University of Missouri–St. Louis

College of Business Administration

Finance 3503/6503 – Computer
Applications in Finance

Spring 2024 – Section 001
Online

Course Instructor:	David Beverly
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Weekly Office Hours:	Wed. from 3:00PM–4:00PM, and by appointment

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Course Description: This course focuses on the application of Excel and Python in finance. It is lab-based and project-oriented. Students will learn step-by-step how to build financial models to solve practical, real-world problems. Financial topics covered include loan amortization, financial statement analysis, capital budgeting and others. Excel skills covered range from pivot tables and charts to form controls, solver, ANOVA, data analytics and data visualization. In addition, we will introduce programming in Python with regards to financial applications.

Prerequisites: FIN 3500 or FIN 6500

Recommended Materials: Holden, "Excel Modeling in Corporate Finance" Pearson 5th Edition. In addition, students may find it helpful to utilize a textbook for corporate finance to refresh some of the concepts. Ross, Westerfield, and Jordan, "Fundamentals of Corporate Finance," 13th ed., McGraw-Hill

Course Objectives: The primary objective of the course is to help students acquire financial modeling skills and spreadsheet proficiency to solve real-world problems. Upon completion of the course, the student should be able to

1. demonstrate thorough understanding of finance and accounting concepts and methodologies.
2. effectively identify and model real-world financial/business problems using Excel spreadsheet skill.
3. extract useful information from large data sets to assist in business decision-making
4. create solutions to financial problems using Python programming language

Weekly Meetings: Each week, we will have one or more videos posted to Canvas. Wednesday will be an open office hour for students to ask questions as needed. The goal for this meeting is to discuss any questions related to the previous assigned problems and practice for upcoming assignments.

Problem Sets: Problem sets will be made available on Canvas prior to their respective weeks of study. There will be approximately 8 – 10 problem sets/projects throughout the semester.

Attendance: Students are expected to view *every* video. This course is mainly hands-on, and we will spend a lot of our time working exercises and projects. Both finance and Excel are constantly evolving. The contents of the optional textbooks shall in no way limit the content of the course. For this reason, it is very important that you watch every video. Your ability to manage your time well and your desire to put in the effort needed to learn spreadsheet modeling are the primary drivers of your success in the course.

Grading: The grading for the course will follow the standard +/- grading scale. Across the three exams and the 8-10 projects, the grading breaks down as follows (note, all exams and projects are graded on a 100 point scale):

- Exams: 3 x 25% each   = 75% of final grade

- Projects: equally weighted   = 25% of final grade

Exams: There will be three exams throughout the semester. Each exam will consist of a mix of multiple-choice questions and Excel/Python-embedded problems. Each exam is worth 100 points.

Grading Scale:

Final %	Grade (Points)	Final %	Grade (Points)
≥ 93	A (4.0)	73 – 76	C (2.0)
90 – 92	A− (3.7)	70 – 72	C− (1.7)
87 – 89	B+ (3.3)	67 – 69	D+ (1.3)
83 – 86	B (3.0)	63 – 66	D (1.0)
80 – 82	B− (2.7)	60 – 62	D− (0.7)
77 – 79	C+ (2.3)	< 60	F (0.0)

Note: Intermediate grades are not rounded; however, final grades will be rounded to the nearest percentage point before assigning a letter grade.

Study Recommendations: • You need to study diligently starting on the first day of the semester. Do not postpone tasks until the last moment. Aim to keep pace with the course schedule below.

Resources/Support: Additional resources that students should review include:

- Academic Advising

- Academic Integrity/Plagarism

- Academic Support

- Mandatory Reporting

- Online Netiquette/Behavior

- Student Resources

- Technical Support

- UMSL Academic Calendar

- UMSL AutoAccess FAQ

Tentative Course Schedule

	Weekly Activities	Assignments
Week 1 (01/16-01/21)	• Review Syllabus • Cash Flow Analysis	
Week 2 (01/22-01/28)	• Annuities	• Project 1 Assigned •
Week 3 (01/29-02/04)	• Net Present Value	• Project 1 Due • Project 2 Assigned
Week 4 (02/05-02/11)	• Discount Rates	• Project 2 Due • Project 3 Assigned •
Week 5 (02/12-02/18) *Exam 1	• Loan Amortization	• Project 3 Due
Week 6 (02/19-02/25)	• Bond Yields • Bond Valuations	• Project 4 Assigned • •
Week 7 (02/26-03/03)	• Stock Valuations	• Project 4 Due
Week 8 (03/04-03/10)	• Stock Valuations cont.	• Project 5 Assigned • •
Week 9 (03/11-03/17)	• Intro to Python	• Project 5 Due
Week 10 (03/18-03/24) *Exam 2	• Excel to Python conversion	• Project 6 Assigned •
Week 11 (04/01-04/07)	• Python functions and variable scope	• • Project 6 Due

Week 12 (04/08-04/14)	• Stock pricing models in Python	• Project 7 Assigned •
Week 13 (04/15-04/21)	• Web scrapping and API's	• • Project 7 Due • Project 8 Assigned
Week 14 (04/22-04/28)	• Portfolio Optimization techniques in Python	
Week 15 (04/29-05/05)	• Project 8 Due	
Week 16 (05/06-05/12) Exam 3	• Finals Week	