UT Austin Math

Mathematics Degree Options

- Bachelor of Arts Majors
  - Mathematics (23,14 and 8 - snapshot data from n = 128 May 2011, n = 66 December 2010, and n = 22 August 2011graduates: Davis, Hall, Brown)
  - *Teaching Option: Middle School or High School* (17, 9, and 3) – *Mark Daniels*

- Bachelor of Science Majors
  - **Option 1. Actuarial Science** (32, 21, and 2) 55/216=25%
  - Option 2. Applied Mathematics (3, 0, and 1)
  - Option 3. Mathematical Science (math and EE, ME, ECON classes)
    - Specialization in Statistics, Probability and Data Analysis (17, 7, and 0)
  - Option 3. Mathematical Science (math and CS classes)
    - Specialization in Scientific Computation (9, 4, and 4)
  - Option 4. Pure Mathematics (23, 11, 4)
  - *Option 5. Teaching: Middle School or High School – Mark Daniels*
  - Option 6. Mathematics Honors (by admission only) (4, 0, 0)

Who is an Actuary?

- Types of jobs
  - Insurance: Life, Auto, Health, Homeowners, LTD
  - Consulting: Defined Benefit pensions, Human resource consulting
  - Other: Maxwell, government, C.E.R.A.
- What is risk?
- Consistently ranked among top professions – *Jobs Rated Almanac*
- Pathways to the profession. Exams + GPA = Interview of student communication/intrapersonal skills.
- North American Actuarial Organizations
  - Society of Actuaries (FSA 13,707, ASA 8,897, CERA)
  - Casualty Actuarial Society (FCAS and ACAS 5,417)

University of Texas Actuarial Program – A Historical Sketch (information from Jim Daniel)

1912-1940: Edward Dodd (Math) occasionally teaches Actuarial Math, Advanced Life Insurance, Mathematics of Investment and Life Insurance

1948-1957: Ralph Lane (Math) develops program œ 1 graduate annually

1958: George Jordan and Dan Williams arrange community funding for professor. Actuarial program moved to Finance

1958-1962: Byron Cosby develops program in the Business College

1962-1968: David Beverage further develops the program in Finance Department

1968-1983: Program thrives under Gene Wisdom (Finance). Total enrollment 75. E.g. 17 graduates in 1980

1983-1986: Headed by Sam Cox in Finance. PVM Endowed professorship created.

1986-1989: Headed by Pat Brockett. Finance decides to

University of Texas Actuarial Program – A Recent History

1989-2010. Program saved and directed by Jim Daniel. Explosive growth with nearly 50 students graduating annually.

2000. MA program began. Supported four Teaching Assistants each year.

L. Vaaler begins teaching interest theory (enrollment below).

S01:68, F01:0, S02:71+40, F02:39, S03:36+40, F03:38+42, S04:32+39, F04:27+39, S05:29+30, F05:39+25, S06:23+30, F06:39+31, S7:34+39, F07:34+X

2006. The Buck Consultants associate director of actuarial studies.

2008. M. Cudina begins teaching in the program

2010-now. Program directed by Maxwell.

Main goals include (1) recruiting quality faculty (S. Harper, J. Mann) and (2) improved student communication and responsibility.

Program still experiencing some growth (see ACF 329 for example).

ASA Requirements | CERA Requirements | FSA Requirements

Exam P–Probability	**Exam FM–Financial Mathematics**	**Exam M–Actuarial Models–Financial Economics Segment (MFE)**	**Exam M –Actuarial Models–Life Contingencies Segment (MLC)**	**Exam C–Construction and Evaluation of Actuarial Models**
VEE[1] Economics	**VEE[1] Corporate Finance**	**VEE[1] Applied Statistics**	**Fundamentals of Actuarial Practice (FAP) e–Learning Course**	**Associateship Professionalism Course (APC)**

Choose a specialty track below and complete the requirements in that column (move your cursor over a track to activate). All candidates must complete DMAC and FAC.

Finance/ERM Track	Investment Track	Individual Life & Annuities Track **	Retirement Benefits Track **	Group & Health Track
Advanced Finance/ ERM Exam	Advanced Portfolio Management Exam	Individual Life & Annuities Company/ Sponsor Perspective (CSP) Exam	Retirement Benefits Company / Sponsor Perspective (CSP) Exam	Group & Health Company/ Sponsor Perspective (CSP) Exam
Financial Economic Theory & Engineering Exam	Financial Economic Theory & Engineering Exam	Individual Life & Annuities Design and Pricing (DP) Exam	Retirement Benefits Design and Pricing (DP) Exam	Group & Health Design and Pricing (DP) Exam
Financial and Health Economics Module	Financial and Health Economics Module	Financial and Health Economics Module	Financial and Health Economics Module	Financial and Health Economics Module

Actuarial Exams - UT courses

- Exam P/1: Calculus based Probability – M362K - *80%*
- Exam FM/2: Financial Mathematics – ACF329 and ACF129D (ACF 329 and part of proposed *M339D*)
- Exam MLC: Life Contingencies – M339U and M339V
- Exam MFE: Models for Financial Economics – M339W (Proposed part of *M339D* and M339W)
- Exam C/4: Construction of Actuarial Models – M339J and M349P

Recent Enrollment Figures (98% accurate, thanks to Colleen Morgan)

	Fall 2008	Spring 2009	Fall 2009	Spring 2010	Fall 2010	Spring 2011	Summer 11	Fall 2011	Spring 2012	*Summer 12*	*Fall 2012*	*Spring 2013*
M339D - Proposed											*X*	*X*
ACF 129D		52		72*	??	55		??	Maxwell			
M 139S		25		40		25			Not offerred			
ACF 329	36	31	36	34	41*	40	23 ➔ 16	45*	Harper	*L. Vaaler*	*X*	*X*
ACF 329	39	28	41	30	42*	38		45*	Mann		*X*	*X*
ACF 329											*X*	
M 339U	31		36		34			52			*X*	*?*
M 339U	45		36		41			43			*X*	
M339V		51		47		53			L. Vaaler			*X*
M339V									L. Vaaler			*X*
M339J		32		37		36			Maxwell			*X*
M339J		37		36		34			Cudina			*X*
M339W	38		36		63			39			*X*	
M349P	46		33		28			17			*X*	
M349R		48		48		50			Cepparo			*X*

Actuarial Program Thoughts

- Students: Culture shift to responsibility, ownership, and development of communication skills.
  - Issues with open enrollment. 40% failure rate in ACF 329
  - Communication skills
  - Soft landing area

- Teaching: How to be most effective
  - Teaching Assistants, graders, or smaller class size for U, V, W, P, J and *D*?
  - Class size and frequency, especially ACF 329
  - Writing components
  - Modify U and V. – currently working with L. Vaaler. Offer 1 section each of U and V both semesters to help with travel time. But this would make us more reliant on faculty
  - Split W and combine with ACF 129D. Create M 339D – Cudina proposal
  - Officially modify graduation requirements including M 325K

- Faculty: Recruit and retain exceptional faculty who want to advance the program.
  - Be less dependent on any one faculty member
  - Ideally faculty working toward actuarial credential
  - Tenure track member who could produce PhD? – C.A.E. requirement
  - Build ties with financial math, business, or statistics – Take advantage of CERA credential.

- Space: An environment were students can study and teaching faculty can best help.

- Other: