IEE 512 (14714)
Introduction to Financial Engineering
Syllabus Spring 2014

Lecture Hours	Tuesdays and Thursdays 12:00 PM – 1:15PM
Classroom:	BYAC (Brickyard Courtyard) 240
Instructor	J. René Villalobos Rene.Villalobos@asu.edu Phone: (480) 965-0437 Office: BYENG 322 Office Hours: W, TH, 10:30 AM-noon or by appointment
Required Text:	*Investment Science* (Second edition) by David G. Luenberger, Oxford Press
Required Reading:	*All about Investing: The easy way to get started* by Esme Faerber, McGraw Hill
Reference books:	*Investments* by Bodie, Kane and Marcus *Financial Engineering* by Lawrence C. Galtiz, Irwin *Quantitative Finance by T.W. Epps*
Additional Reading	*Capital Ideas: The Improbable Origins of Modern Wall Street* by Peter Bernstein *When Genius Failed: The Raise and Fall of Long-Term Capital Management* by Lowenstein
Prerequisites:	IEE376, IEE300, IEE470 or equivalent or permission of instructor.
Additional requisites	Passing introductory exam with a grade of 80/100 or higher, you will need to bring to class a laptop computer with access to internet.
Course Description:	This course will be an intensive/exploration/hands on course that will consist of three phases, Phase I will be a preparation phase in which the student will acquire on his/her own all the terminology and financial lingo to be used throughout the semester. Examples of the topics to be covered in this phase include from basics such as principles of corporations, definition of the different types of stocks, options, other derivatives and financial ratios to more advance topics such as assessment of stock volatility. The second Phase will introduce more advanced financial topics such as portfolio formation, assessment and traditional portfolio theory. In the third phase of the course we will explore Financial Engineering topics such as the application of stochastic models to stock and derivatives pricing and risk management.

Additional notes:

- There will be three exams: an introductory exam after on the fourth week of the course, a second one after the second phase of the course and a final examination. The introductory exam will cover general terminology and concepts that you will, mostly, learn on your own from readings assigned in class and from reading the book by Faerber. In addition this exam will include concepts of time-value of money and other concepts from Engineering Economy. Those students who do not obtain a grade above 80/100 in this introductory exam will be strongly encouraged to drop the class.
- There will a major project during the semester. The project will include: a proposal for the project,

gathering the relevant data, analyzing the data, applying relevant models, giving appropriate recommendations and a final report

Course Organization:
The setting of the class will be a combination of lectures and workshops. During the lectures the instructor will introduce the concepts of theory, during the workshops we will apply those concepts to real data that we will get from different sources (Internet, WSJ, research).

Course Outline

Financial Terminology and Introduction to Financial Engineering
Introductory Exam
Theory of Interest
Introduction to Fixed Income Securities
Introduction to statistical models in Financial Engineering
Mean Variance Portfolio Theory
The Capital Asset Pricing Model (CAPM)
Forwards, futures and Swaps
Midterm Examination
Financial Engineering: Discrete Models
Introduction to Financial Stochastic Models
Advanced Option Pricing
Real options
Advanced topics on risk management

Grading

Introductory Exam	60 pt.
Mid-term Exam	100 pt.
Term Project	100 pt.
Special Assignments and Class participation	40 pt.
Final Exam	100 pt
Total Points	400 pt

The "90/80/70/60%" may be applied but the instructor reserves the right to "curve" the final points in order to determine individual grades.

The teaching plan (available in the web site for the course) lists the reading assignment for the semester. The student will be responsible for this material at the date listed in the teaching plan. The student is expected to attend lectures and complete all homework and exercises. The subject matter of this course is not exceedingly difficult; however, is an intensive course with a demanding work schedule. Failure to keep pace with the course will result in a written warning the first time and subsequent violations can result in dismissal from the class with a grade of E. Plan for the workload and do not over commit yourself.

ASU's Academic Integrity Policy and Student Code of Conduct can be found at:
http://www.asu.edu/studentlife/judicial/index.html

You are expected to be familiar with and abide by this policy and code.