



SOCIETY OF ACTUARIES

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"You bet. Can you imagine how a worker feels when he is told, 'OK, use this \$800,000 piece of equipment; don't break it; and don't hold up the line?'" Thanks to virtual reality training, workers are "95 to 98% trained when they walk on the factory floor the first day."

Educators at Brown University, a leader in CAL, agree that this type of training provides a comfort level unattainable in other forms of teaching. According to Brown spokesperson

Tracy Sweeney, medical students use virtual reality in some classes.

The university also has developed "hypermedia" courses for literature, history, and culture, a technology until recently used only by the military. Hypermedia links unrelated subjects so that students studying one subject can press a button and get related information from another academic discipline. For example, a student reading *Uncle Tom's Cabin* for literature class can call

up information on how the book relates to American history.

The uses of technology for professional continuing education are extremely valuable. As Paton points out, Motorola's experience with self-administered desktop training shows that the more self education done, the lower the costs to a company over an employee's lifecycle.

SOA course now focuses on derivatives

by Judy Strachan
SOA Education Actuary

Derivative securities have been frequent news items in the last year. Many institutions, such as Proctor & Gamble and Orange County, California, have lost billions of dollars investing in derivative securities.

The mathematics of pricing and analyzing derivatives securities is complex and understood by few people. This complexity provides the actuary who has strong analytic and quantitative skills a potential employment advantage over other professions. However, actuaries must first become familiar with the mathematical models and techniques necessary to quantify

the risks in a derivative security.

Recognizing this potential and the need for further education, the Finance Track of the Society of Actuaries examination system restructured Course F-480, formerly Advanced Asset/Liability Management. F-480 is now Derivative Securities: Theory and Application. It covers the theory of option pricing using the textbook, *Options, Futures and Other Derivative Securities*, by J.C. Hull. Also included on the course is the report, "Derivatives: Practices and Principles," published by the Group of 30 in July 1993. The Group of 30 is an organization comprised of 30 international banks,

chaired by Paul Volker. This study note covers regulatory and accounting issues related to derivative securities.

The Society's education system now allows Fellows who wish to sit for exams, including Course F-480, to do so for continuing education purposes.

A complete list of references for Course F-480 is shown below. To keep the course of reading current, the Finance Track Education Objectives Committee currently seeks comments on these readings, as well as suggestions for additions. Please send any comments or suggestions to Judy Strachan at the Society office.

COURSE F-480 — DERIVATIVE SECURITIES: THEORY AND APPLICATION (15 Credits) Elective

A) Option Theory & Stochastic Calculus

The readings in this section cover forward and futures contracts, Black-Scholes analysis, stock options, pricing derivatives securities, hedging, and the mathematics of stochastic calculus.

Published Reference (must be secured by candidate): *Options, Futures and Other Derivative Securities* (Second Edition), 1993, by J.C. Hull, Chapters 1, 2, 3 (include Appendix A),

4, 5, 7-9, 10 (include Appendices A and B), 12 (include Appendix A and B), 13 (exclude 13.6-13.10 and Appendix A), 14 (include Appendix A), 15.

Study Note: #480-26-95, Stochastic Calculus without Tears

B) Multivariate Analysis

The readings in this section cover the analysis of the effects of non-parallel yield curve shifts for asset/liability management.

Study Notes:
#480-21-92, Non-Parallel Yield Curve Shifts and Durational Leverage
#480-23-93, Non-Parallel Yield

Curve Shifts and Immunization
#480-25-92, Bond Portfolio Immunization: Tests of Maturity, One-and Two-Factor Duration Matching Strategies

C) Applications

The readings in this section cover various applications of tools and techniques of asset/liability management. Study Notes:

#480-27-92, A Generalized Framework for Pricing Contingent Cash Flows
#480-31-94, Derivatives: Practices and Principles (pp. 25-64)