



**ACMA 445-3
SURVIVAL MODELS**

**Spring 2002
EVENING COURSE**

Instructor: **KEN COLLINS**

Prerequisite:

ACMA 320

Required Text:

Survival Analysis, 1997, by Klein, J.P., and M.L. Moeschberger, publisher: ACTEX

Recommended Text:

ACTEX Study Manual for Course 160

Survival Models and Their Estimation, third edition by D. London, publisher: ACTEX

Calendar Description:

Actuarial survival models: select, aggregate, study design. Mathematics of survival models: distribution of T, parametric survival models, conditional and truncated distributions, transformed random variables. Life table: traditional form, fractional ages, select and ultimate tables. Estimating survival models from complete data samples: study design, exact time of death, grouped times of death. Estimating survival models from incomplete data samples: study design, moments procedures, maximum likelihood procedures. Estimation of parametric survival models. Evaluation of estimators from sample data. Aids: survival analysis of persons testing HIV+. This course covers the syllabus of course 160 of the Society of Actuaries.

Outline:

This course covers the fundamentals of actuarial survival models. The topics covered correspond to the parts of course 3 and 4 of the Society of Actuaries and they include the following:

1. Actuarial Survival Models: select, aggregate, study design.
2. Mathematics of Survival Models: Distribution of T, parametric survival models, conditional and truncated distribution, transformed random variables.
3. Life Table: Traditional form, fractional ages, select and ultimate tables.
4. Estimating Survival Models from Complete Data Samples: Study design, exact time of death, grouped times of death.
5. Estimating Survival Models from Incomplete Data Samples: Study design, moments procedures, maximum likelihood procedures.
6. Estimation of Parametric Survival Models.
7. Evaluation of Estimators from Sample Data: Actual ages, insuring ages, fiscal ages.
8. Other Issues: Valuation schedule formulas, practical issues, actuarial studies.
9. AIDS: Survival analysis of persons testing HIV+.

Grading:

Assignments: 10%

Midterm: 40%

Final Exam: 50%

Students should be aware that they have certain rights to confidentiality concerning the return of course papers and the posting of marks. Please pay careful attention to the options discussed in class at the beginning of the semester.

Revised October 2001