

BIVIN SADLER

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Work Experience

Southern Methodist University

Director and Lead Faculty of the Masters of Science in Data Science Program

Clinical Assistant Professor

August 2018 – Present

Southern Methodist University

Lecturer

August 2014 – July 2018

Southern Methodist University

Lead Tutor, ALEC

September 2009 – August 2014

Grossmont Community College

Instructor

September 2004 – May 2009

Mesa Community College

Instructor

January 2007 – December 2008

Palomar Community College

Instructor

January 2005 – May 2009

W.T. White High School, Dallas TX

Math Teacher

September 2005 – May 2006

San Diego State University

Instructor

Jan 2004 – May 2004 & Jan 2008 – Dec 2008

Metasolv Software

Software Engineer I (Java)

February 2001 – September 2001

Motorola Systems Solutions Group

Engineer II

August 1998 – February 2001

KTXT 88.1 Radio, Lubbock TX

Disc Jockey

October 1996 – May 1998

Education

Southern Methodist University

Grad. May 2014

Ph.D. in Statistical Science

Dissertation: New Methods in Item Response Theory: Information, Bias, and Mean Square Error

San Diego State University

Grad. May 2004

Master of Science in Applied Mathematics/Emphasis on Statistics

Thesis: Assessing the Predictive Performance of Individual-Based Models of Trip Frequency.

Texas Tech University

Grad. Dec. 1997

Bachelor's Degree in Mathematics (Magna Cum Laude)

Minor in Computer Science

Books

Textbooks

Woodward, Sadler, Robertson; *Time Series for Data Science: Analysis and Forecasting*; Chapman & Hall/CRC Texts in Statistical Science; Boca Raton FL, USA; August 2022; 1st Edition.

Invited Book Chapter

Sadler, Bivin, Stokes, Lynne; *Item Response Theory and Fisher Information for Small Tests*; Recent Advances on Sampling Methods and Educational Statistics: In Honor of S. Lynne Stokes (Emerging Topics in Statistics and Biostatistics); Springer; Gewerbestrasse, Switzerland; 2022; 1st Edition.

https://www.google.com/books/edition/Recent_Advances_on_Sampling_Methods_and/DhyeEAAAQBAJ?hl=en&gbpv=0

Awards & Honors

- SMU "M" Award (2022): *The highest recognition bestowed upon students, faculty, staff, and administrators on the SMU Campus.*
Info: <https://www.smu.edu/studentaffairs/programs-initiatives/hilltop-excellence-awards>
- Rotunda Award First Gen. Student Association (2022)
- Walsh Award: Top Ph.D. Qualifying Exam Score (2014)
- Favorite Instructor Selected by SMU Residence Halls (Fall 2014, Spring 2020)
- Favorite Instructor Selected by SMU Football (Spring 2014)
- Favorite Instructor Voted by the Student Body of SDSU (Spring 2008)
- Dean's List (Multiple)
- Golden Key Honor Society
- President's List (Multiple)
- Ella C. McFadden Scholarship
- Texas Tech Ex-Students Association Scholarship
- Pi Beta Phi Honor Society

Invited Talks

Keynote Speaker: Southern Methodist University **January 2024**
Title: *A Survey and History of Generative AI Technologies and Capabilities with an Emphasis on Education*

Keynote Speaker: University of Arizona Global Campus **May 2023**
Title: *AI and its Transformational Influence on Higher Education*

Keynote Speaker: American College of Education **June 2023**
Title: *AI and its Transformational Influence on Higher Education*

Invited Talk: The Hockaday School Leadership Team, Dallas, Texas **April 2023**
Title: *Opportunities and Challenges with Generative AI in Education*

Invited Talk: Data Day Texas, Austin, Texas **June 2022**
Title: *Comparison of Parametric and Deep Learning Time Series Modeling of both Linear and Non-Linear Processes*

Invited Talk: Data Day Texas, Austin, Texas **January 2020**
Title: *RNN Time Series Models: Model Details and Performance Comparison to Other Time Series Models*

Invited Talk: Dallas AI Meetup **December 2019**
Title: *RNN Time Series Models: Model Details and Performance Comparison to Other Time Series Models*

Invited Talk: The Perot Museum, Dallas, Texas **April 2018**
Title: *Data Science: Past, Present, and the Future*

Contributed Talks

The 7th TUESAP Meeting Program, Dallas, Texas, SMU Campus **March 2019**
Title: *Adjusted Confidence Intervals Through an Improved Test Information Function for Small Tests*

Joint Statistical Meetings, Baltimore, MD **August 2017**
Title: *New Methods in Item Response Theory: Information, Bias, and Mean Square Error*

Joint Statistical Meetings, Seattle, WA **August 2015**
Title: *Research into Increasing Voter Turnout*

League of Innovation CIT, Detroit, MI **October 2009**
Title: *"Engaging Students with Clickers"*

Advised Students

Graduate

Evaluating the Effect of Providing Legal Representation on Housing Eviction Outcomes - Masters Thesis

Alexandra Thibeaux, Banumathi Pullaiahnaidu, Bethel Kumsa

In Progress

On the Recovery Housing: Resident Risk and Outcomes Assessment

Authors: Elijah Potter, Bivin Sadler

Publication: SMU Data Science Review

December 2023

A Hybrid Ensemble of Learning Models

Authors: Bivin Sadler, Dhruba Dey, Duy Nguyen, Tavin Weeda

Publication: SMU Data Science Review

August 2023

Traditional vs Machine Learning Approaches: A Comparison of Time Series Modeling Methods

Authors: Miguel E. Bonilla Jr., Jason McDonald, Tamas Toth, Bivin Sadler

Publication: SMU Data Science Review

August 2023

Extending the M3-Competition: Category and Interval-Specific Time Series Forecasting

Authors: Will Sherman, Kati Schuerger, Randy Kim, Bivin Sadler

Publication: SMU Data Science Review

April 2023

Application of Probabilistic Ranking Systems on Women's Junior Division Beach Volleyball

Authors: Cameron Stewart, Michael Mazel, Bivin Sadler

Publication: SMU Data Science Review

September 2022

Examining Bias in Jury Selection for Criminal Trials in Dallas County

Authors: Megan Ball, Brandon Birmingham, Matt Farrow, Katherine Mitchell, Bivin Sadler, et al.

Publication: SMU Data Science Review

September 2022

Automated Machine Learning Framework for Demand Forecasting in Wholesale Beverage Alcohol Distribution

Authors: Jenna Ford, Christian Nava, Jonathan Tran, Bivin Sadler

Publication: SMU Data Science Review

August 2021

Modeling Electric Energy Generation in ERCOT during Extreme Weather Events and the Impact Renewable Energy has on Grid Reliability

Authors: Adam R. Puthoff, Bivin Sadler

Publication: SMU Data Science Review

December 2020

Demand Forecasting in Wholesale Alcohol Distribution: An Ensemble Approach

Authors: Tanvi Arora, Rajat Chanda, Stacy Conant, Bivin Sadler, Robert Slater

Publication: SMU Data Science Review

September 2020

Kadafrica: Survey Analysis to Support Research for Smallholder Farmers

Authors: Gregory Asoama, Robert Gill, Frank Sclafani, Bivin Sadler

Publication: SMU Data Science Review

May 2019

Random Forest vs Logistic Regression: Binary Classification for Heterogeneous Datasets

Authors: Kaitlin Kriskovich, Trace Smith, Bivin Sadler

Publication: SMU Data Science Review

August 2018

Undergraduate

Engaged Learning: Advanced Undergraduate Students Interested in Research

Info: <https://www.smu.edu/provost/saes/academic-enrichment/engaged-learning>

- Kevin Wang: *Defining Poetry: Statistical Analyses and Modeling of Eighteenth- and Nineteenth-Century Literature*
- McKenzie Mulvey: *The NBA Draft: A Statistical Evaluation*

Publications

Sadler, B., & McGee, M. (Under Review), *Assessing Equity Issues Between Free and Paid Versions of ChatGPT: A Comparative Study Using Normed Statistics Exams*. Journal of Computing in Higher Education.

Sadler, B., & McGee, M. (Under Review), *Quantifying Disparities in ChatGPT's Effectiveness as a Tutor Between Paid and Free Versions*. Journal of Data Science.

Shean, A., Sadler, B., & Lewis, C. (Under Review), *Evidence-based Online Content Design*. Advances in Online Education: A Peer-Reviewed Journal.

Sadler, B., *Classroom Clickers*. The Office of Information Technology Newsletter, 2009

Service

SMU Faculty Affiliate (2024) / Center for Teaching Excellence (CTE)

Marshall for Graduation Spring and Fall / (13 times)

Advised Graduate Student Capstone Projects / (12 Projects)

Advised Undergraduate Engaged Learning Projects / (2 Projects)

Faculty Mentor Rotunda Scholars Program & Academic Center for Excellence (ACE)

Member of SMU Big Data Advisory Board

Videos During the Pandemic: SMU Office of Information Technology (See the last section.)

Coordinated 10-year SACCS Accreditation of the MSDS Program

Data Science Boot Camp Faculty Advisor

Maintainer of R package tswge

Started and Advised SMU Stat Club for Undergraduates

Brought the first DATAFEST to SMU. The first one in Texas

DATAFEST Mentor – Amherst College and SMU

Conferences

Databricks Data+AI Summit, June 2024

H2O World, Sydney, Australia, December 2022

Australian Data Science Network, Brisbane, Australia, December 2022

EduCause, Denver, Colorado, October 2022

The 7th TUESAP Meeting Program, Dallas, Texas, SMU Campus, February 28 – March 1, 2019

Strata Data Science Conference, New York, NY, September 2018

ASA and JSM Joint Annual Conference, Baltimore, MA, June 2016

ASA and JSM Joint Annual Conference, Seattle, WA, June 2015

AERA/NCME Joint Annual Conference, San Francisco, CA, April 26 – May 1, 2013

ASA and JSM Joint Annual Conference, San Diego, CA, June 2012

Conference of Texas Statisticians (COTS), March 2012

The 18th Annual Teaching Effectiveness Symposium (TES), SMU, May 18, 2010

League of Innovation CIT, Detroit, October 2009

Teaching Experience

Southern Methodist University

STAT 2301 Statistics for Modern Business Decisions

STAT 2331 Statistics for Social Sciences

STAT 3300 Applied Statistics: Regression

STAT 5372 Experimental Statistics I

STAT 5372 Experimental Statistics II

STAT 6306 Introduction to Data Science

DS 6371 Foundations of Data Science for Data Science

DS 6372 Applied Statistical Analysis

DS 6375 Time Series Analysis

San Diego State University
Math 221 Geometry
Math 118 Survey of Mathematics

Grossmont Community College
Math 88 Developmental Math
Math 103 Intermediate Algebra
Math 160 Statistics
Math 120 General Mathematics
Math 178 Business Calculus
Math 175 College Algebra
Math 180 Calculus

Mesa Community College
Math 119 Statistics

Palomar Community College
Math 15 Pre-Algebra

Course Development

Southern Methodist University, In Progress/Spring 2025

Course Developed: Storytelling with Data

This course teaches students to effectively communicate data-based inference and insight through compelling data visualizations and oral presentations using tools like Tableau, Canvas, and PowerPoint. Students learn to convey these complex insights to diverse audiences, including technical and executive stakeholders, through in-person, remote, and recorded presentations.

Southern Methodist University, Fall 2023

Course Developed: Data Literacy for Business

The Data Literacy for Business course offers a unique blend of expertise from SMU data science faculty and industry veterans from leading companies, including AT&T, Ericsson, VMware, AWS, and Blue Cross Blue Shield. This course equips participants with the foundational knowledge crucial for excelling in the current digital era, empowering them to elevate their businesses. The core curriculum encompasses modules on Data Planning and Governance, Loading and Cleaning Data, Analyzing Data, Storytelling in Reports, Presenting the Data, and Generative AI, ensuring a comprehensive skill set for effective data management and communication.

Southern Methodist University, Spring 2019

Course Developed: Business Analytics

Through a combination of lectures and case analyses, students will learn how to practically implement and apply a proven, best-practice methodology that illustrates how best to integrate Analytics into corporate strategy. In addition, students will gain experience in enabling businesses to solve real-world problems, some of which were previously intractable, using the models, methods, and techniques they have studied previously. Moreover, students will extend their data science capabilities to handle challenges requiring prescriptive analytics through a brief yet thorough two-week introduction to optimizations. Students will not only learn from a professor who was formerly the Director of Analytics for two of America's largest airlines (American and Southwest) but will also gain the experience and expertise described above through a balanced combination of lectures and interviews with several practicing and senior-level data scientists from a variety of industries.

Southern Methodist University, Spring 2019

Course Developed: Doing Data Science

The Data Science Pipeline is a series of steps/phases into which most analytics problems can be broken. This course aims to give students a fundamental knowledge of what these stages entail and a possible implementation of each step (many are available). Specifically, the course will introduce the students to the open-source programming language R and its robust developer environment, RStudio. Using R and RStudio, the student will learn how to gather, clean, and transform data, use this data to model and test hypotheses using the data, and deploy their models and analysis using webpages and a dashboarding tool called RShiny. In addition, significant time will be spent studying the art of communication and practicing good presentation techniques to communicate the analysis results to the customer/client effectively. Many units have guest lecturers and/or interviews that are meant to introduce the student to program professors and industry professionals while providing insight into courses that the student may be interested in taking as electives later in their coursework.

Southern Methodist University, Fall 2018

Course Developed: Time Series Analysis

Many problems in industry and scientific research involve observations recorded over time. Traditional modeling methods are inappropriate for this data type as the observations are not independent but serially correlated. This course gives the student a working knowledge of several parametric and non-parametric models to estimate population parameters and forecast future values. In addition, the course provides extensive practice in working with the statistical package R in estimating and visualizing these models and using numerous real-world data sets.

Southern Methodist University, Fall 2015

Course Developed: Bridge to Statistics

This is the first course students complete in the Master of Science in Data Science at SMU. Bridge to Statistics has eight modules that review basic statistical methods that would be covered in a college-level introductory statistics course. This course comprises video and PowerPoint lectures and worked problem sessions recorded on the "light board." In addition, each module is concluded with a comprehensive quiz assessment that provides feedback to the student regarding his or her understanding of the material.

Ashford University, Fall 2008

Course Developed: EDU 651 (Collaboration and Learning in a Virtual Environment) and EDU 697 (Capstone Project)

This is a 6-week course that introduces graduate students (future educators and administrators) to the wide variety of online tools that have surfaced in the last few years and months! The course not only instructs the student on how to operate and use the technologies but, more importantly, provides them with strategies and implementations that will help them actually use the technology efficiently and effectively in their classrooms. The technologies covered include wikis, blogs, Twitter, Facebook, LinkedIn, Ning, Jing, Delicious, and YouTube. The class was delivered on March 31st, 2008.

Program Development

SMU Data Science Scholars Program (DSSP) 2022 – 2025

<https://www.smu.edu/cape/Programs/Certificates/ATT-Data-Science>

This is a 12-week data science program that provides underrepresented students with an 8-week bootcamp and 8-week internship delivered by 4 weeks. I designed the full bootcamp which includes a semester's worth of data science instruction in those 8 weeks. This was the second year of the program which yielded a transformative experience that achieved full-time positions for 3 out of the first-year students and 3 out of 12 from 2023. AT&T has renewed the sponsorship of the program again for 2024.

DSSP Overview Video (YouTube): <https://www.youtube.com/watch?v=T59re9g6f3A>

This course was a finalist for the Tech Titans of the Future Award: <https://techtitans.org/award-finalists/>

SMU Data Science Scholars Program Junior (DSSP Jr.) 2022 – 2025

<https://www.smu.edu/cape/Programs/Certificates/ATT-Data-Science>

With authorization from the Provost, a pilot of the Data Science Scholars Program is set to commence for high school students in Spring 2024, initially targeting attendees from The Hockaday School in Dallas. The program aims for broader implementation to cater to underrepresented student groups within the Dallas Independent School District (DISD) by Fall 2024. The strategic vision is to expand this initiative to public schools across various Independent School Districts (ISDs) throughout Texas and, subsequently, on a national scale in the United States.

MSDS Speaker Series 2023–2025

<https://smuapp.box.com/s/lpcjnxwn7l7myw0fmle4ru35jfbz3xgr>

The MSDS Speaker Series at SMU brings together leading experts in data science to discuss a variety of topics, including artificial intelligence, machine learning, data ethics, and cybersecurity. The series features speakers from academia and industry, offering insights into current trends, challenges, and opportunities in data science. It aims to foster learning, collaboration, and networking opportunities for students, alumni, faculty, and community members interested in the rapidly evolving world of data.

Panel Discussions

Connecting University Students with Industry & Non-Profit Roles in Data and AI, Databricks Data+AI, San Francisco, TX (Summit 2024)

Moderator: Rob Reed

Panelists: <https://sites.google.com/databricks.com/universitydais24/home>

Dr. Joan LaRovere MD, MSc, MBA/ Virtue Foundation

Delano Ware / Technician AT&T

Rachanna Haffner / Director, Public Sector Business Development S&P Global

Dr. Bivin Sadler / Director of the MSDS Program at SMU and Clinical Assistant Professor

AI Panel Discussion, Southern Methodist University Advisory Board Meeting, Dallas, TX (October 2023)

Moderator: Sharlene Jenner / VP Marketing at Abelson Taylor

Panelists:

Dr. Mark Austin / VP of Data Science at AT&T

Hemank Manda / Head of Product Management - IBM Data & AI Ecosystem

Dr. Bivin Sadler / Director of the MSDS Program at SMU and Technical Assistant Professor

Abhi Vyas / Digital Marketing and Analytics at Verizon

Current Challenges and Opportunities Presented by ChatGPT and Generative AI: Part 3, Southern Methodist University MSDS Immersion, Dallas, Texas (October 2023)

Moderator: Dr. Bivin Sadler / Director of MSDS Program at SMU and Technical Assistant Professor

Panelists:

Russ Douglas / Senior Solution Engineer VMware

Dr. Burke Jam / Professor of Data Visualization

Dr. Sohail Rafiqi / Senior Sales Engineer at Google Cloud and Professor of Cloud Computing

Current Challenges and Opportunities Presented by ChatGPT and Generative AI: Part 2, Southern Methodist University MSDS Immersion, Dallas, Texas (July 2023)

Moderator: Dr. Sohail Rafiqi / Senior Sales Engineer at Google Cloud & Professor of Cloud Computing

Panel Chair: Dr. Bivin Sadler / Director of MSDS Program at SMU and Technical Assistant Professor

Aamer Charania / Sr. Director & Head of Applied Machine Learning at Best Buy

Sarah Groves / Senior Director, Brand & Marketing Communications at Exxon

Abhi Vyas / Digital Marketing and Analytics at Verizon

Penn Foster Group AI Panel, Penn Foster Group (May 2023)

Panel Moderator: Dr. Andy Shean, Chief Learning Officer, Penn Foster Group

Panelists:

Jack Pinette / Senior Director of Product Management Desire to Learn (D2L)

Dr. Bivin Sadler / Director of MSDS Program at SMU and Technical Assistant Professor

Kelsey Behringer / COO Packback

Praveen Vajpeyi / VP Product Design Penn Foster Group

Current Challenges and Opportunities Presented by ChatGPT and Generative AI: Part 1, Southern Methodist University MSDS Immersion, Dallas, Texas (March 2023)

Moderator: Dr. Bivin Sadler / Director of MSDS Program at SMU and Technical Assistant Professor

Panelists:

Dr. Mark Hand / Visiting Professor of Political Science

Hemanth Manda / Head of Product Management - IBM Data & AI Ecosystem

SMU Office of Information Technology (Videos During the COVID-19 Pandemic)

How to Keep Students from Cheating on Assessments

https://www.youtube.com/watch?v=eVr0_3R_yyg

The Role of Instructor — Remote Learning – YouTube

<https://www.youtube.com/watch?v=1HhhTCusPxY>

Tips & Tricks for Video Creation — Advancements in EdTech

<https://www.youtube.com/watch?v=H9bEWEK1cmQ>

Faculty Lessons Learned with Remote Teaching – YouTube

<https://www.youtube.com/watch?v=9T9D2GCILvU>

Building and Maintaining Remote Student Relationships

<https://www.youtube.com/watch?v=Q9CLybJ019g>

Remote Learning: From Survival to Exceptional – YouTube

<https://www.youtube.com/watch?v=Ei3jRgzEgMs>

Collaboration and Engagement through Breakout Rooms

<https://www.youtube.com/watch?v=H6L7BzFBios>

Faculty Champions: The Good, the Bad and the Ugly – YouTube

<https://www.youtube.com/watch?v=wFZExVKQYRQ>