Making & Judgment
- **WWS 451:** Special Topics in Public Affairs
- **WWS 460:** History of Financial Crises

List 2 - General Methodology for Finance

- **APC 350:** Methods in Partial Differential Equations
- **CEE 460:** Risk Assessment and Measurement
- **COS 318:** Operating Systems
- **COS 323:** Computing for the Physical and Social Sciences
- **COS 333:** Advanced Programming Techniques
- **COS 423:** Theory of Algorithms
- **COS 425:** Database Systems
- **COS 432:** Information Security
- **COS 436:** Human-Computer Interface Technology
- **COS 444:** Electronic Auctions
- **COS 461:** Computer Networks
- **ECO 311:** Macroeconomics: A Mathematical Approach
- **ECO 312:** Econometrics: A Mathematical Approach
- **ECO 313:** Econometric Applications
- **ECO 315:** Topics in Macroeconomics
- **ECO 317:** The Economics of Uncertainty
- **ECO 321:** Industrial Organization
- **ECO 322:** Theory of Contracts and the Firm
- **ECO 341:** Public Finance
- **ECO 370:** American Economic History
- **ECO 385:** Ethics and Economics
- **ECO 418:** Strategy and Information

List 2 (cont.)

- MAT 301: Mathematics in Engineering I (IDE, PDE)
- MAT 302: Mathematics in Engineering II (PDE, complex variables)
- MAT 304: Introduction to Partial Differential Equations
- MAT 305: Mathematical Programming
- MAT 317: Complex Analysis with Applications
- MAT 330: Analysis I: Fourier Series and Partial Diff Equations
- MAT 331: Numerical Analysis
- MAT 341: Numerical Analysis
- MAT 390: Probability Theory
- MAT 391: Random Processes
- ORF 307: Optimization
- ORF 309: Probability and Stochastic Systems
- ORF 311: Optimization Under Uncertainty
- ORF 374: Topics in ORFE: Monte Carlo Methods
- ORF 401: Electronic Commerce
- ORF 405: Regression and Applied Time Series
- ORF 474: Stochastic Numeric and Simulations
- ELE 391: The Wireless Revolution: Telecomm for the 21st Century
- ELE 491: High-Tech Entrepreneurship
- HIS 364: International Economic History in the 20th Century

- 
- Courses not listed may be taken as an elective if
 - You submit the request in writing and prove that it forms part of a coherent program in finance
 - Professor Hong approves the request

Not all courses are offered every year



**Check with the relevant department to
confirm course offerings**

Course Map for the Finance Certificate

- Freshman: Fall ECO100, MAT201/103
- Freshman: Spring ECO101, MAT202/104
- Sophomore: Fall ECO202
- Sophomore: Spring ECO310
- Junior: Fall ECO362, elective
- Junior: Spring ECO363, elective
- Senior: Fall elective, thesis/independent work

See website for details on electives
<http://www.princeton.edu/bcf>

If you are an **ECO** or **ORFE** major

- * You must write a senior thesis in your major department which contains significant finance content which will be verified with your thesis advisor in April

Independent Work

If you are a **NON-** ECO or ORFE major:

- you are **encouraged** to integrate finance into your junior independent work or senior thesis
- If not, then complete the independent work in conjunction with ECO 362 (fall) or ECO363 (spring)
 - * the grade is separate from that obtained in 362/363

Tracks: How to Select Electives

Selection of electives is based upon:

- individual needs and preferences
- following a suggested track, wherein the courses form a coherent group
 - Math Finance Track
 - Corporate Finance Track
 - Derivatives Pricing and Risk Management Track
 - Investment Management Track
 - Information Technologies for Finance Track

Mathematical Finance Track



- Consider this track if you are interested in financial engineering or the design of financial securities that help manage risk
- You will study the mathematics of financial asset pricing
 - stochastic calculus
 - application of stochastic calculus to arbitrage and equilibrium in dynamic economies

Derivatives Pricing and Risk Management Track



- Consider this track if you are interested in risk management and financial engineering
- You will learn
 - how to price options, futures and other derivative securities
 - how to use these securities to manage risk

Investment Management Track



- Consider this track if you are interested in applying macroeconomic analysis and statistical forecasting techniques to portfolio management
- You will learn about
 - the design and functioning of securities markets
 - the behavior and determinants of the returns or profits on these securities
 - how to construct optimal portfolios of securities
 - how to manage these portfolios

Information Technologies for Finance Track



- Consider this track if you are interested in applying computer-based technologies to the financial and business world
- You will study
 - the design of efficient trading systems
 - the security of computer networks
 - managing large databases
 - parallel processing
 - algorithms, multimedia and web interfaces

Corporate Finance Track

- Consider this track if you are interested in working for a corporation or starting your own business
- You will learn
 - how to choose and finance investment projects
 - about financial restructuring - is there an optimal debt-equity ratio (capital structure)
 - merger and acquisition analysis
 - what determines dividend policy
 - about management and regulation of banks/financial institutions



About our Students.....

UCF CLASSES	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
UCF	59	82	87	126	113	125	158	129	85	88
ECON		110	81	110	99	106	112	116	115	119
		2001	2002	2003	2004	2005	2006	2007	2008	2009
WOMEN		16	31	36	35	42	48	36	24	31
MEN		66	56	90	78	83	110	93	61	57
WOMEN(%)		20%	36%	29%	31%	34%	30%	28%	28%	35%
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
SCIENCES	3	12	16	22	16	13	26	13	21	18
ECON	40	41	30	58	48	55	55	57	30	28
HUMANITIES	0	2	4	6	8	2	12	10	7	6
ORFE	15	22	32	33	30	43	42	35	18	26
WWS/POLITICS	1	5	5	7	11	12	23	14	9	10
TOTAL UCF	59	82	87	126	113	125	158	129	85	88

How to Apply



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* if this date falls on a Saturday or Sunday, application is due the following Monday

How to obtain more information

- <http://www.princeton.edu/bcf>
- **Contact Professor Hong**
 - email: hhong@princeton.edu
 - phone: 258-0259
 - office: Bendheim (Dial Lodge) 210
- **Contact Ellen DiPippo**
 - email: edipippo@princeton.edu
 - phone: 258-0384
 - office: Bendheim (Dial Lodge) 203