

2017

ANNUAL REPORT

CASUALTY
ACTUARIAL
SOCIETY



Expertise. Insight.
Solutions.®

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● CAS's Mission, Vision and Core Values

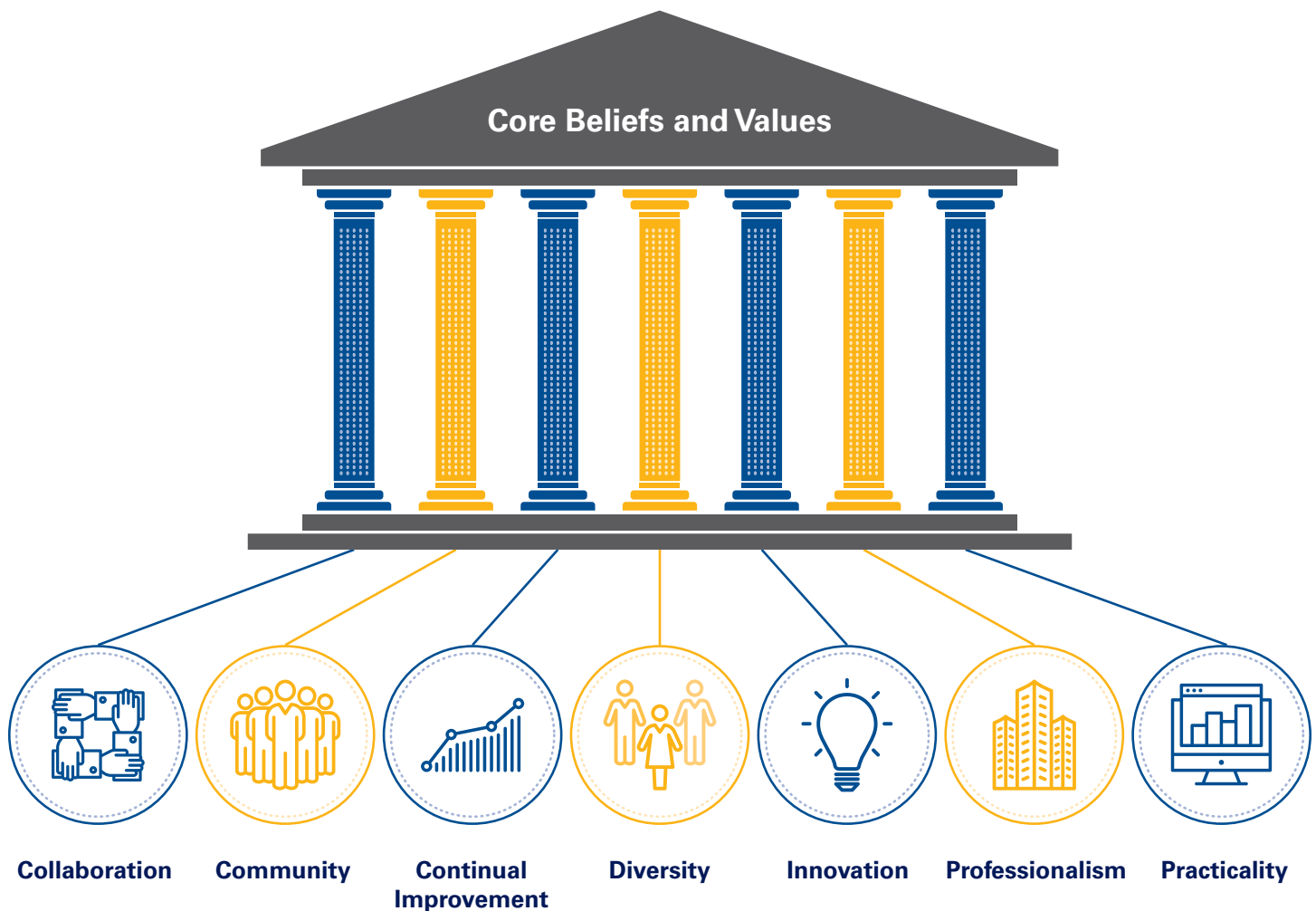
Mission Statement

The purposes of the Casualty Actuarial Society are to:

- Advance the body of knowledge of actuarial science applied to general insurance, including property, casualty and similar risk exposures.
- Expand the application of actuarial science to enterprise risk and systemic risks.
- Establish and maintain standards of qualification for membership.
- Promote and maintain high standards of conduct and competence.
- Increase the awareness of actuarial science.
- Contribute to the well-being of society as a whole.

Vision Statement

Actuaries are recognized for their authoritative advice and valued comment wherever there is financial risk and uncertainty.

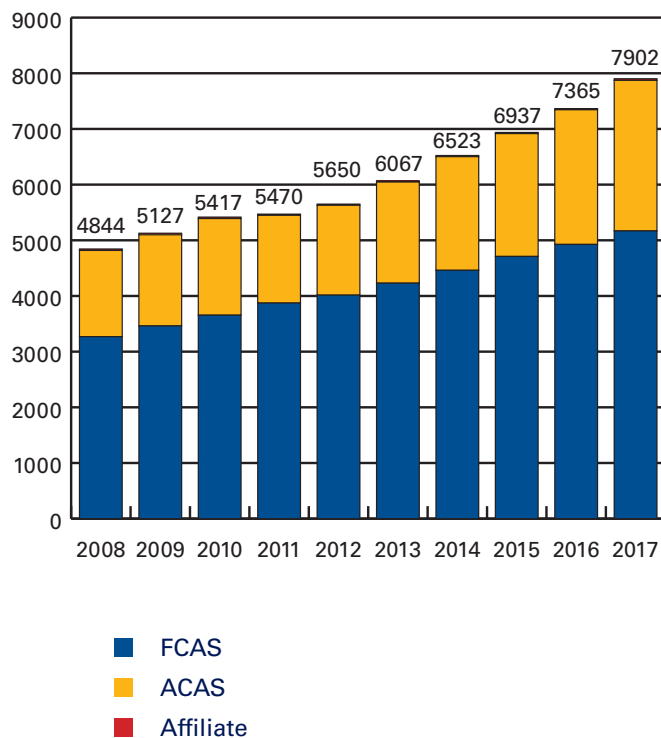


● Membership Demographics

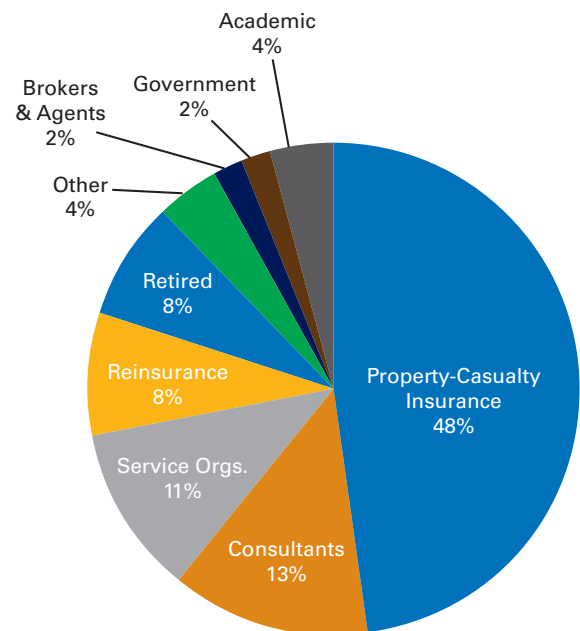
2017 Geographic Membership Distribution

Count of Country		
Country	2016	2017
United States	6,147	6,593
Canada	733	804
Bermuda	108	104
China	72	82
United Kingdom	54	58
Hong Kong	36	39
Switzerland	32	32
Singapore	29	34
Other	132	156
Grand Total	7,343	7,902

CAS Member Growth 2008-2017



CAS Members by Type of Employment

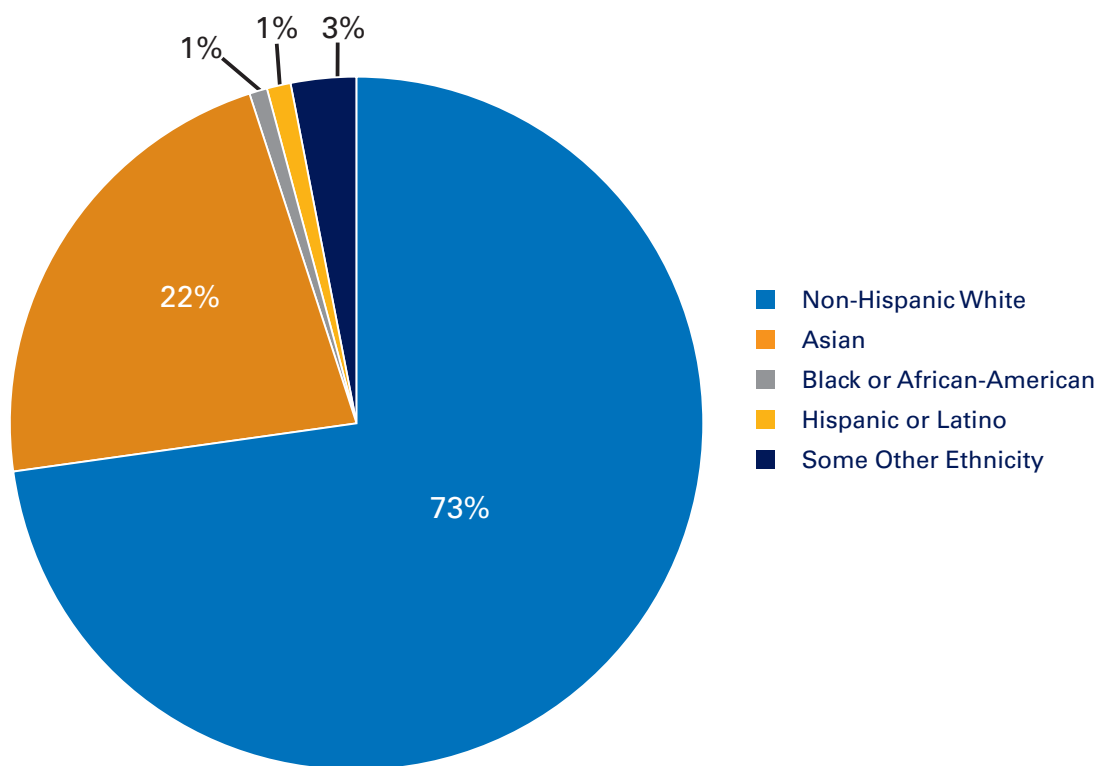


Diversity

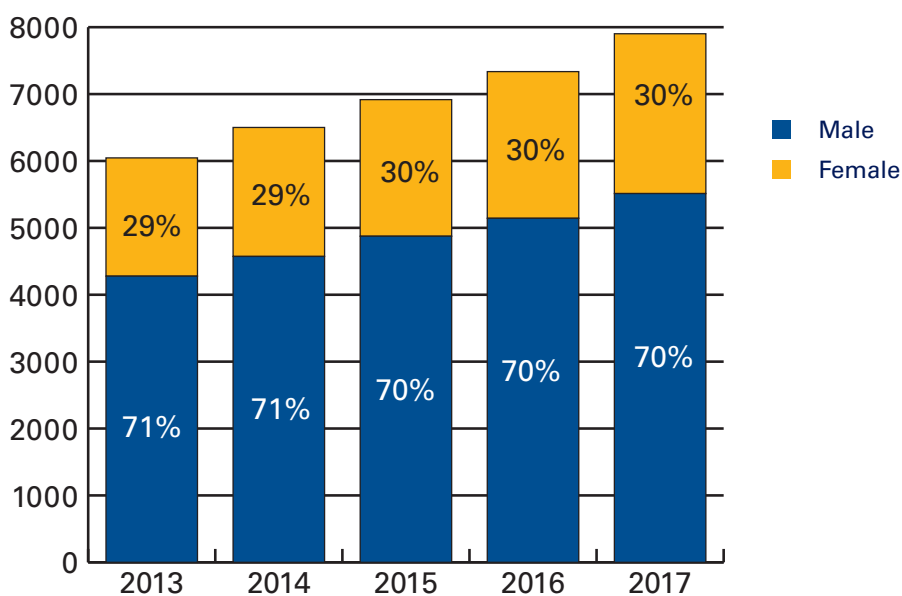
In 2015 the CAS Board of Directors adopted the CAS Diversity Strategy, formalizing the CAS's commitment to facilitating the evolution of a multidimensional property-casualty actuarial profession. The goal of the strategy is to increase the membership of underrepresented groups in the CAS.

To create a baseline to measure progress on membership diversity, the Diversity Committee captured current CAS membership demographics by ethnicity and gender.

2017 CAS Membership by Ethnicity



2017 CAS Members by Gender



● Volunteerism

CAS members value our community and the relationships formed through volunteer activities. In FY 2017, 2,467 out of 7,902 CAS members served as volunteers. That's 31.2% of the membership! Volunteer contributions spanned the entire range of CAS activities, including examinations, research and development and educational programs. The CAS is grateful for the continued support of employers who encourage their actuaries to volunteer their time and effort to the CAS. We are proud to recognize some of these employers.

Top Ten Employers of CAS Volunteers



Large Employers with at Least 40% of Members Volunteering

Willis Towers Watson

Zurich North America

PricewaterhouseCoopers

The Hartford

CNA Insurance Companies

Munich Re America, Inc.

Milliman, Inc.

United Services Automobile Association

Deloitte Consulting, LLP

Allstate Insurance Company

Aon Risk Solutions

Volunteer Recognition Program

The CAS launched a special volunteer recognition program. This new program will allow us to recognize hardworking volunteers who do a "swell" job on their committees. Nominated members received a custom CAS S'well bottle and a personal thank you note from the CAS president. Over 280 volunteers were recognized for their hard work by their committee chairs.

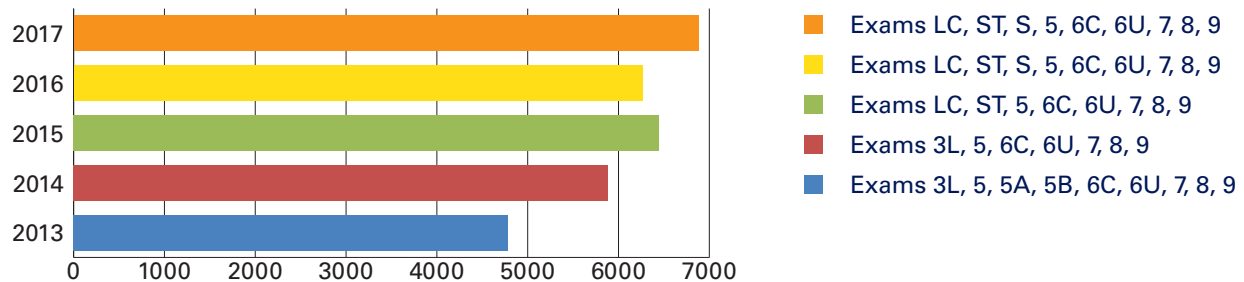


● Admissions and Examination Highlights

CAS Examinations, Spring and Fall 2017

Summary for CAS-specific Exams S, 5, 6C, 6US, 7, 8, 9	Total
Exams in the U.S. and Canada	5996
Exams Outside of the U.S. and Canada	886
Total	6882
Total Pass Ratio	48%
New Fellows	287
New Associates	466

Total Exam Registrants 2013-2017

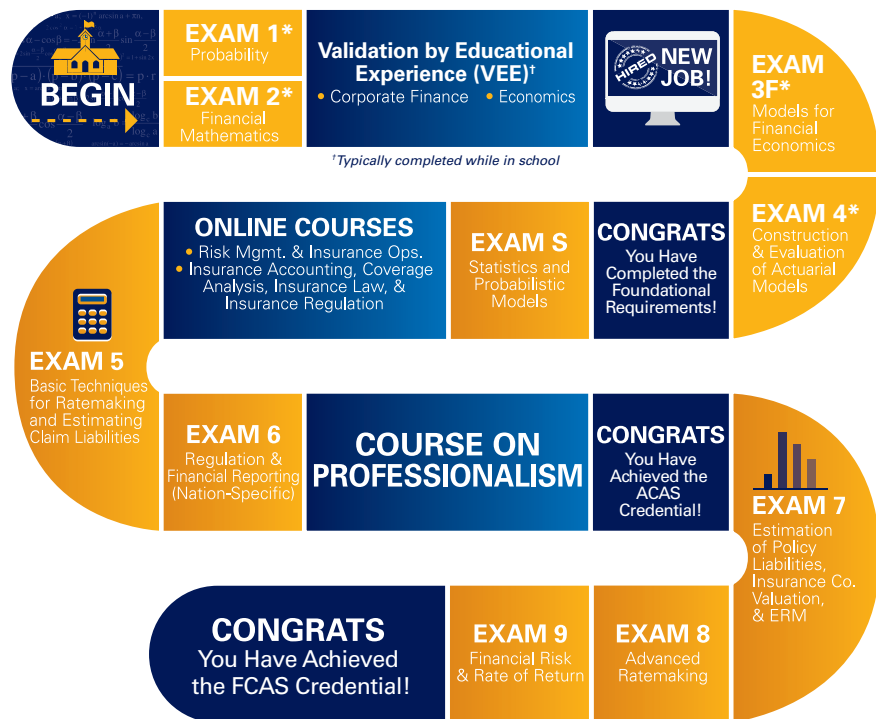


* Exams LC, ST, 5, 6C and 6U are given twice a year. Exam S was first given in Fall 2015 and is now offered twice a year.

** Exams 7, 8, and 9 are given once a year.

The CAS Path to Success

In principle and practice, the CAS is the gold standard for the property-casualty actuarial profession. With 100 years of experience and expertise, the CAS continues to focus on comprehensive exams and education that are uniquely relevant to property-casualty actuaries. Our CAS credentialing program is the program of choice for attracting top candidates and meeting employers' needs.



* The CAS will honor credits from candidates who pass examinations offered by other organizations that cover our CAS learning objectives for CAS Exams 1, 2, 3F, and 4 and VEE. These organizations include but are not limited to: Society of Actuaries, Canadian Institute of Actuaries, Institute and Faculty of Actuaries (UK), Actuaries Institute (Australia), Actuarial Society of South Africa, and Institute of Actuaries of India. For example, requirements for CAS Exams 1, 2, 3F and 4 can be fulfilled by passing the Society of Actuaries' Exams P, FM, MFE, and C, respectively.

Technology-Based Examination

On November 1, 2017, the CAS announced that it is transitioning its exams to a computer-based environment called Technology-Based Examination (TBE). Beginning with Exam 5 in spring 2018, candidates will use Excel to take their exams on personal computers that will be overseen by remote proctors. With this transformation of examinations, the CAS continues to evolve its basic education system. TBE will more closely imitate on-the-job assignments in which actuaries use computers for work, thus making CAS exams more relevant to real-life actuarial practice.



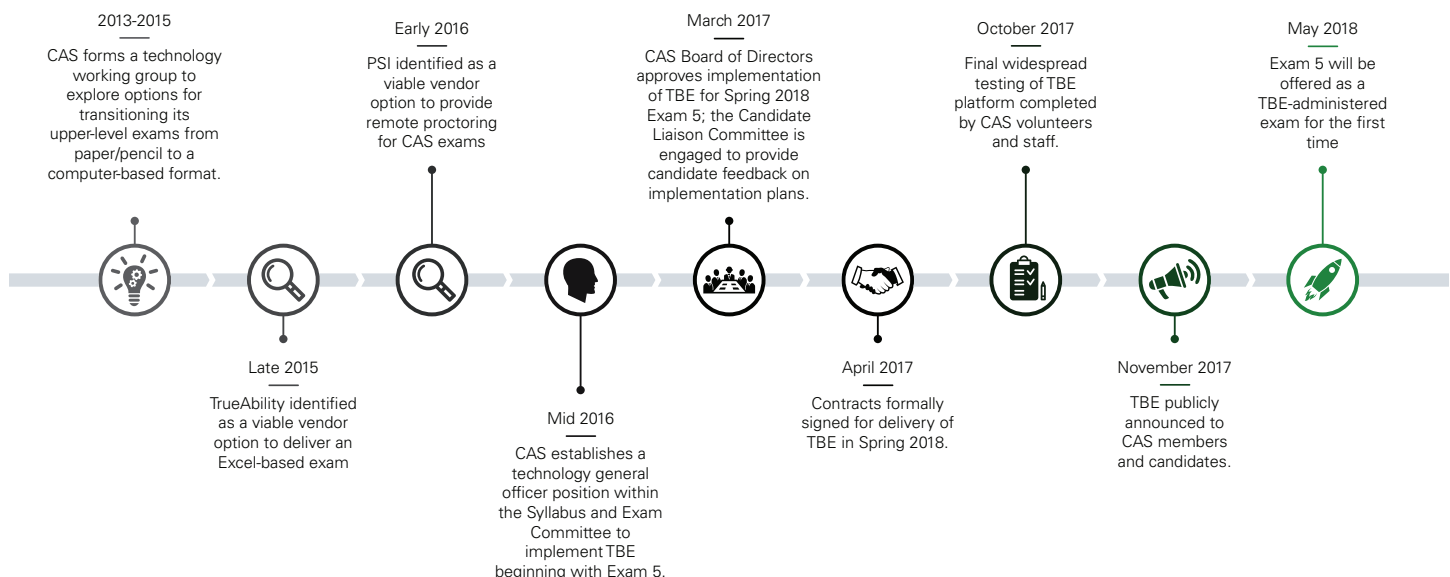
Candidates will sit for exams in the TBE environment using Excel software on their own computers, and at the location and time of their choosing, within certain parameters. Professional remote proctors administering the exams will monitor candidates through a webcam and microphone throughout the exam sitting.

The CAS has partnered with two technology firms to administer TBE: TrueAbility will be providing the online, Excel-based testing environment, and PSI will provide the professionally-trained remote proctors.

Along with the announcement, the CAS unveiled a dedicated TBE section of the CAS website, which included frequently asked questions and responses, TBE computer requirements, and other resources.

Technology-Based Examination Timeline to TBE

While TBE was announced in November 2017, the development timeline as spanned several years, with many milestones along the way.



From concept to execution, the development of TBE will span nearly five years and include contributions from hundreds of volunteer members and CAS staff.

● University Engagement

The CAS expanded its support for universities in 2017 through its membership programs, CAS Student Central and CAS Academic Central. Student membership increased by 21% percent, reaching 6,881 members at 676 universities. Academic membership increased to 442 members at 225 universities.

New University Resources

The CAS released its own Actuarial Escape Room toolkit that was successfully piloted at fall 2017 CAS Student Programs.



CAS University Award Program

The Casualty Actuarial Society (CAS) awarded three universities the 2017 CAS University Award, an honor created to recognize schools doing exemplary work in preparing students for a career in the property and casualty insurance industry. The schools honored includes:

- Ball State University
- St. John's University
- University of Wisconsin-Madison



DEPARTMENT OF
RISK & INSURANCE

Participation in University Events

In 2017, the CAS was represented at more than 100 in-person events for university students across the world, ranging from career fairs and student conferences to presentations at student clubs and university classes.



CAS Student Programs and University Visits

The CAS hosted approximately 150 university students at six different student programs held in conjunction with 2017 CAS meetings and seminars.



CAS Trust Scholarship

The CAS Trust Scholarship Program, funded by donations to the CAS Trust, awards up to three scholarships to deserving students annually. First place receives a \$10,000 scholarship. Second and third place winners, if chosen, are each awarded a \$5,000 scholarship.

The objective of the scholarship is to further students' interest in the property-casualty actuarial profession and to encourage the pursuit of the CAS designations.

Scholarship recipients are recognized at the CAS Annual Meeting in November.

2017 CAS Trust Scholarship Winners



Kate McCoy
\$10,000



Lily Cook
\$5,000

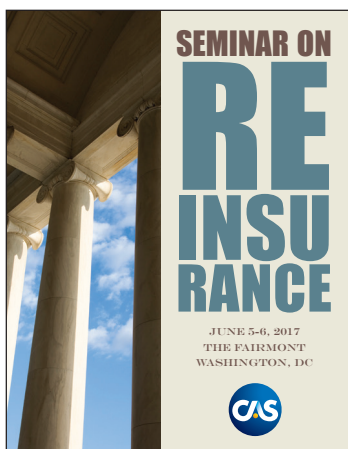
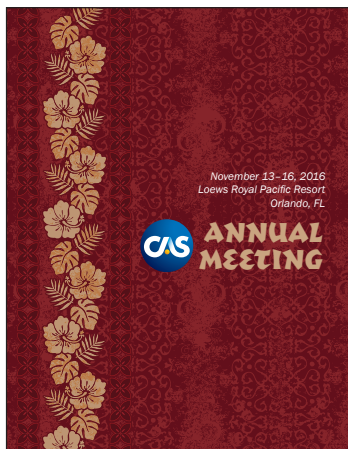


Jacob Akstins
\$5,000

● Continuing Education

Meetings and Seminars

The number and variety of CAS offerings represent an ongoing expansion to respond to member demand for high-quality, affordable continuing education opportunities. A total of 3,572 people attended the six largest CAS meetings and seminars.

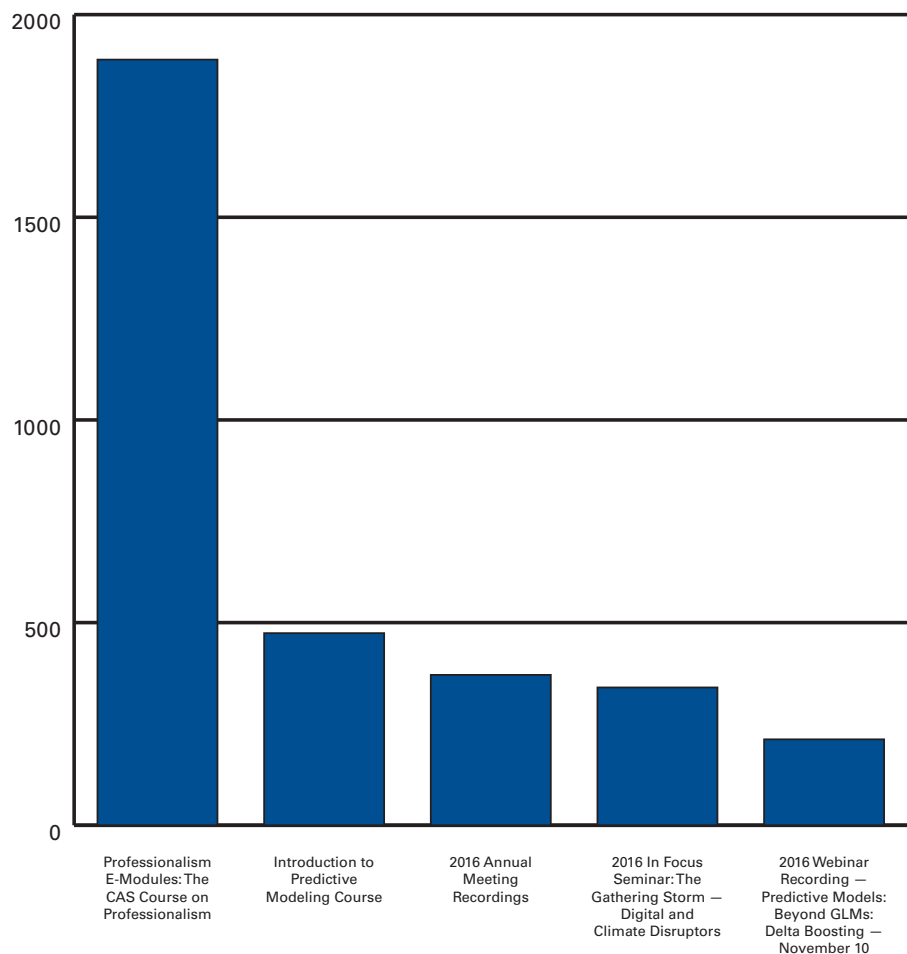


Web and Online Offerings

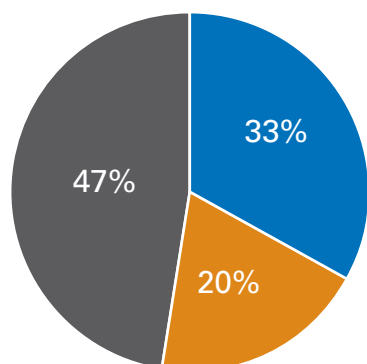


UCAS is part of the Casualty Actuarial Society's ongoing commitment to provide excellent professional educational opportunities to members and others interested in actuarial practice. UCAS provides a virtual world of opportunities to help enhance actuaries' professional education needs.

Most Viewed University of CAS (UCAS) Items



UCAS Purchases by Type



- Webinar Recordings
- Interactive Online Courses
- Meeting and Seminar Recordings

FY17 Livestream Events

Meeting	Registrants	# Sessions
2016 ERM SIS	33	5
2016 In Focus	21	5
2016 Annual	56	5
2016 Annual Complimentary	171	1
2017 RPM	28	6
2017 RPM Evening	3	1
2017 Spring	44	5
2017 Spring Early Morning	17	1
2017 Reinsurance	27	5
2017 CLRS	61	6
2017 CLRS Evening	13	1
TOTAL	474	41

TWO NEW WORKING PARTIES FORMED FROM CROWD SOURCING AT CAS MEETINGS: THE INSURANCE ON DEMAND WORKING PARTY AND THE RESPONSIBLE MODELING WORKING PARTY

Five Call Papers published from the Reinsurance and Ratemaking Call Paper Programs

Hachmeister Prize Awarded to Authors for Paper "Correlations Between Insurance Lines of Business: An Illusion or a Real Phenomenon? Some Methodological Considerations"

Actuaries Climate Index™ updated in March, June, and October

FUNDED PROJECT ON CAPITAL ASSET PRICING MODEL PUBLISHED

Joint Risk Management Section issues RFP on the "Application of Enterprise Risk Management to Long-Term Care at the Country/Government Levels"

--

Individual Grants Competition Awards Funding for Five Research Projects

--

Health Care Issues Committee publish report on "The Effect of Health Insurance Coverage Expansions on Auto Liability Claims and Cost"

Risk Assessment Database Updated with 106 papers from 2016

--

● Marketing and Communications

Awards and Recognition

EXCEL Award for 2016 CAS Annual Meeting Social Media Campaign

The Casualty Actuarial Society (CAS) was honored with a bronze by Association Media & Publishing's EXCEL Awards for the social media campaign surrounding its 2016 CAS Annual Meeting in Orlando, Florida. The winning #CASAnnual campaign took place on a variety of social media platforms before, during, and after the meeting. The award was given in the category of Social Media Campaign-Event/Convention.

The campaign included elements such as:

- The creation of a social media toolkit, given in advance to Annual Meeting speakers.
- A daily Twitter contest that invited attendees to post a picture from the meeting with the #CASAnnual hashtag for a chance to win a \$100 gift card.
- The launch of the first-ever custom CAS Snapchat filter, which was available during the reception at Universal's Islands of Adventure.



5 Reasons to Be an Actuary as a Career

February 8, 2017
PropertyCasualty360

5 reasons to be an actuary as a career

Most people think of actuaries as boring mathematicians, holed up in their offices, with calculators and computers. But an actuarial career in the casualty insurance industry is so much more!

By Rick Gorvett February 28, 2017 at 01:15 AM

Being an actuary for a property & casualty insurer can be an interesting, rewarding career. (Photo: Shutterstock)

Twenty years ago, you could ask a large group of actuaries, "How many of you first learned of the actuarial profession while in high school?" and only a small handful would raise their hands.

Now, it's amazingly common — even the rule — for university actuarial science majors to enter college as incoming freshmen having firmly decided at the age of 16 or 17 that they want to **pursue an actuarial career**.

CAS staff actuary Rick Gorvett, FCAS, explains the benefits of an actuarial career during Insurance Careers Month.

Self-Driving Cars Raise Questions About Who Carries Insurance

April 3, 2017
NPR
"Morning Edition"

THE INDUSTRY

Self-Driving Cars Raise Questions About Who Carries Insurance

4:00

April 3, 2017 - 4:23 AM ET
Heard on Morning Edition

YUKI NOGUCHI

Rick Gorvett, FCAS, and Jim Lynch, FCAS, discuss potential risk implications of automated vehicle technology.

Shining a Light on Dark Data

August 17, 2017
Carrier Management

Shining a Light on Dark Data

August 16, 2017 by Peter Bothwell

Eighty-five percent of the matter in the universe is invisible to us, and little is known about it. Scientists call it "dark matter." Dark matter interacts with the rest of the universe—in fact, scientists say that we would not exist without it—but it does so in very mysterious ways.

The same is likely true of much of the data that your organization produces and saves. Although it exists and interacts with your business, the business itself is largely unaware of its potential value. Hence, today it remains "dark data." If you can be one of the first to find and use your dark data, you have an opportunity to create real competitive advantage.

The concept of dark data is becoming widely used and accepted. Gartner defines dark data as "information assets that organizations collect, process and store in the course of their regular business activity but generally fail to use for other purposes." Wikipedia goes on to say: "The ability of an organization to collect data can exceed the throughput at which it can analyze the data. In some cases, the organization may not even be aware that the data is being collected." (Original source: "The API Briefing: the Challenge of Government's Dark Data," *Center for Data Science, U.S. General Services Administration*, 2016.)

Pete Bothwell, FCAS, explains how companies can take advantage of unmined "dark data."

The Cyber Liability Insurance Market Rises

September 19, 2017
PropertyCasualty360

The cyber liability insurance market rises

Risk managers are frustrated at the lack of cyber liability coverage options while insurers are frustrated that the market has not yet taken off. Brokers are stuck in between.

By Chris Nyce September 19, 2017 at 08:30 AM

How cyber is covered depends on the needs of the insured. (Photo: Shutterstock)


As reports about cyber risk in the press and board agendas abound, companies are looking to manage that risk. Even with mitigation, risk always remains.

A cyber insurance program covering those losses is increasingly seen as part of the solution.


Insurance solutions have been brought to market by innovative insurers. Still, risk managers are frustrated at the lack of available coverage at reasonable terms, while insurers marketing the coverage are frustrated that the market has not taken off. Brokers are stuck

Chris Nyce, FCAS, outlines the latest in cyber liability coverage.

CAS Community Growth

	Community	Baseline Followers (10/1/2016)	Followers (9/30/2017)	Percent Growth
	CAS Facebook	4181	4883	16.79%
	@CASact Twitter	10714	11091	3.52%

CAS Student Community Growth

	Community	Baseline Followers (10/1/2016)	Followers (9/30/2017)	Percent Growth
	CAS Student Central Facebook	1145	1180	3.06%
	@CASstudent Twitter	444	552	24.32%

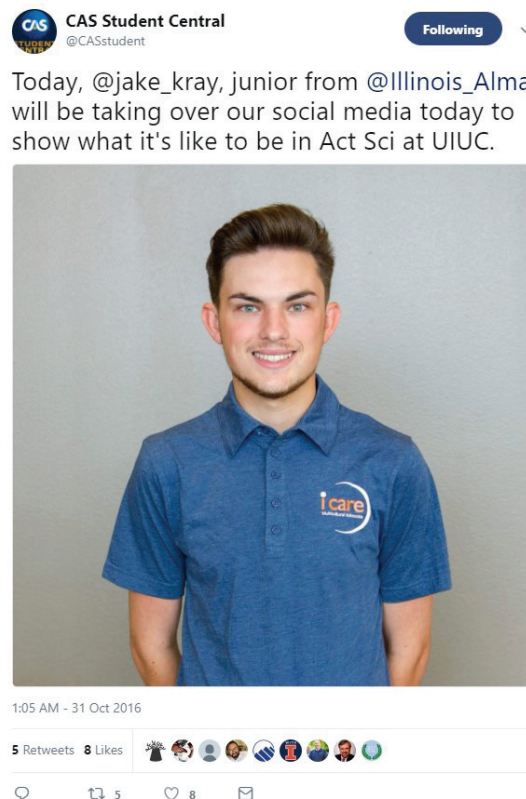
iCAS Community Growth

	Community	Baseline Followers (10/1/2016)	Followers (9/30/2017)	Percent Growth
	iCAS Twitter	6	148	2366.66%

Best-Performing @CASact Twitter Post



Best-Performing @CASstudent Twitter Post



Best-Performing CAS Facebook Post



Best-Performing Student Central Facebook Post

CAS Student Central
Published by Megan LaVine [?] · February 2, 2017 ·

Less than a month left to apply for the CAS Trust Scholarship!
www.casact.org/trustscholarship

APPLY FOR THE CAS TRUST SCHOLARSHIP

The CAS Trust Scholarship will award up to three scholarships to college students pursuing a career in casualty actuarial science, for the 2017-2018 academic year.

1st Place Scholarship: \$10,000

2nd and 3rd Place Scholarships: \$5,000

Apply by March 1, 2017
casact.org/trustscholarship

STUDENT CAS CENTRAL
FOCUSED ON YOUR FUTURE

5,546 people reached

Boost Again

● Publications

Each year the CAS's many publications enlarge the rich trove of actuarial literature.

Variance

● Advancing the Science of Risk

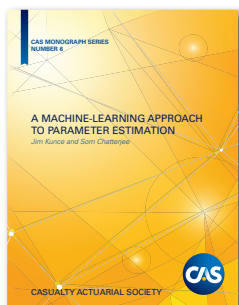
Variance

Variance's mission is to disseminate practical and theoretical research of interest to casualty actuaries worldwide. In 2017 the CAS published volume 10, number 1, and awarded the *Variance* Prize to Greg Taylor and Jing Xu for their paper "An Empirical Investigation of the Value of Claim Closure Count Information to Loss Reserving," which is published in *Variance* 10:1.



Actuarial Review

An in-depth actuarial news source, *Actuarial Review* keeps CAS members and candidates informed of the latest in science and technology, business ethics and professionalism, as well as the achievements of CAS members and committees. In 2017 *AR* featured articles on predictive analytics and modeling, cyber security, the National Flood Insurance Program, and actuaries in nontraditional roles.



CAS Monograph Series

The CAS Monographs Series continues to make its mark on actuarial literature. These peer-reviewed, authoritative works encompass significant subjects in casualty actuarial science. In 2017 another work was added to this Series: "A Machine-Learning Approach to Parameter Estimation" by Jim Kunce and Som Chatterjee.

FUTURE CAS FELLOWS

Future Fellows

Future Fellows is vital for those sitting for CAS Exams. This quarterly print and online newsletter gives CAS Candidates access to all they need to know about examinations, study methods, career development, continuing education, as well as new CAS initiatives such as Technology-Based Exams.



CAS E-Forum

In 2017 the CAS *E-Forum* featured CAS-sponsored research on credit risk resources and an adaptation of classical CAPM to insurance. *E-Forum* also posted a host of independent research.

● CAS Governance— Board of Directors and Executive Council

Executive Council



Nancy Braithwaite*
President



Brian Brown*
President-Elect



Sean P. McDermott
Vice President—
Administration



Steven D. Armstrong
Vice President—
Admissions



Roger Hayne
Vice President—
International



Shane Barnes
Vice President—
Marketing &
Communications



Justin Brenden
Vice President—
Professional
Education



A. David Cummings
Vice President—
Research &
Development



Cynthia R. Ziegler
CAS Executive
Director,
Secretary/Treasurer

*Also a member of the Board of Directors

Board of Directors



Stephen P. Lowe
Immediate Past President



Nancy Braithwaite
President



Brian Z. Brown
President-Elect



Kendra M. Felisky
2017



Barry A. Franklin
2017



John Lucker†
2017



Peter L. Miller†
2017



Camille Minogue
2017



Hemant Shah†
2017



Robert J. Walling III
2017



James Guszczka
2018



Mary T. Hosford
2018



G. Chris Nyce
2018



Larry Haefner
2018



Leslie Marlo
2019



Claudine Modlin
2019



Mark R. Shapland
2019



William B. Wilder
2019

† Appointed

FY 2017 Financial Highlights

Membership Dues Dollars Allocation

The fiscal year ending September 30, 2017, resulted in an audited net income of \$1,912,572 compared to a budgeted net loss of \$163,535.

Income Statement

FUNCTION	REVENUE		EXPENSE		DIFFERENCE
Membership Services	\$4,547,917		\$5,000,468		(\$452,551)
Seminars	2,787,653		2,605,653		182,000
Meetings	1,729,471		1,625,418		104,053
Exams	11,293,075	(a)	10,661,917	(a)	631,158
Publications	2,787		25,100		(22,313)
TOTALS FROM OPERATIONS	\$20,360,903		\$19,918,556		\$442,347
Unrealized Gain/(Loss) and Change in Pension Liability					1,009,717
Change in Pension Liability					460,508
TOTAL NET INCOME (LOSS)					\$1,912,572

NOTE: (a) Includes \$7,510,623 of Volunteer Services for income and expense (SFAS 116).

Balance Sheet

ASSETS	9/30/2016	9/30/2017	DIFFERENCE
Cash and Cash Equivalents	\$1,422,025	\$2,595,829	\$1,173,804
T-Bill/Notes, Marketable Securities	14,210,248	14,931,832	721,584
Other Assets	966,691	979,390	12,699
TOTAL ASSETS	\$16,598,964	\$18,507,051	\$1,908,087
LIABILITIES	9/30/2016	9/30/2017	DIFFERENCE
Exam Fees Deferred	\$1,666,344	\$1,852,433	\$186,089
Seminar and Meeting Fees Deferred	1,137,762	1,365,882	228,120
Accounts Payable and Accrued Expenses	1,085,643	1,131,847	46,204
Accrued Pension	1,565,238	1,129,009	(436,229)
Other Deferred	779,023	750,354	(28,669)
TOTAL LIABILITIES	\$6,234,010	\$6,229,525	(\$4,485)
MEMBERS' EQUITY	\$10,364,954	\$12,277,526	\$1,912,572

Sean McDermott, Vice President-Administration

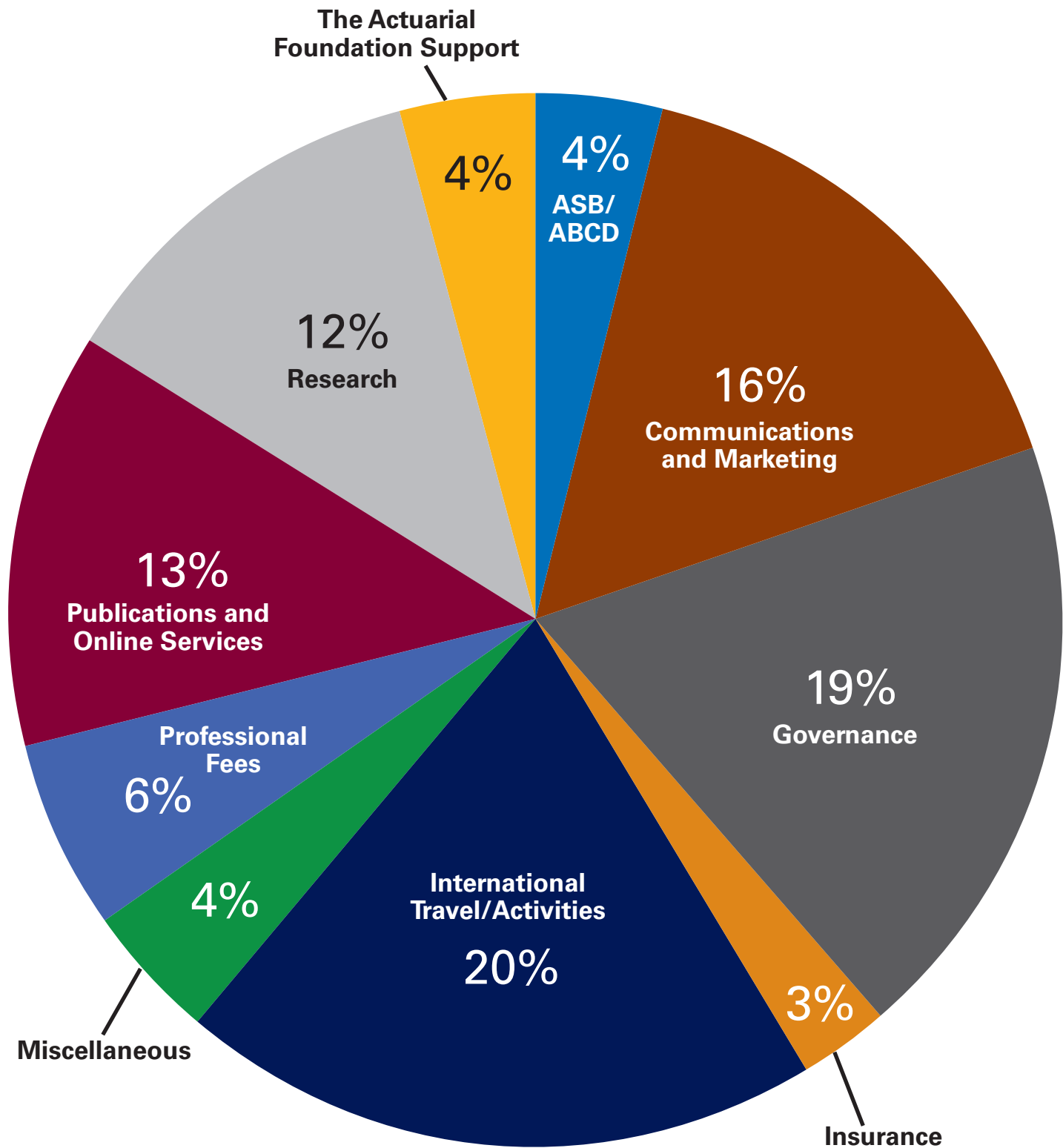
AUDITED

CAS Audit Committee

Mary Hosford, Chairperson
Mark Shapland, Vice-Chairperson

Kay Rahardjo, Ronald Kuehn, James Lynch and Sean McDermott (ex officio)

Membership Service Expenses



● CAS Society Partners Program

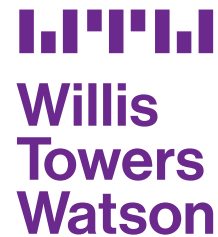
The CAS Society Partners Program is designed to help firms build and maintain year-round relationships with the influential group of insurance professionals that are CAS members.

In FY 2017, the CAS maintained corporate partnerships with 18 organizations.

Six Centennial Partners — \$20,000 Commitment



Four Platinum Partners — \$15,000 Commitment



Five Gold Partners — \$10,000 Commitment



Three Silver Partners — \$5,000 Commitment



● The CAS Institute

The new CAS subsidiary expanded its offerings in 2017.

A New Predictive Analytics Curriculum

Under the direction of the iCAS Subject Matter Expert Panel for Data Science and Predictive Analytics, The CAS Institute's Certified Specialist in Predictive Analytics credential by examination opened at the beginning of the year. The curriculum consist of five parts: (1) P-C Insurance Fundamentals, (2), Data Concepts, Tools & Analysis, (3) Predictive Modeling –Methods and Techniques, (4) Case Study Project: P-C Predictive Modeling Application, (5) Online Course on Ethics and Professionalism.

Community of Practice Event



On March 27, 2017, more than 40 predictive analytics practitioners gathered in San Diego for a day of unique information sharing and networking. The inaugural iCAS "Community of Practice" Event, consisted of sessions specifically tailored for advanced data practitioners. Topics included external data, machine learning, and model deployment for implementation; sessions also addressed data ethics, risk governance, and best practices for predictive modeling.

Recognition of CSPAs

The CAS Institute honored the first recipients of its Certified Specialist in Predictive Analytics (CSPA) credential during the 2017 CAS Ratemaking and Product Management Seminar in San Diego, CA.



Webinar Offerings

Deloitte Chief Data Scientist and iCAS Predictive Analytics Subject Matter Expert Jim Guszczka, FCAS, Ph.D., CSPA, moderated a free webinar on March 15, 2017, on the impacts of Artificial Intelligence (AI) technologies on business and societal landscapes — and the increasing need to factor societal considerations into future autonomous systems. Iyad Rahwan, associate professor of media arts and sciences at the MIT Media Lab, was the featured speaker on the webinar. Rahwan discussed his recent work crowdsourcing beliefs about what autonomous vehicles should do in various life-or-death scenarios. This research involved collecting 25 million decisions from people worldwide.



Event Sponsorship

The CAS Institute (iCAS) sponsored the 6th Asia Insurance CIO Technology Summit at the Four Seasons Hotel in Singapore. The Summit, which ran September 4-5, brought together a diverse audience of c-suite executives, IT providers, risk managers and research institutions to explore how technology and the role of the Chief Information Officer are shaping the current insurance landscape. Speakers discussed the impact of CIOs in the era of InsurTech, best practices in cyber security, and examples of CIO innovation and change management.

Partnership Growth!



The Institutes®
RISK & INSURANCE
KNOWLEDGE GROUP

IDMA
Insurance Data Management Association
CONNECT SUCCEED GROW

