

ACTUARIAL SCIENCE AT THE UNIVERSITY OF MANITOBA

Jeffrey Pai, Ph.D. ASA P.Stat., ACIA

Professor and Director

Warren Centre for Actuarial Studies and Research

HISTORY OF THE WARREN CENTRE

- ✘ The actuarial program was first established at the University in 1912 under the leadership of Professor L.A.H. Warren.
- ✘ In 2009, the Warren Centre was named a Center of Actuarial Excellence (CAE) by the Society of Actuaries (SOA)
- ✘ Named as the best actuarial program in Canada by the 7th Annual Knight Schools Survey in 2010
- ✘ Accredited by the Canadian Institute of Actuaries (CIA) for its University Accreditation Program (UAP) in 1011.

PROGRAMS OFFERED BY THE WARREN CENTRE

The Warren Centre, in association with the Asper School of Business and the Faculty of Science offers programs leading to the following degrees:

- ✘ BComm (Hons) Actuarial Mathematics
- ✘ BSc (Hons) Actuarial Mathematics
- ✘ BSc (Hons) Actuarial Mathematics and Statistics Joint Program

SCIENCE Vs. COMMERCE

Courses required/recommended for BOTH programs:

ECON 1010	ECON 1020	Written course "W"	
STAT 1000	MATH 1300	MATH 1500	MATH 1700
STAT 2400	STAT 3400	MATH 2720	MATH 2730
ACT 2120	ACT 2020	ACT 3130	ACT 3230
ACC 1100	FIN 2200	MSCI 2150	GMGT 2010

SCIENCE Vs. COMMERCE

FACULTY OF SCIENCE

Required for Science program:

- ✘ MATH 2300
- ✘ 5 additional ACT courses (2210, 3340, 4140, 4340, 4060)
- ✘ 5 additional STAT courses (2000, 3050, 3800, 3470, 3490)
- ✘ 4 additional STAT for Stat-AM (3480, 4100, 4520, 4530)

ASPER SCHOOL OF BUSINESS

Required for Business program:

- ✘ 13 more Core courses including:
- ✘ 6 Business Option (ACT 2210, 3340, 4140, 4340, IDM 4050, FIN 3410)
- ✘ 2 more Elective (STAT 3800, W)

OTHER OPTIONAL PROGRAMS

AM CO-OP PROGRAM FOR BCOMM STUDENTS

- ✘ Students can enrol in the program at the beginning of Year 2 or Year 3.
- ✘ The program consists of a total of 7 Academic Terms and 3 Work Terms.
- ✘ The first Work Term can be taken as early as Year 2 Summer Term.
- ✘ At most two Work Terms can be taken consecutively.
- ✘ Each Work Term counts for 1 academic credit towards a business option course.
- ✘ Students have to come back to school for Academic Term 7 to complete the program.
- ✘ Students wishing to enrol in the co-op program should see the Career Development Centre for application details.

MANAGEMENT MINOR FOR BSC STUDENTS

- ✘ For entry to the Minor, the prerequisite is a grade of "C" or better in the first 6 hours of Business courses.
- ✘ The Management Minor will consist of any 18 hours of credit in courses offered by the Asper School of Business.
- ✘ To achieve the 18-hours requirement, you can count the following four required courses:
 - + ACC 1100 Intro Financial Accounting
 - + FIN 2200 Corporate Finance
 - + MSCI 2150 Intro to Management Sciences
 - + GMGT 2010 Business Communications
- ✘ Students planning to enrol in this minor must consult a Faculty of Science student advisor.

COURSES OFFERED BY THE WARREN CENTRE

The Warren Centre currently offers ten actuarial courses:

- ✘ ACT 2120 Interest Theory
- ✘ ACT 2020 Economic and Financial Applications
- ✘ ACT 2210 Introduction to Risk Management
- ✘ ACT 3340 Financial Derivatives for Actuarial Practice
- ✘ ACT 3130 Actuarial Models 1
- ✘ ACT 3230 Actuarial Models 2
- ✘ ACT 4060 Actuarial Aspects of Investment Practice
- ✘ ACT 4140 Actuarial Modeling Methods 1
- ✘ ACT 4340 Actuarial Modeling Methods 3

VEEs

“VEE requirements are completed by receiving a specified grade on VEE-approved college classes, online courses, or standardized examinations. The VEE subjects consist of Economics, Corporate Finance, and Applied Statistical Methods.”

VEE	Approved University of Manitoba courses					
Economics	ECON 1010 (B) +	OR	ECON 1200 (B)	OR	ECON 2450 (B) +	ECON 2470 (B)
Corporate Finance			ACC 1100 (B) +			FIN 2200 (B)
Applied Statistical Methods	STAT 3470 (B) +	OR	STAT 3120 (B) +	OR	STAT 3490 (B)	IDM 4050 (B)

SOA EXAMS

Exam P/1

The syllabus for Exam P develops the candidate's knowledge of the fundamental probability tools for quantitatively assessing risk. The application of these tools to problems encountered in actuarial science is emphasized. A thorough command of the supporting calculus is assumed. Additionally, a very basic knowledge of insurance and risk management is assumed.

STAT 2400 and 3400 cover 21 of 23 SOA Learning Objectives for Exam P.

Exam FM/2

The syllabus for Exam FM develops the candidate's understanding of the fundamental concepts of financial mathematics, and how those concepts are applied in calculating present and accumulated values for various streams of cash flows as a basis for future use in: reserving, valuation, pricing, asset/liability management, investment income, capital budgeting and valuing contingent cash flows. The candidate will also be given an introduction to financial instruments, including derivatives, and the concept of no-arbitrage as it relates to financial mathematics. A basic knowledge of calculus and an introductory knowledge of probability is assumed.

ACT 2120 and ACT 2020 cover all SOA Learning Objectives for Exam FM.

SOA EXAMS

Exam MFE/3F

The Models for Financial Economics (MFE) Exam is a three hour multiple-choice examination. Exam MFE is offered via computer-based testing (CBT). It is called Exam MFE by the Society of Actuaries and Exam 3F by the CAS.

Exam MFE should be attempted after completing ACT 3340.

Exam MLC

Exam MLC consists of three hours of multiple-choice questions. A 15 minute read-through time will be given prior to the start of the exam.

Exam MLC can be attempted after completing ACT 3130, and ACT 3230 which cover all SOA Learning Objectives.

SOA EXAMS

Exam C/4

Exam C is a three and a half hour multiple-choice examination and is identical to Casualty Actuarial Society (CAS) Exam 4.

Exam C is offered via computer-based testing (CBT).

Learning Objectives for Exam C are covered by ACT 4140 and ACT 4340.

CIA UNIVERSITY ACCREDITATION PROGRAM

Accreditation program allows universities to recommend students for SOA exam exemption as they pursue their FCIA

- ✘ Exam FM/2: ACT 2120 (B) AND ACT 2020 (B)
- ✘ Exam MLC: ACT 3130 (B+) AND ACT 3230 (B+)
- ✘ Exam MFE/3F: ACT 3340 (A)
- ✘ Exam C/4: ACT 4140 (A) AND ACT 4340 (A)

FACULTY & STAFF

Jeffrey S. Pai
Ph.D., ASA, P.Stat., ACIA
Professor and Director
L.A.H. Warren Professor

Sam Cox, Ph.D. FSA, CERA
Chair of Warren Centre and
Professor

Xuemiao Hao, Ph.D.
Assistant Professor

Rui Zhou, ASA
Assistant Professor

Brenda French
Department Secretary

Adjunct Professors

Xikui Wang, Ph.D., P.Stat.
Professor & Associate Head
Department of Statistics

Milton Boyd, Ph.D.
Professor
Department of Agribusiness & Agricultural Economics

Part-Time Sessional Instructors

Jeff Strong, B.Comm., FSA, FCIA
Corporate Actuary, Manitoba Blue Cross

Justin Pursaga, B.Sc., FCAS
Manager -- Actuarial Analytics
The Wawanesa Mutual Insurance Company

Stephen Nighswander-Rempel, FSA, PhD, CERA
Actuarial Associate, Group Valuation, Great-West Life
Assurance Company

RESOURCES FOR STUDENTS

CAREER DEVELOPMENT CENTRE

- ✘ The Career Development Centre at the Asper School of Business specializes in helping Asper students and graduates to manage their current and future careers.
- ✘ The CDC assists with career research, resume writing, job search strategies, effective interviewing skills, business networking and professional development.
- ✘ A rich network of employers and companies across Canada contact the CDC when they're looking for business students and graduates who can make a meaningful contribution to their organizations.
- ✘ Visit the CDC's website at www.umanitoba.ca/asper/cdc for more information, as well as other resources such as job listings.

RESOURCES FOR STUDENTS

STUDY MANUALS

- ✘ Recent editions of ASM, CSM and ACTEX manuals are available for exams P/1, FM/2, MFE/3F, MLC and C/4 in the Cohen Library.
- ✘ Search Instructions
 - + 1) Open the library link: <http://umanitoba.ca/libraries/>
 - + 2) Click “Find: Course Reserves”
 - + 3) Click “Print Course Reserves”
 - + 4) Search “soa” from “Course number”
 - + 5) Click “SOA/CAS”
 - + 6) Click “WARREN CENTRE”

DEPARTMENT SECRETARY

- ✘ Brenda French can help to point you in the right direction for any questions you may have:
 - + Room 430 Drake Centre
 - + Phone: (204) 474-7426
 - + E-mail: french@cc.umanitoba.ca

RESOURCES FOR STUDENTS

UNIVERSITY OF MANITOBA ACTUARIAL CLUB

- ✘ The University of Manitoba Actuarial Club (UMAC) is focused on developing a network for Actuarial Students at the University of Manitoba.
- ✘ Its goals are to create awareness of developments in the actuarial field, and connect students with potential employers.
- ✘ UMAC also organizes many social activities that allow members to get to know each other, and have some fun while taking a break from studying.
- ✘ As a member of UMAC, you will be included in the annual resume book that is sent to over 150 companies in North America.
- ✘ In addition, the club hosts the Annual Fish Dinner, which draws attendance from the professional community across Canada, and features a guest speaker from the industry.
- ✘ UMAC is a great opportunity to learn about the SOA exams and meet some terrific people.
- ✘ Visit the UMAC website at http://www.umanitoba.ca/actuary_club/

AWARDS & SCHOLARSHIPS

There are many awards and scholarships available to actuarial students including:

- ✘ Manulife Actuarial Scholarship
- ✘ Great-West Life Actuarial Career Scholarship
- ✘ Sun Life Financial Scholarship in Actuarial Math
- ✘ Murray Segal Memorial Scholarship in Actuarial Studies
- ✘ And many bursaries

For more information, please visit

www.umanitoba.ca/actuarial/student/awards_and_scholarships.html

QUESTIONS



Thanks to Katherine Fay who made this PPT file