

University of Toronto  
ACT 471 H1F  
Fall 2018  
Course Outline

Anh Tu Le and Sajjad Ahmad

# Syllabus Objectives and Introduction

- Advanced Ratemaking Methodologies
  - References:
    - re•in•sur•ance: A Basic Guide to Facultative and Treaty Reinsurance, 2010, Munich Reinsurance America, Inc.,  
[https://www.munichre.com/site/mram-mobile/get/documents\\_E96160999/mram/assetpool.mr\\_america/PDFs/3\\_Publications/reinsurance\\_basic\\_guide.pdf](https://www.munichre.com/site/mram-mobile/get/documents_E96160999/mram/assetpool.mr_america/PDFs/3_Publications/reinsurance_basic_guide.pdf)
    - Clark, D. R., “Basics of Reinsurance Pricing,” CAS Study Note, Revised 2014.
    - G.K. Fisher, L. McTaggart, J. Petker, and R. Pettingell, “Individual Risk Study Note”, Casualty Actuarial Society, 2017. Accessed 20171017,  
[http://www.casact.org/library/studynotes/Fisher\\_Individual\\_Risk\\_Rating\\_Study\\_Note\\_2017.pdf](http://www.casact.org/library/studynotes/Fisher_Individual_Risk_Rating_Study_Note_2017.pdf)
    - Anderson, D., Feldblum, S., Modlin, C., et al., “A Practitioner’s Guide to Generalized Linear Models”, 3<sup>rd</sup> Edition, February 2007
    - Goldburd, M., Khare A., Tevet, D. Generalized Linear Models for Insurance Rating, CAS Mongraph Series Number 5
    - Predictive Modeling Applications in Actuarial Science, Volume 1, edited by Edward W. Frees, Richard A. Derrig, Glenn Meyers, Cambridge University Press, 2014

# Syllabus Objectives and Introduction

(continued)

- Will not prepare for the SOA or CAS exam
- Will apply techniques and develop analyses on industry data
- Pre-requisites: ACT371 and ACT372
  
- Evaluation
  - 20%/5% - ratemaking report & presentation #1
  - 40%/5% - ratemaking report & presentation #2
  - 30% - ratemaking final exam
  - Penalties - 1% per day of lateness, maximum 5 days late. Reports will not be accepted after 5 days of being late; a grade of 0% will be assigned.

# Lesson Schedule

| Week       | Class Content  |
|------------|--|
| Sep 12     | Reinsurance – Overview of different contract types                       |
| Sep 19     | Reinsurance Pricing Calculations   |
| Sep 26     | Commercial Pricing - Experience and Schedule Rating                      |
| Oct 3      | Commercial Pricing – Retrospective Rating and Aggregate Excess Loss Cost |
| Oct 10     | <b>*** Submit Reinsurance Report and Presentation</b>                    |
| Oct 17     | Property GLM – Recap of ACT372, Introduction to R                        |
| Oct 24     | Property GLM – Introduction to GLM                                       |
| Oct 31     | Property GLM – PPV Frequency Model building                              |
| Nov 7      | <b>Reading Week – No Class</b>   |
| Nov 14     | Property GLM – Validating GLM Models                                     |
| Nov 21     | Property GLM - PPV Severity Model building and validation                |
| Nov 28     | Property GLM – Combining frequency and severity models                   |
| Dec 5      | <b>*** Submit GLM Report and Present GLM Results</b>                     |
| Dec 8 – 21 | Final Exam. 3 hours. Date is TBD.  |