Second Major in Financial Engineering

- **Background Coursework:**
  - *Calculus 1-2-3* (Math 131, 132, 233)
  - *Differential Equations* (Math 217)
  - *Matrix Algebra* (Math 309)
  - *Managerial Statistics II* (QBA 121 or ESE 326 or MATH 439 or ECON 413)
  - *Microeconomics* (Econ 4011 or MEC 290)
  - *Introduction to Computer Science* (CSE 131)

- **Courses in Olin (15 credits):**
  - *Principles of Financial Accounting* (ACCT 2610)
  - *Capital Markets and Financial Management* (Fin 340) pre-req MEC 290, ACCT 2610; Co-req QBA 121 or ESE 326
  - *Investments* (Fin 441) pre-req Fin 340, Math 132, MEC 290 or Econ 1011; Co-req QBA 121 or ESE 326
  - 6 credit hours from (to be taken after ESE 427):
    - *Quantitative Risk Management* (Fin 500Q)
    - *Advanced Derivative Securities* (Fin 537)
    - *Mathematical Finance* (Fin 539 – 1.5 credits)
    - *Advanced Credit Risk Modeling* (Fin 551 – 1.5 credits)
    - *Fixed Income Derivatives* (Fin 552 – 1.5 credits)

- **Courses in Engineering (15 credits):**
  - *Logic and Discrete Mathematics* (CSE 240) pre-req CSE 131
  - *Algorithms and Data Structures* (CSE 247) pre-req CSE 240
  - *Operations Research* (ESE 403) pre-req Math 217, suggested Math 309
    - OR
    - *Optimization* (ESE 415) pre-req Math 309, ESE 318 or permission of instructor
  - *Financial Mathematics* (ESE 427) pre-req ESE 326, ESE 318 or permission of instructor
  - *Big Data and Machine Learning* (CSE 417) pre-req ESE 326, Math 233, Math 309, CSE 347
    - OR
    - *Cloud Computing with Big Data Applications* (CSE 427S) pre-req CSE 247, CSE 330S (or basic knowledge of relational databases)

Financial Mathematics (ESE 427) is to be taken after Capital Markets and Financial Management (Fin 340) and to be taken before the 6 credit hours of Fin 500+.

All courses are 3 units except where otherwise indicated.

Students must have a 3.0 or higher GPA to pursue this second major, which includes the cumulative GPA, business GPA, and engineering GPA.

For students earning Olin Business undergraduate degrees:
- Only one course can overlap with its degree program and a second major
- No courses can overlap with its degree program and a minor.
- BSBA Finance majors, you may overlap one Finance course towards your Finance major and Financial Engineering second major. Must have 12 unique units towards each program

For non-BSBA students earning a second major or minor within Olin in addition to Financial Engineering must have 12 unique Olin units towards each program.

For students earning School of Engineering & Applied Science undergraduate degrees:
- A maximum of 12-units may be double-counted for this second major and an engineering or computer science undergraduate degree (this does not include the background coursework).