

ATLAS Pilot Course: ACT475 - Insurance Products, Market, and Regulation with AXIS (Winter 2020)

Instructor:

Professor V. Zhang

Email: vicki@utstat.toronto.edu

Office Hours: Thursdays 2:30pm-4pm

Office: SS 6027A

Seminars: Fridays, 2-5pm

Seminar location: RW109 (Computing lab)

Teaching Assistant:

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Lab hours for you to practice or complete take-home assignments:

Reserved RW109 for ACT475: Wednesdays 4-6pm

TA will be holding lab office hour at RW109 on the following Wednesdays 4-5:30pm:

January 29, February 5, February 12, February 26, and March 11.

AXIS has been installed on all computers at RW109, RW107 and SS561. You may also use either of those three labs to do your AXIS homework as long as it is not reserved for other courses.

Check RW109 availability online: <http://lab.chass.utoronto.ca/rw109.php>

Check RW107 availability online: <http://lab.chass.utoronto.ca/rw107.php>

Check SS561 availability online: <http://lab.chass.utoronto.ca/ss.php>

Coursebook:

Zhang, V. & Ewener, J. (2014). *Uncalculated Risks: The transformation of insurance, the erosion of regulation, and the economic and social consequences*. Toronto: Canadian Scholar Press

Available for purchase at UofT bookstore and on Amazon.ca.

Also on course reserve at Robarts Library.

Student Evaluation:

1- Four 1-page (single-spaced) reading comments/reflections (20%) – **Due end of day Thursdays**

The comments are an opportunity to reflect upon the readings in a way that will provide a stimulus and focus for class discussion. Every week I will provide a few prompt questions for you to reflect upon as you read. You should structure your reflective comments around one or two prompt questions. You should not summarize the readings. Instead you should take a position or sketch an argument with regard to at least one of the prompt questions I posed. You are welcome to research and consult other sources to help form your opinions (if so please quote your source).

There are eight opportunities to write reading comments (see below). You may choose which weeks you will be writing reading comments, as long as you write four comments in total throughout the semester. You must submit your comments on Quercus by **end of day Thursday, before the class in which the material is to be discussed. Late papers will not be accepted.**

2- In-class pop quizzes on readings or on AXIS (25%)

Regardless of whether you have written a comment for the week's readings, you will be expected to display familiarity with assigned readings during discussions and quizzes.

3- Take-home AXIS assignments (35%)

4- Student Roundtable (5%)

Active and informed participation in class discussions at the Student Roundtable (last seminar).

5- Final paper (15%): 4-6 pages (single spaced). Submit electronically in word format.

Elaborate on a topic of your choice. The topic should be closely related to one of the seminar topics. You can reflect on perspectives of multiple stakeholders and you may emphasize your personal perspective. Any tentative proposal for a future product development and/or regulatory system is welcome. You can include any changes in your attitude and opinions on the subject matter before and after the course, concrete steps you plan to go forward, and further questions you would like to explore in your future studies.

Schedule of Topics:

1) January 10: Welcome and Introduction

- Some questions to discuss:
 - Personal stories related to the insurance industry – what do you know about the industry/product/market/regulation? Any experience to share as a consumer/policyholder, the child of someone working in the industry, an intern working for the industry, etc?
 - If you have no direct contact with the industry, what do you think is the role of the industry in our economy and society?
 - How do you imagine the relationship between the industry and its regulators – “is vs. ought to be”?
- AXIS:
 - Introduction, general structure of AXIS

2) January 17: Chapter 1.

- A brief and general history of financial deregulation (1970s-80s)
- AXIS: Whole life policy modeling Part I (Regular Life Module).
- Reading comments for Chapter 2

3) January 24: Chapter 2.

- Implications of new economic environment and financial deregulation on the insurance industry and the industry's responses
- AXIS: Whole life policy modeling Part II (Regular Life Module).
- **AXIS take-home assignment #1**
- Reading comments for Chapter 3

4) January 31: Chapter 3.

- Insurance regulators' reactions to the industry changes in product offering and asset investments
- AXIS: Understanding AXIS Reports
- **AXIS take-home assignment #2**
- Reading comments for Chapter 4&6

5) February 7: Chapters 4 & 6 (and 8 – Part 1).

- Enterprise risk management (ERM) incentives and disincentives
- ERM technique 1: Reinsurance and “shadow (re)insurance”
- AXIS: Universal life policy modeling Part I (Universal Life Module).
- **AXIS take-home assignment #3**
- Reading comments for Chapter 8

6) February 14: Chapters 8 (Part 2) & 7.

- Common use of derivatives by the insurance industry, derivatives regulation
- ERM technique 2: Derivative hedging
- AXIS: Universal life policy modeling Part II (Universal Life Module).
- **AXIS take-home assignment #4**
- Reading comments for Chapter 11

February 21: Reading week. No class, office hour, or TA lab office hour. You can use RW 109, RW 107 or SS561 to do AXIS homework or practice AXIS.

7) February 28: Chapters 11.

- Modeling challenges in insurance industry: Market risk modeling of variable products
- AXIS: Introduction to Annuities Module.
- Reading comments for Chapter 9

8) March 6: Chapter 9.

- ERM technique 3: Insurance Securitization
- AXIS: Variable Annuity modeling (Annuities Module).
- **AXIS take-home assignment #5**
- Reading comments for Chapter 14 & 15 & 16

9) March 13: Chapters 14 & 15 & 16.

- Introduction on insurance regulation now and then
- The current “rules-based” model and “principles-based” model; implication of the regulatory paradigm shift
- AXIS: Advanced topic – Statutory and GAAP Reserves Methodologies in AXIS

10) March 20: New Solvency Capital Regulation (LICAT) in Canada

- New Canadian Solvency Capital Regulation: Life Insurance Capital Adequacy Test (LICAT)
- AXIS: Advanced topic – Hedging in AXIS

11) March 27: Predictive Modeling / “AI” and Insurance

- The use of predictive analytics in the insurance industry (focusing on life and health insurance)
- AXIS: Advanced topic – Neural Network Application in AXIS (tentative)
- Reading comments for Chapter 21 & 22

12) April 3: Student Roundtable.

- Two categories of limitations of technocrat-centric self-regulation
- Tentative proposals of change – sectoral and geographic regulation convergence? Re-establishing the sectoral “Chinese Wall”?
- Private vs. public provision of retirement protection
- “AI” and insurance
- Exit discussions

Missed Assignments or Quizzes

- There is no make-up for course assignments and quizzes.