ASA Section on Lifetime Data Science

LiDS Newsletter

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In Brief

LiDS Sessions at 2026 JSM
Three invited sessions
Two topic-contributed sessions

2026 LiDS Student Paper Awards
Five awardees announced
Award talks at the LiDS topic-contributed session (JSM 2026)

LiDS Webinars
March 4, 2026: James Zou (Stanford University)
Registration opens soon

2027 LiDS Conference
June 9–11, 2027: Milwaukee, WI
More information coming soon

Chair's Message

Dear LiDS members,
When I was approached about running for chair of the LiDS section, I had little hesitation. First, because it is an honor to be asked. Second, I had a very nice time at the previous LiDS conference in Raleigh, NC in spring of 2023, and I wanted to do what I could to help continue the tradition of putting on these conferences. The time in Raleigh was one of the first conferences I went to after the shutdown from COVID-19, and I realized that it really does matter to be together with people in person. I remember reconnecting with colleagues that I used to work with more closely, and reconnecting with researchers who had been doing work similar to my own. Finally, and importantly, meeting people for the first time who I had read their papers. It was so nice to put a face to the writers of that work.

Last year, the 2025 LiDS conference in Brooklyn was a fantastic time for me, as expected. There is something nice about a smaller meeting (compared to JSM) that has a different feeling, and allows you to get to know people who study and develop and use Lifetime Data Science methods.

As the Chair-elect the previous year, I have learned more about many of the things the section does besides running our biennial conference, from running Webinars, to giving student awards to meetings, and sponsoring invited and topic-contributed sessions at the Joint Statistical Meetings (JSM). This newsletter will fill in some details of those activities. And in terms of the LiDS conference, readers should know that the executive committee has decided on the next LiDS conference will be held June 9–11, 2027 in Milwaukee, Wisconsin. More details will follow in future newsletters.

I wanted to personally thank the members of the executive committee that have finished their service. (Tony) Jianguo Sun, the past chair of LiDS, and Pamela Shaw, the past program chair, have both finished their 3 years of excellent service. Wenjie Wang has finished service as communications officer. We welcome their replacements: Ronghui (Lily) Xu, Joel Dubin, and Steven Chiou. I look forward to continuing working with the executive committee. I will do my best to continue the tradition of the great work of this section. If you have any ideas for activities that the section can do, please do not hesitate to contact me, `mfay@niaid.nih.gov`.

Michael Fay
Chair 2026

Mathematical Statistician
National Institute of Allergy and Infectious Diseases

Message from the Past Chair

Dear members and friends of the LiDS Section,

As I come to the end of my term as 2025 Chair of LiDS, I would like to express my deep gratitude for the trust you have placed in me. It has been both an honor and a privilege to serve this section.

Over the past year, I have been continually inspired by the dedication, expertise, and generosity of spirit shown by our members and leadership. Together through webinar, 2025 Lifetime Data Science Conference, and 2025 JSM and other activities, we have advanced meaningful initiatives, strengthened our community, and reaffirmed the values that define LiDS.

One notable achievement is that the ASA Council of Sections Governing Board has increased our section's allocation to two invited sessions at JSM beginning in 2026, up from one in prior years. Another important advance is the revision of the ***Charter of the Lifetime Data Science Section*** to incorporate necessary updates. None of this would have been possible without your engagement, collaboration, and support.

I am especially grateful to the executive committee, volunteers, and partners who have worked tirelessly behind the scenes. I would like to extend my sincere thanks to the members of the executive committee: Drs. (Tony) Jianguo Sun (Past-Chair), Michael Fay (Chair-Elect), Fei Gao (Administrative Officer), Yifei Sun (Treasurer), Mengling Liu (Program Chair), Pamela Shaw (Past Program Chair), Lu Mao (Program Chair-Elect), Shanshan Zhao (COS representative), Wenbo Wu (Chair, Webinar Committee), Zhe Fei (Co-Chair: Webinar Committee). Your leadership and willingness to give your time and talents have been instrumental to our success.

I would also like to acknowledge the success of the 4th LiDS Conference, themed ***Lifetime Data Science and the World***. This event would not have been possible without the extraordinary efforts of the various committee chairs: Drs. Wenbo Wu (Local Organizing), Nicholas Hartman (Online Platform), Dayu Sun (Program Book), Leilei Zheng (Student Awards), and Mengling Liu (Short Course). Their many hours of dedication and commitment were essential to the conference's success. In addition, we are deeply grateful to all sponsors for their generous support of the conference.

Finally, it has been a great pleasure to work with Drs. Ding-Geng Chen, Ming-Yue Du, and (Tony) Jianguo Sun as co-editors of the book ***Next-Gen Lifetime Data Analysis: Emerging Innovations and Applications***. Their efforts will help advance next-generation developments based on the topics presented at the 4th LiDS Conference.

The Executive Committee is pleased to welcome Dr. Joel Dubin, who will serve as Program Chair-Elect next year, and Dr. (Lily) Ronghui Xu, who was elected as 2026 Chair-Elect. Dr. Wenjie Wang, who has been responsible for the LiDS newsletter and website as our communications officer, has completed his term, and Dr. Steven Chiou will assume the role of communications officer beginning in 2026. We are honored and privileged to have the service of these dedicated colleagues.

I am confident that the section is in strong hands, and I am certain that the next leadership team under the leadership of Dr. Michael Fay will continue to advance our mission with determination and vision. I look forward to supporting the section in new ways and watching it continue to grow and thrive under new leadership.

Thank you once again for the opportunity to serve. I will always value this experience and the relationships formed along the way.

Zhezhen Jin
Chair 2025

Professor
Columbia University

2026 Election Candidates

The Section on Lifetime Data Science is electing three new Executive Committee members during the 2026 ASA Elections: Chair-Elect, Program Chair-Elect, and Treasurer. I am pleased to share that the Nominations Committee has finalized the following strong slate of candidates who have agreed to stand for election:

Chair-Elect 2027
Hongyuan Cao Florida State University
Ying Zhang University of Nebraska Medical Center

Program Chair-Elect 2027
Wenbo Wu Johns Hopkins Bloomberg School of Public Health
Qingning Zhou UNC Charlotte

Treasurer 2027 – 2029
Soyoung Kim Medical College of Wisconsin, Milwaukee
Matt Lee NYU Grossman School of Medicine

We extend our gratitude to the candidates for their willingness to serve on the LiDS Executive Committee! The election process will be administered by the ASA, and biographies for each candidate will be available in the weeks leading up to the election.

The 2025 LiDS Nominations Committee consisted of Pamela Shaw, Bing Zhang, and me. I would like to thank Pamela and Bing for their excellent work over the past year.

(Tony) Jianguo Sun
Nomination Committee Chair 2025

Curators Distinguished Professor
University of Missouri

Report from the Administrative Officer

As of January 5, 2026, our section had a total of 877 members. Our official website is maintained by our communication officer, Steven Chiou (email: `schiou@smu.edu`). The website can be accessed at `https://community.amstat.org/lids/home/`.

The section's 2025 annual meeting took place on August 4, 2025, during JSM at Nashville, Tennessee. It was chaired by the Section Chair Zhezhen Jin, and members of the LiDS Executive Committee provided updates and presentations. The

section also congratulated its two newly elected IMS Fellows (Drs. Jelena Bradic and Chiung-Yu Huang) and three newly elected ASA Fellows (Drs. Ying Ding, Malka Gorfine, and Hormuzd Katki).

Fei Gao
Administrative Officer 2025–2027

Associate Professor
Fred Hutchinson Cancer Center

2026 LiDS Student Paper Award Winners

Thank you to all the students who participated in the 2026 LiDS Student Paper Competition and to our dedicated review committee for their time and thoughtful evaluations. We are pleased to announce this year's award recipients.

Award Winners:

James Peng, University of Washington, "*Vaccine sieve analysis on deep sequencing data using competing risks Cox regression with failure type subject to misclassification*"

Han Lu, University of Minnesota Twin Cities, "*Nonparametric estimation of event-free survival for data with left-truncated death and intermittently assessed nonfatal events*"

Shike Xu, University of Connecticut, "*A Bayesian stochastic order-based C-index to quantify the association between jointly modeled longitudinal biomarkers and survival data*"

Yuchen Qi, University of California San Diego, "*Martingale R-learner: Estimating time-varying heterogeneous treatment effects for time-to-event outcomes*"

Yue Zhan, University of Nebraska Medical Center, "*Joint analysis for multivariate longitudinal and event time data with a change point anchored at interval-censored event time*"

Please join us in congratulating the winners! The awardees will present their work in the LiDS topic-contributed session during the JSM 2026 in Boston. We encourage all members to attend and learn more about these innovative contributions.

Mengling Liu
2025 Program Chair

Professor
New York University

Treasurer's Report

The beginning balance of the LiDS Section account on January 1, 2025, was $49,751, and the ending balance on December 31, 2025, was $71,185. The total income was $157,407, mainly composed of registration fees and sponsorship for the 2025 LiDS conference, and membership dues. The total expenses were $135,973, primarily driven by conference-related expenditures. These expenses included conference merchandise, honoraria, food and beverage, AV equipment rental, and awards.

Beginning Balance	**01/01/2025**	**$49,751**
Income		
Membership Dues		$1,662
Registration Fees		$130,395
Sponsorship Revenue		$22,850
Inter-Section Sponsorship		$2,500
Total Income		**$157,407**
Expense		
ASA Section Support (Conference Merchandise)		$3,915
Honorarium		$6,000
Food & Beverage Expense + AV Equipment Rental		$118,908
Meeting Expense		$1,899
Awards/Plaques		$4,250
Contributions to Other Organization		$1,000
Total Expense		**$135,973**
Net Gain/Loss		**$21,434**
Ending Balance	**12/31/2025**	**$71,185**

Yifei Sun
Treasurer 2024–2026

Associate Professor
Columbia University

2026 JSM Program Update

The 2026 Joint Statistical Meetings (JSM) will be held in Boston, Massachusetts, August 1–6, 2026, with the theme "Communities in Action: Advancing Society."

LiDS is excited to sponsor the following three invited sessions:

- *Recent Advances in the Use of Area Under the Curve Methods for Time-to-Event Analyses in Clinical Trials* Organizer: Bo Huang, Pfizer | Tuesday, August 4, 10:30am – 12:20pm
- *Causal Inference Meets Data Integration and Survival Analysis* Organizer: Guanbo Wang, Dartmouth College | Wednesday, August 5, 8:30am – 10:20am
- *Recent Theoretical and Methodological Advances in Causal Inference for Survival Data* Organizer: Limin Peng, Emory University | Wednesday, August 5, 2:00pm – 3:50pm

We will also sponsor the following topic-contributed sessions:

- *Lifetime Data Science Section Student Paper Awards* Organizer: Mengling Liu, New York University
- *Recent Advances in Survival Analysis for Correlated Time-to-event Data* Organizer: Mei-Ling Ting Lee, University of Maryland at College Park

In addition, regular contributed session submissions are still open until February 2, 2026. Thanks to all the session organizers for their efforts and support in making JSM 2026 a success!

Lu Mao
2026 Program Chair

Associate Professor
University of Wisconsin–Madison

2026 LiDS Webinars

Upcoming LiDS Webinar:
An upcoming LiDS webinar is tentatively scheduled for March 4, 2026, featuring Professor James Zou (Stanford University). Professor Zou is an Associate Professor of Biomedical Data Science at Stanford, with courtesy appointments in Computer Science and Electrical Engineering. His research focuses on making AI more reliable, human-compatible, and statistically rigorous, with applications in human disease and health. The topic is still TBD. For the latest updates, please check the LiDS Webinar Series page at `https://community.amstat.org/lids/events/webinar-series`.

Recent LiDS Webinar:
The LiDS Section hosted a successful webinar on November 14, 2025, featuring Professor Bin Nan (UC Irvine). The talk outlined statistical challenges and solutions for analyzing data truncated by terminal events, detailing two recent research projects. The first project focused on longitudinal data analysis, where Dr. Nan proposed both a parametric two-stage pseudo-likelihood approach and a nonparametric kernel-based method to model the dependence between longitudinal measures (such as medical costs) and terminal events (such as death), with a specific application to End Stage Renal Disease data. The second project addressed survival analysis for disease onset in aging populations, utilizing data from "The 90+ Study" on dementia. This work introduced the "Golden Health Index" to estimate the proportion of disease-free years (healthspan), employing a two-part modeling approach that accounts for left truncation and censoring.

Zhe Fei
Webinar Committee Co-Chair

Assistant Professor
University of California, Riverside

News from Lifetime Data Analysis

Lifetime Data Analysis is the only journal dedicated to statistical methods and applications for lifetime data. The journal advances and promotes statistical science in various applied fields that deal with lifetime data, including actuarial science, economics, engineering, environmental sciences, management, medicine, operations research, public health, and social and behavioral sciences. The journal can be accessed at `https://link.springer.com/journal/10985`.

New Articles in Lifetime Data Analysis

Volume 31 Issue 4 of Lifetime Data Analysis, has been published in October 2025.

- Pseudo-observations and super learner for the estimation of the restricted mean survival time *by* A. Cwiling, V. Perduca, & O. Bouaziz. Pages 713–746
- A comparison of Kaplan–Meier-based inverse probability of censoring weighted regression methods *by* M. Overgaard. Pages 747–783
- Assessing delayed treatment benefits of immunotherapy using long-term average hazard: a novel test/estimation approach *by* M. Horiguchi, L. Tian, K.L. Kehl, & H. Uno. Pages 784–809
- Statistical methods for composite analysis of recurrent and terminal events in clinical trials *by* Y. Huang, D. Schaubel, & M. Zhang. Pages 810–829
- Simultaneous clustering and joint modeling of multivariate binary longitudinal and time-to-event data *by* S. Chattopadhyay, S. Basu, S. Bhattacharyya, M.P. Gogoi, & K. Das. Pages 830–851
- Analysis of interval censored survival data in sequential multiple assignment randomized trials *by* Z. Li Pages 852–868
- Multi-source analyses of average treatment effects with failure time outcomes *by* L. Wen, J.A. Steingrimsson, S.E. Robertson, & I.J. Dahabreh. Pages 869–897
- Causal effect estimation on restricted mean survival time under case-cohort design via propensity score stratification *by* W.-E. Lu, & A. Ni. Pages 898–931
- Bayesian joint models for longitudinal, recurrent, and terminal event data *by* E.M. Damone, M.A. Psioda, & J.G. Ibrahim. Pages 932–949
- Bayesian joint analysis of longitudinal data and interval-censored failure time data *by* Y. Mao, L. Wang, & X. Sui. Pages 950–969
- Bayesian generalized method of moments applied to pseudo-observations in survival analysis *by* L. Orsini, C. Brard, E. Lesaffre, G. Yin, D. Dejardin, & G. Le Teuff. Pages 970–993
- Modelling dependent censoring in time-to-event data using boosting copula regression *by* A. Strömer, N. Klein, I. Van Keilegom, & A. Mayr. Pages 994–1016

Mei-Ling Ting Lee
Editor-in-Chief, Lifetime Data Analysis

Professor
University of Maryland

Joint Models for Longitudinal and Event Time Data using JMbayes2

This article illustrates how to estimate joint models for longitudinal and time-to-event data in R using the package **JMbayes2** [@JMbayes2]. Joint models are used in settings where subjects are followed over time, usually to monitor the progress of a disease or medical condition. That progression is typically evaluated via repeated measurements of biomarkers relevant to the disease, and it may be of clinical interest to determine the effect of these biomarkers on the risk of an event of interest (e.g., relapse, intervention, or death). Measurements of the biomarkers from the subjects under study are endogenous time-varying covariates whose effects cannot be unbiasedly estimated with traditional modeling approaches based on partial likelihood [@rizopoulos:12; @papageorgiou.et.al:19].

Example

We illustrate the basic use of the package with the Mayo Clinic primary biliary cirrhosis dataset. The function that fits joint models in **JMbayes2** is called `jm()`. The `jm()` function has three required arguments: `Surv_object` a Cox model fitted by `coxph()`, `Mixed_objects` a single or a list of mixed models fitted either by the `lme()` (**nlme** package) or `mixed_model()` (**GLMMadaptive** package) functions, and `time_var` a character string indicating the name of the time variable in the specification of the mixed-effects models. We start by fitting a Cox model for the composite event of transplantation or death, including sex as a baseline covariate:

```
library("JMbayes2")
pbc2.id$status2 <- as.numeric(pbc2.id$status != 'alive')
CoxFit <- coxph(Surv(years, status2) ~ sex,
                data = pbc2.id)
```

We aim to assess the strength and direction of the association of the repeatedly measured biomarkers—serum bilirubin levels (continuous) and the presence of ascites (dichotomous)—with the risk of dying or receiving a transplant. We describe the patient-specific profiles of these biomarkers over time using mixed-effects models. For the log-transformed serum bilirubin levels, we use a linear mixed-effects model. The fixed effects are, a nonlinear time effect modeled with natural cubic splines with three degrees of freedom, sex, and their interaction, and the random effects, random intercepts, and nonlinear random slopes with the same spline specification as in the fixed effects. We have also assumed that the covariance matrix of the random effects is diagonal. The syntax to fit this model with `lme()` is:

```
fm1 <- lme(log(serBilir) ~ ns(year, df = 3) * sex,
           data = pbc2,
           random = list(id = pdDiag(~ ns(year, df = 3))))
```

For the presence of ascites, we fit a mixed-effects logistic regression model with a logit link, including a linear effect of time, sex, and their interaction as fixed effects, and uncorrelated random intercepts and random slopes for time as random effects. The syntax to fit this model is:

```
fm2 <- mixed_model(ascites ~ year * sex, data = pbc2,
                   random = ~ year || id,
                   family = binomial())
```

The joint model that links the survival and longitudinal submodels is fitted with the following call to the `jm()` function:

```
jointFit <- jm(CoxFit, list(fm1, fm2), time_var = "year",
               n_iter = 5500L)
summary(jointFit)
```

```
# . . .
#
# Survival Outcome:
#                        Mean StDev  2.5% 97.5%    P Rhat
# sexfemale             -0.50  0.32 -1.12  0.15 0.12    1
# value(log(serBilir))  0.74  0.15  0.45  1.04 0.00    1
# value(ascites)        0.44  0.11  0.25  0.67 0.00    1
# . . .
```

Estimation proceeds under the Bayesian approach by drawing samples from the joint posterior distribution of the model parameters and random effects using a Markov chain Monte Carlo (MCMC) algorithm. In the `jm()` call above, we increased the default number of iterations, using the `n_iter` argument, to achieve convergence.

The output of the `summary()` method shows descriptive statistics of the sample, followed by fit statistics, the estimated variance-covariance matrix for the random effects, the parameter estimates for the survival and longitudinal submodels, and finally information on the MCMC fitting algorithm. In this short tutorial, we only show the estimates for the survival submodel. By default, `jm()` includes the subject-specific linear predictor of the mixed models as time-varying covariates in the survival relative risk model. In the output, these are named as `value(log(serBilir))` and `value(ascites)` to indicate that, by default, the current value functional form is used. That is, we assume that the instantaneous risk of an event at time t is associated with the value of the linear predictor of the longitudinal submodel at the same time t. Alternative functional forms are also available in the package; for example, we can link the risk of an event with the biomarker's slope/velocity at time t, its acceleration at time t, or its average level from baseline to t.

Dynamic Predictions

A popular use of joint models is the calculation of dynamic predictions for longitudinal and survival outcomes [@rizopoulos:11; @taylor.et.al:13]. The advantageous feature of these predictions is that they can be updated over time as additional information for the subject becomes available during follow-up. As a result, they have found numerous applications in precision medicine, including cancer and cardiovascular diseases.

As an example, we calculate predictions for Patient 25. We extract first the data of this patient and store them in the dataset `ND` with the code:

```
t0 <- 5
ND <- pbc2[pbc2$id  == 25, ]
ND <- ND[ND$year < t0, ]
ND$status2 <- 0
ND$years <- t0
```

We only use the information available up to the landmark time `t0 = 5` years, and specify that the patient was event-free at this time (lines four and five). The default call to the `predict()` method for `jm` objects calculates predictions for the longitudinal outcomes. In the `newdata` argument, we provide the dataset that contains the available measurements of the patient at `t0`, and predictions will then be calculated for her future measurements after year 5:

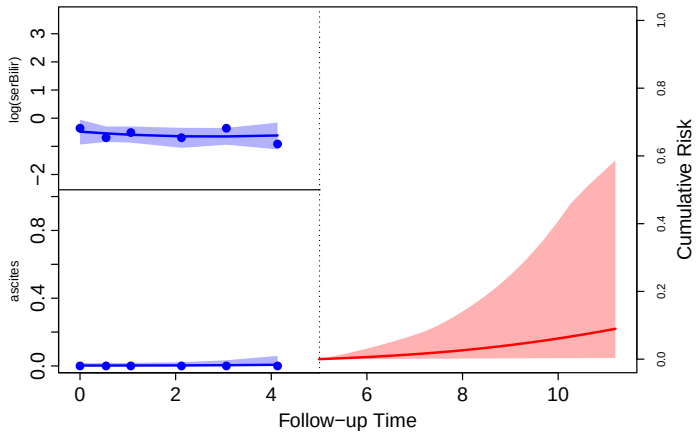
```
predLong <- predict(jointFit, newdata = ND,
                    return_newdata = TRUE)
```

The argument `return_newdata` specifies that the predictions are returned as extra columns of the `newdata` data.frame. We continue with the cumulative risk predictions for the event outcome by specifying the argument `process = "event"`:

```
predSurv <- predict(jointFit, newdata = ND,
                    process = "event",
                    return_newdata = TRUE)
```

The predictions are included again as extra columns in the corresponding data.frame. To depict the predictions of both the longitudinal and survival outcomes combined, we provide both objects to the `plot()` method:

```
plot(predLong, predSurv, outcomes = 1:2)
```



The package also allows users to evaluate the accuracy of the derived dynamic predictions. To assess the model's discriminative capability, we calculate the area under the receiver operating characteristic curve (AUC). We do this using information up to year `t0 = 5`, and we are interested in events occurring within a two-year window, `Dt = 2`. That is, discriminating between patients who will experience the event in the interval `(t0, t0 + Dt]` and patients who will be event-free at `t0 + Dt = 7` years. The calculations are performed with the following call to the `tvAUC()` function:

```
tvAUC(jointFit, newdata = pbc2, Tstart = t0, Dt = 2)
```

```
#   Time-dependent AUC for the Joint Model jointFit
#
# Estimated AUC:  0.81
# At time: 7
# Using information up to time: 5 (202 subjects still at risk)
# Accounting for censoring using model-based weights
```

As an overall measure of predictive performance, we calculate the integrated Brier score. This is computed with the `tvBrier()` function, in which we specify that we want to account for censoring using inverse probability of censoring weighting:

```
tvBrier(jointFit, newdata = pbc2, Tstart = t0, Dt = 2,
        integrated = TRUE, type_weights = "IPCW")
```

```
# Prediction Error for the Joint Model 'jointFit'
#
# Estimated Integrated Brier score: 0.055
# In the time interval: [5, 7)
# For the 202 subjects at risk at time 5
# Number of subjects with an event in [5, 7): 21
# Number of subjects with a censored time in [5, 7): 52
# Accounting for censoring using inverse probability
# of censoring Kaplan-Meier weights
```

Closing

The package provides many more capabilities for fitting joint models with competing risks and multi-state processes, recurrent events, and different types of longitudinal outcomes (e.g., continuous, binary/categorical, count). It also allows users to consider different baseline hazard functions and time-varying association effects. Detailed information can be found on the website: `https://drizopoulos.github.io/JMbayes2/`.

References

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Taylor, J. M. G., Park, Y., Ankerst, D., Proust-Lima, C., Williams, S., Kestin, L., Bae, K., Pickles, T., and Sandler, H. (2013), "Real-time individual predictions of prostate cancer recurrence using joint models", *Biometrics*, 69, 206–213.

Papageorgiou, G., Mauff, K., Tomer, A., and Rizopoulos, D. (2019), "An overview of joint modeling of time-to-event and longitudinal outcomes", *Annual Reviews*, 6, 223–240.

Dimitris Rizopoulos

Professor
Erasmus Medical Center Rotterdam

Pedro Miranda-Afonso
PhD candidate
Erasmus Medical Center Rotterdam

Call for Contributions to the Newsletter

We welcome contributions from section members for upcoming issues. Submissions may address a broad range of topics of interest to LiDS, including classroom examples, stimulating problems, perspectives on developments in the field, software or book reviews, practical experiences, and news about members or activities. Submissions will be published subject to approval by the Communications Officer and the LiDS Chair. To contribute, please contact Steven Chiou at `schiou@smu.edu`.

Sy Han (Steven) Chiou
Communications Officer

Assistant Professor
Southern Methodist University