PROGRESSIVE DEGREE PROGRAM
COURSE PLAN TEMPLATE

USC SCHOOL

Viterbi School of Engineering

ACADEMIC DEPARTMENT

Ming Hsieh Department of Electrical and Computer Engineering

GRADUATE PROGRAM

Master of Science in Financial Engineering

POST CODE

1370

TERM EFFECTIVE DATE

Fall 2023

PROGRAM DESCRIPTION
A brief description of the graduate program.

The objective of this program is the training of graduate students with engineering, applied mathematics or physics backgrounds in the application of mathematical and engineering tools to finance. Financial engineering is a multidisciplinary education program that involves the Viterbi School of Engineering, the USC Marshall School of Business and the USC Dornsife College of Letters, Arts and Sciences (Department of Economics). Financial engineering uses tools from finance and economics, engineering, applied mathematics and statistics to address problems such as derivative securities valuation, strategic planning and dynamic investment strategies, and risk management, which are of interest to investment and commercial banks, trading companies, hedge funds, insurance companies, corporate risk managers and regulatory agencies.

https://catalogue.usc.edu/preview_program.php?catoid=12&poid=13023&returnto=4150

A list of common bachelor's degrees that undergraduate students pursue in advance of pursuing a progressive degree option with this graduate program. Some programs are restricted to certain majors while others are open to all students.

BSEE, BSISE, BSME, BSAME, BSECON/Math, BA or BS Mathematics, BA Physics	
Other non-Viterbi students are unlikely to have the pre-reqs.	

PREPARATORY UNDERGRADUATE COURSES
A list of courses at the undergraduate level that prepare students for the graduate program. Required coursework is listed first, followed by recommended courses. If not applicable, this section will be blank.

Dept. Prefix - Course #	Course Title	Required or Recommended	Units
EE 364	Intro to Probability and Statistics or equivalent	Required	4
Math 225	Linear Algebra and Differential Equations	Required	4
Math 229	Calculus III	Required	4
	Python or C++ Programming skills	Required	4

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UNDERGRADUATE COURSES USED TO REDUCE GRADUATE LEVEL UNITS
A list of undergraduate level courses that may be used to reduce the number of graduate level units required for the graduate program. If there are none, that is specified instead.

Dept. Prefix - Course #	Course Title	Units

CORE GRADUATE PROGRAM REQUIREMENTS (# units required)
A list of all required graduate courses for the graduate program. None of these courses may be used toward satisfying undergraduate degree requirements.
If special exceptions for any of these courses are made by the academic department, the course # is marked with an asterisk (*) and the exception is explained in the "Department Notes" section at the end of this course plan template.

Dept. Prefix - Course #	Course Title	Units
EE 503	**Probability for Electrical and Computer Engineers**	**4**
EE 518	**Mathematics and Tools for Financial Engineering**	**4**
EE 512	**Stochastic Processes**	**4**
GSBA 548	**Corporate Finance**	**3**
FBE 559 or ISE 563	**Management of Financial Risk or Financial Engineering**	**3 or 3**
EE 590	**Directed Research Project (Prof. Ioannou)**	**1**
Elective	**Finance Business or Economics Area from list**	**3-4**
Elective	**Optimization, Simulations, Stochastics Systems Area from list**	**3-4**
Total Minimum Units:		**25**

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PRE-APPROVED ELECTIVE COURSEWORK

Elective coursework is approved at the discretion of the academic department. Note the following details about the total number and units required of elective coursework.

12-16*	**TOTAL ELECTIVE UNITS REQUIRED FOR THE TRADITIONAL GRADUATE DEGREE**
6-8**	**TOTAL ELECTIVE UNITS REQUIRED FOR THE PROGRESSIVE GRADUATE DEGREE**

TOTAL UNIT COUNTS AND REQUIRED GRADUATE UNITS

32	**TOTAL UNITS REQUIRED FOR THE TRADITIONAL GRADUATE DEGREE**
6-8	**TOTAL GRADUATE UNITS THAT MAY BE WAIVED (IF ANY)**
25	**MINIMUM NUMBER OF GRADUATE UNITS THAT MUST BE AT THE 500 LEVEL OR ABOVE**

> * two electives from each Financial and Optimization areas, 4 electives total
>
> ** one elective from each Financial and Optimization areas, 2 electives total

NOTES FROM THE DEPARTMENT
This section highlights any unique considerations, exceptions, or requirements for the graduate program. If a program has specific restrictions (courses, majors, etc.), they are detailed below.

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Kelly Goulis		8/29/2023	8:19:47 PM PDT

Authorizing Dean's Name   **Date Approved**

Senior Associate Dean

Authorizing Dean's Title

Last Revised 7/19/2023