Manju M. Johny

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Education

Doctor of Philosophy in Statistics — *Ames, IA*
Iowa State University — *Aug. 2014 - May 2019 (Expected)*

Master of Science in Statistics — *Ames, IA*
Iowa State University — *Aug. 2014 - May 2017 (Expected)*

Bachelor of Arts in Mathematics and Chemistry — *St. Louis, MO*
Saint Louis University — *Aug. 2010 - May 2014*

Skills

Programming R, LaTeX, SAS, JMP, Excel
Languages English (native); Malayalam (native); Spanish (limited working fluency)

Honors & Awards

International

2016 **Second Place**, Prudsys Data Mining Cup — *Berlin, Germany*

Domestic

2014 **Alumni Fellowship**, Iowa State University — *Ames, IA*
2013-14 **ORISE Fellowship**, Oak Ridge Institute for Science and Education; US FDA — *St. Louis, MO*
2014 **Pi Mu Epsilon Member**, US National Mathematics Honor Society
2013 **Dean's List**, Saint Louis University — *St. Louis, MO*
2010-14 **Vice President's Scholarship**, Saint Louis University — *St. Louis, MO*
2010-14 **Bright Flight Scholarship**, Missouri Department of Higher Education — *St. Louis, MO*
2010 **Advanced Placement Scholar with Distinction**, The College Board

Research

Master's Creative Component: A Functional Anova Approach to Detecting Changes in Soil Moisture and Temperature — *Ames, IA*
Iowa State University — *2016*
Mentor: Petrutza Caragea, Ph.D

- Utilized an assymptotic functional ANOVA approach to study treatment effects of heating and snow removal on soil moisture and temperature time series data. Approach involved smoothing data using fourier and b-spline basis, and generating bootstrap resample curves using the covariance structure of the original data.
- Expected date of defense: Spring 2017

Research Fellow — *St. Louis, MO*
DPA/CDER/US Food and Drug Administration. — *Summer 2014*
Mentors: Jason Rodrigues, Ph.D; Connie Gryniewicz-Ruzicka, Ph.D

- Developed an algorithm in MATLAB to transfer laboratory methods to field instruments
- Developed rapid screening methods to identify adulteration of pharmaceutical materials on bench top and portable Ion Mobility Spectrometry instruments.
- Research culminated in a formal talk to Deparmtent of Pharmaceutical Analysis, CDER/FDA.

DPA/CDER/US Food and Drug Administration. — *Summer 2013*
Mentors: Jason Rodrigues, Ph.D; Hongping Ye, Ph.D

- Devoped statistical methods for disaccharide analysis to test for ruminant contanmination in heparin.
- Developed Raman and near Infrared spectral libraries for screening of pharmaceutical materials.
- Research culminated in formal talk to Department of Pharmaceutical Analysis, CDER/FDA, and poster presentation at Center for Drug Evaluation and Research Science Day in White Oak, MD.

Teaching

Instructor

2015-16 **STAT 101: Principles of Statistics**, Iowa State University *Ames, IA*

Lab Instructor

2014-15 **STAT 101: Principles of Statistics**, Iowa State University *Ames, IA*

Grader

2014-15 **STAT 104: Introduction to Statistics**, Iowa State University *Ames, IA*
2015 **STAT 401: Statistical Methods for Research Workers**, Iowa State University *Ames, IA*

Tutor

2013-14 **Statistics Tutor**, Saint Louis University *St. Louis, MO*
2010 **Mathematics Tutor**, Jefferson College *Hillsboro, MO*

Publications

Rodriguez, J. D.; Skaggs, S.K.; Johny, M.; Srivastiva, H.K.; Loethen, Y.L.; Arzhantsev, S.; Kauffman, J. F.; Buhse, L.F. Distribution of Spectral Libraries Across Different Field Deployable Raman and Near Infrared Instruments. Am. Pharm. Review 2014, 17, 10-17.

Abstracts & Presentations

Abstracts

Jason D. Rodriguez, Steven K. Skaggs, Manju M. Johny, Hirsch K. Srivastava, and Yvette L. Loethen, "Evaluating the Performance of Field Screening Using Portable Raman and Near Infrared Spectrometers" IFPAC Conference; Feb. 2015.

Presentations

Manju M. Johny, Steven K. Skaggs, Connie M. Gryniewicz-Ruzicka, Jason D. Rodriguez, "Development of IMS Library for Detection of Adulterants; Standardization of Ramen Spectra Across 5 Different Instruments" FDA Summer Research Symposium, St. Louis, MO USA; Aug 2014.

Jason D. Rodriguez, Steven K. Skaggs, Manju M. Johny, Sergey Arzhantsev, Yvette L. Loethen, Hirsch K. Srivastava, John F. Kauffman, and Lucinda F. Buhse, "Developing Spectral Libraries for Domestic and Foreign Screening of Pharmaceutical Materials" CDER Science Day; White Oak, MD USA; Sept 2013.

Manju M. Johny, Hongping Ye, "Disaccharide Analysis to Test Ruminant Contamination of Heparin" FDA Summer Research Symposium, St. Louis, MO USA; Aug 2013.

Activities & Community Outreach

2014-16 **Iowa State STATers**, Iowa State University *Ames, IA*
2012-13 **Chemistry Club; Position: Demonstration Captain**, Saint Louis University *St. Louis, MO*
2008-13 **Volunteer at Sunrise Assisted Living**, *Des Peres, MO*
2013 **Lion's Club International; Vision Screening Community**, Saint Louis University *St. Louis, MO*

Graduate Courses

STAT 500: Statistical Methods I ..... *Fall 2014*
STAT 510: Statistical Methods II ..... *Spring 2015*
STAT 520: Statistical Methods III ..... *Fall 2015*
STAT 611: Theory & Application of Linear Models ..... *Fall 2016*
STAT 542: Theory of Probability & Statistics I ..... *Fall 2014*
STAT 543: Theory of Probability & Statistics II ..... *Spring 2016*
STAT 641: Foundation of Probability Theory ..... *Fall 2016*
STAT 551: Time Series Analysis ..... *Fall 2015*
STAT 534: Ecological Statistics ..... *Fall 2015*
STAT 544: Bayesian Statistics ..... *Spring 2016*
STAT 579: An Introducation to R ..... *Fall 2014*
STAT 580: Statistical Computing ..... *Spring 2015*