Dr. Isaac Benjamin Michael
1899 Bill Murdock Rd
Marietta, Georgia 30062 United States
Mobile: 2543666861
Email: isaac.b.michael@gmail.com

Availability:
Job Type: Permanent, Recent graduates, Internships, Telework
Work Schedule: Full-time, Multiple Schedules

Work experience:
Mathematical Statistician
Centers for Disease Control and Prevention (This is a federal job)
4770 Buford Hwy NE
Atlanta, GA

6/2023 - Present
Salary: $118,872.00 USD Per Year
Hours per week: 40
Series: 1529 Mathematical Statistics
Pay Plan: GS - General Schedule (Ch. 51, 5 U.S.C.).
Grade: 13
Duties, Accomplishments and Related Skills:
Summary: Served as Principal Statistician for the CDC's Pregnancy Risk Assessment Monitoring System (PRAMS), co-leading the national data weighting process for the 2022 and 2023 birth cohorts. This work supported jurisdictions representing approximately 81% of all live births in the United States. Led innovations in survey methodology, nonresponse bias analysis, and SAS-based workflow automation. Designed scalable, reproducible systems in SAS, R, and Python that improved data integrity, reduced manual workload, and enhanced the scalability and reliability of national maternal and infant health data systems.

Key Accomplishments:
• National DataWeighting Leadership: Co-directed the full data weighting cycle for two birth cohorts, serving as the primary point of contact for over 50 PRAMS sites and ensuring the timely delivery of accurate, policy-ready datasets.

• Automation, QA & Reproducible Infrastructure: Built modular SAS programs and automated QA templates, including preweighting diagnostics for birth certificate and demographic anomalies, reducing manual effort and improving data accuracy, consistency, and reproducibility across all PRAMS sites.

• Survey Methodology, Nonresponse Bias & Research Impact: Improved stratification logic, sampling verification, and nonresponse adjustment models; co-authored guidance and research that led to approval from the Office of Management and Budget to remove the PRAMS response rate threshold based on nonresponse bias analysis.

• Statistical Programming & Technical Consulting: Delivered customized SAS, R, and Python-based solutions to resolve technical challenges in survey processing and statistical analysis for state and internal teams.

• Analytical Reporting & Visualization: Produced stakeholder-ready data products, including automated cross-tabulation outputs, customized visualizations, and multi-page analytical reports used to support public health program evaluation and grant decision-making.
Supervisor: Cynthia Cassell (704-914-6181)
Okay to contact this Supervisor: Yes

Program Director

Louisiana State University
Field House Dr
Lockett Hall
Baton Rouge, LA

5/2020 - Present
Salary: $15,000.00 USD
Hours per week: 20
Duties, Accomplishments and Related Skills:
Lead the Virtual Math Circle: Research Opportunities for High School Students, an advanced STEM outreach initiative under the LSU Gordon A. Cain Center for STEM Literacy. This program connects high school students with university-level mathematics research and problem-solving experiences, preparing them for future STEM careers and undergraduate research.

Key Contributions:
Program Leadership & Expansion – Designed and expanded the Virtual Math Circle program, including the Research Extension, which introduces students to undergraduate-level mathematics and independent research.

Curriculum Development & Instruction – Created and implemented structured coursework, workshops, and mentorship opportunities, helping students engage in higher-level mathematical thinking and problem-solving.

Recruitment & Admissions – Led student recruitment, application review, and selection processes, ensuring access for a diverse group of students from various academic backgrounds.

Grant Writing & Funding – Successfully secured funding through the AMS Epsilon Fund, providing financial support for students and expanding program accessibility.

Assessment & Reporting – Developed program assessment metrics, collected participant feedback, and reported key outcomes to stakeholders and funding organizations.
Supervisor: Frank Neubrander (225-772-7252)
Okay to contact this Supervisor: Yes

Head Supervisor
Louisiana State University
3304 S Quad Dr
Baton Rouge, LA

5/2020 - Present
Salary: $15,000.00 USD Fee Basis
Hours per week: 25
Duties, Accomplishments and Related Skills:
Direct summer operations for the Bridge to Engineering Excellence (BEE) Program, a flagship STEM initiative designed to prepare incoming LSU engineering students for college-level success in mathematics and problem solving.
• Supervise graduate assistants and lead onboarding sessions covering remote instruction, curriculum flow, and technical platforms (e.g., Moodle, Zoom, GoodNotes).
• Deliver instruction in Calculus and provide academic leadership to ensure curriculum quality and student readiness.
• Negotiated university-discounted WebAssign access and implemented automated grading workflows, reducing manual workload and improving efficiency.
• Coordinated with Cengage to secure timely platform access and streamline digital resource deployment across the program.
• Directed curriculum pacing, session schedules, and instructor coordination to maintain instructional consistency and program excellence.

Supervisor: Adrienne Steele (225-578-5349)
Okay to contact this Supervisor: Yes

Mathematical Statistician
U.S. Census Bureau (This is a federal job)
4600 Silver Hill Rd
Camp Springs, MD

8/2022 - 6/2023
Salary: $76,357.00 USD Per Year
Hours per week: 40
Series: 1529 Mathematical Statistics
Pay Plan: GS - General Schedule (Ch. 51, 5 U.S.C.).
Grade: 11
Duties, Accomplishments and Related Skills:
DECENNIAL CENSUS PROGRAMS
Developed and implemented methodologies for sampling, estimation, quality assurance, coverage measurement, experiments, and evaluations for the largest data collection conducted by the United States. Designed, implemented, and maintained samples and frames, ensured accuracy and statistical validity, developed quality-control systems, and conducted experiments and evaluations for household sample surveys. Researched, developed, implemented, and evaluated statistical methods for over 100 sample surveys and censuses to measure the nation's economy. Conduct research to improve statistical methods used in the Census Bureau's surveys and censuses, and collaborate with staff from other areas to address statistical problems.

Postdoctoral Researcher
Louisiana State University
303 Lockett Hall
Baton Rouge, LA

5/2019 - 8/2022
Salary: $52,000.00 USD School Year
Hours per week: 40
Duties, Accomplishments and Related Skills:
Summary: Conducted original research in differential equations, spectral theory, operator theory, and deterministic dynamical systems, with applications to mathematical physics and PDEs. Collaborated with international analysts, presented at seminars and conferences, and published in peer-reviewed mathematical journals.

Key Responsibilities:
• Theoretical Mathematics Research: Published peer-reviewed work on integral inequalities, spectral theory, and operator theory, with applications to differential equations and mathematical physics; contributed to the study of eigenvalue estimates, functional spaces, and semigroup behavior.

• Collaboration & Conferences: Collaborated with faculty and visiting researchers in analysis and operator theory; presented original work at academic seminars and national conferences.

• University Teaching: Taught undergraduate and graduate-level mathematics and theoretical statistics courses; consistently received strong evaluations for instructional clarity and student engagement.

Courses Taught:
• MTH 6893 – Seminar in Mathematics (Summer 2022)
• MTH 4056 – Mathematical Statistics (Fall 2021, Fall 2020)
• MTH 1552 – Analytic Geometry & Calculus II (Spring 2021)
• MTH 4999 – Math Seminar (Spring 2021, Fall 2019)

• MTH 1550 – Analytic Geometry & Calculus I (Fall 2019)
• MTH 2020 – LSU STEM Certification Pathways (Summer 2019)

Programs Created and Taught:

2020–Present
Virtual Math Circle (VMC) — Program Director (2022–Present), Head Instructor (2021), Co-Instructor (2020)
National online research program for high school students in advanced mathematics. Directed curriculum development, student mentorship, instructor management, grant writing, and coordination of student presentations (e.g., LSU Discover Day).

2020–Present
Bridge to Engineering Excellence (BEE) Program — Head Supervisor (2023–Present), Lead Math Instructor (2020–2022)
Six-week summer bridge program for incoming LSU engineering students. Oversaw instruction, hiring, and program delivery; created and taught foundational math courses designed to improve college readiness in calculus and problem-solving.

2021–2024
EXCELD MTH 1550 Bootcamp — Head Instructor
Intensive online preparatory bootcamp designed to strengthen calculus fundamentals for LSU students. Led instruction, created learning materials, and supervised teaching assistants.
Supervisor: Frank Neubrander (225-772-7252)
Okay to contact this Supervisor: Yes

Graduate Fellow
Baylor University
Sid Richardson Science Building
1410 S. 4th Street
Waco, TX

12/2015 - 8/2019
Salary: $20,000.00 USD School Year
Hours per week: 40
Duties, Accomplishments and Related Skills:
RESEARCH: Conducted and published mathematical research in collaboration with a team of mathematicians in the fields of Graph Theory and Combinatorics, and more recently Analysis, Functional Analysis, Ordinary/Partial Differential Equations, Operator Theory, and Spectral Theory.

TEACHING: Taught one 3-credit-hour mathematics course each semester, handling all student interactions, preparing all material for lectures, preparing syllabi, quizzes/exams, and assigning all grades.

COURSES TAUGHT:

Spring 2019
- MTH 1309: Business Calculus

Fall 2018
- MTH 1321: Calculus I

Spring 2018
- MTH 1309: Business Calculus

Fall 2017

- MTH 1320: Precalculus

Spring 2017
- MTH 1309: Business Calculus

Fall 2016
- MTH 1320: Precalculus

Spring 2016
- MTH 1320: Precalculus

Fall 2015
- MTH 1320: Precalculus
Supervisor: Lance Littlejohn (254-710-3943)
Okay to contact this Supervisor: Yes

Graduate Teaching Assistant
Baylor University
Sid Richardson Science Building
1410 S. 4th Street
Robinson, TX

6/2014 - 12/2015
Salary: $20,000.00 USD School Year
Hours per week: 20
Duties, Accomplishments and Related Skills:
Tutored undergraduates in Tutoring Lab and graded for professors.

Courses: Business Precalculus/Calculus, Pre-Calculus, Calculus I, II, & III, Differential Equations, Probability and Statistics, and Advanced Calculus
Supervisor: Lance Littlejohn (254-710-3943)
Okay to contact this Supervisor: Yes

Mathematics Teacher
Reicher Catholic High School
2102 N 23rd St
Waco, TX

7/2013 - 6/2014
Salary: $33,000.00 USD Per Year
Hours per week: 40
Duties, Accomplishments and Related Skills:
Taught 9-12th-grade mathematics courses. Handled all student interactions, prepared all material for lectures, prepared syllabi, quizzes/exams, and as- signed all grades.

Courses: Geometry (Honors), Algebra II (Honors), Contemporary Mathematics, and AP Calculus I
Supervisor: N/A (254-752-8349)
Okay to contact this Supervisor: Yes

Mathematics Tutor
Tarleton State University
1333 W. Washington
Stephenville, TX

8/2011 - 8/2013
Salary: $11,000.00 USD School Year
Hours per week: 20
Duties, Accomplishments and Related Skills:
Tutored undergraduates in Tutoring Lab.

Courses: Business Precalculus, Business Calculus, Precalculus, Geometry, Calculus I, II, & III, and Probability and Statistics
Supervisor: N/A (254-968-9000)
Okay to contact this Supervisor: Yes

Private Tutor
Self Employed
N/A
Waco and Stephenville, TX

8/2011 - 8/2019
Salary: $20.00 USD Per Hour
Hours per week: 5
Duties, Accomplishments and Related Skills:
Tutoring undergraduates in various mathematics courses.

Courses: Algebra, Geometry, Precalculus, Calculus I, II, & III, Probability and Statistics, Business Calculus, Advanced Analysis

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Education:
Louisiana State University Baton Rouge, LA United States
Master's degree 5 / 2023
GPA: 4.0 of a maximum 4.0
Credits Earned: Semester Hours
Major: Applied Statistics **Minor:** Mathematics
Relevant Coursework, Licenses and Certifications:
Statistical Inference I, Statistical Theory I, Experimental Statistics II, Statistical Theory II, Nonparametric Statistics, Practicum in Statistical Consulting I, Statistical Data Mining, Regression Analysis
Baylor University Waco, TX United States
Doctorate degree 8 / 2019
GPA: 4.0 of a maximum 4.0
Credits Earned: 85 Semester Hours
Major: Mathematics
Relevant Coursework, Licenses and Certifications:
Calculus of Variations & Partial Differential Equations, Distribution Theory I & II, Partial Differential Equations, Operator & Spectral Theory I & II, Potential Theory, Differential Equations, Functional Analysis, Lie Theory, Real Analysis I & II, Differential Geometry, Compact Lie Groups, Complex Analysis, Riemann Surfaces, Rings I, Additative Combinatorics, Advanced Abstract Algebra I & II, Advanced Calculus I & II, Algebraic Topology I, Topology, Graph Theory.
Baylor University Waco, TX United States
Master's degree 12 / 2015
GPA: 4.0 of a maximum 4.0
Credits Earned: Semester Hours
Major: Mathematics
Relevant Coursework, Licenses and Certifications:
Calculus of Variations & Partial Differential Equations, Distribution Theory I & II, Partial Differential Equations, Operator & Spectral Theory I & II, Potential Theory, Differential Equations, Functional Analysis, Lie

Theory, Real Analysis I & II, Differential Geometry, Compact Lie Groups, Complex Analysis, Riemann Surfaces, Rings I, Additative Combinatorics, Advanced Abstract Algebra I & II, Advanced Calculus I & II, Algebraic Topology I, Topology, Graph Theory.
Tarleton State University Stephenville, TX United States
Bachelor's degree 8 / 2013
GPA: 3.29 of a maximum 4.0
Credits Earned: 168 Semester Hours
Major: Mathematics
Relevant Coursework, Licenses and Certifications:
Foundations of Engineering I & II, Probability and Statistics I & II, Calculus I, II, & III, Number Theory with Applications to Cryptology, Applied Matrix Algebra, Advanced Analysis, Linear Algebra, Abstract Algebra, Discrete Mathematics, Technical Writing & Document Design, C# Programming.

Job-related training:
PUBLIC HEALTH & STATISTICAL TRAINING:

- Data Weighting System Training – CDC, Nov 2023–Feb 2024:
Completed an intensive, multi-month training on the full CDC PRAMS data weighting protocol, covering frame and sample validation, stratification logic, duplicate and twin detection, and analytic weight calculation. The training emphasized advanced SAS automation for duplicate checking, stratification mismatches, and birth record consistency. Gained hands-on experience constructing sampling, nonresponse, and noncoverage weights, including CHAID decision tree modeling for bias detection, and applied these methods to live projects for sites such as Vermont and Massachusetts. Developed deep expertise in PRAMS lookup tables, exception handling, and final dataset/report generation for CDC submission.

- Sampling Verification Training – CDC, Oct 2023:
Completed CDC training on PRAMS sampling verification procedures, with emphasis on evaluating sampling fractions, stratification logic, and consistency across state-reported data. Gained experience using t-tests and chi-squared tests to validate sampling rates, identify misclassified strata, and review site documentation and outputs for accuracy. Training included performing ratio class adjustments in lookup tables to meet CDC quality standards and preweighting protocols.

- Data Visualization Using SAS ODS Graphics – CDC, Sept 2023:
Six-day course on designing statistical graphics using SAS ODS templates.

- Introduction to Survey Sampling – U.S. Census Bureau, Dec 2022:
Covered estimation theory and sampling techniques including SRS, stratified, and cluster sampling.

MACHINE LEARNING & TECHNICAL UPSKILLING:

- TensorFlow for Deep Learning – Udacity, May 2025:
Built and deployed convolutional neural networks (CNNs) using TensorFlow.

- Advanced MLOps – Databricks Academy, May 2025:
Explored ML lifecycle, deployment, and production monitoring of scalable models.

- Scikit-learn Foundations – Great Learning, May 2025:
Developed classification, regression, and clustering models using Scikit-learn in Python.

- BigQuery ML + Gemini AI for Analysts – Google Cloud Skills Boost, May 2025:
Generated SQL queries and forecasts using Duet AI and BigQuery ML.

- Data Pipelines with Delta Live Tables – Databricks Academy, May 2025:
Built scalable ETL workflows using SparkSQL and Delta Live Tables with Medallion architecture.

GRADUATE COURSEWORK – LOUISIANA STATE UNIVERSITY (M.AP.ST., 2023):

EXST 7003 – Statistical Inference I
EXST 7060 – Probability & Statistics
EXST 7014 – Experimental Statistics II
EXST 7061 – Statistical Theory
EXST 7011 – Nonparametric Statistics
EXST 7034 – Regression Analysis
EXST 7031 – Experimental Design
EXST 7142 – Statistical Data Mining
EXST 7047 – Structural Equation Modeling & Hierarchical Linear Modeling
EXST 7083 – Practicum in Statistical Consulting I
EXST 7084 – Practicum in Statistical Consulting II

GRADUATE COURSEWORK – BAYLOR UNIVERSITY (PH.D. MATH, 2019; M.S. MATH, 2015):

MTH 5324 – Real Analysis II
MTH 5340 – Differential Geometry
MTH 6340 – Compact Lie Groups
MTH 5325 – Ordinary Differential Equations (ODE Theory)
MTH 5345 – Functional Analysis
MTH 6V43 – Lie Theory
MTH 5V92 – Operator and Spectral Theory I
MTH 5V92 – Operator and Spectral Theory II
MTH 6V23 – Potential Theory
MTH 5326 – Partial Differential Equations (PDE Theory)
MTH 5V92 – Distribution Theory I
MTH 5V92 – Distribution Theory II
MTH 6V24 – Calculus of Variations

Organizations and affiliations:
Institute of Mathematical Statistics (IMS) - Active Member
Society for Industrial and Applied Mathematics (SIAM) - Active Member
American Mathematical Society (AMS) - Active Member
Mathematical Association of America (MAA) - Active Member

Professional publications:
1. I. B. Michael and M. Sepanski, “Net regular signed trees,” Australasian Journal of Combinatorics, vol. 66, no. 2, pp. 192–204, 2016.

2. I. B. Michael, F. Gesztesy, L. Littlejohn, and R. Wellman, “On Birman’s sequence of Hardy–Rellich-type inequalities,” Journal of Differential Equations, vol. 264, no. 4, pp. 2761–2801, 2018.

3. I. B. Michael, F. Gesztesy, L. Littlejohn, and M. M. H. Pang, “Radial and logarithmic refinements of Hardy’s inequality,” St. Petersburg Mathematical Journal, vol. 30, pp. 429–436, 2019.

4. I. B. Michael, C. Y. Chuah, F. Gesztesy, L. Littlejohn, T. Mei, and M. M. H. Pang, “On weighted Hardy-type inequalities,” Mathematical Inequalities and Applications, vol. 23, no. 2, pp. 625–646, 2020.

5. I. B. Michael, F. Gesztesy, and M. M. H. Pang, “A new proof of the power weighted Birman–Hardy–Rellich inequalities,” in Operator and Norm Inequalities and Related Topics, Trends in Mathematics, R. M. Aron, M. S. Moslehian, I. M. Spitkovsky, and H. J. Woerdeman (Eds.), Birkhäuser, Springer, Cham, 2022, pp. 577–600.

6. I. B. Michael, F. Gesztesy, L. Littlejohn, and M. M. H. Pang, “A sequence of weighted Birman–Hardy–Rellich-type inequalities with logarithmic refinements,” Integral Equations and Operator Theory, vol. 94, no. 13, 2022.

7. I. B. Michael, F. Gesztesy, and M. M. H. Pang, “Optimality of constants in weighted Birman–Hardy–Rellich inequalities with logarithmic refinements,” CUBO, A Mathematical Journal, vol. 24, no. 1, pp. 115–165, 2022.

8. I. B. Michael, S. Jones, and E. Melvin, “Online engineering bridge summer program created and focused on preparing students for calculus,” 2023 ASEE Annual Conference & Exposition, 2023.

9. I. B. Michael, D. Quan, and E. Gollub, “Preliminary validation of digital photography to assess the home food environment,” European Journal of Investigation in Health, Psychology, and Education, vol. 13, no. 7, pp. 1257–1268, 2023.

10. I. B. Michael, F. Gesztesy, L. Littlejohn, and M. M. H. Pang, “Extended power weighted Rellich-type inequalities with logarithmic refinements,” Yokohama Publishers, vol. 9, no. 1, pp. 69–91, 2024.

References:

David Lee Warner (*)
Employer Centers for Disease Control and Prevention
Title Branch Chief
Phone 706-714-4856
Email leewarner99@gmail.com

Cynthia Cassell (*)
Employer Centers for Disease Control and Prevention
Title Senior Team Lead
Phone 704-914-6181
Email chcassell@gmail.com

Holly Shulman (*)
Employer Centers for Disease Control and Prevention
Title Survey Statistician
Phone 484-326-1455
Email hbs1@verizon.net

Ruben Smith (*)
Employer Centers for Disease Control and Prevention or Disease Control
Title Statistician
Phone 770-722-7620
Email rubensmith1@yahoo.com

Frank Neubrander (*)
Employer Louisiana State University
Title Demarcus D. Smith Alumni Professor of Mathematics
Phone 225-578-4522
Email neubrand@math.lsu.edu

Fritz Gesztesy (*)

Employer Baylor University
Title Ralph and Jean Storm Professor of Mathematics
Phone 254-710-2899
Email fritz_gesztesy@baylor.edu

Lance Littlejohn (*)
Employer Baylor University
Title Professor of Mathematics
Phone 254-710-3943
Email lance_littlejohn@baylor.edu

Kevin McCarter (*)
Employer Louisiana State University
Title Associate Professor of Statistics
Phone 225-578-8381
Email mccarter@lsu.edu

Michael Pang (*)
Employer University of Missouri
Title Professor of Mathematics
Phone 573-882-0322
Email pangm@missouri.edu

Paul Hagelstein (*)
Employer Baylor University
Title Professor of Mathematics
Phone 254-710-4879
Email paul_hagelstein@baylor.edu

Mark Sepanski (*)
Employer Baylor University
Title Professor of Mathematics and Graduate Program Director
Phone 254-710-6580
Email mark_sepanski@baylor.edu

Constanze Liaw (*)
Employer University of Delaware
Title Associate Professor of Mathematics
Phone 302-831-2694
Email liaw@udel.edu

Tao Mei (*)
Employer Baylor University
Title Professor of Mathematics
Phone 254-710-3229
Email tao_mei@baylor.edu

James Madden (*)
Employer Louisiana State University
Title The Patricia Hewlett Bodin Distinguished Professor
Phone 225-578-7988
Email madden@math.lsu.edu

(*) Indicates professional reference

Additional information:
KNOWLEDGE, SKILLS & ABILITIES:

Extensive experience in statistical modeling, survey methodology, and big data analytics across federal public health and census programs. Co-led national data weighting efforts at the CDC for the Pregnancy Risk Assessment Monitoring System (PRAMS), supporting over 50 sites and jurisdictions representing 81% of U.S. births. Applied advanced techniques in sampling design, stratification logic, and nonresponse bias adjustment to ensure data quality, policy relevance, and methodological rigor.

Expert in automating and optimizing statistical workflows using SAS, R, Python, and SQL. Developed modular, reproducible codebases and custom QA protocols for tasks including birth certificate validation, twin detection, demographic anomaly screening, and statistical reporting. At CDC, used AI tools to generate thousands of lines of SAS code that automated the sampling verification process by performing multiple chi-squared tests simultaneously and exporting the results into structured PROC REPORT Excel spreadsheets—dramatically streamlining the pre-weighting phase and significantly reducing manual workload.

Proficient in machine learning workflows and applied modeling using TensorFlow, Scikit-learn, BigQuery ML, and Databricks. Experience includes ARIMA forecasting, K-Means clustering, structural equation modeling (SEM), regression analysis, and survey weighting with complex design corrections. Integrated MLOps pipelines and scalable analytics frameworks for both government and academic settings.

Demonstrated leadership in program management, statistical consulting, and technical mentorship. Served as a statistical mentor for junior CDC researchers through the SAG Mentorship Program, and led training and site-specific guidance for PRAMS grantees. Directed large-scale STEM outreach programs at LSU, including curriculum design, staff hiring, grant writing, and long-range planning for the Virtual Math Circle (VMC) and Bridge to Engineering Excellence (BEE) programs.

Extensive use of AI tools such as ChatGPT and CDC's internal ChatCDC system to enhance productivity and decision-making across both technical and administrative tasks. At CDC, used generative AI to draft email communications, assist with peer reviews of statistical manuscripts, generate SAS and R code, and support technical troubleshooting. In academic roles, leveraged AI for HTML coding (e.g., building and updating the VMC program website), strategic communications (e.g., email campaigns, staff onboarding), scheduling, and proposal writing—streamlining high-volume workflows and improving operational efficiency.

Strong foundation in applied and theoretical mathematics, statistics, and computer science, supported by graduate-level coursework and hands-on experience. Proven ability to lead interdisciplinary initiatives, develop policy-relevant research, and contribute to peer-reviewed publications, strategic reports, and federal modernization efforts.

CONSULTING & ADVISORY:

Oct 2024 – Statistical Consultant; Virginia Department of Health; Atlanta, GA
Provided statistical consulting and data analysis for the Comprehensive Harm Reduction (CHR) Program.

• Cleaned and standardized multi-wave survey data.
• Developed SAS macros to automate cross-tabulations, summary stats, and visualizations.
• Co-authored a 100-page evaluation report covering demographics, behavioral outcomes, and satisfaction.
• Advised on key metric interpretation, 3D visualization design, and grant planning frameworks.

Oct 2023 – Jun 2024 – Research Mentor; Statistical Advisory Group (SAG), Centers for Disease Control and Prevention; Atlanta, GA
Served as a mentor for CDC staff in the SAG Mentorship Program, guiding maternal and child health researchers.
• Delivered biweekly mentorship on SEM, regularized regression, classification modeling, and hypothesis testing.
• Helped mentees strengthen analysis plans, develop manuscripts, and improve pipeline structure.
• Co-authored a CDC study on hand hygiene in Uganda using modified Poisson regression modeling.

Jun 2023 – Dec 2024 – Statistical Reviewer; CDC Objective Review Panel; Atlanta, GA
Reviewed statistical content in federal manuscripts and proposals.
• Verified p-values, modeling assumptions, and subgroup logic in COVID-19 mortality research.
• Reviewed SAS-to-R conversion QA logic and consistency of automated outputs.
• Evaluated design, stratification, and sampling plans for maternal mental health studies and NOFO submissions.

AWARDS & HONORS:

2021–2023 – Graduate Student Fellowship, Louisiana State University, Baton Rouge, LA
Full tuition funding awarded by the LSU Graduate School for outstanding graduate students in applied statistics.

2014-2019 - Graduate Student Fellowship, Baylor University, Waco, TX. Graduate student full tuition funding from the graduate school for outstanding students.

June 2018 - Accepted to participate in MSRI Graduate Summer School, Mathematical Sciences Research Institute, Berkeley, CA. Chosen by the Baylor University Mathematics Department to attend MSRI Graduate Summer School, The Sigma-Problem in the Twenty-First Century.

July 2016 - Accepted to participate in MSRI Graduate Summer School, Mathematical Sciences Research Institute, Berkeley, CA. Chosen by the Baylor University Mathematics Department to attend MSRI Graduate Summer School, An Introduction to Character Theory and the McKay Conjecture.

GRANTS & FUNDING:

2022–2025 – AMS Epsilon Fund Grants, American Mathematical Society (AMS)
Secured competitive annual funding to support the LSU Virtual Math Circle program for high school students. Funds were used to provide partial scholarships to outstanding participants, expand access for underserved populations, and grow LSU's national outreach in mathematics education.

Role: Principal Investigator and Program Director – led grant writing, scholarship allocation, and program implementation.

Oct. 2018 - Graduate Student Travel Award, Baylor University, Birman--Hardy--Rellich-type Inequalities and Refinements, SIAM Texas-Louisiana Meeting; Baton Rouge, LA. Participated as a contributing speaker.

June 2018 - MSRI Graduate Summer School Funding, Mathematical Sciences Research Institute, The Sigma-Problem in the Twenty-First Century. This award assisted with travel and lodging for MSRI Graduate Summer School in Berkeley, California. Traveled as a graduate student.

Mar 2018 - Graduate Student Travel Award, Baylor University, Birman–Hardy– Rellich-type Inequalities and

Refinements. This award assisted with travel and lodging for the Ohio River Analysis Meeting in Lexington, Kentucky. Traveled as an invited speaker.

Aug 2017 - Graduate Student Travel Award, Baylor University, On Birman's Sequence of Hardy–Rellich-type Inequalities. This award assisted with travel and lodging for the International Workshop on Operator Theory and its Applications in Chemnitz, Germany. Traveled as an invited speaker.

Jan 2017 - Graduate Student Travel Award, Baylor University, Net Regular Signed Trees. This award assisted with travel and lodging for the Joint Mathematics Meeting in Atlanta, Georgia. Traveled as an invited speaker and chair for the AMS Contributed Paper Session.

July 2016 - MSRI Graduate Summer School Funding, Mathematical Sciences Research Institute, An Introduction to Character Theory and the McKay Conjecture. This award assisted with travel and lodging for MSRI Graduate Summer School in Berkeley, California. Traveled as a graduate student.

PROFESSIONAL DEVELOPMENT:

2020–2025 – LSU Bridge to Engineering Excellence (BEE) Program:
Head Supervisor & Lead Math Instructor; LSU College of Engineering; Baton Rouge, LA (Virtual & In-Person)
Formerly known as the LSU Summer Scholars Program, BEE is a six-week summer bridge program designed to prepare incoming engineering students for college-level mathematics.
• Serve as Head Supervisor, overseeing curriculum, instruction, and daily operations across multiple sessions.
• Plan, organize, and coordinate all instructional activities; lead recruitment and hiring of graduate teaching assistants.
• Instruct and mentor students in foundational and advanced math topics to ensure academic readiness.
• Expanded the program's reach and infrastructure under new College of Engineering leadership.

2021–2025 – LSU Virtual Math Circle (VMC) Program:
Program Director & Head Instructor; Gordon A. Cain Center, Louisiana State University; Baton Rouge, LA (Remote)
Annual summer and academic-year research initiative for high school students in advanced mathematics.
• Oversee all aspects of program design, recruitment, and implementation.
• Provide mentorship and instruction in mathematical research, including preparation for LSU Discover Day presentations.
• Secure annual AMS Epsilon Grant funding to expand access for underserved students.
• Coordinate virtual instruction and mentor-student research pairings across multiple institutions.

Summer 2020 – LSU Virtual Math Institute:
Assistant Organizer; Gordon A. Cain Center, Louisiana State University; Baton Rouge, LA (Remote)
Collaborated on a teacher-training workshop co-developed with the New Jersey Center for Teaching and Learning.
• Supported curriculum development for Louisiana Praxis math exam preparation.
• Assisted with online infrastructure and instructional logistics for middle and high school teacher certification.

Summer 2019 – LSU STEM Certification Pathways – Summer Training Institute:
Mathematics Instructor; Louisiana State University; Baton Rouge, LA
Delivered six weeks of in-person instruction to high school math teachers enrolled in LSU's STEM Certification Pathway program.

January 2017 – Seminars for Excellence in Teaching:
Participant; Baylor University; Waco, TX
Completed five university-sponsored pedagogy seminars focused on interactive instruction, lesson planning, flipped classrooms, and support for at-risk learners.

INVITED PRESENTATIONS:

Apr 2025 – Program Director Remarks and Research Coordination; LSU Discover Day Undergraduate Research Conference, Louisiana State University; Baton Rouge, LA.

Sept 2024 – PRAMS National Grantee Open Forum – Technical Guidance; Centers for Disease Control and Prevention (CDC); Seattle, WA.

Jul 2024 – PRAMS Strategic Modernization & Response Rate Policy Change Proposal; PRAMS Team Retreat, CDC; Atlanta, GA.

Apr 29, 2024 – Data Weighting Issues Overview for PRAMS Sites; CDC National Grantee Meeting (Virtual); Atlanta, GA.

Apr 2023 – Program Director Remarks and Research Coordination; LSU Discover Day Undergraduate Research Conference, Louisiana State University; Baton Rouge, LA.

May 2022 – Optimality of the Birman–Hardy–Rellich-type Inequalities; Baylor Analysis Fest, Baylor University; Waco, TX.

Mar 2022 – Optimality of the Birman–Hardy–Rellich-type Inequalities; Spectral Theory of Ergodic Quantum Systems Seminar, Louisiana State University; Baton Rouge, LA.

Mar 2022 – Lifshitz Tails; Applied Analysis Seminar, Louisiana State University; Baton Rouge, LA.

Sept 2019 - Weighted Birman–Hardy–Rellich-type Inequalities with Refinements; Applied Analysis Seminar, Louisiana State University; Baton Rouge, LA.

Aug 2019 - On Birman–Hardy–Rellich-type Inequalities with Logarithmic Refinements; Dissertation Defense, Baylor University; Waco, TX.

May 2019 - Power Weighted Birman–Hardy–Rellich-type Inequalities with Logarithmic Refinements via Hartman–Mueller-Pfeiffer Transformations; Informal Analysis Seminar, Baylor University; Waco, TX.

Oct 2018 - Birman–Hardy–Rellich-type Inequalities and Refinements; Contributed Talk, Texas Analysis and Mathematical Physics Symposium, Baylor University; Waco, TX.

Oct 2018 - Birman–Hardy–Rellich-type Inequalities and Refinements; Contributed Talk, Texas-Louisiana SIAM Meeting, Louisiana State University; Baton Rouge, LA.

June 2018 - Tangential Cauchy-Riemann Equations; joint talk with T. Alexander and E. Addison, MSRI Summer Graduate School, Mathematical Sciences Research Institute; Berkeley, CA.

Apr 2018 - Birman's Sequence of Hardy–Rellich-type Inequalities and Linear Operators with Continuous Spectra; Math Club Meeting, Tarleton State University; Stephenville, TX.

Mar 2018 - Birman–Hardy–Rellich-type Inequalities and Refinements; Contributed Talk, Ohio River Analysis Meeting, University of Kentucky; Lexington, KY.

Mar 2018 - Birman–Hardy–Rellich-type Inequalities and Refinements; Mini-symposium, Baylor Chapter AMS, Baylor University; Waco, TX.

Nov 2017 - Birman's Sequence of Inequalities and Generalized Continuous Cesàro Operators; Brazos Analysis Seminar, University of Houston; Houston, TX.

Oct 2017 - Birman's Sequence of Inequalities and Generalized Continuous Cesàro Operators; Analysis Seminar, Baylor University; Waco, TX.

Aug 2017 - On Birman's Sequence of Hardy–Rellich-Type Inequalities; Contributed Talk, International Workshop on Operator Theory and its Applications, Technische Universität; Chemnitz, Germany.

Mar 2017 - On Birman's Sequence of Inequalities; Mini-symposium, Baylor Chapter AMS, Baylor University; Waco, TX.

Jan 2017 - Net Regular Signed Trees; AMS Contributed Paper Session, Joint Mathematics Meeting; Atlanta, GA.

STRATEGIC LEADERSHIP & ENGAGEMENTS:

Sept 2024 – 2024 PRAMS National Grantee Meeting; Centers for Disease Control and Prevention; Seattle, WA.
Served as a statistical consultant during the national PRAMS open forum, providing real-time guidance and technical support to site representatives from across the country.
• Advised state teams on stratification logic, mis-stratification resolution, and sampling fraction verification.
• Provided technical input on birth certificate linkage procedures, sampling design structure, and SAS-based validation workflows.
• Delivered coding guidance and fielded implementation questions during open Q&A consultation sessions.

Sept 2023 – Alabama PRAMS Site Visit; Alabama Department of Public Health; Montgomery, AL.
Led a two-day technical consultation and training visit with the Alabama PRAMS team.
• Delivered hands-on SAS training for generating weighted statistics using CDC templates.
• Reviewed birth file integration and documentation practices; recommended workflow optimizations.

Aug 2023 – PRAMS Team Retreat – Strategic Planning Session; Centers for Disease Control and Prevention; Atlanta, GA.
Contributed to program strategy and modernization planning for the CDC PRAMS Team.
• Helped develop the decision framework for eliminating the 50% response rate threshold.
• Proposed streamlined policy models and modernization ideas to improve data governance and operational efficiency.

Apr 2025 & Apr 2023 – LSU Discover Day – Undergraduate Research Conference; Louisiana State University; Baton Rouge, LA.
Directed student participation as Program Director of the LSU Virtual Math Circle.
• Managed logistics, travel, registration, and poster preparation.
• Introduced oral presenters, evaluated projects, and represented LSU's College of Engineering programs.

CONFERENCES, WORKSHOPS, & SEMINARS:

May 2022 – Baylor Analysis Fest; Baylor University; Waco, TX.
Presented invited talk on optimality of Birman–Hardy–Rellich inequalities.

Mar 2022 – Spectral Theory of Ergodic Quantum Systems Seminar; Louisiana State University; Baton Rouge, LA.
Participated in research presentations focused on spectral and operator theory.

Oct 2018 - Texas Analysis and Mathematical Physics Symposium; Baylor University; Waco, TX.

Oct 2018 - Texas-Louisiana SIAM Meeting; Louisiana State University; Baton Rouge, LA.

Sept 2018 - Brazos Analysis Seminar; Texas A&M University; College Station, TX.

June 2018 - MSRI Summer Graduate School; The Delta-Problem in the Twenty-First Century, Mathematical Sciences Research Institute; Berkeley, CA.

Mar 2018 - Ohio River Analysis Meeting; University of Kentucky; Lexington, KY.

Nov 2017 - Brazos Analysis Seminar; University of Houston; Houston, TX.

Aug 2017 - International Workshop on Operator Theory and its Applications; Technische Universität; Chemnitz, Germany.

Jan 2017 - Joint Mathematics Meeting; Atlanta, GA.

July 2016 - MSRI Summer Graduate School; An Introduction to Character Theory and the McKay Conjecture, Mathematical Sciences Research Institute; Berkeley, CA.

TECHNICAL SKILLS:

Statistical Programming & Data Science:
SAS, R, Python, SQL, Scikit-learn, CHAID, ARIMA, K-Means Clustering, Structural Equation Modeling, Survey Sampling (Complex Designs), Forecast Modeling

AI, Automation & Generative AI Tools:
ChatGPT (OpenAI), ChatCDC (CDC Enterprise AI Bot), Google Gemini, BigQuery ML, TensorFlow, Databricks (Delta Live Tables, MLOps), SAS Macros, R Markdown, Python scripting, VBA, Shell scripting, Google Apps Script

Data Engineering & Cloud Platforms:
Amazon Redshift, Google Cloud Platform (GCP), BigQuery, DBVisualizer, Delta Live Tables, SAS Studio, Google Colab

Business Intelligence & Visualization:
Tableau, Power BI, Google Data Studio, SAS ODS Graphics, Excel Dashboards

Dev Tools & Programming Environments:
LaTeX (including Beamer), Git, GitHub, RStudio, SAS Studio, Overleaf, Visual Studio Code

Web & Education Platforms:
HTML, JavaScript (basic), WebAssign, Blackboard, Canvas, Moodle, Google Workspace

Operating Systems:
Windows, macOS, Linux (basic CLI proficiency)

Office & Productivity Suites:
Microsoft 365 (Word, Excel, Outlook, PowerPoint, Access), Google Workspace, OpenOffice Suite

UNDERGRADUATE COURSEWORK (SELECTED):

Foundations of Engineering I, II; Probability and Statistics I, II; Calculus I, II, & III; Number Theory with Application to Cryptology; Applied Matrix Algebra; Advanced Analysis; Linear Algebra; Discrete Mathematics; Technical Writing & Document Design; C# Programming.

GRADUATE COURSEWORK:

Calculus of Variations & Partial Differential Equations; Distribution Theory I, II; Partial Differential Equations; Operator & Spectral Theory I, II; Potential Theory; Differential Equations; Functional Analysis; Lie Theory; Real Analysis I, II; Differential Geometry; Compact Lie Groups; Complex Analysis; Riemann Surfaces; Rings I; Additative Combinatorics; Advanced Abstract Algebra I, II; Advanced Calculus I, II; Algebraic Topology I; Topology; Graph Theory; Statistical Inference; Probability & Statistics I, II; Experimental Statistics II.

MISCELLANEOUS:

United States Citizen: Yes

Registered for Selective Service: Yes, 89-1323067-1
