Third-Year Graduate Degree Program Review

Program: Statistics (STC-MS)  
Year Approved: 2006

The Graduate School and the USF Tampa Graduate Council would like to ask you to complete this brief survey of your Graduate Program. This one-time survey, given to all recently approved graduate programs, will provide information about the program’s standing and offers opportunities to showcase program’s accomplishments in the first few years. Currently, no other mechanism is available to collect this type of information. The Graduate Council will prepare a brief report based on the survey, which will be circulated back to you and kept on file in the Graduate School. Thank you in advance for your assistance with this important project!

**PART I: Program Metrics (pre-populated by Graduate School)**  
(Optional comments regarding these numbers may be separately attached.)

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<tbody>
<tr>
<td>Applied (SIF)</td>
<td>70</td>
<td>35</td>
<td>31</td>
<td>33</td>
</tr>
<tr>
<td>Admitted (SIF) STC + STT</td>
<td>23</td>
<td>21</td>
<td>19</td>
<td>17</td>
</tr>
<tr>
<td>Enrolled (SIF)</td>
<td>6</td>
<td>5</td>
<td>6</td>
<td>4</td>
</tr>
<tr>
<td>Degrees Awarded (SIF)*</td>
<td>11*</td>
<td>7+1=8☼</td>
<td>13+1=14</td>
<td>4+0=4☼</td>
</tr>
<tr>
<td>Time to Degree (if applicable) (info center mean)</td>
<td>*</td>
<td>1.11</td>
<td>1.25</td>
<td>1.00</td>
</tr>
<tr>
<td>Total program enrollment (SIF)</td>
<td>18</td>
<td>16</td>
<td>22</td>
<td>15</td>
</tr>
<tr>
<td>% students registered full time (SIF)</td>
<td>15</td>
<td>14</td>
<td>16</td>
<td>10</td>
</tr>
<tr>
<td>Graduate SCH (SIF)</td>
<td>149</td>
<td>135</td>
<td>165</td>
<td>111</td>
</tr>
<tr>
<td>Number of graduate faculty** (PROFESSOR, ASSOCIATE PROFESSOR, ASSISTANT PROFESSOR)</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Student: Faculty Ratio (students per faculty)***</td>
<td>405.0☉</td>
<td>369.2☉</td>
<td>388.0☉</td>
<td></td>
</tr>
</tbody>
</table>

* Degrees not yet awarded for spring 2013  
**Information not available on Info-center. Please provide a total number and then please attach a list of names, level (Full, Assoc., etc.), and research areas of these faculty  
***Information not available on Info-center. Please provide.

☉ASSTC+ASSTT  
☉Based on Students enrolled in STA course (S) per Statistics Faculty (F), see Table 1

Tsokos, Christos, Distinguished University Professor  
Ladde, Gangaram, Professor  
Ramachandran, Kandethody, Professor  
Kim, Wonkuk, Assistant Professor  
Wooten, Rebecca, Assistant Professor
<table>
<thead>
<tr>
<th>School Year</th>
<th>Students enrolled in STA</th>
<th>Faculty</th>
<th>S/F</th>
</tr>
</thead>
<tbody>
<tr>
<td>2006-2007</td>
<td>1901</td>
<td>4</td>
<td>475.3</td>
</tr>
<tr>
<td>2007-2008</td>
<td>1769</td>
<td>6</td>
<td>294.8</td>
</tr>
<tr>
<td>2008-2009</td>
<td>1889</td>
<td>5</td>
<td>377.8</td>
</tr>
<tr>
<td>2009-2010</td>
<td>1940</td>
<td>5</td>
<td>388.0</td>
</tr>
<tr>
<td>2010-2011</td>
<td>1846</td>
<td>5</td>
<td>369.2</td>
</tr>
<tr>
<td>2011-2012</td>
<td>2025</td>
<td>5</td>
<td>405.0</td>
</tr>
</tbody>
</table>
Part II: Annual Student Success Metrics (populated by the Program)
(Optional comments regarding these numbers may be separately attached.)

<table>
<thead>
<tr>
<th></th>
<th>DR. TSOKOS</th>
<th>DR. RAMACHRANDRAN</th>
<th>DR. LADDE</th>
<th>DR. WOOTEN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professional Presentations by Students</td>
<td>22</td>
<td>16</td>
<td>10</td>
<td>11</td>
</tr>
<tr>
<td>Student Publications/Creative Works</td>
<td>12</td>
<td>10</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Student Funding and Scholarships (including internal awards)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Professional Presentations by Students</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Student Publications/Creative Works</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Student Funding and Scholarships (including internal awards)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Professional Presentations by Students</td>
<td>8</td>
<td>6</td>
<td>12</td>
<td>12</td>
</tr>
<tr>
<td>Student Publications/Creative Works</td>
<td>12</td>
<td>5</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Student Funding-US ARMY GRANT and Scholarships (including internal awards)</td>
<td>5</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Professional Presentations by Students</td>
<td></td>
<td></td>
<td>NA</td>
<td></td>
</tr>
<tr>
<td>Student Publications/Creative Works</td>
<td></td>
<td></td>
<td>NA</td>
<td></td>
</tr>
<tr>
<td>Student Funding and Scholarships (including internal awards)</td>
<td></td>
<td></td>
<td>NA</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td></td>
<td>NA</td>
<td></td>
</tr>
</tbody>
</table>
Part III: Program Narrative
In a few sentences:

1. Note any programmatic changes since original approval or last review and why the changes were made (i.e. changes to degree requirements, courses, qualifying exams, theses etc).

No changes to report.

Special Courses offered: Survival Analysis, Stochastic Dynamic Systems, Extreme Value Theory and its applications

2. Discuss diversity in your program and you are actively involved in promoting this initiative.

Dr. Tsokos holds a Selected Topics course were students apply statistical methods to real world data resulting in several presentations. Dr. Ladde works in conjunction with Differential Equations and Dynamic Systems holding International Conferences and special sessions with such organizations as the American Mathematical Society. Dr. Tsokos, Dr. Ladde, Dr. Ramchandran and Dr. Wooten work with Morehouse College in Atlanta and the International Conference on Neural parallel and Scientific Computations.

There have also been Workshop series Frontiers of Statistics with TECO, Oak Ridge Laboratory, the American Cancer Society, University of Georgia, Radford University, Kansas State University, University of Houston, University of Puerto-Rico, and Dynamic Systems, among others.

2008

Title: “Challenges of Teaching Mathematics in a Multicultural Society”, at Marshall University on Weekly Graduate Teaching Assistant’s Seminar, March 2008, by Keshav Pokhrel

Title: <No Title>, USF Statistics and Tampa Electric Company Workshop, by Dimitris Vovoras

Title: Linear Stochastic Modeling and Applications, Department of Mathematics and Statistics, University of South Florida, Tampa, Florida, USA: April 2008, by Ling Wu

Title: A Study of Present Value Maximization of Monopolist Problem on Time Scale, Marshall University, July 2008, by Keshav Pokhrel

Title: Global Warming, Fifth World Congress of IFNA, Orlando, FL, July 2-9, 2008, by Bong-jin Choi

Title: Non-Stationary Parameters in Extreme Value Distributions, Fifth World Congress of IFNA, Orlando, FL, July 2-9, 2008, by Dimitris Vovoras

Title: Stochastic Modeling and Statistical Analysis, Fifth World Congress of IFNA, Orlando, FL, July 2-9, 2008, by Ling Wu
Title: A Study of Present Value Maximization of Monopolist: Continuous and Discrete Cases, Statistics Seminar, September 5, 2008 at the University of South Florida, Tampa, Florida, by Keshav Pokhrel

Title: Riemann Hypothesis, Mathematical Association of America, Capital University, Tampa, FL, October 24-25, 2008, by Olusegun Michael Otunuga

Title: Modeling Carbon Dioxide emissions by differential equation, Statistical Seminar, University of South Florida, USF, Tampa, FL, November 14, 2008, by Yong Xu

Title: Stochastic Differential Equations driven by Fractional Brownian Motion and applications, Mini Workshop on Stochastic and Statistical Modeling, USF, Tampa FL, November 14, 2008, by Jean-Claude Pedjeu

Title: Nonlinear Stochastic Modeling and Statistical Analysis, Department of Mathematics and Statistics, University of South Florida, Tampa, Florida, USA: November 2008, by Ling Wu

Title: <<No Title>>, Department of Educational Measurement & Research, University of South Florida, Tampa, Florida, USA: 2008, by Arnut Paothong

2009

Title: Nonlinear Stochastic Modeling, Joint AMS Annual Meeting, Washington D.C. January 4-5, 2009, by Ling Wu

Title: Colorectal Cancer Data Analysis, Joint Workshop on Cancer Research with American Cancer Society and H. Lee Moffitt Cancer Center at USF, Tampa, FL, January 14-15, 2009, by Venkateswara Rao Mudunuru and Sampath Kalluri

Title: Statistical and survival analysis of breast cancer, in the joint workshop on cancer research with American Cancer Society and H. Lee Moffitt Cancer Center at USF, Tampa, FL, January 14-15, 2009, by Yong Xu

Title: Breast and Lung Cancer Analysis, Joint Workshop on Cancer Research with American Cancer Society and H. Lee Moffitt Cancer Center at USF, Tampa, FL, January 14-15, 2009, by Bong-jin Choi

Title: Survival model evaluation for uncensored survival data, Statistical Seminar, University of South Florida, Tampa, FL, Feb 13, 2009, by Yong Xu

Title: Survival model evaluation and validation for uncensored survival data (Breast Cancer), Interdisciplinary Cancer Research Workshop with American Cancer Society, Tampa, FL, Feb 20, 2009, by Yong Xu

Title: Flexible Covariates for the Cox-PH Model, Interdisciplinary Cancer Research Workshop with American Cancer Society, Tampa, FL, Feb 20, 2009, by Dimitris Vovoras

Title: On the Fundamental properties of Fractional Brownian Motion process and applications, Frontiers in Applied Statistics, Tampa, Florida, April 24, 2009, by Jean-Claude Pedjeu

Title: Dynamic Insurance Risk Models, the 6th USF Interdisciplinary Workshop in Statistics on The Frontiers of Theories Applications of Stochastic Dynamic Hybrid Systems, Department of Mathematics and Statistics, University of South Florida, Tampa, Florida: April 2009, by Daniel Siu

Title: <No Title>, the 6th USF Interdisciplinary Workshop in Statistics on The Frontiers of Theories Applications of Stochastic Dynamic Hybrid Systems, Department of Mathematics and Statistics, University of South Florida, Tampa, Florida: April 2009, by Divine Wanduku

Title: Hybrid Stochastic System and Stock Market Application, Department of Mathematics and Statistics, University of South Florida, Tampa, Florida, USA: April 2009, by Ling Wu

Title: Long-term survivor and two component exponential mixture models: sample size and power, Join Statistical Meeting (JSM), Convention Center, Washington DC, August 3, 2009, by Yong Xu

Title: Statistical modeling of carbon dioxide in the atmosphere: continental united states, Join Statistical Meeting (JSM), Convention Center, Washington DC, August 5, 2009, by Yong Xu

Title: Long Term Survivor Models and Two Component Mixture Models, JSM, Washington, DC, August 1-6, 2009, by Bong-jin Choi

Title: Time Varying Coefficient Nonlinear Stochastic Models, Department of Mathematics and Statistics, University of South Florida, Tampa, Florida, USA: October 2009, by Ling Wu

Title: Power law process in cancer analysis, 7th Interdisciplinary Workshop at USF, Tampa, FL, October 30, 2009, by Yong Xu

Title: Breast Cancer Analysis, 7th Interdisciplinary Workshop at USF, Tampa, FL, October 30, 2009, by Bong-jin Choi

Title: Parametric Analysis of Brain Tumor, USF Interdisciplinary Workshop on Cancer and Hybrid Dynamics System at University of South Florida, October 2009, by Keshav Pokhrel

Title: Graduate Student Challenge Grant Award: Comparing the Effects of Distinctiveness and Emotion in Memory: Statistical modeling of Event Related Potentials (ERP’s) to predict subsequent recall. University of South Florida, December 2009, by Dimitris Vovoras
Title:  <No Title>, Department of Mathematics and Statistics, University of South Florida, Tampa, Florida, USA: 2009, by Arnut Paonthong

Title:  <No Title>, Department of Mathematics and Statistics, University of South Florida, Tampa, Florida, USA: 2009, by Divine Wanduku

2010

Title:  Survival analysis for breast cancer using power law process, West Kentucky University, Department of Math and Computer Science, Bowling Green, KY, Feb 4, 2010, by Yong Xu

Title:  Recent advances in Stochastic Calculus: the case of fractional Brownian motion and Applications, Gulf Coast Conference on Probability and Statistics (GCCPS)-2010, Tampa, Florida, February 27, 2010, by Jean-Claude Pedjeu


Title:  <No Title>, Gulf Coast Conference on Probability and Statistics (GCCPS)-2010, Tampa, Florida, February 27, 2010, by Divine Wanduku

Title:  Stochastic Models for Option Pricing, Gulf Coast Conference on Probability and Statistics (GCCPS)-2010, Tampa, Florida, February 27, 2010, by Ling Wu

Title:  Application of Statistical software: R and SAS, University of South Florida, March 26, 2010, by Yong Xu

Title:  Parametric and Nonparametric Survival Analysis of Cancer Data, JSM, Vancouver, BC Canada, July 31- August 5, 2010, by Bong-jin Choi

Title:  Inverse Burr Distribution as Applied to Average Tumor Size of Brain Cancer Data, Fourth International Conference on Neural parallel and Scientific Computations, August 11-14, 2010 at Morehouse College, Atlanta, Georgia, by Keshav Pokhrel

Title:  Statistical analysis of carbon dioxide in the atmosphere with differential equations, Fourth International Conference on Neural parallel and Scientific Computations, August 11-14, 2010 at Morehouse College, Atlanta, Georgia, by Yong Xu

Title:  Statistical modeling of Stage I&II Ductal Breast Cancer using Power Law process, Fourth International Conference on Neural parallel and Scientific Computations, August 11-14, 2010 at Morehouse College, Atlanta, Georgia, by Yong Xu
Title:  *Parametric and Nonparametric Survival Analysis of Lung Cancer Data*, Fourth International Conference on Neural parallel and Scientific Computations, August 11-14, 2010 at Morehouse College, Atlanta, Georgia, by Bong-jin Choi

Title:  *Modeling and Analyzing of Optimism and Breast Cancer*, Fourth International Conference on Neural parallel and Scientific Computations, August 11-14, 2010 at Morehouse College, Atlanta, Georgia, by Zahra Kottabi

Title:  *A Joinpoint Survival Model for Brain Cancer Patients*, Fourth International Conference on Neural parallel and Scientific Computations, August 11-14, 2010 at Morehouse College, Atlanta, Georgia, by Dimitris Vovoras

Title:  *<No Title>*, Fourth International Conference on Neural parallel and Scientific Computations, August 11-14, 2010 at Morehouse College, Atlanta, Georgia, by Arnut Paonthong

Title:  *ARIMA Models and Applications*, Fourth International Conference on Neural parallel and Scientific Computations, August 11-14, 2010 at Morehouse College, Atlanta, Georgia, by Ling Wu

Title:  *Stochastic Fractional Differential Equations: Modeling, Method and Analysis*, Fourth International Conference on Neural parallel and Scientific Computations, August 11-14, 2010 at Morehouse College, Atlanta, Georgia, by Jean-Claude Pedjeu

Title:  *Stochastic Hybrid System with Non-Homogeneous and Boundary Jumps*, Fourth International Conference on Neural parallel and Scientific Computations, August 11-14, 2010 at Morehouse College, Atlanta, Georgia, by Daniel Siu

Title:  *<No Title>*, The Seventh International Conference, University of South Florida, Tampa, Florida, USA: December 15-18, 2010, by Divine Wanduku

Title:  *Differential Equations and Dynamic Systems*, The Seventh International Conference, University of South Florida, Tampa, Florida, USA: December 15-18, 2010, by Arnut Paonthong

Title:  *A Stochastic Dynamic Model for Photosynthesis*, The Seventh International Conference, University of South Florida, Tampa, Florida, USA: December 15-18, 2010, by Zerihun Tadesse

Title:  *Stochastic Hybrid Systems and Its Applications*, Joint Statistical Meetings, Vancouver, Aug 2010, by Daniel Siu

Title:  *Preliminary Lung Cancer and Inferential Statistics*, Cancer Research Seminar, University South Florida, Tampa, FL, by Zahra Kottabi

2011

Title:  *The American Mathematical Society’s Annual Meeting*, New Orleans, Louisiana: January 5-8, 2011, by Arnut Paonthong
Title: Stochastic Fractional Differential Equations: Modeling, Method and Analysis, the American Mathematical Society Joint Meeting, New Orleans, Louisiana, January 6-9, 2011, by Jean-Claude Pedjeu

Title: Option Pricing for Hybrid Nonlinear Stochastic Models, the American Mathematical Society Joint Meeting, New Orleans, Louisiana, January 6-9, 2011, by Ling Wu

Title: Stochastic Hybrid Dynamic Model for Risk Process, the American Mathematical Society Joint Meeting, New Orleans, Louisiana, January 6-9, 2011, by Daniel Siu

Title: <No Title>, the American Mathematical Society Joint Meeting, New Orleans, Louisiana, January 6-9, 2011, by Divine Wanduku

Title: Statistical analysis of an exponential long term survivor versus two component exponential mixture models, Radford University, Virginia, January 24, 2011, by Yong Xu

Title: Power law process for Evaluating Stage I & II Ductal Breast Cancer Treatment, California State University at Northridge, Los Angeles, California, Feb 8, 2011, by Yong Xu

Title: Statistical analysis of an exponential long term survivor against two component exponential mixture models with bootstrap method, 2011 Florida Chapter of the American Statistical Association Annual Meeting, Tampa, Feb 5, 2011, by Yong Xu

Title: Parametric Analysis of Prostate Cancer, Sixth International Conference on Dynamic Systems and Applications, Atlanta, GA, May 2011, by Yiu Ming Chan

Title: <No Title>, Sixth International Conference on Dynamic Systems and Applications, Atlanta, GA, May 2011, by Divine Wanduku

Title: Parametric Survival Analysis of Multiple Myeloma Patients, Sixth International Conference on Dynamic Systems and Applications, May 25-28, 2011 at Morehouse College, Atlanta, GA by Taysseer Sharaf

Title: Theoretical Semi-Parametric Survival Analysis Model, Sixth International Conference on Dynamic Systems and Applications, May 25-28, 2011 at Morehouse College, Atlanta, GA by Ram Kafle

Title: Forecasting Brain Cancer Mortality, Sixth International Conference on Dynamic Systems and Applications, May 25-28, 2011 at Morehouse College, Atlanta, GA, by Keshav Pokhrel

Title:  Mathematical Characterization of Prostate Cancer Tumor as a Function of Age, Sixth International Conference on Dynamic Systems and Applications, May 25-28, 2011 at Morehouse College, Atlanta, GA by Nana Osei Bonsu

Title:  Preliminary Pancreatic Cancer and Inferential Statistics, Sixth International Conference on Dynamic Systems and Applications, May 25-28, 2011 at Morehouse College, Atlanta, GA by Zahra Kottabi

Title:  Forecasting Brain Cancer Mortality: A Functional Data Approach, in Joint Statistical Meeting: Section on Statistics on Epidemiology, July 30-August 4, 2011 at Miami Beach, Florida, by Keshav Pokhrel

2012

Title:  Higher Order Stochastic Differential Equation, the American Mathematical Society Joint Meeting, Boston, MA, January 4-8, 2012, by Jean-Claude Pedjeu

Title:  <No Title>, the American Mathematical Society Joint Meeting, Boston, MA, January 4-8, 2012, by Divine Wanduku

Title:  Variation of Brain Tumor Sizes on Gender, Races and Age, American Statistical Associations’ Florida Chapter meeting, February 03-04, 2012 at the University of North Florida, Jacksonville, Florida, by Keshav Pokhrel

Title:  R workshop with application to regression model”, Radford University, Virginia, March 22, 2012, by Yong Xu

Title:  The American Mathematical Society’s Spring Southeastern Section Meeting, University of South Florida, Tampa, Florida, USA: March 10-11, 2012, by Arnut Paothong

Title:  Approximate solution process of multi-time scale stochastic differential equations, American Mathematical Society’s Spring Southeastern Section Meeting, University of South Florida, Tampa, Florida, USA: March 10-11, 2012, by Jean-Claude Pedjeu

Title:  The American Mathematical Society’s Spring Southeastern Section Meeting, University of South Florida, Tampa, Florida, USA: March 10-11, 2012, by Olusegun Michael Otunuga

Title:  Stochastic Hybrid Dynamic Models: Parameter Estimation, American Mathematical Society’s Spring Southeastern Section Meeting, University of South Florida, Tampa, Florida, USA: March 10-11, 2012, by Daniel Siu

Title:  Fundamental Solutions of Nonlinear Stochastic Differential, the American Mathematical Society’s Spring Southeastern Section Meeting, University of South Florida, Tampa, Florida, USA: March 10-11, 2012, by Zerihun Tadesse

Title:  Histological and Demographic Characteristics of Primary Brain and CNS Tumor Sizes, 2012 Research One Graduate Student Symposium, April 05, 2012 at University of South Florida, Tampa, by Keshav Pokhrel


Title: *Bayesian Approach of the Joinpoint Regression Model for Brain Cancer Data*, Joint Statistical Meeting, July 27-August 2, 2012, San Diego, California by Ram Kafle

Title: *A Comparison of Prostate Cancer Survivorship by Race*, Joint Statistical Meeting, July 27-August 2, 2012, San Diego, California by Yiu Ming Chan


Title: *Small Learning and Communication Initiative*, Anchin Center, 2012, University of South Florida, Tampa, by Zahra Kottabi

Title: *Formatting list of publication of Faculty University South*, Anchin Center, 2012, University of South Florida, Tampa, by Zahra Kottabi

Title: *Teacher Initiative Fund, Federal Program Evaluation*, Anchin Center, 2012, University of South Florida, Tampa, by Zahra Kottabi

Dr. Tsokos is the President of the International Federation of Nonlinear Analyst and Dr. Wooten is the Vice President and Treasurer who hosted the Sixth World Congress of Nonlinear Analyst June 25-July 1, 2012 in Athens, Greece. Student Participants:

**Bong-Jin Choi**


**Ram Kafle**

Title: *Bayesian Estimates of Annual Percentage Change in Mortality Trend for Brain Cancer Data*, International Federation of Nonlinear Analyst (IFNA) World Congress 2012 in Athens, Greece.

**Keshav Pokhrel**

Title: *“Statistical Analysis and Modeling of Brain Cancer”*, in International Federation of Nonlinear Analyst (IFNA) World Congress 2012 in Athens, Greece.

Title: *“Regional Trends in Incidence of Pediatric Brain and Central Nervous System Cancer in USA”*, in the International Federation of Nonlinear Analyst (IFNA) World Congress 2012 in Athens, Greece.

**Yiu Ming Chan**

Title: *Parametric Analysis: A Comparison of Prostate Cancer Survivorship by Race*, in International Federation of Nonlinear Analyst (IFNA) World Congress 2012 in Athens, Greece.
Nana Osei Bonsu  
**Title:** Statistical Evaluation of Different Prostate Cancer Treatments, **6th World Congress of Nonlinear Analysts** (Co Chair: Prostate Cancer Session), University of Athens/Athens Chamber of Commerce, Athens, Greece, June 25-July 1, 2012

Michael Kotarinos  
**Title:** International Federation of Nonlinear Analyst (IFNA) World Congress 2012 in Athens, Greece.

Sherlene Enriquez-Savery  
**Title:** International Federation of Nonlinear Analyst (IFNA) World Congress 2012 in Athens, Greece.

Dimitrios Vovoras  
**Title:** International Federation of Nonlinear Analyst (IFNA) World Congress 2012 in Athens, Greece.

Taysseer Sharaf  
**Title:** International Federation of Nonlinear Analyst (IFNA) World Congress 2012 in Athens, Greece.

Zahra Kottabi  
**Title:** International Federation of Nonlinear Analyst (IFNA) World Congress 2012 in Athens, Greece.

Doo Young Kim  
**Title:** International Federation of Nonlinear Analyst (IFNA) World Congress 2012 in Athens, Greece.

2013  
**Title:** Forecasting Using Functional Data Analysis Models in Cancer Epidemiology, **Joint Mathematical Meeting** Jan 9-12, 2013, San Diego, California by Keshav Pokhrel

**Title:** Non-Linear Stochastic Energy Spot Prices Processes with Delayed, **The Joint Mathematical Meeting** Jan 9-12, 2013, San Diego, by Olusegun Michael Otunuga

**Title:** No Title, **The Joint Mathematical Meeting** Jan 9-12, 2013, San Diego, by Divine Wanduku

**Title:** Equations and Methods of Variational, **The Joint Mathematical Meeting** Jan 9-12, 2013, San Diego, by Zerihun Tadesse

**Title:** Survival Analysis of Cancer Data using the Random Forests, an Ensemble of Trees, **ENAR 2013**, Orlando, FL, March 10-13, 2013, by Bong-jin Choi

Dr. Wooten has been working with students in other departments: Economics, Engineering and Mathematics; she is also working with students from various areas of student through the Graduate Certificate in Statistical Data Analysis for which she am the Program Advisor.
3. Discuss student "creative works" (publications per student, etc.) captured in Part II above.

Dr. Tsokos' collaborations with students have resulted in the following publications:

- **Bonsu N.O.** & Tsokos C.P. *Statistical Evaluation of Different Prostate Cancer Treatments*. Submitted
- **Bonsu N.O., Chan Y.M.,** & Tsokos C.P. *Mathematical Characterization of Prostate Cancer Tumor as a Function of Age*. Submitted
- **Choi, Bong-jin** and Tsokos, C. P., *Cancer Analysis using Random Forest with new Decision Tree Algorithm using R and My-SQL*. In progress
- **Choi, Bong-jin** and Tsokos, C. P., *Parametric and Nonparametric Survival Analysis for Lung Cancer*, Submitted for publication.
- **Choi, Bong-jin**, *Mathematical Statistics with Applications’ Data Set*, Elsevier Science, 30 Corporate Drive Burlington, MA 01803.
- **Keshav Pokhrel**, Chris P. Tsokos, Frank F. Vrionis “Parametric and Non-Parametric Analysis of Brain Cancer Data: According to Ethnicity and Gender”, Fourth International conference on Neural, Parallel and Scientific
- **Keshav Pokhrel, Dimitris Vovoras**, Chris P. Tsokos, “Histological and Demographic Characteristics of the Distribution of Brain and Central Nervous System
Tumors’ Sizes: Results from SEER Registries Using Statistical Methods”, International Journal of Biomedical Sciences, 7 (2012), 8(3);152-162.

- **Keshav Pokhrel**, Yilin Zhuang, Haiping Yin, Edward Dimarco “A System Dynamic Approach to Water and Energy Management in Hillsborough County”, a research project with engineering and management graduate students as a part of graduate students research challenge grant 2011 provided by the USF graduate School. Unpublished


- **Ram C. Kafle**, Netra Khanal, Chris P. Tsokos, *Bayesian Joinpoint Regression Model using Generalized Hyper-g Priors*. In progress


**Dr. Ramachandran's collaborations with students have resulted in the following publications:**


Dr. Ladde’s collaborations with students have resulted in the following publications:

• Arnut Paonthong, Agent-based Modeling Simulation under Local Network Externality, (with G. S. Ladde), Journal of Economic Interaction and Coordination, (Submitted).
• Divine Wanduku, A Scale-Structured Network Stochastic Epidemic dynamic model with varying Incubation Period (Under preparation)
• Divine Wanduku, Global Analysis of a stochastic two-scale Network Human Epidemic Dynamic Model With Varying Immunity Period (with G. S. Ladde), (submitted).
• Divine Wanduku, Special Two-Scale Stochastic Network Dynamic Human Epidemic Models (with G. S. Ladde), (in Preparation).
• Divine Wanduku, Stochastic Network dual distributed time delayed Epidemic dynamic model. (Under preparation)

**Dr. Wooten's collaborations with students have resulted in the following publications:**

**Dr. Wooten was only assigned two Master’s Thesis students and first Doctorial student spring 2013.**

**Dr. Wooten has only been Program Advisor for the Certificate Program the past year and have not worked with anyone directly as the 5-7 individuals currently enrolled at USF and working toward this certificate have not reached the stage where an independent study is required which will result in a paper and hopefully, eventual publication.**
4. Discuss placement of your recent graduates (e.g., types of employment, admittance to other degree programs).

<table>
<thead>
<tr>
<th>DR. TSOKOS</th>
<th>COMMITTEE MEMBER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yong Xu (2010)</td>
<td>Radford University</td>
</tr>
<tr>
<td>Chunling Cong (2010)</td>
<td>Senior Consultant at Travelers, Harford, CT</td>
</tr>
<tr>
<td>Carlos Molinares (2011)</td>
<td>Universidad de Puerto Rico en Arecibo</td>
</tr>
<tr>
<td>Keith Hackett (2011)</td>
<td>Director of Management and Operations at Peace Corps</td>
</tr>
<tr>
<td>Alfred Mbah</td>
<td></td>
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<td>Zahra Kottabi</td>
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**DR. RAMACHRANDRAN**

| Nabin K. Manandhar Shrestha (2010) | Visiting Assistant Professor, Worcester Polytechnic Institute (WPI), Mathematical Sciences, 100 Institute Road, Worcester, MA 01609-2280, USA, |
| O’Neil Lynch (2009) | Assistant Professor, Minnesota State University Moorhead, MSUM, Department of Mathematics, 1104 7th Ave South | Moorhead, MN 56563 USA. |
| Florence George (2007) | Assistant Professor, Florida International University, Department of Mathematical and Statistics, Miami, Florida |
| Mostafa Abdelelah M (2006) | Director, Stars Learning Academy, Tampa, Florida |

**DR. LADDE**

| Arnut Paotthon | University of South Florida, Tampa, Florida, Research Assistant, 2010-Present (Expected to Graduate in May 2013). |
| Jean-Claude Pedjeu | Assistant Professor, Department of Mathematical Sciences, Tennessee State University, Nashville, Tennessee, January 2013-Present. |
| Olusegun Michael Otunuga | Teaching Assistant, University of South Florida, Tampa, Florida: August 2009-present (Ph. D. Work in Progress). |
| Daniel Siu | Actuarial Assistant at FCCI Insurance Group, December 2011 – Present |
| Divine Wanduku | Instructor, Department of Mathematics, Keiser University, Lakeland, Florida: August 2012-Present. |
5. **Identify qualities/metrics of applicants who prove to be successful in your program (e.g., REU experience, experience specific to your discipline, GRE performance).**

   In order of importance, a student should prove themselves in terms of (1) Professional Experience, (2) GRE, and (3) Interdisciplinary course work related to Statistics.
Comment succinctly on the following (e.g., 200 words max).

Based on the data in Part I, discuss current enrollment trends, graduation rates, time to graduation, and retention. Provide details on how the program is addressing each of these areas and will correct any deficiencies (i.e. low number of applicants, loss of students etc.)

The 5000 & 6000 levels have maintained their enrollment and diversity, Figure 1. Note: these counts do not take into account Masters' Thesis students nor Doctorial students.

![Figure 1: Upper level and Graduate course entitled STA](image1)

Enrollment in the Statistics Master (STC) and Doctorate (STT) Programs continues to grow, Figure 2; and students graduating with MAs have increased, Figure 3. No student drop voluntarily.

![Figure 2: Admitted Students for Statistics Master (STC) and Doctorate (STT) Programs.](image2)
Identify three programs that are considered to be peers.

1. Mathematics
2. Engineering
3. Physics

Describe how the Program aligns with the strategic goals of USF.

Mathematics is the language Statisticians use to analyze and interpret the Physical and in general a conceptual world around the globe. In this aspect, Statistics is the interdisciplinary link between Mathematics and any other disciplines that need to have quantitative answers to make the reasonable decisions that affects the leaving beings. This is feasible by developing statistical experimental design, collecting the real world data and applying the statistical tools to draw inferences.

What are three program goals to be accomplished in the next 5 years?

1. Educate and prepare our graduate to face the problems our global society faces using the Frontiers of Statistics and continue to fulfill the interdisciplinary mission of assisting and solving the world's problems.

2. Increase our cooperative efforts to work with the US Army Research, US Energy, EPA, among others including private industry, state and federal government, to create interdisciplinary relationship and to expand our current educational and research efforts. The current interdisciplinary activities and accomplishment of our graduates and faculty are consistent with the strategic plan of USF.

3. In working with several countries: Russia, China, India, EU, on our joint research efforts and to enhance our ability of recruiting the high quality graduates.
**Anything else you’d like to share?**

In order to accomplish our proposed graduate program goals and to increase our productivity in Statistics, we are in significant need of new full-time graduate faculty.

**STATISTICS STUDENTS**

1. Alber, Oliver
2. Assonken Tonfack, Patrick Armand
3. Bashar, A.K.M
4. Baah, Kenneth
5. Bonsu, Nana Osei
6. Chan, Yiu Ming
7. Choi, Bong-jin
8. Devamitta-Perera, Muditha V.
9. Enriquez-Savery, Sherlene
10. Forrest, Tiffany
11. Frett (Allison), Malena K.
12. Frenzel, Kevin
13. Galbava, Ingrid
14. Gong, Gaojie
15. grille, Diego
16. He, Yin
17. Howard-Kirby, Courtney
18. Kuczynski, Stephanie
19. Kafle, Ram
20. Kim, Doo Young
21. Kotarinos, Michael
22. Kottabi, Zahra
23. Luo, Xin
24. Miller, Elizabeth C.
25. Mudunuru, Venkateswara Rao
26. Namelikonda, Savitha
27. Otunuga, Olusegun Michael
28. Ozcan, Deniz
29. Paorthong, Arnut
30. Pedjeu, Jean-Claude
31. Pokhrel, Keshav
32. Rodrigo, Pulahinge Hansa S.
33. Sharaf, Taysseer
34. Siu, Daniel
35. Tadesse, Zerihun
36. Teodorescu, Iuliana
37. Tharu, Bhikhari
38. Thurman, Ryan
39. Tipps, Katya
40. Vovoras, Dimitris
41. Wanduku, Divine
42. Wei, Gang
43. White, Brian
44. Wu, Ling
45. Xu, Yong
46. Yang, Ching-Chi
47. Zhao, Dan
Program offers BAs, MAs and PhDs.

MA Degrees in Interdisciplinary Statistics
- Regular Statistics
- Engineering Statistics
- Health Statistics (Biological)
- Environmental Statistics
- Actuarial Sciences

PhD Programs in Interdisciplinary Statistics
- Regular PhD in Statistics
- Interdisciplinary Statistics (60/40)

Special Students
- Two students have had internships with the American Cancer Society
- Two students have had internships with Moffit Cancer Research Center
- Two students have had internships with Dr. Cox working with Breast Cancer
- One student have had an internship with Travelers Insurance
- One student have had an internship with Nelson's Rating Service
- Keith Hackett – PhD in Interdisciplinary Statistics (2011) was appointed Director of Management and Operations at Peace Corps Benin, South Africa
- Carlos Molinares is a faculty member at the University of Porto-Rico and was sponsored by his university for his PhD in Statistics (2012).
- Sherlene Eriquez-Savery is in the faculty at the University of Belize, who is sponsoring her to obtain her PhD in Statistics (2013).

New Students
- One recent student has a PhD in Physics from North Eastern University
- One incoming student has a PhD from George Mason University
STUDENT COMMUNITY OUTREACH

Students also participate in two organizations, Urban Scholars Outreach Program (USOP) and the Dr. A.N.V. Rao Gurukulam Program (RGP), which provide a service to the community in that we offer free educational assistance to disadvantaged youth in the community, providing free educational assistance to students preparing for the PSAT/SAT, ACT, FCAT, etc. The Saturday program (USOP) targets African-American and Hispanic students in grades K-12 and the Sunday program (RGP) is the sister program. The goal of these programs is to provide a 1-to-1 ratio; that is, for each student registered with the program, one volunteer to work with this student. Over the past two years, these ratios have been 1-to-1 or 1-to-2 for the Sunday program and 1-to-3 to 1-to-5 for the Saturday program thanks to the support of our statistics students. USOP has won the AOL DeBartolo "Spirit of Humanity Award" and the Barbara Miller Educational Award, USF Community Civil Association.

STUDENT FUNDING AND SCHOLARSHIP

The Dr. A.N.V. Rao Endowment Memorial Scholarship, a scholarship for upper-level undergraduate students majoring in statistics.

The M.V. Johns Jr. Scholarship for Graduate Study in Statistics, a scholarship is for statistics graduate students.

Dr. Ladde's Research Grants: W91NF-071-0283 and W911NF-12-1-0090 with the US Army Research Office, Mathematical Sciences Division, Research Triangle Park, NC supported/supporting several of his graduate students during the THREE Month Summers/Spring of 2008-Present.

- **Paothong, Arnut**
  3. Tharp Endowed Scholarship Award, University of South Florida, Tampa, Florida.

- **Pedjeu, Jean-Claude**
  2. Graduate Research Assistantship, the US Army Research Office, Mathematical Sciences Division, Research Triangle Park, NC: Grant Number W911NF-12-1-0090: Summer 2011.

- **Otunuga, Olusegun Michael**
  2. Research Assistantship, the US Army Summer Grant Award, 2012-Present.
  3. Conference Presentation Grant Program, University of South Florida, 2012
4. Tharp Endowed Award College of Arts and Sciences, University of South Florida, 2012
5. Tharp Endowed Award College of Arts and Sciences, University of South Florida, 2011
7. International Student Award (Marshall University) (2009)
8. Pi Mu Epsilon Best student of the month 2007

**Siu, Daniel**

**Wanduku, Divine**
2. Graduate Research Assistantship, the US Army Research Office, Mathematical Sciences Division, Research Triangle Park, NC: Grant Number W911NF-12-1-0090: Summer 2011.
5. The American Mathematical Society-2011 Graduate Student Travel Grant to the Joint AMS Annual Meetings, New Orleans, Louisiana.

**Wu, Ling**
1. The US ARM Research Office, Summer Support 2009
2. Spring 2009, Tharp Endowed Award from University of South Florida.
3. Spring 2006, Tharp Endowed Award from University of South Florida.

**Zerihun, Tadesse**
2. Graduate Research Assistantship, the US Army Research Office, Mathematical Sciences Division, Research Triangle Park, NC. Summer 2012.
3. Tharp Endowed Scholarship Award, University of South Florida, Tampa, Florida. August 2006-Present

**R, Ryan**
A BRIEF DESCRIPTION OF RESEARCH

PAOTHONG, ARNUT:
“My work introduces the concepts the network externality process and develops a dynamic mathematical model. The solution process of this model provides a systematic way of constructing the network externality function for the network goods. This development leads the development of various types of dynamic expectation process that provides to investigate various types of equilibrium states of market shares of market goods. In fact, this developed material provides a suitable frame-work to introduce the idea of consumer decision process and its dynamic model. This model induces the agent-based simulation model. The developed dynamic approached is suitable for studying, planning, policy and performance of market goods in the current trends in the global economy.”

PEDJEU, JEAN-CLAUDE:
"Introducing a concept of dynamic process operating under multi-scales in sciences and engineering, a mathematical model described by a system of multi-time scale stochastic differential equation is formulated. The scope of the ideas illustrated by presenting stochastic models in ecological and epidemiological processes in population dynamic are outlined. Moreover, numerical scheme is also developed and analyzed."

OTUNUGA, OLSUENUG MICHAEL:
"Presently, I am working on stochastic modeling, analysis and its applications. In particular, we develop stochastic dynamic models for energy’s commodity’s spot price process. Here, we treat the diffusion coefficient parameter in the non-seasonal spot price dynamic system under an influence of the past-history."

SIU, DANIEL P:
“My doctoral research focuses on the study of a class of stochastic hybrid dynamic systems that has random jumps driven by a non-homogeneous Poisson process and deterministic jumps triggered by hitting the boundary. Existing results of piecewise deterministic models are extended to obtain the infinitesimal generator of the stochastic hybrid dynamic systems through a martingale approach. Furthermore, the closed form solution and its probability distribution are obtained for a class of multidimensional stochastic hybrid dynamic systems."

WANDUKU DIVINE:
"The recent high technological changes and scientific developments have let to many/variant structure types inter-patch connection interactions in the global human population. This leads to a multi-scale network human mobility process. By developing mathematical model of human mobility process, we investigated two-scale (without loss in generality) stochastic network with and without delayed human epidemic dynamic models in a systematic and unified way."

WU, LING:
“My main research interests are stochastic modeling and statistical analysis, particularly those arising in financial derivatives pricing for financial risk management. I explore the different methods of data partitioning schemes and build various linear and nonlinear stochastic models, and develop an algorithm to find the optimal stochastic models given different data partitioning schemes. I also construct ARIMA models from the time varying coefficient nonlinear stochastic differential equations and use them to address forecasting problems. Based on the models I proposed, I derive a closed form formula of options pricing.”
ZERIHUN, TADESSE S:
“My research interest is centered on studying stochastic systems of non-linear differential equations. My contributions are in the areas of fundamental properties of solutions nonlinear stochastic systems of unperturbed differential equations and the development of method of variation of parameters for nonlinear stochastic perturbed systems of differential equations and the energy function method and generalized variation of comparison theorems. Moreover, these basic non-linear methods are applied to investigate the qualitative and quantitative properties of solutions of non-linear stochastic differential equations, and its applications to photosynthesis.”