# College of Business Advising Checklist
## Quantitative Finance, BS, Math Double Major[*]

A Bachelor of Science (BS) in Quantitative Finance (QFIN) with a double major in Math from James Madison University requires a minimum of 120 credit hours of undergraduate work, comprised of the following:

☐ Finance Courses (30-36 credit hours)
☐ Economics Courses (9 credit hours)
☐ Math Courses (39 credit hours)
☐ JMU General Education Program (35-41 credit hours): https://www.jmu.edu/gened/
☐ Minimum 120 credit hours (minimum of 60 from a 4-year school, minimum of 30 from JMU)

*All QFIN majors are required to either 1) complete minors in both economics and math or 2) double major in math. QFIN majors with a double major in economics still must complete a math minor.

**This document is provided as an advising resource only. Official curriculum requirements are listed in the JMU Undergraduate Catalog: https://www.jmu.edu/catalog/** In the case of discrepancies, the University Catalog is the official curriculum students must follow. This document was reviewed by the Director of the CoB Advising and Support Center in August 2024. For more information contact the CoB Advising and Support Center: https://www.jmu.edu/cobasc.

When students can enroll in classes is determined by when classes are offered and if the student meets the necessary requisites. Classes not offered every semester and/or with required requisites are indicated as follows:

[F] Offered fall semesters only        Pre-Requisite (Pre): condition/class that must be met/completed prior to taking the class
[S] Offered spring semesters only      Co-Requisite (Co): class that must be completed before or at the same time as taking the class

## Finance Requirements

Students majoring in Quantitative Finance complete 30-36 credit hours of Finance courses as outlined below. This includes 27 credit hours of common courses and a choice of completing a Finance elective or a concentration (3-9 credit hours).

| Class | Credits | Pre-Requisite(s) and/or Co-Requisite(s) |
|---|---|---|
| ☐ COB 241 – Financial Accounting | 3 | Pre: Sophomore Standing |
| ☐ FIN 250 – Introduction to Quantitative Finance [S] | 3 | Pre: C or better in ECON 200, ECON 201, MATH 235 and MATH 236 |
| ☐ FIN 365 – Intermediate Financial Management | 3 | Pre: C or better in FIN 250; Recommend Pre: FIN 301 |
| ☐ FIN 371 – Principles of Investments | 3 | Pre: C or better in FIN 250 |
| ☐ FIN 380 – Elemental & Derivative Securities Analysis | 3 | Pre: C or better in FIN 250 |
| ☐ FIN 395 – Mathematical Finance [S] | 3 | Pre: MATH 237 and FIN 380 |
| ☐ FIN 405 – Securities Pricing [F] | 3 | Pre: FIN 395 |
| ☐ FIN 450 – Financial Risk Management [F] | 3 | Pre: FIN 371 and B- or better in FIN 380 |
| ☐ FIN 480 – Seminar in Quantitative Finance Research and Data Analysis [S] | 3 | Pre: FIN 405 |
| ☐ FIN elective or concentration (see options below) | 3-9 | |
| **Total** | **30-36** | |

### Finance Elective and Concentration Options

**Finance Elective (choose 1)**

| Class | Credits | Pre-Requisite(s) and/or Co-Requisite(s) |
|---|---|---|
| ☐ FIN/MATH 328 – Time Series Analysis | 3 | Pre: MATH 238 and MATH 318 |
| ☐ FIN 372 – International Finance and Payments | 3 | Pre: ECON 200 and ECON 201 |
| ☐ FIN 451 – Risk Management II [S] | 3 | Pre: B- or better in FIN 450 |
| ☐ FIN 455 – Global Finance | 3 | Pre: C or better in FIN 250 |
| ☐ FIN 471 – Portfolio Management | 3 | Pre: FIN 371 |

**Risk Management Concentration (complete all)**

| Class | Credits | Pre-Requisite(s) and/or Co-Requisite(s) |
|---|---|---|
| ☐ FIN 451 – Risk Management II [S] | 3 | Pre: B- or better in FIN 450 |
| ☐ FIN 475 – Financial Modeling and Risk Analysis | 3 | Pre: FIN 365 and 371 |

**Financial Analysis Concentration (complete all)**

| Class | Credits | Pre-Requisite(s) and/or Co-Requisite(s) |
|---|---|---|
| ☐ FIN 362 – Financial Analysis | 3 | Pre: C or better in FIN 250 and B or better in COB 241 and COB 242 |
| ☐ FIN 378 – Fixed Income Analysis | 3 | Pre: FIN 371 |
| ☐ ACTG 343, FIN 420, 434, 455 or 475 (choose 1) | 3 | See catalog for prerequisites |

## Economics Requirements

| Class | Credits | Pre-Requisite(s) and/or Co-Requisite(s) |
|---|---|---|
| ☐ ECON 200 – Introduction to Macroeconomics [1] | 3 | |
| ☐ ECON 201 – Introduction to Microeconomics | 3 | |
| ☐ ECON 331 – Intermediate Microeconomics Theory | 3 | Pre: C or better in ECON 200, ECON 201 and MATH 235 |
| **Total** | **9** | |

[1] ECON 200 also satisfies the Cluster Four Global Experience (C4GE) General Education requirement

## Mathematics Requirements

| Class | Credits | Pre-Requisite(s) and/or Co-Requisite(s) |
|---|---|---|
| ☐ MATH 235 – Calculus I [1] | 4 | Pre: Sufficient score on the Mathematics Placement Exam |
| ☐ MATH 236 – Calculus II | 4 | Pre: MATH 235 with a grade of C- or better |
| ☐ MATH 237 – Calculus III | 4 | Pre: MATH 236 with a grade of C- or better |
| ☐ MATH 238 – Linear Algebra with Differential Equations [2] | 4 | Pre: MATH 236 |
| ☐ MATH 245 – Discrete Mathematics | 3 | Co: MATH 236 |
| ☐ MATH 248 – Computers and Numerical Algorithms | 4 | Pre: MATH 236 |
| ☐ MATH 318 – Introduction to Probability and Statistics [3] | 4 | Pre: MATH 236 |
| ☐ MATH 410 – Advanced Calculus I | 3 | Pre: MATH 238 or MATH 300, and MATH 245 |
| ☐ MATH 430 – Abstract Algebra I | 3 | Pre: MATH 238 or MATH 300, and MATH 245 |
| ☐ MATH elective 1 (choose 1 from the first list below) | 3 | |
| ☐ MATH elective 2 (choose 1 from the second list below) | 3 | |
| **Total** | **39** | |

[1] MATH 235 also satisfies General Education Cluster Three Quantitative Reasoning (C3QR) requirement.
[2] Students may take both MATH 300 and MATH 336 (6 credit hours total) in place of MATH 238.
[3] Students may take both MATH 229 and MATH 329 (6 credit hours total) in place of MATH 318.

### Math Elective 1 (choose 1)

| Class | Credits | Pre-Requisite(s) and/or Co-Requisite(s) |
|---|---|---|
| ☐ MATH 411 – Advanced Calculus II | 3 | Pre: MATH 410 |
| ☐ MATH 431 – Abstract Algebra II | 3 | Pre: MATH 430 |
| ☐ MATH 434 – Advanced Linear Algebra | 3 | Pre: MATH 238 or MATH 300, and MATH 245 |
| ☐ MATH 435 – Introduction to Topology | 3 | Pre: MATH 238 or MATH 300, and MATH 245 |

### Math Elective 2 (choose 1)

| Class | Credits | Pre-Requisite(s) and/or Co-Requisite(s) |
|---|---|---|
| ☐ MATH 322 – Applied Linear Regression | 3 | Pre: MATH 220, MATH 229, MATH 318, or equivalent |
| ☐ MATH 423 – Stochastic Process [S] | 3 | Pre: MATH 238 or MATH 300 and MATH 318 or MATH 329 |
| ☐ MATH 424 – Statistical Decision Theory | 3 | Pre: MATH 318 or MATH 329 |
| ☐ MATH 426 – Probability & Mathematical Statistics I [F] | 3 | Pre: MATH 238 or MATH 300, and MATH 245 |
| ☐ MATH 440 – Fourier Analysis & Partial Differential Equations [F] | 3 | Pre: MATH 238 or MATH 336 |

## Suggested Pathway

Use the following pathway and the course catalog as a guide to creating an academic plan. Your academic plan will be unique based on factors such as class availability, placement scores, and transfer credit, as well as considerations such as a pursuit of a double major, minor, and/or concentration. Consult with your academic advisor to create an individual plan.

| Year 1 | | Year 2 | | Year 3 | | Year 4 | |
|---|---|---|---|---|---|---|---|
| Fall | Spring | Fall | Spring | Fall | Spring | Fall | Spring |
| ECON 200* | ECON 201* | COB 241 | FIN 250* | ECON 331 | FIN 395 | FIN 405 | FIN 480 |
| MATH 235* | MATH 236 * | MATH 237 | FIN 301^ | FIN 365 | MATH 410 | FIN 450** | FIN elective |
| | MATH 245 | MATH 318 | MATH 238 | FIN 371 | MATH elective | MATH 430 | MATH elective |
| | | | MATH 248 | FIN 380** | | | |

* C or better needed     ** B- or better needed     ^Recommended (not required)