

2018

ANNUAL REPORT

CASUALTY
ACTUARIAL
SOCIETY



Expertise. Insight.
Solutions.®

Table of Contents

CAS's Mission, Vision and Core Values.....	1
Membership Demographics.....	2
Volunteerism.....	4
Admissions and Examination Highlights.....	5
University Engagement.....	6
Continuing Education.....	8
Research and Development Headlines	10
Marketing and Communications.....	11
Publications	16
CAS Governance—Board of Directors and Executive Council.....	17
FY 2018 Financial Highlights.....	19
CAS Society Partners Program	21
The CAS Institute	23

● CAS's Mission, Vision and Core Values

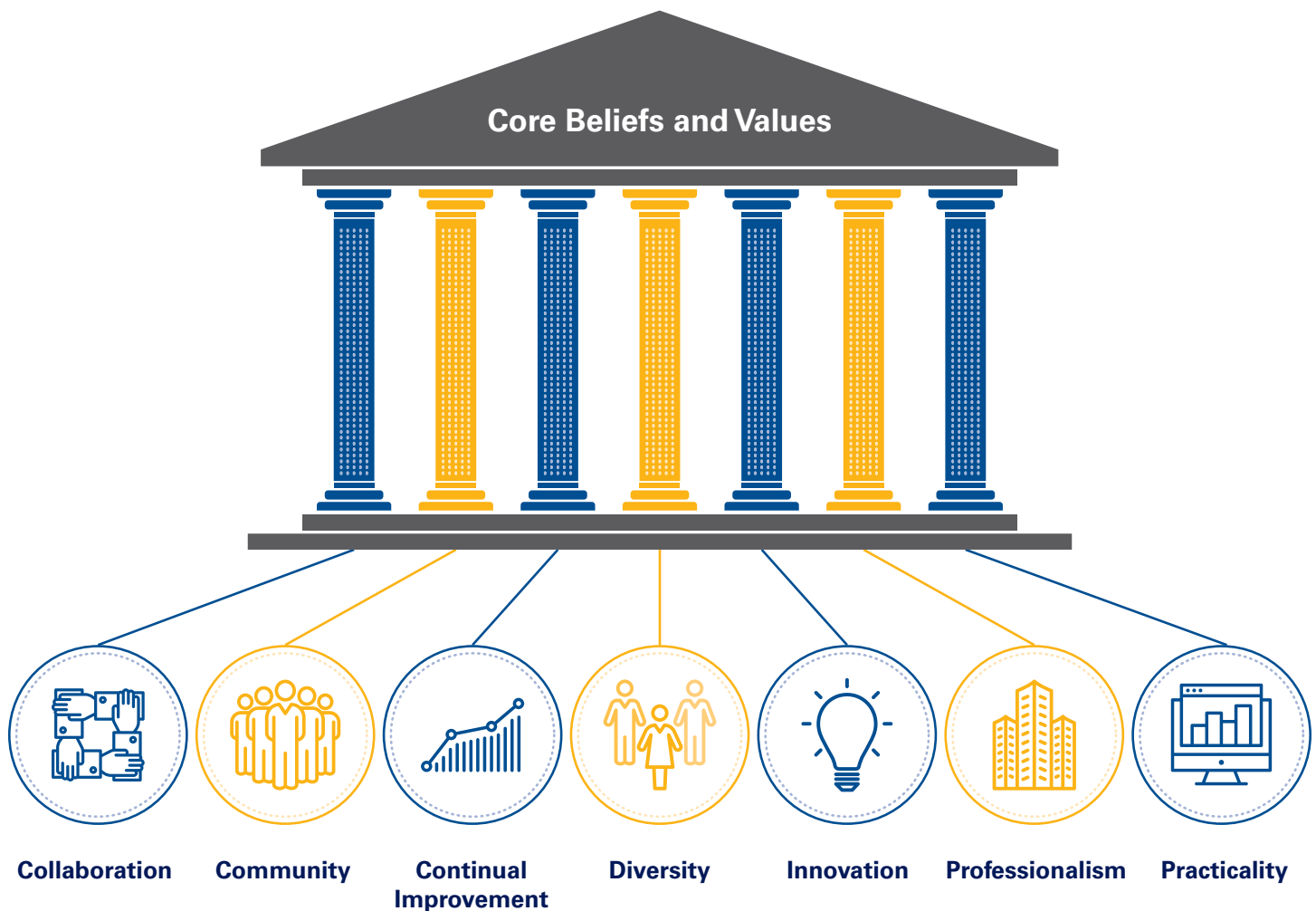
Mission Statement

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.

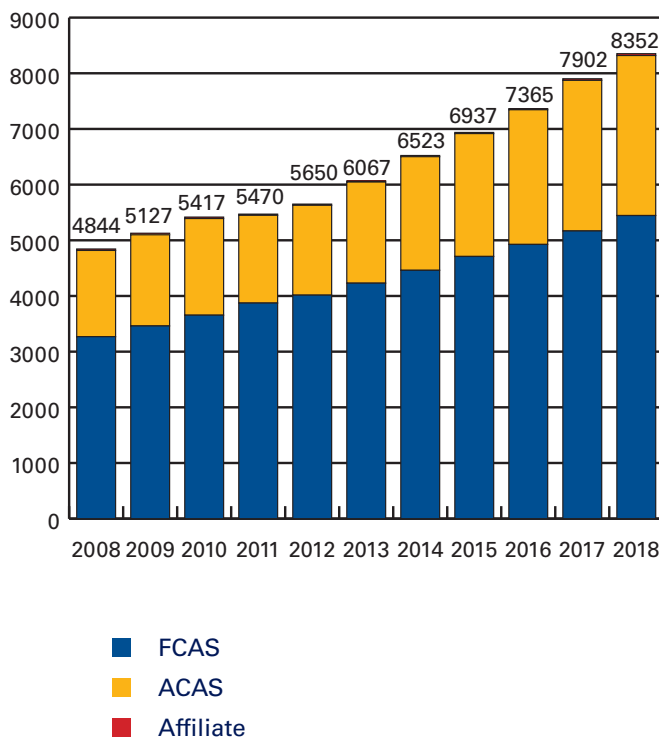


● Membership Demographics

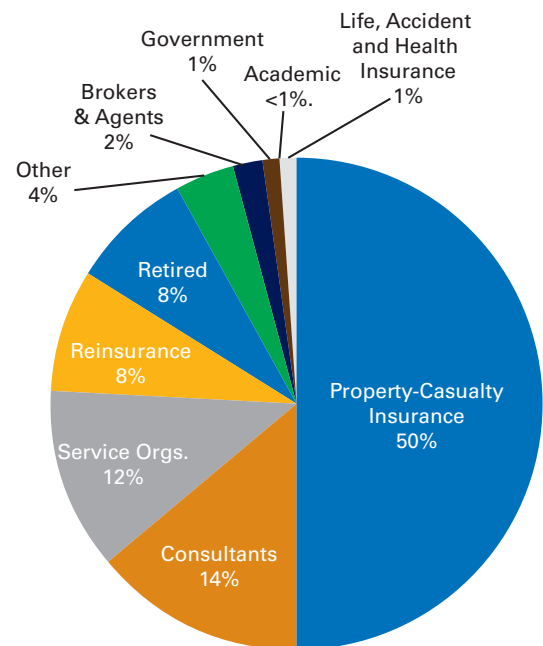
2018 Geographic Membership Distribution

Count of Country		
Country	2017	2018
United States	6,593	6,944
Canada	804	903
Bermuda	104	105
China	82	97
United Kingdom	58	48
Hong Kong	39	51
Switzerland	32	31
Singapore	34	38
Other	156	135
Grand Total	7,902	8,352

CAS Member Growth 2008-2018



CAS Members by Type of Employment

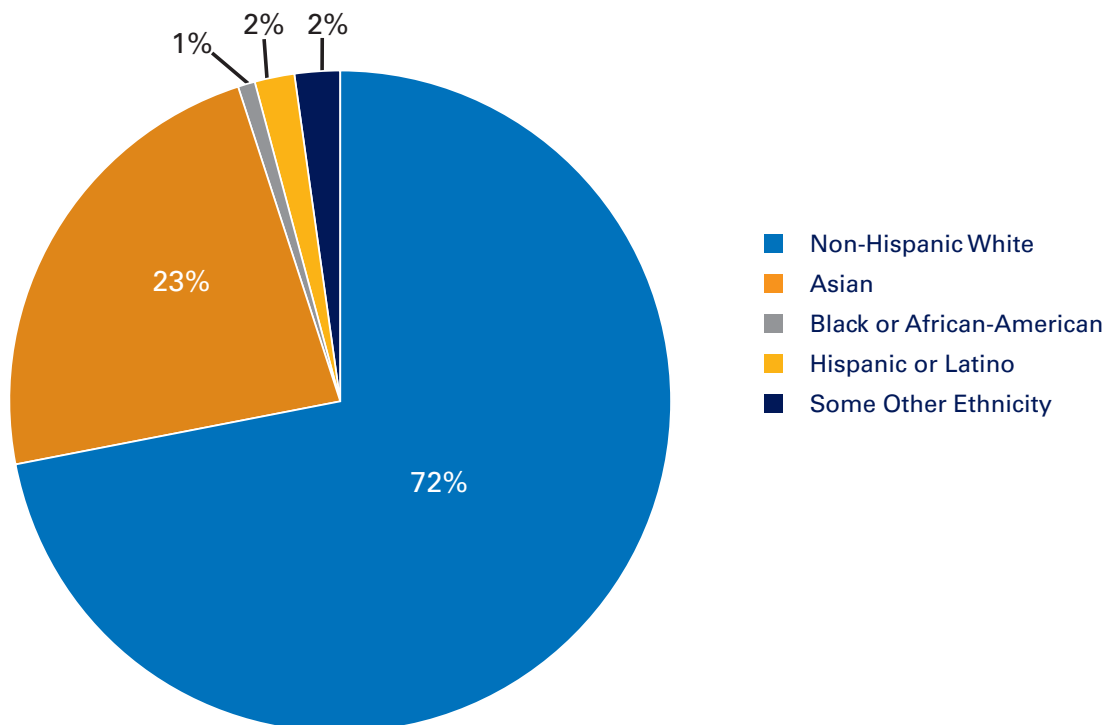


Diversity

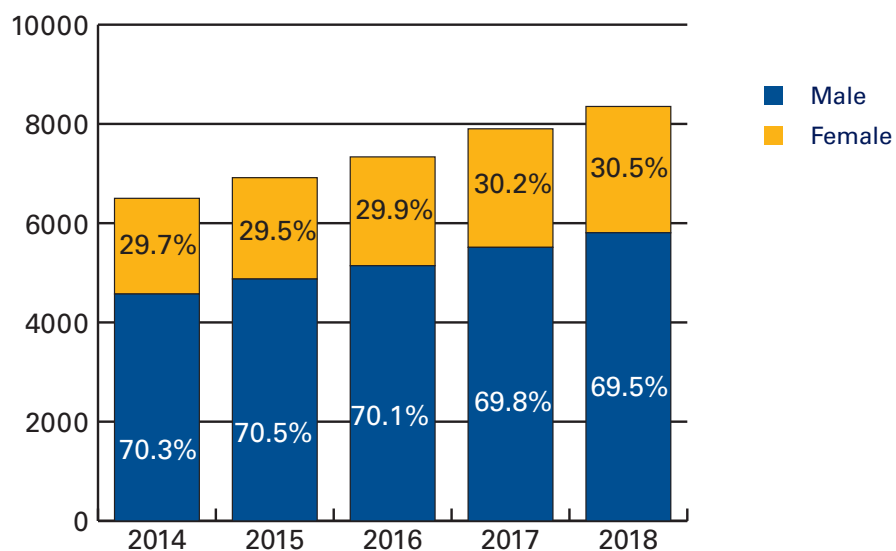
In 2015 the CAS Board of Directors adopted the CAS Diversity Strategy, formalizing the CAS's commitment to facilitating the evolution of a multidimensional property-casualty actuarial profession. One goal of the strategy is to increase the membership of underrepresented groups in the CAS.

To measure progress on membership diversity, the Diversity Committee reviews current CAS membership demographics by ethnicity and gender.

2018 CAS Membership by Ethnicity



2018 CAS Members by Gender



● Volunteerism

CAS members value our community and the relationships formed through volunteer activities. In FY 2018, 2,451 out of 8,352 CAS members served as volunteers. That's 29.3% 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

Travelers
The Hartford
Allstate Insurance Company
Milliman, Inc.
CNA Insurance Companies

United Services Automobile Association
Munich Re America, Inc.
Deloitte Consulting, LLP
Verisk

The President's Award

This new award recognizes one or more members who have, in the opinion of the CAS President, made significant contributions to the profession and the CAS.

Robert F. Conger

Matthew Rodermund Memorial Service Award

Regina Berens
David Oakden

Above and Beyond Achievement Award

Mallika Bender
Todd Lehmann
Alejandro Ortega
Stephanie Gould Rabin
Peter Royek
Joshua Taub

New Members Award

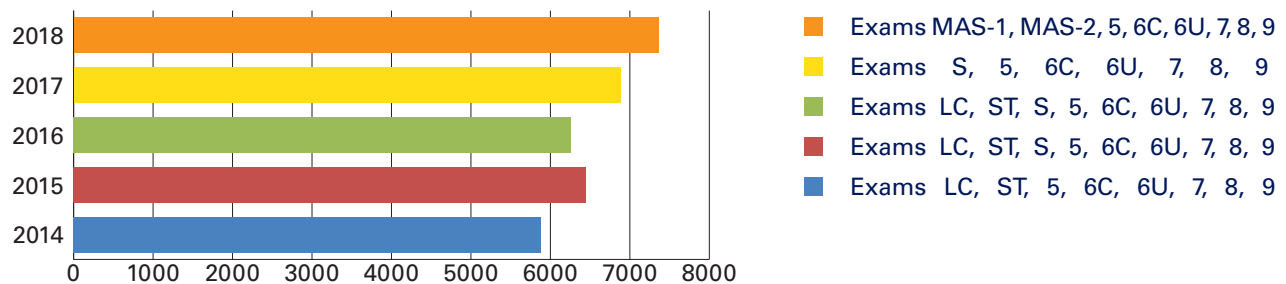
Patrick Ford
Daniel Watt
David Wang

● Admissions and Examination Highlights

CAS Examinations, Spring and Fall 2018

Summary for CAS-specific Exams MAS-1, MAS-2, 5, 6C, 6US, 7, 8, 9	Total
Exams in the U.S. and Canada	5,930
Exams Outside of the U.S. and Canada	772
Total	6,702
Total Pass Ratio	42%
New Fellows	313
New Associates	495

Total Exam Registrants 2014-2018



Exams MAS-1, MAS-2, 5, 6C and 6U are given 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 grant waivers for candidates who pass examinations offered by other organizations that cover our CAS learning objectives. 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, Institute of Actuaries of India, and China Association of Actuaries. Please note that the path as outlined is intended to illustrate a typical sequence through the requirements; candidates are not restricted to the path as depicted.

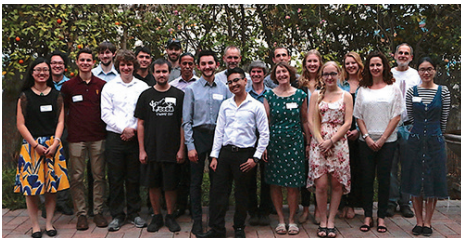
● University Engagement

The CAS expanded its support for universities in 2018 through its membership programs, CAS Student Central and CAS Academic Central. Student membership increased by 15% percent, reaching 7,896 members at 817 universities, and academic membership increased by 5% to 464 members at 238 universities.



CAS University Award Program

The Casualty Actuarial Society (CAS) awarded three universities the 2018 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 include:



Arizona State University



Renmin University of China



The University of Texas at Austin

Participation in University Events

In 2018, 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

The CAS hosted approximately 125 university students at five different student programs held in conjunction with 2018 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. The First Place Winner receives a \$10,000 scholarship. The 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.

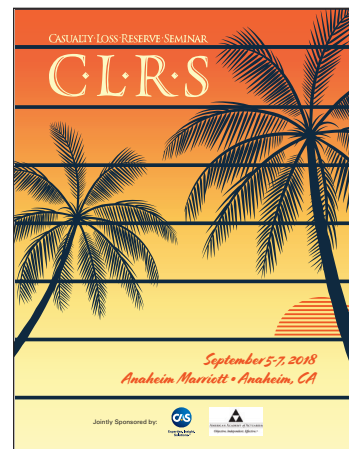
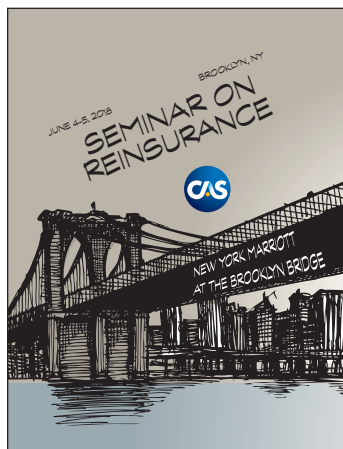
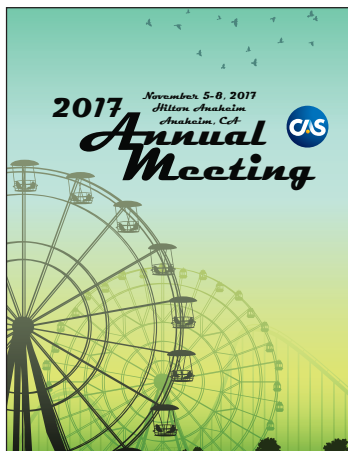
Each year, the three recipients of the scholarship are recognized at the CAS Annual Meeting in November. In 2018 Ann Pogrebetskiy of The University of Nebraska Lincoln — awarded \$10,000 — and Kristen Marshall of Illinois State University — awarded \$5,000 — traveled to Las Vegas for the event, and are each pictured below with CAS President Brian Brown. Adam Lathan of Drake University, who was awarded \$5,000, was recognized on campus.



● 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 in FY 2018.

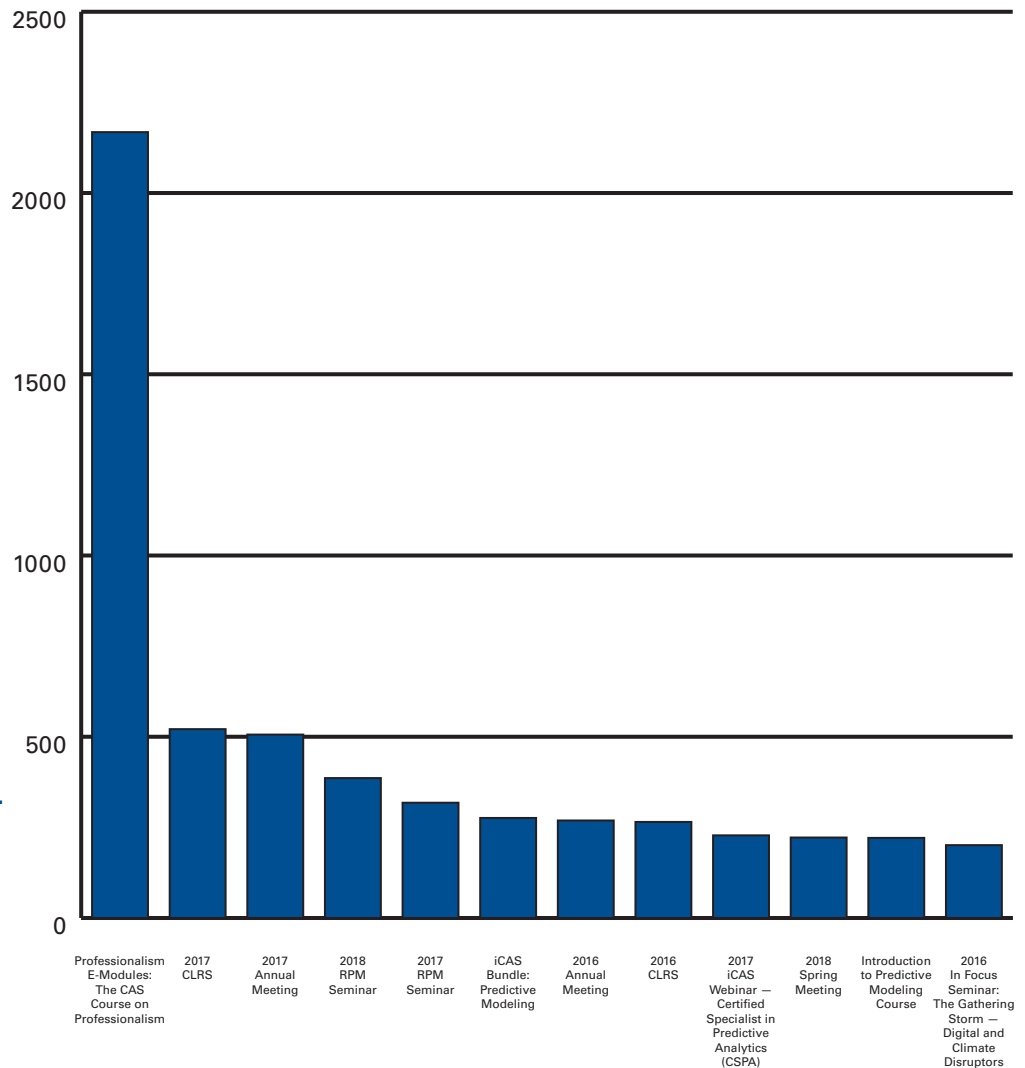


Web and Online Offerings

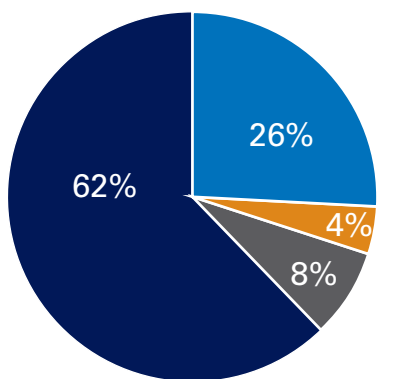


UCAS is part of the Casualty Actuarial Society's ongoing commitment to provide excellent professional educational opportunities to members and others interested in actuarial practice. UCAS provides a virtual world of opportunities to help enhance actuaries' professional education needs.

Most-Viewed University of CAS (UCAS) Items



UCAS Purchases by Type



- Webinar Recordings
- Interactive Online Courses
- Topical Bundles
- Seminar/Meeting Recordings

FY18 Livestream Events

Meeting	Registrants
2017 ERM SIS	43
2017 In Focus	28
2017 Annual	73
2018 RPM	48
2018 Spring	43
2018 Reinsurance	15
TOTAL	250

AUTOMATED VEHICLES TASK FORCE ISSUES FINAL REPORT, "A PATHWAY TO SAFETY: THE CASE FOR COLLABORATION, ADDRESSING INSURANCE PREMIUMS, THE LIABILITY SYSTEM, AND AUTOMATED VEHICLE RISKS"

\$145,000 in five research projects funded in FY 2018 in Cyberrisk, Reserves, Ratemaking and Economic Scenario Generators

Five research projects awarded with funding from the Individual Grants Competition

Five Ratemaking and Climate Change call papers selected

Actuaries Climate Index updated in the Spring, Summer and Fall of 2018 with new data

Hachemeister Prize awarded to Glenn Myers for "A Cost of Capital Risk Margin Formula For Non-Life Insurance Liabilities" and to Peng Shi and Kun Shi for "Territorial Risk Classification Using Spatially Dependent Frequency-Severity Models"

CAS collaborates with the Canadian Institute of Actuaries on two reports on flood and catastrophe modeling and on insurer impairments/insolvencies

CIA/CAS/SOA Joint Risk Management Section issues two reports: "Effective ERM Stakeholder Engagement" and "National Risk Management: A Practical ERM Approach for Federal Governments, and funds annual 2017 Emerging Risks Survey"

RAND issues second CAS-funded research report on "The Effect of Health Insurance Coverage Expansion on Property Casualty Claims (Auto Report)"

● Marketing and Communications

Awards and Recognition

Excel Awards for candidate communications, social media, and diversity efforts

The CAS was honored for exemplary work over the past year, **garnering three coveted EXCEL Awards** for marketing and communications projects including the **CAS Future Fellows newsletter**, a social media campaign for the **2017 CAS Annual Meeting** and an advertisement about **CAS diversity efforts**. The EXCEL Awards, hosted by Association Media & Publishing, recognizes excellence in nonprofit association marketing and communications. Winners of the highly competitive contest, which received over 800 entries this year, were honored at the EXCEL Awards Gala on June 25, 2018 in Washington D.C.

The awards include:



A bronze award in the category of “Editorial Excellence (Print)” for CAS Future Fellows newsletter

Future Fellows, the CAS’s quarterly newsletter dedicated to providing information and resources to CAS candidates, was recognized for editorial excellence for its special Technology-Based Examination (TBE) edition. This December 2017 issue of *Future Fellows* outlined important information about the transition to TBE and was recognized for its writing excellence.



A bronze award in the category of “Social Media Campaign (Event/Convention)” for the 2017 CAS Annual Meeting

The #CASAnnual campaign was executed on a variety of social media platforms before, during and after the meeting and included elements such as a social media toolkit for speakers, a daily Twitter contest for attendees and a custom Snapchat filter.

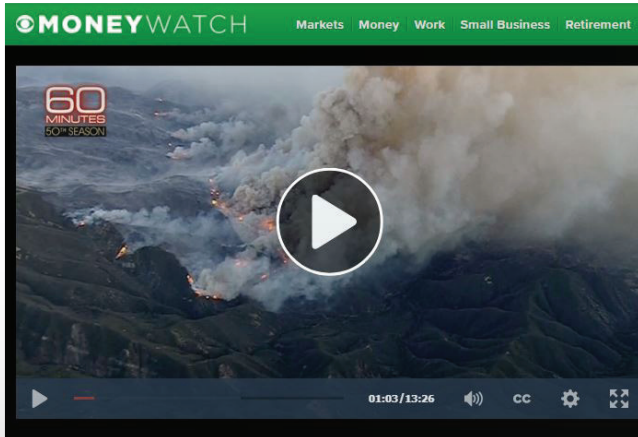


A silver award in the category of “Advertisement Single Piece” for the CAS Diversity Ad

This advertisement was featured in the program guide at the International Association of Black Actuaries (IABA) 2017 Annual Meeting. The graphic reflects the CAS’s ongoing commitment to supporting and promoting diversity in the actuarial profession, while also demonstrating CAS’s proud sponsorship of IABA.

Global warming's role in California's wildfires

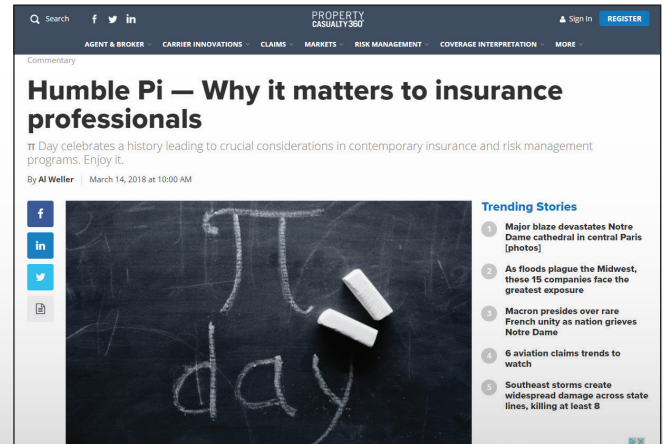
December 20, 2017
CBS MarketWatch



Doug Collins, FCAS, explains the impact of climate trends using data from the Actuaries Climate Index (ACI).

Humble Pi — Why it matters to insurance professionals

March 14, 2018
PropertyCasualty360



AI Weller, FCAS, celebrates the history of Pi.

Actuarial Analysis of Automated Vehicles: How Much Premium Discount Is Justified?

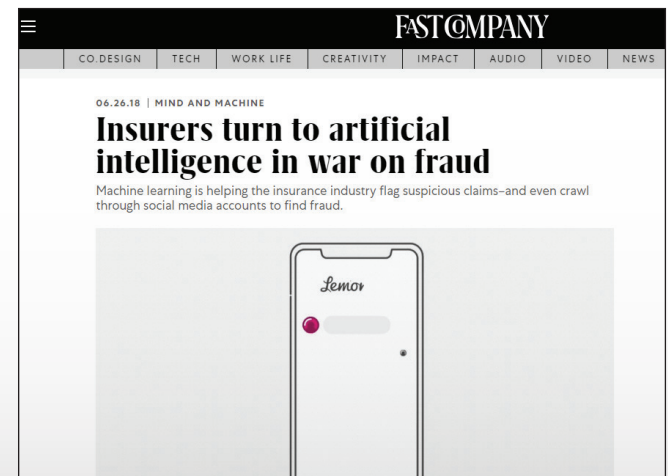
June 19, 2018
Carrier Management



Rick Gorvett, FCAS, shares actuarial analysis and research from the CAS Automated Vehicles Task Force.

Insurers turn to artificial intelligence in war on fraud

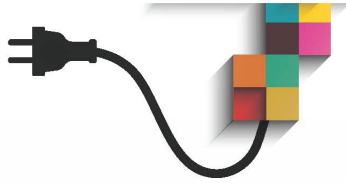
June 26, 2018
Fast Company



Jim Guszczka, FCAS, CSPA, talks about how machine learning and predictive analytics are helping insurers address fraud.

Claims Processing in the 21st Century

July 1, 2018
Claims Magazine



CLAIMS PROCESSING IN THE 21ST CENTURY

BY ALICE UNDERWOOD AND TOM HELM

A highly competitive insurance market... accelerating technological change... ever-increasing customer expectations. Chief claims officers have no time to sit back and relax as the current wave of insurance automation sweeps through their space. If you want to ride the crest of this wave instead of being swept under, now is the time to explore how artificial intelligence can help you deliver on your organization's strategic ambitions. Data, advanced analytics and claims expertise are the key ingredients for success.

The claims tech and analytical scene so far

Over the last decade, many insurers have invested in claims technology through upgrading claims administration platforms, or extending the life of legacy platforms by overlaying new user interfaces. Typical enhancements include deployment of rule-based capabilities, capture of richer structured data, and interfacing with third-party systems and data providers. These changes have improved consistency of claims processing, provided claims managers with greater control and insight, and driven efficiency through reduced rekeying and streamlined processes. With proper implementation, these enhancements help insurers provide better customer service at a lower cost. And yet, the claims function has remained relatively untouched by the advances in automation and analytics that have transformed actuarial

Alice Underwood, FCAS, explores how emerging insurtech options are helping to innovate the claims process.

Automated Vehicles Are Driving Change in the Insurance Industry

July 1, 2018
Insurance CIO Outlook

[IO](#)
[Home](#)
[CXO Insights](#)
[CIO Viewpoint](#)
[APAC](#)
[Europe](#)
[Conferences](#)
[Newsletter](#)

[Artificial Intelligence](#)
[Life Insurance](#)
[Document Management](#)
[Core System](#)
[Broker Management](#)
[Blockchain Solutions](#)

Automated Vehicles Are Driving Change in the Insurance Industry

By Jonathan Charak, FCAS, MAAA, Assistant Vice President and Actuary, Zurich. Vice Chair of the Casualty Actuarial Society's Automated Vehicles Task Force

The insurance industry is currently undergoing an incredible amount of change, driven by the blistering pace of technological advancements. Automated vehicles are one technology that has the potential to fundamentally change the world's economy and, therefore, the insurance industry. The impact on insurance will be felt in multiple ways. Some include: a yet-to-be-determined liability system; and adaption of current insurance pricing models.

The Casualty Actuarial Society's Automated Vehicle Task Force (CAS AVTF) addressed these issues in a research report, "Automated Vehicles and the Insurance Industry—A Pathway to Safety: The Case for Collaboration."

Ultimately, a new liability system will be determined by the various

Jonathan Charak, FCAS, vice chair of the CAS Automated Vehicles Task Force, describes some of the challenges that AVs present to insurance.

Is 'On-Demand' Insurance Right for You?

July 15, 2018
PropertyCasualty360

[Q Search](#)
[f](#)
[t](#)
[in](#)

[PROPERTY CASUALTY 360](#)
[Sign in](#)
[REGISTER](#)

[AGENT & BROKER](#)
[CARRIER INNOVATIONS](#)
[CLAIMS](#)
[MARKETS](#)
[RISK MANAGEMENT](#)
[COVERAGE INTERPRETATION](#)
[MORE](#)

Is 'on-demand' insurance right for you?

Some insurers allow coverage to be "on-demand," that is, turned on and off at any time. Who will benefit the most from on-demand insurance?

By Josh Taub, FCAS August 01, 2018 at 12:29 PM

Insurance coverage is moving to 'on demand,' like movies and music.

The on-demand economy has certainly grown over the last decade. We now watch movies and TV on-demand using services like Netflix and Amazon Prime, and we obtain

Trending Stories

- 1 Major blaze devastates Notre Dame cathedral in central Paris [photos]
- 2 As floods plague the Midwest, these 15 companies face the greatest exposure
- 3 Macron presides over rare French unity as nation grieves Notre Dame
- 4 6 aviation claims trends to watch
- 5 NAIC: Top 15 writers of 'other liability' insurance

Josh Taub, FCAS, member of the CAS Insurance on Demand Working Party, outlines the basics of On-Demand Insurance (ODI).

Insurers Tread Warily Among Connected Car Tech

September 26, 2018
TU-Automotive

Insurers Tread Warily Among Connected Car Tech


Eric Volkman

26th September 2018


Looking at the auto technology that will work best for tomorrow's insurers,

Roosevelt Mosley, FCAS, CSPA, explores emerging auto technologies.

CAS Community Growth

	Community	Baseline Followers (10/1/2017)	Followers (10/1/2018)	Percent Growth
	CAS Facebook	4,883	5,292	8.38%
	CAS Twitter	10,714	11,279	5.27%

CAS Student Community Growth

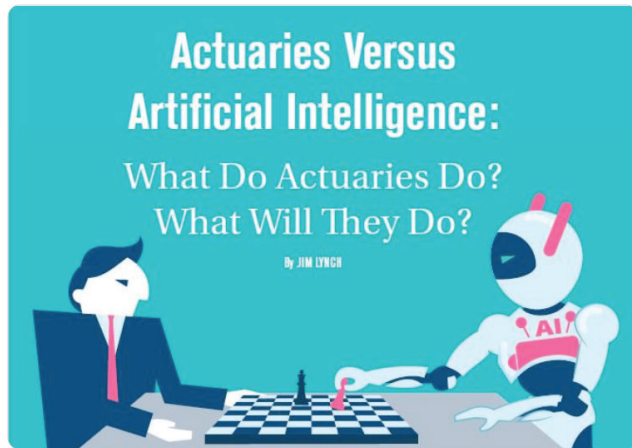
	Community	Baseline Followers (10/1/2017)	Followers (10/1/2018)	Percent Growth
	SC Facebook	1,180	1,175	-0.4%
	SC Twitter	552	650	17.75%

iCAS Community Growth

	Community	Baseline Followers (10/1/2017)	Followers (10/1/2018)	Percent Growth
	iCAS Twitter	148	208	40.54%

Best-Performing @CASact Twitter Post

Actuaries vs #ArtificialIntelligence -- who will be the victor? Read AR. #weekendread bit.ly/AR_JF18_Feat



10:05 AM - 3 Feb 2018

7 Retweets 10 Likes



Best-Performing @CASstudent Twitter Post



Best-Performing CAS Facebook Post



CAS Annual Meeting 2017



Casualty Actuarial Society was live.

✓ Following



14,591

People Reached

252

Engagements

Boost Post



24

1 Share 751 Views

Best-Performing Student Central Facebook Post

Find out why Forbes identified actuary as the most lucrative data analytics job: <http://ow.ly/8pU730h25DN>



This Data Analytics Job May Offer More Pay And Impact Than Data Scientist: Actuary

You want to be a data scientist. You may become happier and richer as an actuary.

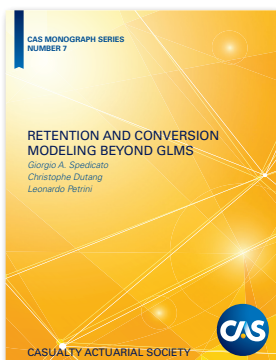
FORBES.COM

3,418 people reached

Boost Post

● Publications

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



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 2018 work continued on a number of monograph submissions, set to be released in 2019.



Actuarial Review

Actuarial Review is an in-depth actuarial news source for CAS members and candidates who want to know the latest in science and technology, business ethics and professionalism, as well as the achievements of CAS members and committees. In 2018 *AR* featured articles on the assessment of 2017's natural catastrophes, sea level rise and flood risk, automated vehicles' impact on insurance, the insurtech revolution, and cyber insurance.



Variance

Variance's mission is to disseminate practical and theoretical research of interest to casualty actuaries worldwide. In 2018 the CAS published volumes 10:2, 11:1-2 and 12:1, with Volume 11 being a special themed edition devoted to predictive analytics. The *Variance* Prize was awarded to Gregory F. McNulty for his *Variance* 11:1-2 paper, "Severity Curve Fitting for Long-Tailed Lines: An Application of Stochastic Processes and Bayesian Models."

FUTURE  FELLOWS

Future Fellows

Future Fellows is a vital publication 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 and continuing education.



CAS E-Forum

In 2018 the CAS *E-Forum* posted reports of the CAS Automated Vehicles Task Force and the CAS Working Party on Sustainable ERM (SERM), Ratemaking Call Papers, Climate Change Call Papers, and a host of independent research.

● CAS Governance— Board of Directors and Executive Council

Executive Council



Brian Z. Brown*
President



James Christie*
President-Elect



Sean P. McDermott
Vice President—
Administration



Jeanne Crowell
Vice President—
Admissions



Roger Hayne
Vice President—
International



Shane Barnes
Vice President—
Marketing &
Communications



Justin Brenden
Vice President—
Professional
Education



Avraham Adler
Vice President—
Research &
Development



Cynthia R. Ziegler
CAS Executive
Director,
Secretary/Treasurer

*Also a member of the Board of Directors

Board of Directors



Nancy Braithwaite
Immediate Past President



Brian Z. Brown
President



James Christie
President-Elect



James Guszczka
2018



Larry Haefner
2018



Mary T. Hosford
2018



Brad J. Monterio†
2018



G. Chris Nyce
2018



John Luckert
2019



Leslie Marlo
2019



Peter Millert†
2019



Claudine Modlin
2019



Mark R. Shapland
2019



William B. Wilder
2019



Katherine Antonello
2020



Frank Chang
2020



James Lynch
2020



Katey Walker
2020

† Appointed

● FY 2018 Financial Highlights

Membership Dues Dollars Allocation

The fiscal year ending September 30, 2018 resulted in an audited net income of \$1,629,500 compared to a budgeted net loss of \$457,653.

Income Statement

FUNCTION	REVENUE	EXPENSE	DIFFERENCE
Membership Services	\$4,851,732	\$5,350,723	(\$498,991)
Seminars	2,603,706	2,623,617	(19,911)
Meetings	2,257,848	1,858,921	398,927
Exams	12,040,645 (a)	11,134,206 (a)	906,439
Publications	166,285	532,754	(366,469)
TOTALS FROM OPERATIONS	\$21,920,216	\$21,500,221	\$419,995
Unrealized Gain/(Loss) and Change in Pension Liability			939,705
Change in Pension Liability			269,800
TOTAL NET INCOME (LOSS)			\$1,629,500

NOTE: (a) Includes \$7,660,835 of Volunteer Services for income and expense (SFAS 116).

Balance Sheet

ASSETS	9/30/2017	9/30/2018	DIFFERENCE
Cash and Cash Equivalents	\$2,595,829	\$2,462,301	(\$133,528)
T-Bill/Notes, Marketable Securities	14,931,832	16,696,020	1,764,188
Other Assets	979,390	889,533	(89,857)
TOTAL ASSETS	\$18,507,051	\$20,047,854	\$1,540,803
LIABILITIES	9/30/2017	9/30/2018	DIFFERENCE
Exam Fees Deferred	\$1,852,433	\$2,040,548	\$188,115
Seminar and Meeting Fees Deferred	1,365,882	1,191,608	(174,274)
Accounts Payable and Accrued Expenses	1,131,847	1,195,376	63,529
Accrued Pension	1,129,009	820,049	(308,960)
Other Deferred	750,354	893,247	142,893
TOTAL LIABILITIES	\$6,229,525	\$6,140,828	(\$88,697)
MEMBERS' EQUITY	\$12,277,526	\$13,907,026	\$1,629,500

Mary Hosford, Vice President-Administration

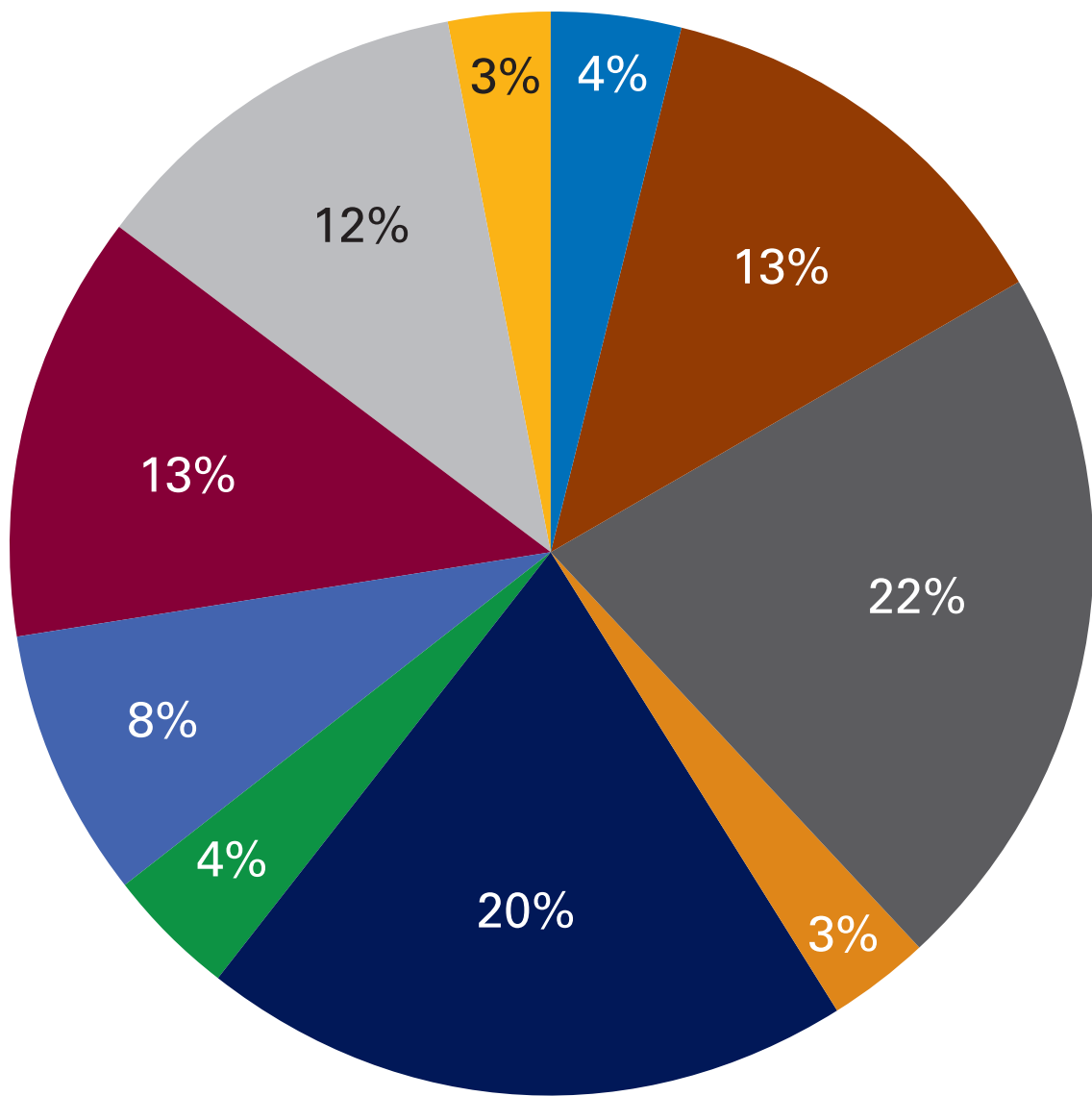
AUDITED

CAS Audit Committee

Mark Shapland, Chairperson
James Lynch, Vice-Chairperson

Ronald Kuehn, Stephen Mildenhall, Kay Rahardjo and Mary Hosford (ex officio)

Membership Service Expenses



- Governance - 22%
- International Activities - 20%
- Communications and Marketing - 13%
- Publications and Online Services - 13%
- Research 12%
- Professional Fees - 8%
- ASB/ABCD - 4%
- Miscellaneous - 4%
- The Actuarial Foundation Support - 3%
- Insurance - 3%

● CAS Society Partners Program

The CAS Society Partner's 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 2018, the CAS maintained corporate partnerships with 15 organizations.

Four Diamond Partners - \$25,000 Commitment



EzraPenland.com



Actuarial Recruitment



*It Takes One to Know One...
An Actuary Placing Actuaries
(and Related Professionals)*

Three Platinum Partners - \$20,000 Commitment



Three Gold Partners - \$15,000 Commitment



Five Silver Partners - \$10,000 Commitment



New Catastrophe Credentials Launched

As part of a partnership with The International Society of Catastrophe Managers (ISCM), iCAS introduced two new credentials that build upon knowledge and practice in the catastrophe management field and provide a benchmark for skills in catastrophe risk:

- Certified Specialist in Catastrophe Risk (CSCR) — a base credential that demonstrates a thorough understanding of essential catastrophe risk principles.
- Certified Catastrophe Risk Management Professional (CCRMP) — an advanced credential that recognizes the essential knowledge and mastery in the application of the principles and analytics in catastrophe risk management.

ISCM and iCAS will also provide a community of practice and opportunities for continuing education and collaboration to support catastrophe risk management professionals as a part of our partnership moving forward.

CSPA Credential Awarded to 140 Candidates

The Certified Specialist in Predictive Analytics (CSPA) credential was awarded to 140 new recipients in 2018, bringing the total number of CSPAs to 242.



During the 2018 CAS Ratemaking and Product Management Seminar in Chicago, Illinois, The CAS Institute honored the newest recipients of its CSPA credential. Over 80 recipients attended the 2018 RPM event and were recognized for their achievement.

Second Annual iCAS Community of Practice Event

The CAS Institute held its second Predictive Analytics Community of Practice Event on Monday, March 19, 2018. More than 30 members of iCAS discussed a variety of topics, including:

- “Bringing Actuarial Science into the Data Science Fold,” presented by Chris Monsour.
- “Claims Analytics,” presented by Ron Lettofsky.
- “How to Win an Analytics Competition,” led by Scott Sobel.
- “Data Preparation Tools and Issues,” presented by Louise Francis and Hernan Medina.

The group also had a lively discussion on the “Social Implications of Using Data,” facilitated by Bob Miccolis.





**Expertise. Insight.
Solutions.®**

Casualty Actuarial Society
4350 North Fairfax Drive, Suite 250
Arlington, Virginia 22203

casact.org