Monday, August 10

09:00-09:05 a.m. **Announcement and Introduction of Dean of the College of Business**

Sue Vagts, Director of Actuarial Science at University of Nebraska-Lincoln

09:05-09:15 a.m. **Welcome to ARC 2020**

Kathy Farrell, Dean of the College of Business

09:15-09:30 a.m. **Instructions and Recognition of Sponsors**

09:30-10:15 a.m. **Keynote Speaker: The COVID-19 Pandemic: Updates and a Perspective**

Michael T. Osterholm, PhD, School of Public Health, University of Minnesota

Moderator: Max Rudolph, Rudolph Financial Consulting, LLC

10:15-10:30 a.m. **Break**

10:30-11:45 a.m. **Concurrent Sessions 1**

1-SIS-A **Climate Data: Use & Management** **RT**

Moderator: Rob Montgomery, Society of Actuaries Consultant

Panelists: Patrick Wiese, Society of Actuaries

David Schneider, National Center for Atmospheric Research

James Penn, Deloitte LLP

Cindy Bruyère, National Center for Atmospheric Research

1-SIS-B **The Micro-Insurance Landscape** **TD**

Moderator: Ida Ferrara, York University

Panelists: Barbara Magnoni, EA Consultants

Michael J. McCord, MicroInsurance Center at Milliman

1-SIS-C **COVID-19: International Perspectives** **TD**

Moderator: John Robinson, Life Insurance Regulator, Minnesota

Panelists: Doug Andrews, University of Waterloo

Shubhash Gosine, Duggan Associates

1-PS-A **Cyber Risk**

Moderator: Maochao Xu, Illinois State University

10:30-10:55 a.m. **Cyber Claim Analysis Through Generalized Pareto Regression Trees With Applications to Insurance**

Authors: Sébastien Farkas,* Sorbonne University

Olivier Lopez, Sorbonne University

Maud Thomas, Sorbonne University

10:55-11:20 a.m. **Extreme Cyber Losses: An Alternative Approach to Estimating Probable Maximum Loss for Data Breach Risk**

Authors: Kwangmin Jung,* POSTECH/Drake University

11:20-11:45 a.m. **Unraveling Dependence Among Cyber Risks**

Authors: Maochao Xu,* Illinois State University

1-PS-B Post-Retirement Benefits

Moderator: Peter Hieber, University of Ulm

10:30-10:55 a.m. **AHP Application to Post-Retirement Planning and Decision-Revisited**

Authors: Marie-Claire Koissi,* University of Wisconsin- EC

Arnold F. Shapiro, Penn State University

10:55-11:20 a.m. **Tail Index-Linked Annuity: A Longevity Risk Sharing Retirement Plan**

Authors: Mark Schultze,* Ulm University

An Chen, Ulm University

Hong Li, University of Manitoba

Mark Schultze, Ulm University

11:20-11:45 a.m. **Optimal Retirement Products Under Subjective Mortality Beliefs**

Authors: Peter Hieber,* Uiversity of Ulm/Université Catholique de Louvain

An Chen, University of Ulm

Manuel Rach, University of Ulm

1-PS-C Actuarial Mathematics

Moderator: Jean-François Bégin, Simon Fraser University

10:30-10:55 a.m. **Probability of Up-Crossing Before Ruin for a Levy Process Having Two-Sided Jumps**

Authors: Mohammad Jamsher Ali,* University of Tartu

10:55-11:20 a.m. **Analysis of Bounds for the Tail of Bivariate Compound Distributions**

Authors: Ang Li,* University of Western Ontario

Jiandong Ren, University of Western Ontario

Ricardas Zitikis, University of Western Ontario

11:20-11:45 a.m. **Do Jumps Matter in the Long Run? A Tale of Two Horizons**

Authors: Jean-François Bégin,* Simon Fraser University

Mathieu Boudreault, Université du Québec à Montréal

11:45a.m.-12:45p.m. **Lunch Break - Fun and Games**

12:45-02:00 p.m.	**Concurrent Sessions 2**		
	2-SIS-A	**COVID-19 Overview**	**TD**
	Moderator:	Rhonda Ahrens, Nebraska Department of Insurance	
	Panelists:	Dale Hall, Society of Actuaries	
		Max Rudolph, Rudolph Financial Consulting, LLC	
	2-SIS-B	**US Health Care Reform Efforts: State Solutions To Stabilization Of Individual Market Premiums Through CMS Waivers**	**RT**
	Moderator:	Steven Konnath, Blue Cross and Blue Shield of Nebraska	
	Panelists:	Rick Rush, GERICK	
		Michael Cohen, Wakely	
		Veronica Fontama, Kaiser Permanente	
	2-PS-A	**Actuarial Techniques for COVID-19**	
	Moderator:	Hirbod Assa, University of Liverpool	
12:45-01:10 p.m.	**Risk Management: Evaluating the Role of a National Risk Avoidance Policy in Limiting the Spread of Corona Virus (Perspective from Saudi Arabia)**		
	Authors:	Hany Saleh,* Mansoura University	
01:10-01:35 p.m.	**Insurance-by-Credit**		
	Authors:	Hirbod Assa,* University of Liverpool	
	2-PS-B	**Optimization**	
	Moderator:	Frédéric Godin, Concordia University	
12:45-01:10 p.m.	**Deflators and Optimal Portfolios Under Random Horizon**		
	Authors:	Sina Yansori,* CIBC	
		Tahir Choulli	
01:10-01:35 p.m.	**Mean-Variance Investment and Risk Control Strategies: A New Time-Consistent Formulation**		
	Authors:	Bin Zou,* University of Connecticut	
01:35-02:00 p.m.	**A Mixed Bond and Equity Fund Model for the Valuation of Segregated Fund Policies**		
	Authors:	Frédéric Godin,* Concordia University	
		Maciej Augustyniak, University of Montreal,	
		Emmanuel Hamel, Université Laval	

	2-PS-C	**Statistical Issues**	
	Moderator:	Chudamani Poudyal, Tennessee Technological University	
12:45-01:10 p.m.	**Introduction to Splines and Their Implementation in Excel**		
	Authors:	Manoharareddy Ramireddy,* Maryville University	
		Kubrom Teka, Maryville University	
01:10-01:35 p.m.	**Regression Shrinkage and Selection for Actuarial Models**		
	Authors:	Gee Lee,* Michigan State University	
01:35-02:00 p.m.	**Estimating Longormal Insurance Payment Severity Models**		
	Authors:	Chudamani Poudyal,* Tennessee Technological University	
02:00-02:15 p.m.	**Break**		
02:15-03:30 p.m.	**Concurrent Sessions 3**		
	3-SIS-A	**Parametric Insurance**	**TD**
	Moderator:	Denise Olson, Zurich North America	
	Panelists:	Jonathan Charak, Zurich North America	
		Sebabrata Sarkar, Swiss Re	
		Kate Stillwell, Jumpstart	
	3-SIS-B	**Natural Hazards Risk Management**	**RT**
	Moderator:	Shasta Gaughen, Pala Environmental Department	
	Panelists:	Barbara Carby, University of the West Indies-Mona	
		Roger Pulwarty, NOAA Federal	
		Carolyn Kousky, University of Pennsylvania Wharton School	
		Daniel Aldrich, Northeastern University	
		Marty D. Matlock, University of Arkansas	
	3-SIS-C	**COVID-19: Life Insurance and Assets**	**TD**
	Moderator:	Noel Harewood, Ameritas	
	Panelists:	Andrew Hallsworth, SCOR	
		Edward Toy, Risk Regulatory Consulting	

3-PS-A **Machine Learning**

Moderator: Arnold Shapiro, Penn State University

02:15-02:40 p.m. **Joint Dynamic Pricing of Multiple Non-Life Perils Using Neural Networks and Telematics**

Authors: Roel Henckaerts,* Katholieke Universiteit Leuven

Katrien Antonio, Katholieke Universiteit Leuven

Marie-Pier Côté, Université Laval

02:40-03:05 p.m. **Quantile Regression Mixtures for Robust Estimates of Insurance Misrepresentation**

Authors: Jianxi Su,* Purdue University

Hong Li, University of Manitoba

Qifan Song, Purdue University

03:05-03:30 p.m. **Machine Learning: What Is It, What Are Its Components, and What Are Its Implications for the Insurance Industry?**

Authors: Arnold Shapiro,* Penn State University

3-PS-B **Variable Annuities**

Moderator: Thorsten Moenig, Temple University

02:15-02:40 p.m. **Pseudo-Model-Free Hedging for Variable Annuities Via Deep Reinforcement Learning**

Authors: Haoen Cui,* Georgia Institute of Technology

Wing Fung Chong, University of Illinois at Urbana-Champaign

Yuxuan Li, University of Illinois at Urbana-Champaign

02:40-03:05 p.m. **Green Nested Simulation of Variable Annuities**

Authors: Jessica Dang,* University of Waterloo

Ben Feng, University of Waterloo

Mary Hardy, University of Waterloo

03:05-03:30 p.m. **Efficient Valuation of Variable Annuity Portfolios With Dynamic Programming**

Authors: Thorsten Moenig,* Temple University

3-PS-C **Optimization**

Moderator: Silvana Pesenti, University of Toronto

02:15-02:40 p.m. **Bilateral Risk Sharing with Heterogeneous Beliefs and Exposure Constraints**

Authors: Mario Ghossoub,* University of Waterloo

Tim J. Boonen, University of Amsterdam

02:40-03:05 p.m. **Optimal Investment and Consumption With Forward Preferences and Uncertain Parameters**

Authors: Wing Fung Chong,* University of Illinois at Urbana-Champaign

Gechun Liang, University of Warwick

03:05-03:30 p.m. **Portfolio Optimisation Within a Wasserstein Ball**

Authors: Silvana Pesenti,* University of Toronto

Sebastian Jaimungal, University of Toronto

03:30-03:45 p.m. **Break**

03:45-05:00 p.m. **Concurrent Sessions 4**

4-SIS-A **Resolved: The United States Should Require That Persons in the United States Be Vaccinated if an Efficacious Covid-19 Vaccine Becomes Available** **DEBATE**

Moderator: John Robinson, Life Insurance Regulator, Minnesota

Panelists: David Cram Helwich, Debating Coach, University of Minnesota

Brian Rubaie, Debating Coach, University of Iowa

Hamza Jamal, University of Minnesota

Allegro Wang, University of Minnesota

Elizabeth Bennett, University of Iowa

Spencer Roetlin, University of Iowa

4-PS-A **Health Economics**

Moderator: Ian Duncan, University of California, Santa Barbara

03:45-04:10 p.m. **Trends in Pre-Diabetes: A Longitudinal Study of a South African Cohort**

Authors: Sam Zhang,* University of California, Santa Barbara

Kyle Guan,* University of California-Santa Barbara

Lingyu Zhou,* University of California-Santa Barbara

04:10-04:35 p.m. **Polypharmacy, Medication Possession and Deprescribing of Potentially Non-Beneficial Drugs In Hospice Patients**

Authors: Ian Duncan,* University of California, Santa Barbara

Terri Maxwell, Turn-Key Health

4-PS-B **Loss Reserving**

Moderator: Anas Abdallah, McMaster University

03:45-04:10 p.m. **Tort Reform and Physician Moral Hazard**

Authors: Juan Zhang,* NAIC

04:10-04:35 p.m. **Macro and Micro Loss Reserves With Inflation, Discount, Trends and Dependence**

Authors: Anas Abdallah,* McMaster University

Emmanuel Hamel, Laval University

Ghislain Léveillé, Laval University

05:30-06:30 p.m. **Poster Session**

Sensitivity Analysis With Chi-Square Divergences

Authors: Vaishno Devi Makam, University of London

Joint Generalized Quantile and Conditional Tail Expectation Regression for Insurance Risk Analysis

Authors: Albert Pitarque, University of Barcelona

Modelling Bivariate Count Data With Copula-Based Finite Mixture Models

Authors: Lluis Bermúdez, University of Barcelona

AutoSULT: An R Package for Generating Life Contingencies Problems

Authors: Chris Groendyke, Robert Morris University

Stochastic Mortality Modelling for Dependent Coupled Lives

Authors: Kira Henshaw, University of Liverpool

Actuarial Formula Predictor

Authors: Lahiru Somaratne, University of Nebraska - Lincoln

Minimizing Shootings in Multi-State and Differential Equation Models of Gun Violence

Authors: Yulong Wu, University of Michigan

Modeling Malicious Hacking Data Breach Risks

Authors: Hong Sun, Lanzhou University

Optimal Reinsurance and Investment Problem With Default Risk and Correlation for an Insurer Under the CEV Model

Authors: Yiqi Yan, Tianjin University

Robust Optimal Investment and Benefit Payment Adjustment Strategy for Target Benefit Pension Plans Under Default Risk

Authors: Hui Zhao, Tianjin University

Tuesday, August 11

08:00-09:15 a.m. **Concurrent Sessions 5**

5-SIS-A **Making Micro-Insurance Work for Women** **RT**

Moderator: Katherine Baez, Barna Management School/EA Consultants/ALAS

Panelists: Sarah Ebrahimi, International Finance Corporation

Queenie Chow, MicroInsurance Center at Milliman

Gilles Renouil, Women's World Banking

5-SIS-B **Cyber Risk** **TD**

Moderator: Cindy Xu, University of Nebraska-Lincoln

Panelists: Martin Eling, University of St. Gallen

Ben Goodman, 4A Security & Compliance

Greg Thompson, Manulife

Rainer Böhme, University of Innsbruck

5-SIS-C **Malaysia's National Islamic Insurance (i.e. Takaful) Scheme for the Underprivileged Group** **TD**

Moderator: Zainal Abidin Mohd Kassim, Actuarial Partners

Panelists: Jasveen Marne, Great Eastern Takaful Berhad

Khairul Anuar Che Yeop, Great Eastern Takaful Berhad

Irene Ng, GenRe Asia

5-PS-A **Mortality and Longevity**

Moderator: Fei Huang, University of New South Wales

08:00-08:25 a.m. **Mortality Forecasting Using Factor Models: Time-Varying or Time-Invariant Factor Loadings?**

Authors: Jianjie Shi,* Monash University

Lingyu He, Australian National University

Fei Huang, Australian National University

Yanrong Yang, Australian National University

08:25-08:50 a.m. **Tempered Pareto-Type Modelling Using Weibull Distributions**

Authors: José Carlos Araujo-Acuna,* University of Lausanne

Hansjörg Albrecher, University of Lausanne

Jan Beirlant, University of the Free State

08:50-09:15 a.m **Modelling Life Tables With Advanced Ages: An Extreme Value Theory Approach**

Authors: Fei Huang,* University of New South Wales
Ross Maller, Australian National University
Xu Ning, Australian National University

5-PS-B Long-Term Care

Moderator: Yang Shen, University of New South Wales

08:00-08:25 a.m. **Disability and Survival Among People aged 50+: The English Longitudinal Study of Ageing**

Authors: Marjan Qazvini,* Heriot-Watt University

08:25-08:50 a.m. **Demand for Reverse Mortgages: The Role of Mental Accounting and Choice Bracketing**

Authors: Tin Long Ho,* University of New South Wales
Hazel Bateman, University of New South Wales
Joshua Funder, Household Capital Pty Ltd
Katja Hanewald, University of New South Wales

08:50-09:15 a.m. **Combining Reverse Mortgage and Long-Term Care Insurance**

Authors: Yang Shen,* University of New South Wales
Michael Sherris, University of New South Wales
Ning Wang, Macquarie University
Jonathan Ziveyi, University of New South Wales

5-PS-C Demography

Moderator: Katja Hanewald, University of New South Wales

08:00-08:25 a.m. **Using Bayesian Spatiotemporal Modeling to Understand Mortality Rates in the United States**

Authors: Zoe Gibbs,* Brigham Young University
Chris Groendyke, Robert Morris University
Brian Hartman, Brigham Young University
Robert Richardson, Brigham Young University

08:25-08:50 a.m. **Age Heaping in Population Data of Emerging Countries**

Authors: Andres Barajas Paz,* Heriot-Watt University
Andrew Cairns, Heriot-Watt University
Torsten Kleinow, Heriot-Watt University

08:50-09:15 a.m.	**Subnational mortality modeling: Bayesian hierarchical models with common factors**		
	Authors:	Katja Hanewald,* University of New South Wales	
		Qian Lu, Renmin University of China	
		Xiaojun Wang, Renmin University of China	
09:15-09:30 a.m.	**Break**		
09:30-10:30 a.m.	**Keynote Speaker: The Voluntary D.I.E.T. - How to Gain More Than You Lose and Still Feel Great**		
	Jeff Johnson, FSA, MAAA, Actuary, John Hancock Life Insurance Company		
	Moderator: John Robinson, Life Insurance Regulator, Minnesota		
10:30-10:45 a.m.	**Break**		
10:45a.m.-12:45 p.m.	**Session 6**		
	6-SIS-A	**Diversity and Inclusion Panel**	**RT**
	Moderator:	Sharon Robinson, Zurich North America	
	Panelists:	Adelaida Campos, Organization of Latino Actuaries President	
		Roy Goldman, Society of Actuaries President Elect	
		Mallika Bender, Co-Chair of Joint Casualty Actuarial Society/Society of Actuaries Committee on Inclusion, Equity and Diversity	
		Jason Leppin, Actuarial Foundation Executive Director	
		Jacque Friedland, Canadian Institute of Actuaries President Elect	
		Dwayne Husbands, International Association of Black Actuaries President Elect	
		Shawna Ackerman, American Academy of Actuaries Immediate Past President	
12:45-01:00 a.m.	**Break**		
01:00-02:15 p.m.	**Concurrent Sessions 7**		
	7-SIS-A	**Impact of Climate Change on Vulnerable Populations**	**RT**
	Moderator:	Jesse Bell, University of Nebraska Medical Center	
	Panelists:	Maxine Burkett, University of Hawai'i-Mānoa	
		Jesse Bell, University of Nebraska Medical Center	
		Marty D. Matlock, University of Arkansas	
		Jeniffer Hanna Collado, Dominican Republic	
		Nicolette Elvira Cooley, Northern Arizona University	

7-SIS-B **Being an Actuary** **RT**

Moderator: John Robinson, Life Insurance Regulator, Minnesota

Panelists: Mischelle Schweickert, Kaiser Permanente

Eric Atwater, Aon

Jennifer Middough, Liberty Mutual

Brian Hartman, Brigham Young University

7-PS-A **Actuarial Modeling**

Moderator: Chau Lung Ngan Spark Tseung, University of Toronto

01:00-01:25 p.m. **On the Cost of Misspecifying Risk Categories in Pricing**

Authors: Dina Finger,* University of Lausanne

Hansjoerg Albrecher, University of Lausanne

01:25-01:50 p.m. **Deep Hedging of Long-Term Derivatives: A Numerical Study**

Authors: Alexandre Carbonneau,* Concordia University

01:50-02:15 p.m. **LRMoE: An R Package for Flexible Actuarial Loss Modelling Using Mixture of Experts Regression Model**

Authors: Chau Lung Ngan Spark Tseung,* University of Toronto

Andrei Badescu, University of Toronto

Tsz Chai Fung, University of Toronto

Sheldon Lin, University of Toronto

7-PS-B **Mortality and Longevity**

Moderator: Hong Li, University of Manitoba

01:00-01:25 p.m. **Local Modeling of U.S. Mortality Rates: A Multiscale Geographically Weighted Regression Approach**

Authors: Kyran Cupido,* St. Francis Xavier University

A.Stewart Fotheringham, Arizona State University

Petar Jevtic, Arizona State University

01:25-01:50 p.m. **Unravelling the Contribution of Financial and Longevity Risks to Changes Over Time in Life Annuities**

Authors: Jesus-Adrian Alvarez,* University of Southern Denmark

Andres M. Villegas, University of New South Wales Business School

01:50-02:15 p.m. **Forecasting Mortality With International Linkages: A Global Vector-Autoregression Approach**

Authors: Hong Li,* University of Manitoba

Yanlin Shi, Macquarie University

	7-PS-C	**Actuarial Risk Theory**	
	Moderator:	Corina Constantinescu, University of Liverpool	
01:00-01:25 p.m.	**Ruin Probabilities for Generalisations of Cox-Renewal Risk Processes Via Time Change**		
	Authors:	Ronnie Loeffen,* University of Manchester	
01:25-01:50 p.m.	**Ruin and Dividend Measures in the Renewal Dual Risk Model**		
	Authors:	Renata Alcoforado,* Universidade de Lisboa	
		Agnieszka I. Bergel, Universidade de Lisboa	
		Alfredo D. Egídio dos Reis, Universidade de Lisboa	
		Rui M. R. Cardoso, Universidade Nova de Lisboa	
		Eugenio V. Rodriguez-Martinez, Universidade de Lisboa	
01:50-02:15 p.m.	**A Ruin Model With a Resampled Environment**		
	Authors:	Corina Constantinescu,* University of Liverpool	
		Michel Mandjes, University of Amsterdam	
		Leonardo Rojas-Nandayapa, University of Liverpool	
		Guusje Delsing, University of Amsterdam	
02:15-02:30 p.m.	**Break**		
02:30-03:45 p.m.	**Concurrent Sessions 8**		
	8-SIS-A	**Climate Finance**	**RT**
	Moderator:	Thomas Singh, University of Guyana	
	Panelists:	Michael A. Goldstein, Babson College	
		Steve Kolk, Kolkulations LLC	
		Didier Serre Ruah, Analysis Group	
		Rade Musulin, Finity Consulting	
	8-SIS-B	**The Impact of COVID-19 on Health Care Utilization: Commercial, Medicare and Medicaid**	**RT**
	Moderator:	Gopi Shah Goda, Stanford University	
	Panelists:	Steven Konnath, Blue Cross & Blue Shield of Nebraska	
		Sabrina Gibson, Centene	
		Erik Anderson, Humana	

8-PS-A **Financial Mathematics**

Moderator: Ruodu Wang, University of Waterloo

02:30-02:55 p.m. **Convolution Bounds on Quantile Aggregation**

Authors: Yang Liu,* Tsinghua University

Ruodu Wang, University of Waterloo

02:55-03:20 p.m. **A Comprehensive Framework for Flexible Group Benefit Plans**

Authors: Cherie Ng,* Simon Fraser University

Jean-François Bégin, Simon Fraser University

Barbara Sanders, Simon Fraser University

03:20-03:45 p.m. **Some Recent Theories for the Expected Shortfall (TVaR)**

Authors: Ruodu Wang,* University of Waterloo

8-PS-B **Predictive Modeling**

Moderator: Margie Rosenberg, University of Wisconsin-Madison

02:30-02:55 p.m. **Benchmarking Predictive Models for Insurance Pricing: A Story of Black Boxes and Surrogate Models**

Authors: Marie-Pier Côté,* Universite Laval

Roel Henckaerts, Katholieke Universiteit Leuven

Katrien Antonio, Katholieke Universiteit Leuven

02:55-03:20 p.m. **A Posteriori Ratemaking Using the Bivariate Negative Binomial-Inverse Gaussian Regression Model**

Authors: George Tzougas,* London School of Economics

A. Pignatelli di Cerchiara, London School of Economics

03:20-03:45 p.m. **Predicting the Highest Health Care Utilizers Using Clustering Methods**

Authors: Margie Rosenberg,* University of Wisconsin-Madison

Fanghao Zhong, New York University

8-PS-C **Variable Annuities**

Moderator: Wenchu Li, Temple University

02:30-02:55 p.m. **High-Water Mark Fee Structure in Variable Annuities**

Authors: Yumin Wang,* University of Waterloo

David Landriault, University of Waterloo

Bin Li, University of Waterloo

Dongchen Li, University of St. Thomas

02:55-03:20 p.m.	**Accommodation or Obfuscation? Product Innovation in the Variable Annuities Market**		
	Authors:	Xiaochen Jing,* University of Wisconsin-Madison	
		Daniel Bauer, University of Wisconsin-Madison	
03:20-03:45 p.m.	**Basis Risk in Variable Annuities**		
	Authors:	Wenchu Li,* Temple University	
		Thorsten Moenig, Temple University	
		Maciej Augustyniak, University of Montreal	
03:45-04:00 p.m.	**Break**		
04:00-05:15 p.m.	**Concurrent Sessions 9**		
	9-SIS-A	**Medicaid Deep Dive: The Impact of COVID-19 on Medicaid Enrollment, Access, and Key Services for People With Disabilities**	**TD**
	Moderator:	Mary Hegemann, Wakely	
	Panelists:	Julia Lerche, NC Medicaid	
		Ellen Breslin, Health Management Associates	
		Allison Orris, Manatt Health	
	9-SIS-B	**Impact of COVID-19 on P&C Markets: North America and International**	**RT**
	Moderator:	Ian Sterling, KPMG	
	Panelists:	Ian Sterling, KPMG	
		Bill Van Dyke, Deloitte	
		Brian Fannin, Casualty Actuarial Society	
		Volker Kudszus, S&P Global	
		Jefferson Gibbs, KPMG	
	9-PS-A	**Actuarial Techniques for COVID-19**	
	Moderator:	Michael Ludkovski, University of California, Santa Barbara	
04:00-04:25 p.m.	**Pandemic Risk Management: Resources Contingency Planning and Allocation**		
	Authors:	Runhuan Feng,* University of Illinois at Urbana-Champaign	
		Xiaowei Chen, Nankai University	
		Wing Fung Chong, University of Illinois at Urbana-Champaign	
		Linfeng Zhang, University of Illinois at Urbana-Champaign	

04:25-04:50 p.m. **Gaussian Process Modeling for Covid-19 Excess Deaths**

Authors: Michael Ludkovski,* University of California, Santa Barbara

Nhan Huynh, University of California, Santa Barbara

9-PS-B Cyber Risk

Moderator: Petar Jevtic, Arizona State University

04:00-04:25 p.m. **Statistical Modeling of Data Breaches and Its Application in Cyber Insurance**

Authors: Meng Sun,* Simon Fraser University

Yi Lu, Simon Fraser University

04:25-04:50 p.m. **(Self-)Insurance of Social Networks: Dynamic Structural Percolation Model of Loss Distribution on Erdős-Rényi graphs**

Authors: Petar Jevtic,* Arizona State University

Nicolas Lanchier, Arizona State University

9-PS-C General Insurance

Moderator: Michael Sherris, University of New South Wales

04:00-04:25 p.m. **Peer-to-Peer Multi-Risk Insurance and Mutual Aid**

Authors: Samal Abdikerimova,* University of Illinois at Urbana-Champaign

Runhuan Feng, University of Illinois at Urbana-Champaign

04:25-04:50 p.m. **Demand for Non-Life Insurance under Habit Formation**

Authors: Wenyuan Li,* University of Waterloo

Ken Seng Tan, Nanyang Technological University

Pengyu Wei, University of Waterloo

04:50-05:15 p.m. **Developments in Multi-Factor and Multi-Cohort Continuous Time Mortality Modelling**

Authors: Michael Sherris,* University of New South Wales

05:30-06:30 p.m. **Henry Doorly Zoo Backstage Virtual Tour Sponsored by Ameritas**

Wednesday, August 12

07:30-08:45 a.m. **Concurrent Sessions 10**

10-SIS-A **Micro-Insurance: Case Studies and Lessons Learned** **RT**

Moderator: Luis Arcila, MAPFRE - Peru

Panelists: Lisa Morgan, ILO

Katharine Pulvermacher, MicroInsurance Network

Richard Leftley, MicroEnsure

Saurabh Sharma, MicroInsurance at Britam

10-PS-A **Actuarial Risk Theory**

Moderator: Jae Youn Ahn, Ewha Womans University

07:30-07:55 a.m. **Dividend Barrier Strategies in a Renewal Risk Model With Phase-Type Distributed Interclaim Times**

Authors: Linlin Tian,* Nankai University

Zhaoyang Liu, Nankai University

07:55-08:20 a.m. **Testing for Random Effects in Compound Risk Models via Bregman Divergence**

Authors: Himchan Jeong,* Simon Fraser University

08:20-08:45 a.m. **Collective Risk Model: Choices Between Historical Frequency and Aggregate Severity.**

Authors: Jae Youn Ahn,* Ewha Womans University

Rosy oh, Ewha Womans University

Youngju Lee, Ewha Womans University

Dan Zhu, Monash University

10-PS-B **Actuarial Modeling**

Moderator: Biju Mathew, Malabar Christian College

07:30-07:55 a.m. **A Generalized Linear Model for Bush Fire Insurance in Australia**

Authors: Kevin Fergusson,* University of Melbourne

07:55-08:20 a.m. **Generalized Risk-Based Premiums for Insurance Guaranty Schemes**

Authors: Gaeun Lee,* Sungkyunkwan University

Hangsuck Lee, Sungkyunkwan University

Seongju Song, Korea University

08:20-08:45 a.m. **What Determines Life Insurance Lapsation in Kerala, India?**

Authors: Biju Mathew,* Malabar Christian College

S. Sunitha, NIT Calicut

10-PS-C **Quantitative Risk Management**

Moderator: Rosy Oh, Ewha Womans University

07:30-07:55 a.m. **Monte Carlo Valuation of Future Annuity Contracts**

Authors: Fabio Viviano,* University of Udine

Anna Rita Bacinello, University of Trieste

Pietro Millossovich, University of London

07:55-08:20 a.m. **Optimal Reinsurance to Minimize the Probability of Drawdown Under the Mean-Variance Premium Principle**

Authors: Xia Han,* Nanjing Normal University

Zhibin Liang, Nanjing Normal University

Virginia R. Young, University of Michigan

08:20-08:45 a.m. **On Copula-based Collective Risk Models:from Elliptical Copulas to Vine Copulas**

Authors: Rosy Oh,* Ewha Womans University

Jae Youn Ahn, Ewha Womans University

Woojoo Lee, Seoul National University

08:45-09:00 a.m. **Break**

09:00-10:00 a.m. **Keynote Speaker: Longevity Risk and COVID-19: A Model for the Future**

Amy Kessler, SVP and Head of Longevity Risk Transfer, Prudential Retirement

Moderator: Yijia Lin, University of Nebraska-Lincoln

10:00-10:15 a.m. **Break**

10:15-11:30 a.m. **Concurrent Sessions 11**

11-SIS-A **Agriculture Insurance** **RT**

Moderator: Cory Walters, University of Nebraska-Lincoln

Panelists: Cory Walters, University of Nebraska-Lincoln

Kwasi Etu-Bonde, Agribusiness and Rural Development Consultant

Colby D. Duren, University of Arkansas

David Hennessy, Michigan State University

George Kuria, ACRE Africa

Collin Olsen, US RMA Topeka

Tara Chiu, University of California Davis

	11-SIS-B	**Professionalism:Being an Actuary - Beyond the Mathematics**	**TD**
	Moderator:	Sarah Christiansen, Insurance Strategies Consulting	
	Panelists:	Warren Luckner, University of Nebraska-Lincoln (Emeritus)	
	11-SIS-C	**New Tools New Opportunities**	**TD**
	Moderator:	John Robinson, Life Insurance Regulator, Minnesota	
	Panelists:	Sam Wehner, Actuarial Resources Corporation	
		Ronald Richman, QED Actuaries & Consultants	
		Mike Ludkovski, University of California, Santa Barbara	
	11-PS-A	**Financial Mathematics**	
	Moderator:	Tim J. Boonen, University of Amsterdam	
10:15-10:40 a.m.	**Haezendonck-Goovaerts Capital Allocation Rules**		
	Authors:	Gabriele Canna,* Università di Milano-Bicocca	
		Francesca Centrone, Università del Piemonte Orientale	
		Emanuela Rosazza Gianin, Università di Milano-Bicocca	
10:40-11:05 a.m.	**Predicting the Time for the Highest Gain for the Money Makers**		
	Authors:	Mian Adnan,* Bowling Green State University	
11:05-11:30 a.m.	**Insurance With Heterogeneous Preferences**		
	Authors:	Tim J. Boonen,* University of Amsterdam	
		Fangda Liu, University of Waterloo	
	11-PS-B	**Predictive Modeling**	
	Moderator:	Brian Hartman, Brigham Young University	
10:15-10:40 a.m.	**Inference on Latent Factor Models for Informative Censoring**		
	Authors:	Francesco Ungolo,* Technische Universiteit Eindhoven	
		Edwin R. van den Heuvel, Technische Universiteit Eindhoven	
10:40-11:05 a.m.	**Discrimination-Aware Decisions in Finance and Insurance**		
	Authors:	Carlos Araiza,* University of Waterloo	
		Mary Hardy, University of Waterloo	
		Paul Marriott, University of Waterloo	

11:05-11:30 a.m. **Synthesizing Property & Casualty Ratemaking Datasets using Generative Adversarial Networks**

Authors: Brian Hartman,* Brigham Young University
Marie-Pier Cote, Universite Laval
Olivier Mercier, Universite Laval
Joshua Meyers, Brigham Young University

11-PS-C Life Insurance

Moderator: Xun Zhang, Central University of Finance and Economics

10:15-10:40 a.m. **Is There Structural Exploitation in Life Settlement Market?**

Authors: Yujia Zhang,* Renmin University of China
Wing Fung Chong, University of Illinois at Urbana-Champaign
Runhuan Feng, University of Illinois at Urbana-Champaign
Li Wei, Renmin University of China

10:40-11:05 a.m. **Hedge Interest Rate Risk: Evidence from U.S. Life Insurance Industry**

Authors: Qianlong Liu,* Georgia State University

11:05-11:30 a.m. **Asset-Liability Management of Life Insurers in the Negative Interest Rate Environment**

Authors: Xun Zhang,* Central University of Finance and Economics
Yijia Lin, University of Nebraska-Lincoln
Sheen Liu, Washington State University
Ken Seng Tan, Nanyang Technological University

11:30a.m.-12:00p.m. **Announcements, Invitation to ARC 2021, etc...**

12:00-01:00 p.m. **Lunch Break, Comments from CAS and SOA Presidents starting at 12:10**

01:00-02:15 p.m. **Concurrent Sessions 12**

12-SIS-A Blockchain/Smart Contracts **RT**

Moderator: Petar Jevtic, Arizona State University

Panelists: Melanie J. Cutlan, Accenture
David Riker, Multisided Ventures
Asha Vellaikal, Marsh Digital
Gary Marchant, Arizona State University
Jon Godfread, North Dakota Insurance Commissioner

	12-SIS-B	**Social and Racial Inequities in Health**	**TD**
	Moderator:	Roy Machamire, Kaiser Permanente	
	Panelists:	Julia Raifman, Boston University School of Public Health	
		Isaac Edrah, Deloitte	
		Cornell P. Wright, NC Office of Minority Health and Health Disparities	
		Dejun Su, University of Nebraska Medical Center	
		Edward Fox, National Indian Health Board	
		Sade Kosoko-Lasaki, Creighton University	
	12-PS-A	**Machine Learning**	
	Moderator:	Marie-Claire Koissi, University of Wisconsin- EC	
01:00-01:25 p.m.	**Data Augmentation for Improving Telematics based Risk Evaluation**		
	Authors:	Sak Lee,* University of Iowa	
		Nariankadu D. Shyamalkumar, University of Iowa	
01:25-01:50 p.m.	**A Machine Learning Approach to Incorporating Industry Mortality Table Features Into a Company's Insured Mortality Analysis**		
	Authors:	Marc Vincelli,* SCOR	
01:50-02:15 p.m.	**Emerging Data Analytics Techniques With Actuarial Applications**		
	Authors:	Marie-Claire Koissi,* University of Wisconsin- EC	
		Herschel Day, University of Wisconsin- EC	
		Vicki Whitledge, University of Wisconsin- EC	
		Su Qian Ng, University of Wisconcin - EC	
	12-PS-B	**Mortality and Longevity**	
	Moderator:	Thomas Bernhardt, University of Michigan	
01:00-01:25 p.m.	**Adjusting for IBNR in Life Settlements Mortality Using Cure Rate Models**		
	Authors:	Hong Beng Lim,* University of Iowa	
		N.D. Shyamalkumar, University of Iowa	
01:25-01:50 p.m.	**Stacked Regression Ensemble Learning for Mortality Forecasting**		
	Authors:	Salvatory Kessy,* University of New South Wales	
		Andres M Villegas Ramirez, University of New South Wales	
01:50-02:15 p.m.	**The Exact Number of Members that Remove Idiosyncratic Mortality Risk In Pooled Annuity Funds**		
	Authors:	Thomas Bernhardt,* University of Michigan	
		Catherine Donnelly, Heriot-Watt University	
	12-PS-C	**Professional Actuarial Education**	
	Moderator:	Stuart Klugman, Society of Actuaries	

01:00-01:25 p.m.	**Academic Integrity in the Time of COVID-19**	
	Authors:	Diana Skrzydlo,* University of Waterloo
01:25-01:50 p.m.	**Enhancing the Utility of Complex Tables in Actuarial Teaching**	
	Authors:	Russell Hendel,* Towson University
01:50-02:15 p.m.	**Society of Actuaries Education Update**	
	Authors:	Stuart Klugman,* Society of Actuaries
02:15-02:30 p.m.	**Break**	
02:30-03:45 p.m.	**Concurrent Sessions 13**	
	13-SIS-A	**COVID-19 – Retirement/Individual Impact** **TD**
	Moderator:	Steve Siegel, Society of Actuaries
	Panelists:	Anna Rappaport, Anna Rappaport Consulting
		Carol Bogosian, CAB Consulting
03:45-04:00 p.m.	**Break**	
04:00-04:30 p.m.	**Closing Ceremony**	

Note:

1. All events are listed in North American Central Time Zone (CDT).
2. SIS = Special Invited Session and PS = Parallel Session.
3. RT = Round Table Format and TD = Traditional Slide Presentation Format.
4. For PS, "*" Denotes the presenter or poster presenter.

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Senior, Economics and Actuarial Science

Li-Jing Li (co-leader)

Graduate Student, Actuarial Science

XueYao Qi (co-leader)

Senior, Actuarial Science and Finance

Chengjie Tang (co-leader)

Graduate Student, Actuarial Science

Noelle Mware

Graduate Student, Civil Engineering

Doris Kedou Ngabgna

Junior, Actuarial Science

Justin Niyongabo

Junior, Integrated Science

Matthew Ringler

Senior, Actuarial Science

Siok Ann Siek

Senior, Actuarial Science

Vu Nhat Nguyen Tran

Junior, Actuarial Science

Xueqiang Wang

Senior, Finance

Jing Weng

Senior, Accounting

Xuan Wu

Sophomore, Actuarial Science

Bo Yang

Senior, Mechanical Engineering

Liming Zheng

Senior, Finance

Operations Committee

Emily Bergen

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Rhonda Ahrens

Nebraska Department of Insurance

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Edward Furman

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Steven Konnath

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Ameritas Life Insurance Corp

Mary Hegemann

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