

**PROGRESSIVE DEGREE PROGRAM
COURSE PLAN TEMPLATE**

USC SCHOOL	Viterbi School of Engineering
ACADEMIC DEPARTMENT	Ming Hsieh Department of Electrical and Computer Engineering
GRADUATE PROGRAM	Financial Engineering
POST CODE	1370
TERM EFFECTIVE DATE	Spring 2021

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&pooid=13023&returnto=4150

COMMON BACHELOR DEGREE PROGRAM PATHWAYS

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

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
	NONE	

**PROGRESSIVE DEGREE PROGRAM
COURSE PLAN TEMPLATE**

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	3
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:		24

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

30	TOTAL UNITS REQUIRED FOR THE TRADITIONAL GRADUATE DEGREE
6	TOTAL GRADUATE UNITS THAT MAY BE WAIVED (IF ANY)
24	MINIMUM NUMBER OF GRADUATE UNITS THAT MUST BE AT THE 500 LEVEL OR ABOVE

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.

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

**PROGRESSIVE DEGREE PROGRAM
COURSE PLAN TEMPLATE**

Kelly Goulis

Authorizing Dean's Name

April 7, 2021

Date Approved

Senior Associate Dean

Authorizing Dean's Title