Actuarial Mathematics II, Math 631

- **Rationale**

  The Math 630/631/632 is designed to introduce students to the mathematical content of the theory of life contingencies and financial economics. The sequence includes material from several new Examinations of the Society of Actuaries (SOA) and the Casualty Actuarial Society (CAS), especially Exam M. The sequence is required for the undergraduate major in actuarial science.

  SOA and CAS recently enlarged its Exam M. New material on financial economics is added, and the exam is split into two parts, Exam MLC (life contingency) and Exam MFE (financial economics). To reflect this change in Exam M, the number of credits of each course in the sequence needs to be increased from 3-credit to 4-credit. The old material of the sequence is redistributed to 630, 631 and a third of 632, and two thirds of 632 is used to cover the new financial economics material.

- **Prerequisite**

  Mathematics 630 or permission of instructor.

- **Text**

  Actuarial Mathematics, 2nd edition, Newton L. Bowers, Jr., et al, SOA, 1997.

- **Syllabus**

Week 1 & 2	Analysis of Benefit Reserves
Week 3	Joint Distributions of Future Lifetimes, Joint-Life Status, and Last-Survivor Status, Dependent Lifetime Model
Week 4	Insurance and Annuity Benefits, Special Mortality Assumptions
Week 5	Simple Contingent Functions and Their Evaluations
Week 6	Multiple Decrement Models, Two Random Variables
Week 7	Random and Deterministic Survivorship Group, Single Decrement Tables
Week 8	Multiple Decrement Tables, Actuarial Present Value, Benefit Premiums and Reserves
Week 9	Valuation of Pension Plans
Week 10	Disability Benefits with Individual Life Insurance

- **Grade**

  Two midterms at 100 points each, and a final exam at 200 points. The course grade is based on the total 400 points.

- **Disability Statement**

  Students with disabilities that have been certified by the Office for Disability Services will be appropriately accommodated, and should inform the instructor as soon as possible of their needs. The Office for Disability Services is located in f 50 Pomerene

Hall, 1760 Neil Avenue; telephone 292-3307, TDD 292-0901;
`http://www.ods.ohio-state.edu`.

- **Academic Misconduct Statement**

  It is the responsibility of the Committee on Academic Misconduct to investigate or establish procedures for the investigation of all reported cases of student academic misconduct. The term "academic misconduct" includes all forms of student academic misconduct wherever committed; illustrated by, but riot limited to, cases of plagiarism arid dishonest practices in connection with examinations. Instructors shall report all instances of alleged academic misconduct to the committee. For additional information, see the Code of Student Conduct
  (`http://studentaffairs.osu.edu/resource-csc.asp`).