

# FINANCIAL ENGINEERING GRADUATE CREDIT CERTIFICATE PROGRAM

<b>Person-in-Charge</b>	Jessica Zhao
<b>Program Code</b>	FINENG
<b>Campus(es)</b>	Erie World Campus

The Graduate Certificate in Financial Engineering is designed to prepare both current and returning students to apply knowledge of finance, economics, statistics, and data analysis to make sound financial decisions and build an ability to design financial instruments and risk management strategies. The certificate requires a total of 9 credit hours and can be completed concurrently with a Penn State Behrend degree or via continuing education. Students will acquire technical skills for developing analytical approaches and improve critical thinking abilities through hands-on coursework and real-world case studies. Real-world examples will be covered in corporate finance, portfolio theory, and financial derivatives.

Besides being an excellent stand-alone credential, all of the Graduate Certificate in Financial Engineering courses can be applied as Financial Engineering concentration toward the oMBA program offered through Penn State's World Campus.

All of the Graduate Certificate in Financial Engineering courses can be applied toward the blended MBA program offered through Penn State's Behrend Campus. However, successful completion of the certificate neither guarantees nor implies acceptance into any graduate program at Penn State. Admission to the MBA, the graduate degree program is a separate step and is not guaranteed. Approval to apply non-degree graduate credits toward a degree program must be granted by the student's academic adviser, the program head or graduate officer, and the Graduate School. A maximum of 15 credits earned as a non-degree student may be applied to a degree program, subject to restrictions outlined in GCAC-309 Transfer Credit (<http://gradschool.psu.edu/graduate-education-policies/gcac/gcac-300/transfer-credit/>).

**Effective Semester:** Spring 2022  
**Expiration Semester:** Spring 2027

## Admission Requirements

Applicants apply for admission to the program via the Graduate School application for admission (<https://gradschool.psu.edu/graduate-admissions/how-to-apply/>). Requirements listed here are in addition to Graduate Council policies listed under GCAC-300 Admissions Policies (<https://gradschool.psu.edu/graduate-education-policies/>). International applicants may be required to satisfy an English proficiency requirement; see GCAC-305 Admission Requirements for International Students (<https://gradschool.psu.edu/graduate-education-policies/gcac/gcac-300/gcac-305-admission-requirements-international-students/>) for more information.

An applicant must demonstrate fundamental competence in finance either by attaining a B or better in FIN 300, FIN 301, or equivalent or by completing an online training module as designated by the program.

## Certificate Requirements

Requirements listed here are in addition to requirements listed in Graduate Council policy GCAC-212 Postbaccalaureate Credit Certificate Programs (<https://gradschool.psu.edu/graduate-education-policies/gcac/gcac-200/gcac-212-postbaccalaureate-credit-certificate-programs/>).

All candidates are required to take nine credits in three courses (Econometric Analysis, Derivative Securities, and Financial Modeling).

Code	Title	Credits
<b>Required Courses</b>		
MFE 801	Econometric Analysis	3
MFE 527	Derivative Securities	3
MFE 816	Financial Modeling	3
<b>Total Credits</b>		<b>9</b>

## Courses

Graduate courses carry numbers from 500 to 699 and 800 to 899. Advanced undergraduate courses numbered between 400 and 499 may be used to meet some graduate degree requirements when taken by graduate students. Courses below the 400 level may not. A graduate student may register for or audit these courses in order to make up deficiencies or to fill in gaps in previous education but not to meet requirements for an advanced degree.

## Learning Outcomes

1. Have a clear understanding of the theoretical background and classical assumptions for standard econometric methods, explain their significance, and describe the effects of violations of classical assumptions.
2. Be able to use econometric software to perform an empirical analysis.
3. Be able to examine the essential financial characteristics of derivative securities such as swaps, forward, futures, and options contracts and their roles in managing individual and corporate financial risk, and apply these concepts to integrate a comprehensive risk management approach.
4. Explain the theoretical arbitrage relationships that form the basis for all derivatives pricing.
5. Be able to analyze real-world finance data, apply advanced skills such as Data Analysis tools, Advanced reporting, Monte Carlo simulation, and user-defined functions via spreadsheet and scripting programming language to make financial decisions.

## Contact

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<b>Campus</b>	World Campus
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