Course Description
This course continues a study of the loss modeling processes introduced in Loss Models I. After a review of mathematical statistics, we will examine the application of statistical methods to sample data to both calibrate and evaluate the various models presented. Credibility theory will also be discussed. Throughout the semester students will have the opportunity to demonstrate their understanding through practice problems, quizzes, computer assignments and exams. The course is guided toward the professional actuarial exams; however, the actuarial exams will not determine the entire content or pace of the class. The course syllabus provides a general plan for the course; deviations announced to the class by the professor may be necessary.

Course Objectives
- Teach the theoretical foundations of actuarial mathematics.
- Develop critical thinking to solve complex problems from first principles rather than from memorization.
- Encourage students to present their own analysis in a confident, organized and coherent manner.
- Incorporate examples and problems, both in class and as assignments, that link theory with real world applications.
- Provide an opportunity to use computers in problem solving as computer work is critical for understanding Course C/Exam 4 material.
- Provide sufficient background for the Course C/Exam 4 SOA/CAS exam.

Course Materials
- A copy of this text along with its solutions manual is on reserve in the School of Business library.
- The errata link for this text is: http://www.soa.org/files/pdf/edu-loss-models-errata-corrections.pdf
- Supplemental readings and documents available from the class web page or distributed in class. (HO)

Academic Integrity
You are responsible for maintaining the highest standards of honesty and integrity in every phase of your academic career. The penalties for academic dishonesty are severe and ignorance is not an acceptable defense. All students must abide by the code of academic honesty of the University of Wisconsin – Madison which is available from the Office of the Dean of Students or the following website: http://www.wisc.edu/students/saja/misconduct/academic_misconduct.html. You are responsible for informing yourself about these standards before performing any academic work. It is my responsibility to uphold the University’s academic honest policy and report my suspicions of dishonesty to the Office of the Dean of Students.
**Attendance**

Lecture attendance is strongly advised. Exams will be based primarily on material covered in class. Should you miss class for any reason, it is your responsibility to obtain lecture notes from another student.

**Exam Policy**

There will be three exams during the semester, two midterms and one final exam. The midterm exams will not be cumulative, although there is some overlap in material from one midterm to the next. The final exam will be comprehensive, but with an emphasis on the most recent material. Exam topics will be announced the week prior to the exam. **All exams will be closed book and closed notes.** For all exams, you are also expected to have a small electronic calculator, having at least one memory and capable of taking a logarithm, exponential and square roots. Appendix tables that primarily consist of Appendix A and a portion of Appendix B in the text will be provided. These are the tables that are consistent with the ones used for the professional actuarial exams. Exams will consist of quantitative problems and short answer questions. Exam material will come from lectures, text and any material distributed in class or through the course web page (see below).

Please do not miss an exam. If you should miss a midterm exam because of a University approved excuse (e.g. written medical excuse), your final exam score will be used as the score for the missed exam.

**Quizzes**

There will be weekly quizzes except for the exam weeks. There will be no make-up quizzes for any missed quizzes. Quizzes are closed-book, closed note except for the appendix tables that will be provided.

Each weekly quiz will consist of one problem taken directly from the homework or text examples assigned during the previous week with at most some numbers simply changed. Quizzes will be during the first ten minutes of class. Your single lowest quiz score will be dropped.

**Computer Assignments**

There will be one or two Excel based projects. These will be group projects. Details of these assignments will be provided at the time of the first assigned project.

**Grade Composition**

<table>
<thead>
<tr>
<th>Exam</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Exam #1</td>
<td>25%</td>
</tr>
<tr>
<td>Exam #2</td>
<td>25%</td>
</tr>
<tr>
<td>Quizzes &amp; Computer Assignments</td>
<td>15%</td>
</tr>
<tr>
<td>Final Exam</td>
<td>35%</td>
</tr>
</tbody>
</table>

**Grade Scale**

Lower bounds for AB, BC, C, and D final grades will be no higher than 90, 80, 70, and 60 percent of the total available points, respectively. All other grades (A, B and F) will be determined at the end of the semester based upon the performance of the class. Grades will be curved if necessary.

**WEB Resources**

A course page has been established as a means for me to efficiently administer this class. The web page allows you to obtain a copy of the syllabus, obtain lecture notes, link to other important web pages, etc. You are responsible for accessing the course web page on a regular basis. You may log on to the web page through the following address: [http://courses.bus.wisc.edu](http://courses.bus.wisc.edu).

**Email**

Announcements regarding the class may be sent from me to you via mail. Any announcement sent via email is assumed to be communicated to the entire class. Thus, it is imperative you check your email regularly.

I will answer simple, factual questions via email; however, more thoughtful questions need to be asked during class, office hours, or review sessions. Email is useful for simple communication but is limited in the ability to develop firm understanding of material. Should you need to email me, please type AS 653 in the subject line. Otherwise, your email may be filtered into junk mail. I will respond to individual emails in a reasonable amount of time.
**Actuarial Science, Risk Management and Insurance (ASRMI) Homepage**

The address for the ASRMI homepage is [http://www.bus.wisc.edu/asrmi/](http://www.bus.wisc.edu/asrmi/). For those interested in the major, you should familiarize yourself with this site. Important dates, events, and announcements related to the ASRMI program appear here, as well as information regarding Career Opportunities, Scholarships, Career Fair, and other important topics.

**Actuarial Exam Information**

The following websites provide useful information on actuarial exams related to this class.

- **SOA Spring 2011 Info:** [http://soa.org/education/general-info/](http://soa.org/education/general-info/)
- **SOA Course C Exam:** [http://soa.org/education/exam-req/edu-exam-c-detail.aspx](http://soa.org/education/exam-req/edu-exam-c-detail.aspx)
- **SOA/CAS Exam C/4 Info:** [http://www.beanactuary.com/exams/exam4c.cfm](http://www.beanactuary.com/exams/exam4c.cfm)
- **Exam Fees:** [http://beanactuary.org/exams/pdf/fees.pdf](http://beanactuary.org/exams/pdf/fees.pdf)
- **Exam Dates:** [http://www.beanactuary.com/exams/cbt.cfm#dates](http://www.beanactuary.com/exams/cbt.cfm#dates)

**Special Needs**

Any student who feels that he or she may need an accommodation for a disability of any sort should consult with me as soon as possible so that appropriate arrangements may be made.
Spring 2011  
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Schedule of Topics*

All readings are to be done *prior* to class. Additional material, such as handouts, notes, announcements, etc., may be retrieved from the course web page or will be distributed in class. Please come prepared.

*The schedule is subject to change. Actual depth of coverage will depend on available time.

**Construction of Empirical Models**
- Review of Mathematical Statistics: Chapter 12 (KPW)
- Estimation for Complete Data: Chapter 13 (KPW)
- Estimation for Modified Data: Chapter 14 (KPW)

**Parametric Statistical Methods**
- Parameter Estimation: Chapter 15 (excluding 15.4, 15.6.4, 15.6.5) (KPW)
- Model Selection: Chapter 16 (KPW)

**Adjusted Estimates**
- Credibility: Chapter 20.1, 20.2, 20.3 (excluding 20.3.8), 20.4 (excluding 20.4.3) (KPW)

**Important Dates**
- CCLB Spring Social Kick-Off Event: Wed, Feb 2, 4pm (Tripp Commons)
- Exam #1: Tues, March 1 (in class)
- No Class (Spring Recess): Tues, March 15 & Thurs, March 17
- Exam #2: Thurs, April 14 (in class)
- ASRMI Spring Banquet: Fri, April 29
- SOA/CAS Exam C/4 Spring Registration Deadline: Thurs, May 5
- Last Day of Class: Thurs, May 5
- Final Exam: Tues, May 10, 2:45p.m. – 4:45p.m.
- SOA/CAS Exam C/4 Paper & Pencil Exam: Fri, June 17
- SOA/CAS Exam C/4 Computer-Based Testing: Fri, June 17 – Thurs, June 23
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Student Information Form

Name __________________________

Preferred name to be used in class __________________________

Major(s) _________________________

Expected Date of Graduation _________________________

Prior/Concurrent Math Courses (Indicated if you have taken or are taking these courses):

Math 221 ___  Math 222 ___  Math 234 ___

Prior/Concurrent Statistics Courses (Indicated if you have taken or are taking these courses):

Math 431 ___  Stat 309 ___  Stat 310 ___  Stat 311 ___  Stat 312 ___

Prior/Concurrent Actuarial Science Courses (Indicated if you have taken or are taking these courses):

AS/Math 303 ___  AS 300 ___  AS 301 ___  AS 650 ___  AS 651 ___  AS 654 ___

Please list any other math/stat/actuarial science courses that you have taken or are taking:

Please list any actuarial exams that you have passed:

Please list which actuarial exams you intend to take this Spring 2011:

What did you do during the summer of 2010? (e.g. internship, job, travel, etc.) Please provide some details such as who you worked for and where you worked.

Provide any other interesting information about yourself such as hobbies, hometown or plans for summer 2011.