

Statistics and Analytics (STAN)

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Statistics and Analytics Website (<https://statistics-analytics.uark.edu/>)

Degree Conferred:
 M.S. (STANMS)

Program Description: The Graduate Certificate and M.S. degree in Statistics and Analytics are cross-college interdisciplinary programs that build on the university's current strengths in the Colleges of Arts and Sciences; Business; Education and Health Professions; and Engineering. Students may choose one of six concentrations: Statistics; Biological Analytics, Business Analytics; Operations Analytics; Computational Analytics; Educational Statistics & Psychometrics; or Quantitative Social Sciences.

Primary Areas of Faculty Research: Statistics and statistical analysis and design methodologies in business analytics, operations analytics, computational analytics, educational statistics and social science research.

Admission to the Master's Program: In addition to the requirements of the Graduate School, applicants for admission to the M.S. program in Statistics and Analytics must submit a) three letters of recommendation from persons familiar with the applicant's previous academic and professional performance and b) official test scores as specified for the applicant's area of interest.

M.S. in Statistics and Analytics with Concentration in Biological Analytics Requirements for the Master of Science (M.S.) Degree

Requirements for the master's degree are fulfilled through one of seven concentrations. Students should also be aware of Graduate School requirements with regard to master's degrees (<http://catalog.uark.edu/graduatecatalog/degreerequirements/#mastersdegreestext>).

Requirements for Concentration in Biological Analytics

Undergraduate Deficiencies

MATH 24004	Calculus I (ACTS Equivalency = MATH 2405)
MATH 30803	Linear Algebra

Core

Requirements include one course from each of these areas as approved by the student's advisory committee: Statistical Methods, Regression Analysis, Multivariate Analysis, Experimental Design 12

Required Courses

CSCE 50103	Advanced Special Topics in Computer Science or Computer Engineering (taken as introduction to cluster computing)	3
BIOL 51573	Practical Programming for Biologists	3

ISYS 57203	Advanced Multivariate Analysis	3
Choose from one of the following options:		9
9 additional hours of electives		
3 hours of electives, 6 hours of thesis credit, and submission of an acceptable thesis		
Written comprehensive exam (non-thesis) or defense of the thesis		
Total Hours		30

Requirements for the Master of Science (M.S.) Degree

Requirements for the master's degree are fulfilled through one of seven concentrations. Students should also be aware of Graduate School requirements with regard to master's degrees (<http://catalog.uark.edu/graduatecatalog/degreerequirements/#mastersdegreestext>).

Requirements for Concentration in Business Analytics

Undergraduate Deficiencies

MATH 24004	Calculus I (ACTS Equivalency = MATH 2405)
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Core

Requirements include one course from each of these areas as approved by the student's advisory committee: Statistical Methods, Regression Analysis, Multivariate Analysis, Experimental Design 12

Required Courses

ISYS 51003	Data Analytics Fundamentals	3
ISYS 58303	Data Management Systems	3
ISYS 58403	Seminar in Business Intelligence and Knowledge Management	3

Choose one of the following options:		9
9 hours of electives		
3 hours of electives and 6 hours of thesis credit and submission of an acceptable thesis.		
Written comprehensive exam (non-thesis) or defense of the thesis.		
Total Hours		30

Requirements for the Master of Science (M.S.) Degree

Requirements for the master's degree are fulfilled through one of seven concentrations. Students should also be aware of Graduate School requirements with regard to master's degrees (<http://catalog.uark.edu/graduatecatalog/degreerequirements/#mastersdegreestext>).

Requirements for a Concentration in Computational Analytics

Undergraduate Deficiencies

MATH 24004	Calculus I (ACTS Equivalency = MATH 2405)
MATH 30803	Linear Algebra
CSCE 41303	Algorithms

Core

Requirements include one course from each of these areas as approved by the student's advisory committee: Statistical Methods, Regression Analysis, Multivariate Analysis, Experimental Design. 12

Required Courses

CSCE 55203	Database Management Systems	3
Two of the following:		6

CSCE 50603	Machine Learning	
CSCE 50703	Data Mining	
CSCE 56103	Artificial Intelligence	
Choose one of the following options:		9
9 hours of electives		
3 hours of electives, 6 hours of thesis credit and submission of an acceptable thesis		
Written comprehensive exam (non-thesis) or defense of the thesis		
Total Hours		30

Requirements for the Master of Science (M.S.) Degree

Requirements for the master's degree are fulfilled through one of seven concentrations. Students should also be aware of Graduate School requirements with regard to master's degrees (<http://catalog.uark.edu/graduatecatalog/degreerequirements/#mastersdegreestext>).

Requirements for Concentration in Educational Statistics and Psychometrics

Undergraduate Deficiencies

MATH 24004	Calculus I (ACTS Equivalency = MATH 2405)	
MATH 30803	Linear Algebra	

Core

Requirements include one course from each of these areas as approved by the student's advisory committee: Statistical Methods, Regression Analysis, Multivariate Analysis, Experimental Design 12

Required Courses

ESRM 50103	Research Methods in Education	3
ESRM 66503	Measurement and Evaluation	3
ESRM 67503	Item Response Theory	3

Choose one of the following options: 9

9 hours of electives as approved by the student's advisory committee

3 hours of electives, 6 hours of thesis credit, and submission of an acceptable thesis

Written comprehensive exam (non-thesis) or defense of the thesis

Total Hours 30

Requirements for the Master of Science (M.S.) Degree

Requirements for the master's degree are fulfilled through one of seven concentrations. Students should also be aware of Graduate School requirements with regard to master's degrees (<http://catalog.uark.edu/graduatecatalog/degreerequirements/#mastersdegreestext>).

Requirements for Concentration in Operations Analytics

Undergraduate Deficiencies

MATH 24004	Calculus I (ACTS Equivalency = MATH 2405)	
MATH 30803	Linear Algebra	
STAT 30133	Introduction to Probability	

Core

Requirements include one course from each of these areas as approved by the student's advisory committee: Statistical Methods, Regression Analysis, Multivariate Analysis, Experimental Design 12

Required Courses

INEG 56103	Introduction to Optimization Theory	3
INEG 58003	Simulation	3

One of the following: 3

ISYS 58403 Seminar in Business Intelligence and Knowledge Management

CSCE 50703 Data Mining

Choose one of the following options: 9

9 hours of electives

3 hours of electives, 6 hours of thesis credit and submission of an acceptable thesis

Written comprehensive exam (non-thesis) or defense of the thesis

Total Hours 30

Requirements for a Concentration in Quantitative Social Science

Undergraduate Deficiencies

MATH 24004	Calculus I (ACTS Equivalency = MATH 2405)	
MATH 30803	Linear Algebra	
STAT 30133	Introduction to Probability	

Core

Requirements include one course from each of these areas as approved by the student's advisory committee: Statistical Methods, Regression Analysis, Multivariate Analysis, Experimental Design. 12

Required Courses

ISYS 57203	Advanced Multivariate Analysis	3
ECON 57503	Forecasting	3
ECON 66203	Econometrics II	3
ECON 66303	Econometrics III	3

Choose one of the following options: 6

6 hours of electives to include two of the following: cost benefit analysis; GIS and spatial analysis; multilevel modeling; social network analysis

6 hours of thesis credit and submission of an acceptable thesis

Written comprehensive exam (non-thesis) or defense of the thesis

Total Hours 30

Requirements for the Master of Science (M.S.) Degree

Requirements for the master's degree are fulfilled through one of seven concentrations. Students should also be aware of Graduate School requirements with regard to master's degrees (<http://catalog.uark.edu/graduatecatalog/degreerequirements/#mastersdegreestext>).

Requirements for the Master of Science (M.S.) Degree

Requirements for the master's degree are fulfilled through one of seven concentrations. Students should also be aware of Graduate School requirements with regard to master's degrees (<http://catalog.uark.edu/graduatecatalog/degreerequirements/#mastersdegreestext>).

Requirements for Concentration in Statistics

Undergraduate Deficiencies

MATH 25004	Calculus II	
MATH 30803	Linear Algebra	

CSCE 20104 Programming Foundations II	
Core	
Requirements include one course from each of these areas as approved by the student's advisory committee: Statistical Methods, Regression Analysis, Multivariate Analysis, Experimental Design	12
Required Courses	
STAT 51033 Introduction to Probability Theory	3
STAT 51133 Statistical Inference	3
STAT 53333 Analysis of Categorical Responses	3
STAT 54433 Computational Statistics	3
Choose one of the following options:	6
6 hours of electives	
6 hours of thesis credit and submission of acceptable thesis	
Written comprehensive exam (non-thesis) or defense of thesis	
Total Hours	30

Graduate Faculty

Aloysius, John, Ph.D. (Temple University), B.S. (University of Colombo, Sri Lanka), Professor, J.B. Hunt Transport Department of Supply Chain Management, Oren Harris Chair in Logistics, 1995, 2017.

Arnold, Mark E., Ph.D., B.S. (Northern Illinois University), A.S. (Rock Valley College), Associate Professor, Department of Mathematical Sciences, 1993, 1999.

Beaulieu, Jeremy M., Ph.D. (Yale University), M.S., B.S. (California Polytechnic State University), Associate Professor, Department of Biological Sciences, 2016, 2021.

Bridges, Ana Julia, Ph.D. (University of Rhode Island), M.S. (Illinois State University), B.S. (University of Illinois-Urbana-Champaign), Professor, Department of Psychological Science, 2007, 2019.

Cassady, Richard, Ph.D., M.S.I.S.E., B.S.I.S.E. (Virginia Polytechnic Institute and State University), University Professor, Department of Industrial Engineering, 2000, 2019.

Chakraborty, Avishek, Ph.D. (Duke University), M.S., B.S. (Indian Statistical Institute), Associate Professor, Department of Mathematical Sciences, 2014, 2020.

Chimka, Justin Robert, Ph.D., M.S.I.E., B.S.I.E. (University of Pittsburgh), Associate Professor, Department of Industrial Engineering, 2002, 2009.

Cothren, Jackson David, Ph.D., M.S. (The Ohio State University), B.S. (United States Air Force Academy), Professor, Department of Geosciences, Leica Geosystems Chair in Geospatial Imaging, 2004, 2017.

Covington, Matthew D., Ph.D. (University of California-Santa Cruz), B.A. (University of Arkansas), Associate Professor, Department of Geosciences, 2012, 2018.

Cronan, Timothy P., Ph.D. (Louisiana Tech University), M.S. (South Dakota State University), B.S. (University of Southwestern Louisiana), Professor, Department of Information Systems, M.D. Matthews Endowed Chair in Information Systems, 1979.

Douglas, Marlis R., Ph.D., M.S., B.S. (University of Zurich), Professor, Department of Biological Sciences, Bruker Life Sciences Chair, 2012.

Douglas, Michael Edward, Ph.D. (University of Georgia), M.S., B.S. (University of Louisville), Professor, Department of Biological Sciences, 21st Century Chair in Global Change Biology, 2011.

Feng, Song, Ph.D., M.S. (Chinese Academy of Sciences), B.S. (Yunnan University), Associate Professor, Department of Geosciences, 2013, 2018.

Ferrier, Gary D., Ph.D. (University of North Carolina–Chapel Hill), B.A. (University of Wisconsin-Madison), University Professor, Department of Economics, Lewis E. Epley Jr. Professorship in Economics, 1993, 2012.

Fitzpatrick, Kevin M., Ph.D. (State University of New York at Albany), M.A. (University of South Carolina at Columbia), B.A. (Susquehanna University), University Professor, Department of Sociology and Criminology, Bernice Jones Chair in Community, 2005, 2014.

Freeze, Ron, Ph.D. (Arizona State University), M.B.A. (University of Missouri–Kansas City), B.S. (General Motors Institute), Clinical Professor, Department of Information Systems, 2015, 2021.

Gaduh, Arya, Ph.D. (University of Southern California), M.Phil. (Cambridge University), B.A. (University of California-Berkeley), Associate Professor, Department of Economics, 2013, 2019.

Gauch, Susan E., Ph.D. (University of North Carolina at Chapel Hill), M.Sc., B.Sc. (Queen's University, Canada), Professor, Department of Electrical Engineering and Computer Science, 2007.

Gu, Jingping, Ph.D. (Texas A&M University), M.A. (Peking University), B.A. (Renmin University of China, Beijing), Associate Professor, Department of Economics, 2008, 2014.

Harris, Casey Taggart, Ph.D., M.A. (Pennsylvania State University), B.S. (Texas A&M University), Professor, Department of Sociology and Criminology, 2011, 2023.

Johnson, Jon, Ph.D. (Indiana University at Bloomington), M.B.A., B.S. (University of Arkansas), Professor, Department of Strategic, Entrepreneurship and Venture Innovation, Walton College Professorship in Sustainability, 1996, 2007.

Levine, William H., Ph.D., M.S. (State University of New York at Binghamton), B.S. (DePaul University), Associate Professor, Department of Psychological Science, 2001, 2007.

Lo, Wen-Juo, Ph.D., M.A. (Arizona State University), B.S. (SooChow University), Associate Professor, Department of Rehabilitation, Human Resource and Communication Disorders, 2008, 2014.

Mitchell, Joshua Lee, Ph.D. (Southern Illinois University), M.P.A., B.S. (Murray State University), Associate Professor, Department of Political Science, 2010, 2019.

Mullins, Jeff, Ph.D., M.A., B.S. (University of Arkansas), Assistant Professor, Department of Information Systems, 2006, 2018.

Naithani, Kusum, Ph.D. (University of Wyoming), M.Sc. (G.B. Pant University of Agriculture and Technology-India), B.Sc. (University of Lucknow-India), Associate Professor, Department of Biological Sciences, 2014, 2021.

Parnell, Gregory S., Ph.D. (Stanford University), M.S. (University of Southern California), M.E.I.S.E. (University of Florida), B.S. (University of New York at Buffalo), Professor of Practice, Department of Industrial Engineering, 2013.

Petris, Giovanni, Ph.D., M.S. (Duke University), B.S. (Universita degli Studi di Milano, Italy), Professor, Department of Mathematical Sciences, 1999, 2016.

Pohl, Edward A., Ph.D., M.S.R.E. (University of Arizona), M.S.S.E. (Air Force Institute of Technology), M.S.E.M. (University of Dayton), B.S.E.E. (Boston University), Professor, Department of Industrial Engineering, Twenty-First Century Professorship in Engineering, 2004, 2013.

Rainwater, Chase E., Ph.D. (University of Florida), B.S.I.E. (University of Arkansas), Professor, Department of Industrial Engineering, 2009, 2021.

Rossetti, Manuel D., Ph.D., P.E., M.S.I.E. (The Ohio State University), B.S.I.E. (University of Cincinnati), University Professor, Department of Industrial Engineering, 1999, 2022.

Sabherwal, Rajiv, Ph.D. (University of Pittsburgh), P.G.D.M. (Indian Institute of Management), B.S.E.E. (Regional Engineering College, India), Distinguished Professor, Department of Information Systems, Edwin and Karlee Bradberry Chair, 2011, 2019.

Song, Geoboo, Ph.D. (University of Oklahoma), B.A. (Korea University), B.A. (Hanyang University), Associate Professor, Department of Political Science, 2012, 2019.

Stenken, Julie A., Ph.D. (University of Kansas), B.S. (University of Akron), Professor, Department of Chemistry and Biochemistry, 21st Century Chair of Proteomics, 2007.

Sykes, Tracy Ann, Ph.D. (University of Arkansas), B.S. (University of Maryland-College Park), Associate Professor, Department of Information Systems, 2011, 2016.

Turner, Ronna L., Ph.D. (University of Illinois-Urbana-Champaign), M.S.E. (Missouri State University), B.S.E. (Southwest Missouri State University), Professor, Department of Curriculum and Instruction, 1997, 2018.

Wu, Xintao, Ph.D. (George Mason University), M.E. (Chinese Academy of Space Technology), B.S. (University of Science and Technology of China), Professor, Department of Electrical Engineering and Computer Science, Charles D. Morgan/Axiom Graduate Research Chair, 2014, 2019.

Yang, Song, Ph.D., M.S. (University of Minnesota-Twin Cities), M.A. (Nankai University, China), B.A. (Branch College of Nankai, China), Professor, Department of Sociology and Criminology, 2002, 2016.

Zhang, Qingyang, Ph.D. (Northwestern University), M.S. (Loyola University–Chicago), B.S. (Beijing Normal University), Associate Professor, Department of Mathematical Sciences, 2015, 2021.

Zhang, Shengfan, Ph.D., M.I.E. (North Carolina State University), B.M. (Fudan University, Shanghai), Associate Professor, Department of Industrial Engineering, John L. Imhoff Chair in Industrial Engineering, 2011, 2020.