



FIN405: Financial Math and Modeling

Fall Semester, 2017

Course Details

Course Title	Financial Math and Modeling
Course Code	FIN405
Credit Hours	3
Pre-requisites	MAT121C, FIN305

Class Type	Days	Time	Room
Lecture/Lab	Friday	13:00 - 16:00	601

Instructor

Instructor	Dr. Myung Lee
Room	1109
Consultation Hours	Monday, 16:00 to 17:30
Email	myungnelson636@solbridge.ac.kr
Telephone	042-630-8822

Mission Map

Mission Based Goals		Approximate % of Course Content	Approximate % of Assessment
Global Perspective		30%	30%
Asian Expertise		20%	20%
Creative Management Mind		50%	40%
Cross Cultural Competence		0%	0%
Social Responsibility		0%	10%
Total		100%	100%

SolBridge Mission & Course Objectives

The prime goal of the course is to deliver the promise of SolBridge. SolBridge has the mission of educating the next generation of Asian Thought leaders. The school aims to instill in our graduates a Global Perspective, Asian Expertise, a solid foundation in Management Knowledge, Cross Cultural Competence and a sense of social responsibility. This course aims to partially

fulfill the following elements of Solbridge Mission: Global Perspective, Asian Expertise, Creative Management Mind and Social Responsibility.

This course is about financial math and modeling that are useful for financial analysis. To this end, students will be equipped on how to build financial models using Excel and VBA. This course will examine financial mathematics, equity, fixed-income, options and investment portfolio optimization problems. This course will be proceeded by both lectures and lab sessions. By the end of the course, you should be able 1) to understand the concepts in model building and its structure for financial analysis, 2) to build financial models using Excel and VBA, 3) to understand financial instruments: how to value fixed-income, equity and option securities.

Tables 1 and 2 below outline the core knowledge and skills (course contents) that can be acquired by students by the end of this course. Knowledge refers to an Understanding of Subject Matter, and Skills refer to application of the knowledge.

Table 1: Course Content - Core Knowledge & Skills

Knowledge	Skills
1. How to write VBA codes for building models <ul style="list-style-type: none">• What is modeling?• Advanced feature of Excel• Introduction to VBA	Analytical Tools <ul style="list-style-type: none">• How to read VBA codes for modeling• Advanced features of Excel• Introduction to VBA
2. How to analyze financial instruments & statements <ul style="list-style-type: none">• Fixed-income• Equity• Option Securities• Financial statements	Quantitative Skills <ul style="list-style-type: none">• how to write VBA codes for structure models• understand mathematical formulas• understand relationship among parameters
3. How to analyze markets and portfolios <ul style="list-style-type: none">• Market history• How to construct portfolios• How to evaluate performance	Empirical Knowledge <ul style="list-style-type: none">• Knowledge of investment environment• Understanding of risks and hedging• Fundamentals on economics

Teaching Methodology

The Course will be taught through a mixture of lectures and lab. The lab session will be involved on actual coding for analysis and building models. The course schedule lists the reading assignments for each class session. I recommend you complete the reading before class.

Ethics

Plagiarism

SolBridge considers plagiarism as a serious breach of professional ethics. Plagiarism will not be tolerated in any form at SolBridge. Penalties can be as severe as expulsion from the university. To avoid plagiarism it always best to do your own work or cite the work of others appropriately.

Refer to your student handbook for a more detailed description of plagiarism and the associated penalties.

In this class, the rules are:

1. The first instance of plagiarism will result in a “zero” for the assignment in question, and a report will be filed with disciplinary officer.
2. The second instance of plagiarism will result in a fail grade for the entire course, and a report will be filed with disciplinary officer.
3. The third instance will result in institutional-level disciplinary action which could include expulsion from the school.
4. The instructor will report each instance of plagiarism, academic dishonesty and violation of school disciplinary rules to the disciplinary officer.

Copying Textbooks, copyrighted materials and academic dishonesty

Copying Textbooks and other copyrighted materials without permission of publisher or author is tantamount to theft. Therefore, students are expected to purchase the prescribed books and other materials from the Woosong Bookstore.

- Students using copied versions of books without permission will be asked to leave the classroom.
- In addition, such students will get “zero” participation points and any other penalties as levied by the instructor.

Academic Dishonesty includes but not limited to: (a) cheating during examinations, (b) obtaining/ providing information for reports, assignments and examinations by fraudulent means, and (c) false representation of others’ effort as one’s own.

Some examples of academic dishonesty are: copying from other students during examinations; copying material from other students’ reports/ assignments and submitting the same as one’s own report; creating fictitious interview materials for assignments or reports.

Sample Textbooks

The following are only a sampling of textbooks that are available in international editions and also meet the minimum requirements of course content. Supplemental materials may be used along with a textbook.

- I. Title: Financial Analysis and Modeling Using Excel and VBA**
Edition: 2nd edition

Author(s): Chandan Sengupta

Publisher: Wiley Finance

ISBN: 978-0-470-27560-3

Assessment Methods

Component	Weight
<i>1.</i> Class Attendance/Participation	20%

2. Homework Exercise Assignment	30%
3. Mid-term Exam	20%
4. Final Exam	30%
Total	100%

Class Attendance (20%)

Class attendance bears 20%. Now is the time to carefully note the points lost for each absence and its potential impact on your final grade. Effective participation requires three things on behalf of the student:

Attendance – You cannot participate in class if you do not attend. Non-attendance affects not only your own learning experience but also that of your peers. As such, 100% attendance is expected and required. In the event of an unavoidable absence, e.g. through serious illness, students should provide documentary evidence of the reason for their absence to their academic coordinator. Students are solely responsible for the make-up of any missed classes and for obtaining any class materials or assignments which they may miss. The instructor may fail any students on the grounds of unacceptable attendance.

Effective Listening – Effective listening is an important managerial skill and students will be expected to demonstrate this ability during the class. When the instructor or another student is speaking students should act in a considered and respectful manner, taking on board the point that has been made before contributing further. Disruptive or disrespectful behavior will not be tolerated in the class.

Thoughtful Contribution – Students can also demonstrate effective participation through constructive commentary or relevant questioning of the material. A food-quality comment is one which is relevant to the material being discussed and which adds to the learning of those in the class. Equally, do not be afraid to ask questions to clarify material. Students should however be wary of making irrelevant comments or simply participating for the sake of participating. Inappropriate contributions may negatively impact your final grade.

Homework Policy – Homework will be assigned as needed. You should work alone or with your study group and submit fully worked solutions. Homework is due on the beginning of next week class.

Course Schedule

Week-Lec-Date	Topics	Text
Week I – Lec 1 and 2	Introduction VBA, Financial Analysis Modeling Sub Procedures	21, 22

Week-Lec-Date	Topics	Text
Week II –	Loops, Conditional Code, Function Procedures, Calling a Function	22, 23
Week III –	Time Value of Money Model for Loan Amortization	14, 26
Week IV –	Fixed-Income Securities Price/Yield	17
Week V –	Fixed-Income Securities Analyzing Market History	16, 28
Week VI –	Simulating stock Prices	18, 29
Week VII – Mid-Term	MID – TERM Exam	
Week VIII –	Option and Option Portfolios	19, 30
Week IX –	Option Portfolios	
Week X –	Binomial Option Pricing	20, 31
Week XI –	Option pricing	
Week XII –	Option Portfolio Optimization	19, 30
Week XIII –	Portfolio Optimization	
Week XIV –	Additional Excel Features & Review	Parts of 5 - 9
Week XV –	Final Exam	

*This schedule is subject to change