Statistics and Analytics (STAN)

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

Degree Conferred:
M.S. (STANMS)

Graduate Certificate Offered:
Graduate Certificate in Statistics and Analytics (STANGC) (Nondegree)

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.

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 2554	Calculus I (ACTS Equivalency = MATH 2405)	
MATH 3083	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 5013	Advanced Special Topics in Computer Science or Computer Engineering (taken as introduction to cluster computing)	3
BIOL 5153	Practical Programming for Biologists	3
ISYS 5723	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 2554	Calculus I (ACTS Equivalency = MATH 2405)	
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 5103	Data Analytics Fundamentals	3
ISYS 5833	Data Management Systems	3
ISYS 5843	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 2554	Calculus I (ACTS Equivalency = MATH 2405)	
MATH 3083	Linear Algebra	
CSCE 4133	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 5523	Database Management Systems	3
Two of the following:		6

CSCE 5063	Machine Learning	
CSCE 5073	Data Mining	
CSCE 5613	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 2554	Calculus I (ACTS Equivalency = MATH 2405)	
MATH 3083	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 5013	Research Methods in Education	3
ESRM 6653	Measurement and Evaluation	3
ESRM 6753	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 2554	Calculus I (ACTS Equivalency = MATH 2405)	
MATH 3083	Linear Algebra	
STAT 3013	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 5613	Introduction to Optimization Theory	3
INEG 5803	Simulation	3
One of the following:		3
ISYS 5843	Seminar in Business Intelligence and Knowledge Management	
CSCE 5073	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 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 Quantitative Social Science

Undergraduate Deficiencies		
MATH 2554	Calculus I (ACTS Equivalency = MATH 2405)	
MATH 3083	Linear Algebra	
STAT 3013	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 5723	Advanced Multivariate Analysis	3
ECON 5753	Forecasting	3
ECON 6623	Econometrics II	3
ECON 6633	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 Concentration in Statistics

Undergraduate Deficiencies		
MATH 2564	Calculus II (ACTS Equivalency = MATH 2505)	
MATH 3083	Linear Algebra	

CSCE 2014	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 5103	Introduction to Probability Theory	3
STAT 5113	Statistical Inference	3
STAT 5333	Analysis of Categorical Responses	3
STAT 5443	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 Certificate in Statistics and Analytics (STAN)

Requirements for the Graduate Certificate in Statistics and Analytics:

The Graduate Certificate requires 12 hours of courses as specified below.

Choose one of the following:		3-4
STAT 5003 & STAT 5001L	Statistical Methods and Statistics Methods Laboratory	
ESRM 6403	Educational Statistics and Data Processing	
ISYS 5503	Decision Support and Analytics	
PLSC 5913	Research Methods in Political Science	
PSYC 5133	Inferential Statistics for Psychology	
SOCI 5013	Advanced Social Research	
Choose one of the following:		3
STAT 5313	Regression Analysis	
INEG 5393	Applied Regression Analysis for Engineers	
PLSC 5943	Advanced Research Methods in Political Science	
PSYC 5143	Advanced Descriptive Statistics for Psychology	
SOCI 5313	Applied Data Analysis	
Choose one of the following:		3
STAT 5353	Methods of Multivariate Analysis	
ISYS 5723	Advanced Multivariate Analysis	
ESRM 6453	Applied Multivariate Statistics	
Choose one of the following:		3
STAT 4373	Experimental Design	
INEG 5333	Design of Industrial Experiments	
ESRM 6413	Experimental Design in Education	
Total Hours		**12**

Graduate Faculty

Aloysius, John, Ph.D. (Temple University), B.S. (University of Colombo, Sri Lanka), Professor, 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.

Cao, Chunhua, Ph.D. (University of South Florida-Tampa), Teaching Assistant Professor, Department of Rehabilitation, Human Resource and Communication Disorders, 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, 2021.

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, 2004, 2020.

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 Computer Science and Computer Engineering, 2007.

Gbur, Edward E., Ph.D., M.S. (The Ohio State University), B.S. (Saint Francis University), Professor, Department of Crop, Soil and Environmental Sciences, 1987, 1998.

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

Harris, Casey Taggart, Ph.D., M.A. (Pennsylvania State University), B.S. (Texas A&M University), Associate Professor, Department of Sociology and Criminology, 2011, 2017.

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.
Mauromoustakos, Andy, Ph.D., M.S. (Oklahoma State University), B.S. (Oral Roberts University), Professor, Department of Crop, Soil and Environmental Sciences, 1989, 2002.
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, 2015.
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 Computer Science and Computer Engineering, Charles D. Morgan/Acxiom 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), Assistant Professor, Department of Mathematical Sciences, 2015.
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.