G. Jay Kerns, Ph.D.

Curriculum Vitæ

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September 19, 2007

Academic Degrees

2004 **Ph.D.**, *Statistics*, Bowling Green State University.
Advisor: G. J. Székely

2000 **M.A.**, *Statistics*, Bowling Green State University.

1999 **B.A.Ed.**, *Mathematics, Science & Music*, Glenville State College.

Professional Appointments

2004–Present **Assistant Professor**, Youngstown State University.

1999–2004 **Graduate Assistant**, Bowling Green State University.

Honors & Awards (since 2004)

2006–07 **Distinguished Professor Award** for Excellence in Teaching

2006–07 **YSU Research Professorship** entitled *Finite Markov Exchangeable Models*

2004–05 **Project NExT** (*N*ew *Ex*periences in *T*eaching) **Fellow**

Publications

Refereed Journal Articles

To Appear **Landgraff, N., Kerns, G. Jay, and Passek, L.**, Implementation of the Comprehensive Assessment Toolbox for Stroke in a Medical System, **Rehabilitation Nursing**.

2007 **Pfeil, E. K., N. Casacchia, G. J. Kerns, and T. P. Diggins**, Volume, composition, and orientation of down deadwood in old-growth riparian woodlands in Zoar Valley, New York, USA, **Forest Ecology and Management**, **239**:159–168.

2006 **Kerns, G. Jay and Székely, G. J.**, De Finetti's Theorem for Abstract Finite Exchangeable Sequences, **Journal of Theoretical Probability**, **19(3)**:589–608.

Abstracts

2006 **Venglar, M. and Kerns, G. J.**, Test-Retest Reliability of the Activities-Specific Balance Confidence Scale for People with Parkinson's Disease, **Movement Disorders**, **21(13)**:S150.

2006 **Kerns, G. Jay**, Data Augmentation for the Analysis of Coarse Woody Debris in an Old-Growth Riparian Forest, **Abstracts of Papers Presented to the American Mathematical Society**, **27(1)[43]**:170.

News & Appearances

2007 **Office of Marketing and Communications**, STEM/CLASS: New Colleges, New Opportunities, **YSU Magazine**, **Summer 2007, 26–28**.

2007 **Ron Cole, Kerns, G. J.**, YSU receives $340,000 grant for summer STEM program, **YSU eUpdate**, **February 2007, Vol.1:1,4**.

2005 **Kerns, G. J.**, Meet the Members, **Bulletin of the Institute of Mathematical Statistics**, **33(5)**:15.

In Preparation

Kerns, G. Jay, and G. Andy Chang, *Introduction to Probability and Statistics Using R* (IPSUR), Under contract by Taylor & Francis Publishing.

Kerns, G. Jay, G. Andy Chang, G. Stanek, and D. J. Lee, Oyster Data: Calibration Experiments in Engineering Quality Control.

Kerns, G. Jay, D. Kuzma and M. Srinivasan, Time-Dependent Functional Analysis of Recycling Efforts on the YSU Campus.

Price, T., D. Story, G. Jay Kerns and J. Duran, Coordinating Online Registration for Section Meetings of the Mathematical Association of America.

Grzebieniak, A., G. Jay Kerns, and J. Tall., A Retrospective Study Assessing the Quality of Reporting Methods in the Primary Literature.

Tall, J. and G. Jay Kerns, Nature AND Nurture: Biological Investigation into the Effects of Environment on Behavior.

Grant Proposals (* Awarded)

National

May 15, 2007* ***PME Regional Undergraduate Mathematics Conference***, *Mathematical Association of America*, Requested Amount: $1,500, Duration: 12 months, Principal Investigator.

May 17, 2006 ***UBM-Group, RUI: Sustained Undergraduate Research Experiences in Biology and Mathematics (YSU-BaM)***, *National Science Foundation*, Requested Amount: $240,000, Duration: 36 months, Co-Principal Investigator.
Received *Highly Competitive Designation.*

Nov 29, 2005 ***Bayesian Assessment of Risk Factors Associated with Rape Victimization in the NCVS***, *American Statistical Association / Bureau of Justice Statistics*, Requested Amount: $24,780, Duration: 24 months, Principal Investigator.

Oct 15, 2005 ***Efficient Simulation of Finite Exchangeable Sequences***, *National Security Agency*, Requested Amount: $29,844, Duration: 24 months, Principal Investigator.

Mar 15, 2005 ***Interdisciplinary Undergraduate Education through Sustained Research Experiences in Mathematics and Biology***, *National Science Foundation*, Requested Amount: $1,125,000, Duration: 60 months, Senior Personnel.

State

Nov 2, 2006* ***The Lake-to-River T4 Summer STEM Academy***, *Ohio Board of Regents*, Requested Amount: $350,000, Duration: 12 months, Principal Investigator.

University

Dec 29, 2006* ***Open-Source Statistical Software for Distance Education***, *Faculty Development Reassignment*, Requested Amount: 4 hrs. release time, Period: 2007–2008.

Dec 29, 2006* ***Finite Markov Exchangeable Models***, *Faculty Development Reassignment*, Requested Amount: 2 hrs. release time, Period: 2007–2008.

May 15, 2006* ***Ordinal Data Models for Global Disability Measures***, *Summer Research Assistantship*, Requested Amount: $1,500, Period: Summer 2006, Research Assistant: Theophilus Boye.

Nov 15, 2005* ***Finite Markov Exchangeable Models***, *Research Professorship*, Requested Amount: 8 hrs. release time, Period: 2006–2007.

May 9, 2005* ***Monte Carlo Methods for Estimating Binary Success Rates***, *Summer Research Assistantship*, Requested Amount: $1,500, Period: Summer 2005, Research Assistant: Edward Boadi.

May 9, 2005* ***First Cornell Summer School In Probability***, *Faculty Reimbursement for Advanced Studies*, Requested Amount: $1,000, Period: July 10–21, 2005.

Pending

September 18, 2007 ***Pathways to College: Building the STEM Transition***, *National Science Foundation*, Requested Amount: $981,549, Duration: 60 months, Co-Principal Investigator.

May 5, 2007 ***Integrating Mechanical Testing of Biological Tissue into the Undergraduate Biology Curriculum***, *National Science Foundation*, Requested Amount: $149,650.37, Duration: 36 months, Co-Principal Investigator.

Apr 4, 2007 ***UBM-Group, RUI: Sustained Undergraduate Research Experiences in Biology and Mathematics (YSU-BaM)***, *National Science Foundation*, Requested Amount: $239,945, Duration: 36 months, Senior Personnel.

Mar 1, 2007 ***The Effect of Spinal Manipulation on Stiffness Deficit of Lumbar Spine***, *National Institute of Health*, Requested Amount: $364,256, Duration: 24 months, Senior Personnel.

IPSUR and the IPSUR Package

The IPSUR package was authored by G. Jay Kerns and accompanies the text *Introduction to Probability and Statistics Using R* (in progress, Taylor & Francis Publishing) by Kerns and coauthor G. Andy Chang.

IPSUR's primary goal is to provide a user-friendly graphical user interface (GUI) to the open-source and freely available R statistical computing environment. IPSUR is equipped to handle many of the statistical analyses and graphical displays usually encountered by upper division undergraduate Mathematics, Statistics, and Engineering majors. Available features are comparable to many expensive commercial packages such as Minitab, SPSS, and JMP-IN.

Web tracking software has been used to track and log IPSUR activity nationwide and in forty five (45) foreign territories across the globe, being represented on every single continent (excluding the poles). Moreover, downloads from over 50 independent `CRAN` (*C*omprehensive *R* *A*rchive *N*etwork) archives are not traceable and likely comprise the majority of IPSUR propagation. Since August 2006, there have been over 3,043 hits worldwide on the IPSUR website alone.

Released Versions

v:0.1-2 Submitted January 12, 2007. Posted on `CRAN`: January 13, 2007.

v:0.1-1 Submitted October 4, 2006. Posted on `CRAN`: October 6, 2006.

v:0.1-0 Submitted September 25, 2006.

MERLOT Peer Reviews

The Multimedia Educational Resource for Learning and Online Teaching (MERLOT) is a searchable collection of peer reviewed, higher education online learning materials created by registered members, together with a set of faculty development support services. I was invited by the Consortium for the Advancement of Undergraduate Statistics Education (CAUSE) to peer-review selected posted materials related to statistics education. Below are two currently published reviews.

Feb. 22, 2007 ***Java Applets for Power and Sample Size***, *Author: Russ Lenth.*
`http://www.merlot.org/merlot/viewCompositeReview.htm?id=240353`

Nov. 13, 2006 ***One-way ANOVA Demonstration***, *Author: Richard Hall.*
`http://www.merlot.org/merlot/viewCompositeReview.htm?id=223937`

Courses Taught (Graduate)

2007

Fall		
STAT 5843 & 6943	Theory of Probability (G)	3 hrs
Summer		
STAT 5895	Special Topics (G)	3 hrs
MATH 1580H	Biomathematics I	2 hrs
STAT 2601	Introductory Statistics	3 hrs
Spring		
STAT 5844 & 6944	Theory of Statistics (G)	3 hrs
STAT 3743	Probability & Statistics I	4 hrs
MATH 6996	Mathematical Project (G)	3 hrs
MATH 6999	Thesis	6 hrs

2006

Fall		
STAT 5843 & 6943	Theory of Probability (G)	3 hrs
STAT 3717	Statistical Methods	4 hrs
MATH 4896	Senior Undgrad Res Proj	2 hrs
Summer		
STAT 3743	Probability & Statistics I	4 hrs
Spring		
MATH 1572	Calculus II	4 hrs
STAT 3743	Probability & Statistics I	4 hrs
STAT 5848 & 6948	Applied Regression & Time Series (G)	3 hrs
MATH 6995	Special Topics in Statistics (G)	3 hrs
MATH 6996	Mathematical Project (G)	3 hrs (2)
MATH 4897H	Honors Thesis	2 hrs

2005

Fall		
STAT 5843 & 6943	Theory of Probability (G)	3 hrs
MATH 2673	Calculus III	4 hrs
MATH 6995	Adv. Topics in Probability (G)	3 hrs
MATH 6996	Mathematical Project (G)	3 hrs
Summer		
STAT 5840	Statistical Computing (G)	3 hrs
Spring		
STAT 3743	Probability & Statistics I	4 hrs
MATH 1572	Calculus II	4 hrs (2)

2004

Fall		
STAT 3743	Probability & Statistics I	4 hrs
MATH 1571	Calculus I	4 hrs

Off Campus and Field Based Instruction

Sep 9, 2006 **NEOUCOM M.P.H.**, *Probability, Bayes' Theorem, & Diagnostic Screening Tests*, Visiting Lecture, University of Akron.

Sep 10, 2005 **NEOUCOM M.P.H.**, *Introduction to Probability & Diagnostic Screening Tests*, Visiting Lecture, University of Akron.

Supervised Masters Theses

In Progress **Theresa Moore**, *ARIMA Model Decomposition with Applications to Air Traffic Subsequent to 9/11*.

Supervised Masters Projects

In Progress **Theophilus Boye**, *Discriminant Analysis and Multiple Linear Regression for Classification of Abalone Oyster Shells*.

Spring 2007 **Frank Appiah**, *Forecasting Liquid Assets in the US Economy with Holt-Winters Analysis and Graphical-User-Interface Advancement*.

Spring 2006 **Julius Suh Ngwa**, *A Bayesian Ordinal Probit Analysis of Global Disability Measures*.

Spring 2006 **Kwaw Yankey**, *Statistical Modeling of Coarse Woody Debris in a Riparian Forest*.

Fall 2005 **Makiyu Sulley**, *Analysis of Ecological Data on Coarse Woody Debris Volume Using Mixture Models*.

Supervised Honors Theses

Spring 2006 **David Gohlke**, *Introduction to Markov Chains and an Application to Nuclear Physics*.

Supervised Honors Projects

Spring 2007 **Ryan Livingston**, *Statistical Observations on American Colleges and Universities*, STAT 3743.

Fall 2006	**Emily Lucas**, *Correlation Structure of Downed Dead Wood (DDW) and Estimated Stand Age*, STAT 3717.
Spring 2006	**Leanna Cluff**, *Probability on Death Row*, STAT 3743.
Spring 2005	**Bryan Kopachy**, *The Case of the Crushed Clown*, MATH 1572.
Spring 2005	**Justin Mercer**, *Randomization Tests*, STAT 3743.

Selected University Service (Chair)

F07–Present	**STEM Curriculum Integration Committee**.
S07 – Present	**Associate Director of CURMATH**.
F07 – Present	**Departmental Executive Committee**.
F07 (2 yr term)	**Statistics Coordinator**.
Spring 2007	**Metro Credit Program Coordinator Search Committee (C)**.
Spring 2007	**Metro Credit Career Pathways Search Committee**.
F05 – Present	**YSU MathFest Statistical Poster Competition Coordinator**.
F06 – Present	**Strategic Planning Committee (C)**.
F06 – Present	**Honors & Scholarship Committee**.
Spring 2006	**Departmental Search Committee**.
F05 – Present	**Graduate Executive Committee**.
F04 – S05	**Colloquium & Seminars Committee**.
F04 – Present	**Statistics Committee, (C) in 2007**.
S05 – Present	**Departmental Web Coordinator**.
F04,06–Present	**Computer Planning Committee**.

Graduate M.S. Oral Exam Committees (Chair)

Summer 2007	**Joseph Ponzio**	Summer 2007	**Julius Suh Ngwa (C)**
Spring 2007	**Nana Mensa Bonsu**	Fall 2005	**Olajide Israel Ajayi**
Spring 2007	**Samuel Quarcoo**	Fall 2005	**Makiyu Sulley (C)**
Spring 2007	**Frank Appiah (C)**	Summer 2005	**Xinde Zhang**
Spring 2006	**Kwaw Yankey (C)**	Spring 2005	**Avery Sterling**

Graduate M.S. Comprehensive Exams

Summer 2007	**Theresa Moore**, STAT 6944	Fall 2006	**George Abu**, STAT 6948
Summer 2007	**Theophilus Boye**, STAT 6943	Fall 2006	**Joseph Ponzio**, STAT 6943
Summer 2007	**Joseph Essilfie**, STAT 6944	Fall 2006	**Joseph Ponzio**, STAT 6948
Spring 2007	**Aimee Crabtree**, STAT 6943	Summer 2005	**Charles Assuah**, STAT 6940

Advisement & Supervision of Student Organizations

Spring 2007–Present	**Associate Director**, *YSU Center for Undergraduate Research in Mathematics (CURMATH)*.

Feb 8–12, 2007 **Faculty Advisor**, *Mathematical Contest in Modeling*, The team consisted of Tiffiny Rummell, Moriah Wright, and Kate Bonn and received Honorable Mention for their work on the Interdisciplinary Problem entitled "Regional Kidney Transport Network".

Feb 2–6, 2006 **Faculty Advisor**, *Mathematical Contest in Modeling*, The team consisted of Daniel Nemergut, Jessica Shipman, and Robert Sovesky and received Honorable Mention for their work on the Interdisciplinary Problem entitled "HIV/AIDS: The Pandemic of the Century".

Fall 2005–Present **Faculty Mentor**, *Pi Mu Epsilon Ohio Xi Chapter*.

Summer 2005 **Advisor and Faculty Mentor**, *YSU Summer Undergraduate Research Experience*.

Statistical Consulting

University (gratis)

2004–Present **Nancy Landgraff, Ph.D.**, *Chair and Associate Professor, Physical Therapy*, Assessment of Stroke Severity by Global Disability Measures: Power Analysis, MANOVA, Multivariate Repeated Measures.

2005–Present **Thomas Diggins, Ph.D.**, *Associate Professor, Biological Sciences*, Ecological Modeling of Downed Dead Wood: Bootstrap Resampling.

2006–Present **Kenneth Learman, Ph.D.**, *Assistant Professor, Physical Therapy*, Spinal Manipulation and Proprioception: Reliability Analysis, Power Analysis.

2006–Present **Jill Tall, Ph.D.**, *Assistant Professor, Biological Sciences*, Behavioral Pain Research, Reporting trends in Pain Literature: Repeated Measures, Power Analysis.

2006–Present **Weiqing Ge, Ph.D.**, *Assistant Professor, Physical Therapy*, Spinal Manipulation and Stiffness Deficit in the Lumbar Spine: Multivariate Repeated Measures, Power Analysis.

2007–Present **Carl Johnston, Ph.D.**, *Associate Professor, Biological Sciences*, Genomics of E. Coli: Hierarchical Cluster Analysis.

2007–Present **Suzanne Leson, M.S., R.D., L.D.**, *Instructor, Human Ecology*, Managed care in Skilled Nursing Facilities: Factor Analysis.

2005–2007 **Mollie Venglar, Ph.D.**, *Assistant Professor, Physical Therapy*, Movement Disorders in Parkinson's Disease: Test-retest Reliability, Power Analysis.

2004–2005 **Martin Manning, Ph.D.**, *Counseling*, Dissertation Research: Experimental Design, Hypothesis Testing.

External Academic

2006–Present **Mark Welty**, *Counseling, **Walden University***, Emotional Intelligence and Trauma Belief Scales: Experimental Design, MANCOVA, Power Analysis.

2005–2006 **Matthew Capezzuto**, *Physiology, **Walden University***, Perceptions of Managed Care Influences on Psychodynamic and Cognitive Psychotherapists: Experimental Design, MANOVA, Power Analysis.

2005–2006 **Joseph Marzano**, *Physiology, **Walden University***, Therapy Treatment and Patient Improvement: Experimental Design, Hypothesis Testing.

Private

2007–Present **J. P. Daliman et. al**, *Attorney, Skilled Nursing Facility Director, **Windsor House***, Peer Grouping of Ohio Skilled Nursing Facilities: Diagnostics, ANOVA, Disjoint Cluster Analysis.

Discipline Related Service

Fall 2006–Present **Online Registration Coordinator**, *Ohio Section of the Mathematical Association of America*.

Fall 2006 **Test Question Development**, *Statistics Advanced Placement Exam*.

Fall 2006 **Field Test Administration**, *Statistics Advanced Placement Exam*.

Fall 2006 **AP Reader**, *Statistics Advanced Placement Exam*.

Jan 12, 2006 **Chair of Statistics Session of Contributed Papers**, *Joint Mathematics Meetings of AMS/MAA/SIAM*, San Antonio, TX.

Grant Service

Spring 2007–Present **Director**, *The Lake-toRiver T^4(Teaching Tomorrow's Teachers Today) Summer STEM Academy*.

Fall 2006–Present **Assessment Panel Advisor**, *The Far-East Regional Partnership for Conceptually Based Mathematics (FERPCBM)*.

Meetings, Conferences, Conventions

Apr 13–14, 2007 **Spring Conference**, *Ohio Section of the Mathematical Association of America*, Shawnee State University.

Feb 17, 2007 **Pi Mu Epsilon Regional Conference**, *Ohio Xi Chapter of Pi Mu Epsilon*, Youngstown State University.

Oct 27–28, 2006 **Fall Conference**, *Ohio Section of the Mathematical Association of America*, Muskingum College.

Jan 10–14, 2006 **Joint Mathematics Meetings**, *AMS/SIAM/MAA*, San Antonio, TX.

Nov 4–6, 2005 **Oberlin Conference on Computation and Modeling: the Undergraduate Arena**, *Oberlin College*.

Sep 30–31, 2005 **Miami University 33rd Annual Conference**, *Miami University*.

Aug 4–6, 2005 **MathFest**, *Mathematical Association of America*, Albuquerque, NM.

Jul 10–21, 2005 **First Cornell Summer School in Probability**, *Cornell University*, Ithaca, NY.

Apr 29, 2005 **NSF Regional Conference**, *Cleveland State University*.

Feb 19, 2005 **Pi Mu Epsilon Regional Conference**, *Ohio Xi Chapter of Pi Mu Epsilon*, Youngstown State University.

Jan 5–8, 2005 **Joint Mathematics Meetings**, *AMS/SIAM/MAA*, Atlanta, GA.

Aug 9–15, 2004 **MathFest**, *Mathematical Association of America*, Providence, RI.

Professional Development

Mar 31, 2006 **Project NExT Workshop**, *Ohio Section of the Mathematical Association of America Section Meeting*, Akron, OH.

Aug 4–6, 2005 **Teaching Statistics**, *Project NExT Course*, Mathematical Association of America MathFest, Providence, RI.

Jul 10–21, 2005 **Random Networks and Trees**, *First Cornell Summer School in Probability*, Cornell University.

Apr 29, 2005 **Grant Proposal Development**, *NSF Regional Conference*, Cleveland State University.

Jan 5–8, 2005 **Getting Your Research off to a Good Start**, *Project NExT Course*, Joint Mathematics Meetings of AMS/MAA/SIAM, Atlanta, GA.

Oct 22, 2004 **Teaching Linear Algebra**, *Ohio NExT Workshop*, Ohio MAA Section Meeting, John Carroll University.

Aug 9–15, 2004 **Undergraduate Research – How to Make it Work**, *Project NExT Course*, Mathematical Association of America MathFest, Providence, RI.

Presentations & Workshops

Apr 5, 2007 **Teaching, Scholarship, and Service: The Search for Balance**, *YSU New Faculty Orientation Follow-up Luncheon*, Panel Presentation.

Dec 1, 2006 **The Lake-to-River T^4(Teaching Tomorrow's Teachers Today) Summer STEM Academy**, *Ohio Board of Regents*, Grant Presentation.

Nov 16, 2006 **Beating Las Vegas**, *YSU MathFest*, Workshop.

Aug 23, 2006 **Teaching, Scholarship, and Service: The Search for Balance**, *YSU New Faculty Orientation*, Panel Presentation.

Feb 22–26, 2006 **Test-retest Reliability of the Activities-specific Balance Confidence Scale for People with Parkinson's Disease**, *World Parkinson Congress*, Poster Presentation, Jointly with Mollie Venglar, DSc, PT, NCS.

Jan 12, 2006 **Data Augmentation for the Analysis of Coarse Woody Debris in an Old-Growth Riparian Forest**, *Joint Mathematics Meetings*, Presentation.

Nov 17, 2005 **Are You in the Zone?**, *YSU MathFest*, Workshop.

Nov 17, 2005 **Statistical Modeling of Coarse Woody Debris (CWD) in a Riperian Forest**, *Oberlin Conference on Computation and Modeling: the Undergraduate Arena*, Poster Presentation.

Sep 30, 2005 **Bayesian Modeling of Coarse Woody Debris in an Old-Growth Riparian Forest**, *Miami University 33^{rd} Annual Conference*, Presentation.

Jul 22, 2005 **Exchangeability and deFinetti's Theorem**, *First Cornell Summer School in Probability*, Presentation.

Jun 7, 2005 **Some Statistics with SPSS**, *YSU Summer Undergraduate Research Experience*, Workshop.

Apr 21, 2005 **Representation of Functions by Convolution**, *Topology & Abstract Analysis Seminar*, Seminar Presentation.

Nov 18, 2004 **Voting Theory and Fair Division**, *YSU MathFest*, Workshop, Jointly with Dr. Angela Spalsbury.

Nov 1, 2004 **Generalized Infinite Divisibility**, *Topology & Abstract Analysis Seminar*, Seminar Presentation.

Scientific, Technical, and Professional Societies

- Mathematical Association of America
- Institute of Mathematical Statistics

- American Mathematical Society
- American Statistical Association