ST. JOHN’S UNIVERSITY
NEW YORK

THE PETER J. TOBIN COLLEGE OF BUSINESS

Department of Risk Management, Insurance & Actuarial Science

SYLLABUS

Course title: Loss Models (II)  Submitted: Fall 2014
Course number: ACT 4348  Dr. Ping Wang
DEPARTMENT

Risk Management, Insurance & Actuarial Science

COURSE NAME
Loss Models (II)

COURSE NUMBER
ACT 4348

COURSE DESCRIPTION

This is the second of a two-course series that covers the theory and applications of actuarial modeling. It focuses on the properties and applications of specific loss count and loss severity distributions. Certain estimation methods like percentile matching, maximum likelihood estimation, Bayesian estimation and credibility theory are also introduced.

PREREQUISITE
ACT 4347.

CREDIT

3 credit hours

OBJECTIVES OF THIS COURSE

After finishing this course, students are expected able to use statistical methods to estimate parameters of actuarial models given sample data, identify steps in the modeling process, understand the underlying assumptions implicit in each family of models, recognize which assumptions are applicable in a given business application, and appropriately adjust the models for impact of insurance coverage modifications.

Together with Act 4347, this course prepares students for the preliminary exam C of Society of Actuaries and Course 4 of Casualty Actuarial Society.
TOPICAL MODULES

I. Parametric statistical methods (4-5 weeks)
   i. Parameter estimation
   ii. Model selection

II. Credibility (4-5 weeks)
   i. Limited fluctuation creditability theory
   ii. Full and partial credibility
   iii. Greatest accuracy credibility
   iv. Empirical Bayes parameter estimation

III. Simulation (2 weeks)
   i. Simulations for specific distributions
   ii. Applications in actuarial modeling

METHODS OF INSTRUCTION

Lectures, discussions, and exercises.

SUGGESTED STUDENT PERFORMANCE EVALUATION

ASSESSMENT

Student performance will be assessed on homework, quizzes, midterm exams and final cumulative exam.

All examinations and quizzes are closed book and closed notes. Students may bring the same table as provided on SOA Exam C. SOA-approved electronic calculators may be used in all exams and quizzes.

TEXT BOOK

<table>
<thead>
<tr>
<th>Title</th>
<th>Loss Models: From Data to Decisions</th>
</tr>
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<tbody>
<tr>
<td>Authors</td>
<td>Klugman, S.A, Panjer, H.H., and Willmot, G.E</td>
</tr>
<tr>
<td>Publisher</td>
<td>Wiley-Interscience</td>
</tr>
<tr>
<td>Date</td>
<td>2012, 4th edition</td>
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