

# CURRICULUM VITAE

October 5, 2009

## Timothy E. O'Brien

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### RECENT WORK EXPERIENCE

Associate Professor and Graduate Program Director, Loyola University Chicago, August 2004 - present  
(Assistant Professor – August 1998 to July 2004)

Graduate Program Director (Applied Statistics) and tenured member of graduate faculty in the Department of Mathematics and Statistics; affiliate appointment in the Department of Biology. Duties include teaching statistics courses to undergraduate and graduate students, conducting independent and collaborative research, serving on University and Department committees, directing research of statistics undergraduate and graduate students, consulting with University researchers, and serving as Department advisor for actuarial, statistics and biostatistics students.

Visiting Professor, Thammasat University (TU) and National Institute of Development Administration (NIDA), Bangkok, Thailand. Summers 2007, 2008, and 2009.

Taught courses in *Nonlinear Statistical Theory and Methods* (2007) and *Optimal Experimental Design* (2008) to TU Ph.D. Statistics students and *Categorical Data Analysis* (2009) to NIDA Ph.D. Statistics students. Over 2007-08, co-supervised one Thammasat M.Sc. student researching statistical methods for drug (similar compounds) synergy. Currently supervising and advising one Thammasat Ph.D. student researching optimal experimental design in multi-category logit models.

Fulbright Scholar and Visiting Professor, Chiang Mai University Thailand, October 2006 – February 2007.

Awarded a Fulbright Scholar grant to lecture, consult, and conduct research in Department of Statistics; gave lectures and short courses throughout Asia. Established a campus-wide Statistical Consulting Center. Made follow-up reassessment visits and to give seminars in 2007-2009.

Biostatistical Consultant. Summers, 2002 – present.

Employed on an *ad hoc* contractual basis at Janssen Pharmaceuticals (Johnson & Johnson, Belgium), Amylin Pharmaceuticals (San Diego, USA), Loyola Medical Center and Hines VA Hospital (Chicago, USA) as external biostatistical consultant on theoretical and methodological statistical issues for projects related to pre- and non-clinical research, especially related to bioassay and drug synergy, immunology, oncology, and HIV research.

Visiting Professor, Limburgs Universitair Centrum (Belgium). May – June, 2003.

Conducted research and taught a course on statistical theory and methods associated with bioassay and drug/similar compound synergy, collaborated with university biostatistical faculty members.

Visiting Professor, Katholieke Universiteit Leuven (Belgium). September, 2001 – August, 2002.

Directed research group in obtaining robust experimental design strategies, gave seminars, attended international conferences, developed computer algorithms for practitioners, taught courses related to optimal experimental design. Position funded by K.U.Leuven.

## **EDUCATION**

Ph.D., Statistics, North Carolina State University, June, 1993.

Dissertation Topic: New Design Strategies for Parameter Estimation and Model Discrimination in Nonlinear Regression Models. Emphasis: design of experiments, generalized linear and nonlinear modelling, computer-intensive methods, drug synergy, environmental statistics. Director: Emeritus Professor John O. Rawlings.

M.A., Statistics, University of Rochester, 1987.

M.A., Mathematics, Syracuse University, 1985.

B.A., Mathematics and Economics, Pace University, 1978. Graduated *summa cum laude*.

## **POSTDOCTORAL POSITIONS**

Post-Doctoral Fellow, Universität Augsburg, July, 1995 - December, 1995.

Awarded U.S. National Science Foundation (NSF) grant to collaborate with German researchers on optimal design, discrimination and estimation in nonlinear and generalized linear models and to organize an international workshop on issues related to compartmental nonlinear systems with applications to chemical engineering and pharmacokinetics.

Post-Doctoral Fellow, INRA, Laboratoire de Biometrie, May, 1994 - August, 1994 and Summer, 1998.

Collaborated with statisticians at the Institut Nationale de la Recherche Agronomique in France on research problems involving the application of nonlinear models in practical settings, consulted with agronomists, presented results in research seminars.

## **PREVIOUS WORK EXPERIENCE**

Internal Statistical Consultant and Biostatistician, Novartis Pharma AG (formerly, Ciba-Geigy AG), Basel, Switzerland. July, 1996 – April, 1998.

Provided statistical guidance to biological and chemical researchers working in drug discovery and preclinical research and to pharmacologists working in clinical research. Extensive consulting in design, calibration, and quality control, independent and collaborative research, communicating with researchers and FDA experts, instructing classes on statistical techniques and software.

Visiting Assistant Professor, University of Georgia. January, 1996 – June, 1996.

Member of graduate faculty in the Department of Statistics. Taught statistics courses to undergraduate and graduate students, conducted independent and collaborative research, and directed research of graduate students (M.S. and PhD.) in statistics.

Visiting Assistant Professor, Washington State University. July, 1993 – December, 1995.

Member of graduate faculty in the Program in Statistics. Duties included teaching, independent and collaborative research, directing research of statistics graduate (Masters) students, extensive consulting with researchers, and extension work with scientists and agronomists.

### **PREVIOUS WORK EXPERIENCE (continued)**

Visiting Lecturer, University of Natal at Pietermaritzburg, South Africa. April, 1995 – June, 1995.

Taught course in statistical theory, advised post-graduate students, gave research seminars, engaged in collaborative research with Professors G.P.Y. Clarke and L.M. Haines.

Research Statistician, NCSU. July, 1990 - June, 1993.

Worked with environmental and agricultural researchers at North Carolina State University's Air Resources Consortium. Statistical techniques used included experimental design, statistical modelling, principal components, repeated measures, and combined (meta) analysis.

Statistical Consultant, NCSU. Spring and Summer, 1990.

Advised graduate students from various disciplines to help solve statistical problems related to their research projects. Work included applying various statistical methods, developing computer programs and communicating and discussing findings with clients.

Assistant Statistician, Glaxo, Inc., Research Triangle Park, NC. 1987-89.

Worked in biostatistics unit of pharmaceutical company, developing computer programs to analyze drug study data, and writing reports for U.S. Food and Drug Administration (FDA – NDA's) summarizing new drug studies and drug efficacy and safety.

Instructor, C.E.M.G. de Savalou, Benin, Africa. 1980-82.

Taught various college-level mathematics courses while serving as a Peace Corps volunteer in French West Africa.

### **BOOKS**

**O'Brien, T.E.** *Intermediate Methods in Applied Statistics and Biostatistics*, currently under contract with Springer Science and Business Media LLC; anticipated completion date: 2010.

### **REFEREED PUBLICATIONS (Statistical Theory and Methods)**

1. **O'Brien, T.E.** and Berg, M.B., **2009**. Getting the Most from Data – Maximizing Information and Power by Using Appropriate and Modern Statistical Methods, *Journal of Data Science*, 7, 537-550.
2. **O'Brien, T.E.**, Chooprteep, S., and Homkham, N., **2009**. Efficient Geometric and Uniform Design Strategies for Sigmoidal Models, *South African Statistical Journal*, 43, 49-83.
3. **O'Brien, T.E.**, Chooprteep, S., and Funk, G., **2009**. Encouraging Students to Think Critically: Regression Modelling and Goodness-of-Fit, *Journal of Data Science*, 7, 235-253.
4. **O'Brien, T.E.**, **2008**, Teaching Statistical Concepts, Fundamentals and Modelling, *Teaching Statistics*, 30(3), 81-85.
5. Straetemans, R., **O'Brien, T.**, Wouters, L., Van Dun, J. and Bijmens, L., **2005**, Design and Analysis of Drug Combination Experiments, *Biometrical Journal*, 47(3), 299-308.
6. **O'Brien, T.E.**, **2005**, Designing for Parameter Subsets in Gaussian Nonlinear Regression Models, *Journal of Data Science*, 3(2), 179-197.

**REFEREED PUBLICATIONS (Statistical Theory and Methods - continued)**

7. Goos, P., Kobilinsky, A., **O'Brien, T.E.** and Vandebroek, M., **2005**, Model-Robust and Model-Sensitive Designs, *Computational Statistics and Data Analysis*, 49(1), 210-216.
8. Dette, H. and **O'Brien, T.E.**, **2004**. Efficient Experimental Design for the Behrens-Fisher Problem with Application to Bioassay, *American Statistician*, 58(2), 138-143.
9. Haines, L.M., **O'Brien, T.E.** and Clarke, G.P.Y., **2004**. Kurtosis and Curvature Measures for Nonlinear Regression Models, *Statistica Sinica*, 14(2), 547-570.
10. **O'Brien, T.E.** and Funk, G.M., **2003**. A Gentle Introduction to Optimal Design for Regression Models, *American Statistician*, 57(4), 265-267.
11. **O'Brien, T.E.**, **2003**. Practical Design Strategies for the Detection of Drug Synergy, *Electronic Notes in Discrete Mathematics*, 15, 134-137.
12. Dette, H. and **O'Brien, T.E.** **1999**. Optimality Criteria for Regression Models Based on Predicted Variance, *Biometrika*, 86, 93-106.
13. **O'Brien, T.E.** and Rawlings, J.O. **1996**. A Non-Sequential Design Procedure for Parameter Estimation and Model Discrimination in Nonlinear Regression Models, *Journal of Statistical Planning and Inference*, 55, 77-93.
14. Evans, M.A., Kim, H.M. and **O'Brien, T.E.** **1996**. An Application of Profile-Likelihood Confidence Interval to Capture-Recapture Estimators, *Journal of Agricultural, Biological and Environmental Statistics*, 1(1), 131-140.
15. **O'Brien, T.E.** **1992**. A Note on Quadratic Designs for Nonlinear Regression Models, *Biometrika*, 79(4), 847-849.
16. Lyu, S.W., Blum, U., Gerig, T.M. and **O'Brien, T.E.** **1990**. Effects of Mixtures of Phenolic Acids on Phosphorus Uptake by Cucumber Seedlings, *Journal of Chemical Ecology*, 16(8), 2559-2567.

**INVITED DISCUSSION PAPER**

17. **O'Brien, T.E.**, **2007**, Opinion: Musings of a Statistical Consultant, *Chiang Mai Journal of Science*, 34(1), pp. 2-3.

**CHAPTERS IN BOOKS**

18. Haines, L.M., Kabera, M.G., Ndlovu, P. and **O'Brien, T.E.**, **2007**. D-optimal Designs for Logistic Regression in Two Variables. In Lopez-Fidalgo, J., Rodriguez-Diaz, J.M., and Torsney, B., eds., *Advances in Model-Oriented Design and Analysis*, Heidelberg: Physica-Verlag.
19. **O'Brien, T.E.** **2005**. The Importance of Projects in Applied Statistics Courses. In Maher, R.J., ed., *Innovative Methods in Undergraduate Courses following Calculus*, MAA Notes Series, Washington, D.C: The Mathematical Association of America, pp. 115-125.
20. **O'Brien, T.E.** **1996**. Robust Design Strategies for Nonlinear Regression Models. In Toutenberg, H. and Gössl, R., eds., *Versuchsplanung in der Industrie*, München: Prentice Hall, 41-52.
21. **O'Brien, T.E.** **1995**. Optimal Design and Lack of Fit in Nonlinear Regression Models. In Seeber, G.U.H., Francis, B.J., Hatzinger, R. and Steckel-Berger, G., eds., *Statistical Modelling*, New York: Springer, 201-206.

**REFEREED PUBLICATIONS (Biomedical and Biological Applications)**

22. Clementz, M.A., Kanjanahaluethai, A., **O'Brien, T.E.**, and Baker, S.C., **2008**. Mutation in Murine Coronavirus Replication Protein NSP4 Alters Assembly of Double Membrane Vesicles, *Virology*, 375, 118-129.
23. Ramic, M., Emerick, A., Bollnow, M.R., **O'Brien, T.E.**, Tsai, S-Y. and Kartje, G.L., **2006**. Axonal Plasticity is Associated with Motor Recovery Following Amphetamine Treatment Combined with Rehabilitation after Brain Injury in the Adult Rat, *Brain Research*, 1111(1), 176-186.
24. Markus, T.M., Tsai, S-Y., Bollnow, M.R., Farrer, R.G., **O'Brien, T.E.**, Kindler-Baumann, D.R., Rausch, M., Rudin, M., Wiessner, C., Mir, A.K., Schwab, M.E. and Kartje, G.L., **2005**. Recovery and Brain Reorganization after Stroke in Adult and Aged Rats, *Annals of Neurology*, 58(6), 950-3.
25. Seymour, A.B., Andrews, E.M., Tsai, S-Y., Markus, T.M., Bollnow, M.R., Mrenneman, M.M., **O'Brien, T.E.**, Castro, A.J., Schwab, M.E. and Kartje, G.L., **2005**. Delayed Treatment with Monoclonal Antibody IN-1 One Week After Stroke Results in Recovery of Function and Corticorubral Plasticity in Adult Rats, *J. Cerebral Blood Flow & Metabolism*, 25(10), 1366-1375.
26. Saulsberry, A., Martin, P.R., **O'Brien, T.E.**, Sieburth, L.E. and Pickett, F.B. **2002**. The Induced Sector Arabidopsis Apical Embryonic Fate Map. *Development*, 129, 3403-3410.
27. Papadopoulos, C.M., Tsai, S-Y., Alsbie, T., **O'Brien, T.E.**, Schwab, M.E. and Kartje, G.L. **2002**. Functional Recovery and Neuroanatomical Plasticity Following Middle Cerebral Artery Occlusion and IN-1 Antibody Treatment in the Adult Rat, *Annals of Neurology*, 51(4), 433-441.
28. Tsai, S-Y., **O'Brien, T.E.**, and McNulty, J.A. **2001**. Microglia Play a Role in Mediating the Effects of Cytokines on the Structure and Function of the Rat Pineal Gland. *Cell and Tissue Research*, 303(3), 423-431.

**CONFERENCE PROCEEDINGS PUBLICATIONS**

29. Pragobsai, P., Budsaba, K. and **O'Brien, T.E.**, 2008. Extending the Statistical Model to Detect Drug Synergy for Censored Data, *Proceedings of the 2008 Thailand Statistics Conference*.
30. **O'Brien, T.E.**, **2006**. Robust Optimal Designs with Reduced Curvature, *2006 Proceedings of the American Statistical Association*, Biopharmaceutical Section [CD-ROM], Alexandria, VA: American Statistical Association.
31. **O'Brien, T.E.**, **2006**. Teaching Statistical Concepts, Fundamentals and Modelling, *Proceedings of the Seventh International Conference on Teaching Statistics* (Salvador, Brazil).
32. **O'Brien, T.E.**, **2005**. Robust Design Strategies for Bioassay and Drug Synergy, in *Proceedings of the 2004 Joint Statistical Meeting* (Toronto, Canada), Biopharmaceutical Section.
33. **O'Brien, T.E.**, **2004**. Modelling and Design to Detect Interaction of Insecticides, Herbicides and Other Similar Compounds, in Johnson, D. and Milliken, G., eds., *Proceedings of the 15<sup>th</sup> Conference on Applied Statistics in Agriculture*, Kansas State U. Press, 303-321 - refereed.
34. **O'Brien, T.E.** **2002**. Hypothesis Tests, Confidence Intervals and Common Sense. In *Proceedings of the Sixth International Conference on Teaching Statistics*, Cape Town, S.A. - refereed.
35. **O'Brien, T.E.**, **2002**. Robust Experimental Design Strategies for Dose Response Models, in *Proceedings of Agro-Industrie et Methodes Statistiques*, Lille, France, 213-218.
36. **O'Brien, T.E.** and Wang, Ye. **1996**. Using SAS Software to Assess and Adjust for Nonlinearity in Nonlinear Regression Models. *SUGI 21*, Cary, NC: SAS Institute, 1274-1283.
37. **O'Brien, T.E.** **1995**. Obtaining and Verifying Optimal Designs for Nonlinear Regression Models using SAS Software. *SUGI 20*, Cary, NC: SAS Institute, 1166-1171.
38. **O'Brien, T.E.** **1994**. A New Robust Design Strategy for Sigmoidal Models Based on Model Nesting. In Dutter, R. & Grossmann W., *CompStat 1994*, Heidelberg: Physica-Verlag, 97-102.

### **PAPERS SUBMITTED OR UNDER REVISION**

39. **O'Brien, T.E., 2009.** Curvature Measures for Nonlinear Regression Models Using Continuous Designs with Applications to Optimal Design, submitted to *Biometrika*.

### **SHORT COURSES**

*Statistical Methods in Medical Research*, week-long series of seminars on repeated measures, survival and multivariate analysis, nonparametrics at Chiang Mai Univ. Faculty of Medicine, 13-17 July 2009.

*Experimental and Optimal Design*, week-long series of seminars (with Dr. John Borkowski) at Ho Chi Minh University of Technology, Vietnam, 8-12 June 2009; funded by The World Bank.

*Nonlinear Modelling – Theory and Practice*, week-long Short Course (with computer lab practicum) given at Ho Chi Minh University of Natural Sciences in Vietnam during 19-23 May 2008, and at Naresuan University in Phitsanulok Thailand during 26-30 May 2008.

*Modern Research in Statistics*, week-long course: *Statistical Power, Testing, and Estimation; Applications of Mixed Modelling; Survival Data Analysis – Past and Future; Preparing and Publishing Manuscripts for Submission in Statistical Journals*, 1-8 August 2007, Chiang Mai University, Department of Statistics.

*Applied Nonlinear Statistical Methods*, all-day Travelling Short Course sponsored by the American Statistical Association, given in 2005: in San Antonio on 9 March 9, in Birmingham AL on 10 March, in San Diego on 25 March, in Philadelphia on 29 July, and in Buffalo on 8 October. Also given internationally in Piracicaba, Brazil on 30 June 2006, in Singapore on 16 October 2006, in Vientiane, Laos on 9 February 2007, in Chiang Mai, Thailand on 12 February 2007, in Hiroshima, Japan (RERF) on 27-28 July 2009, and Kurume University, Japan on 11-12 Sept. 2009.

*Statistical Methods in Bioinformatics and Microarray Research*, all-day presentation given at Loyola University Chicago to NSF/REU students, June 15<sup>th</sup> 2006, June 26<sup>th</sup> 2007, and July 1<sup>st</sup> 2008.

### **ORGANIZED CONFERENCES AND INVITED PAPER SESSIONS**

Organizer, Chair and Presenter, “Recent Developments in Optimal Experimental Design with Applications,” 2010 International Biometric Conference, Florianopolis, Brazil, 5-10 December (proposed).

Organizer and International Scientific Program Committee Member, “2008 International Conference on Applied Probability and Statistics,” Hanoi, Vietnam, 1-3 December 2008.

Organizer, Chair and Presenter, “Recent Developments in Statistical Methods for Drug Synergy,” Special Topics Session for 2004 Joint Statistical Meetings, Toronto, Canada, 8-12 August.

Organizer, Chair and Discussant, “Recent Developments in Pharmacokinetic Modelling,” 1998 International Biometric Conference, Cape Town, South Africa.

Organizer and Chair, “Optimal Design in Nonlinear Regression” Session, 1996 International Biometric Conference, Amsterdam, Netherlands.

Co-Organizer (with Professors Norman Draper and Friedrich Pukelsheim), “Workshop on Complex Nonlinear Systems,” Universiteit Augsburg, Germany, 2-3 October 1995.

### **FORTHCOMING INVITED TALKS AND SEMINARS**

“Robust Optimal Design for Multinomial Models”, with Somsri Jamroenpinyo, 2010 International Biometric Conference, Florianopolis, Brazil, 5-10 December 2010 (proposed).

“Optimal Design and Lack of Fit in Nonlinear Regression Models”, International Conference in Mathematics and Applications, Bangkok, Thailand, 17-19 December 2009.

### **FUNDED GRANTS AND STIPENDS**

Loyola University Chicago Multidisciplinary Grant, “Employment Hope as a Pathway to Economic Self-Sufficiency,” February 2009, awarded \$20,000 (with Drs. Philip Hong and Theresa Pigott).

Loyola University Chicago, Global Initiative Incentive Award, “The Loyola University Chicago and Chiang Mai University Research and Education Initiative,” July 2007, awarded \$5,000 (with Dr. Susan Baker, LUMC/Microbiology and Dr. Amornrat Kanjanahaluethai, CMU/Microbiology). Grant renewed in July 2008 (\$6,000 stipend).

U.S. Department of State and J. William Fulbright Foreign Scholarship Board, October 2006, approximately \$18,000, Fulbright Scholar Award, “Applying Statistical Methods through Teaching and Consulting; Research in Applied Experimental Design”

U.S. National Science Foundation, \$282,747, June 1 2006 – May 31 2009, “REU Site: Integrated Cross-disciplinary Summer Program in Bioinformatics.” (Co-PI’s: Loyola Professors Howard Laten and George Thiruvathukal).

U.S. National Academies of Science, March 2006, \$2000 travel grant to attend conference on risk assessment in Hiroshima, Japan.

Limburgs Universitair Centrum, BE, approx. US\$2,000 (1750 euros), Summer 2003, to teach course on statistical theory and methods associated with drug and similar compounds synergy.

Katholieke Universiteit Leuven, BE, approx. US\$3,550 per month (total \$35,500), 1 September 2001-30 June 2002.

Loyola University Chicago, USA, \$6,000, Summer 2000 (Summer Stipend Award), “Design Strategies for HIV/AIDS and Malaria Studies.”

Institut Nationale de Research Agronomique, Versailles, FR, approx. US\$2,000 (12,000 French Francs), July 1998.

National Science Foundation Post-Doctoral Fellow Program, \$18,450, September, 1994 - December, 1995, “Optimal Design for Nonlinear Regression Models.”

Deutscher Akademischer Austauschdienst (German Academic Exchange), DM 9,600.00, July – September, 1995, Study Visit Grant.

The Dow Chemical Company, \$7,500, November, 1994 - May, 1995, “Better Confidence Intervals for Multivariate Nonlinear Regression Models.”

National Research Institute, \$76,323, August, 1995 - August, 1998 “Identifying and Quantifying Competitive Characteristics of Winter Wheat Against Two Winter Annual Grasses in the Pacific Northwest” (Co-PI’s Alex G. Ogg and Steven Seefeldt).

U.S. Department of Agriculture, “Optimal Design for Nonlinear Models Used in Forestry and Agricultural Research,” \$3,100, January - December, 1995.

### **GRANT APPLICATION PENDING**

Fulbright Senior Specialist Award in Biostatistics, Statistical Genetics Bioinformatics and Statistical Consulting, submitted August 2009 for May/June 2010.

**INVITED CONFERENCE PRESENTATIONS**

- Challenges of Assessing Goodness of Fit in Regression Modelling*, Invited Presentation at the International Conference in Mathematics and Applications, Bangkok, Thailand, 15-17 August 2007 (funded attendee and presenter).
- Curvature, Robustness and Optimal Design in Applied Nonlinear Regression Modelling*, Invited Presentation, Joint Statistical Meetings, Seattle WA (USA), 6-10 August 2006.
- Teaching Statistical Concepts, Fundamentals and Modelling*, Invited Presentation, 7<sup>th</sup> International Conference on Teaching Statistics, Salvador, Bahia, Brazil, 2-7 July 2006.
- Optimal Robust Design for Relative Potency and the Detection of Drug Synergy in Oncology*, Invited Presentation at the 2004 Joint Statistical Meetings, 7-12 August 2004, Toronto, Canada.
- Including Quality of Life Assessment in Biomedical Studies*, Invited Presentation at the 24th Conference on Applied Statistics in Ireland, 12-14 May 2004, Galway, Ireland.
- New Developments in Bioassay and Drug Synergy*, Royal Statistical Society Three Country Corner Conference, Beerse, Belgium, 5 June 2003.
- New Statistical Techniques in Drug Synergy and Chemometrics*, Conference on New Directions in Experimental Design (DAE 2003), Chicago, May 14-17, 2003 (funded attendee and presenter).
- Hypothesis Tests, Confidence Intervals, and Common Sense*, International Conference on Teaching Statistics (ICOTS), Cape Town, SA, 8-12 July 2002.
- Extensions of Marginal Curvatures in Biostatistics*, Fourth Biennial International Conference on Statistics, Probability and Related Areas, DeKalb, Illinois, 13-15 June 2002.
- Robust Experimental Design Strategies for Dose Response Models*, 7<sup>emes</sup> AgroStat (Agro-Industrie et Methodes Statistiques) Conference, Lille, FR, 16-18 Jan 2002.
- Recent Developments in Model-Robust Optimal Design*, International Conference on Design of Experiments – Recent Trends and Future Directions, University of Delhi, IN, 27-30 Dec 2001.
- Historic Aspects of Experimental Design*, International Conference of Statistical Inference and Reliability, Panjab University, Chandigarh, IN, 21-24 Dec 2001.
- Design of Biomedical Studies*, 9<sup>th</sup> Annual Meeting of the Belgian Statistical Society, Oostende, BE, 12-13 Oct 2001.
- Multipurpose Designs Involving Variance and Marginal Curvature*, XXXI<sup>emes</sup> Journees de Statistique, Grenoble, FR, 17-21 May 1999.
- A New Class of Optimal Design Criteria for Regression Models*, ENAR – Biometrics Society Meeting, Richmond, VA, 17-20 Mar 1996.
- Using SAS® Software to Assess and Adjust for Nonlinearity in Nonlinear Regression Models*, SUGI-21, Chicago, IL, 10-13 Mar 1996.

**CONTRIBUTED CONFERENCE PRESENTATIONS**

- Cognitive Recovery after Stroke in the Aged with Anti-Nogo-A Immunotherapy*, poster presentation at Neuroscience 2007 Conference, San Diego, CA, 3-7 November 2007 (with Smith, R.L., Wallace, D.G., Johnson, S.C., Tsai, S.-Y., Schwab, M.E. and Kartje, G.L.).
- Developing an Undergraduate Biostatistics Program: Challenges and Successes*, 24<sup>th</sup> Leeds Annual Statistics Research Workshop, Leeds, UK, 4-6 July 2005.
- Design Strategies in Detecting Synergy of Similar Compounds*, Kansas State University Conference on Applied Statistics in Agriculture, Manhattan, Kansas, 27-29 April 2003.
- Curvature Measures for Generalised Linear and Nonlinear Models*, XXXIII<sup>emes</sup> Journees de Statistiques, Nantes, FR, 14-18 May 2001.
- Practical Design Strategies for Parameter Subsets*, XXXII<sup>emes</sup> Journees de Statistiques, Fez, Morocco, 15-19 May 2000.

**CONTRIBUTED CONFERENCE PRESENTATIONS (continued)**

- Optimal Design and Lack of Fit for Nonlinear Regression Models*, 10<sup>th</sup> International Modelling in Innsbruck, Austria, 9-14 July 1995.
- Obtaining and Verifying Optimal Designs for Nonlinear Regression Models using SAS® Software*, SUGI-20, Orlando, FL, 2-5 Apr 1995. (Awarded ***SUGI Best Contributed Paper Award.***)
- A New Robust Design Strategy for Sigmoidal Models Based on Model Nesting*, CompStat meetings, Vienna, Austria, 24 Aug 1994.
- Design for Estimation and Discrimination in Nonlinear Models*, 1993 ASA Winter Conference, Fort Lauderdale, FL, 3-5 Jan 1993.

**INVITED SEMINARS**

- Efficient Design Strategies in Medical Research*, 2 July 2009, Mahidol University, Department of Mathematics and Statistics, Bangkok, Thailand (sponsored by Prof. Montip Tiensuwan).
- Illustrating Statistical Concepts with Hand-On Class Activities*, 29 December 2008, Naresuan University Secondary Demonstration School, Phitsanulok, Thailand (sponsored by Dr. Supak Pongbangpho)
- Multivariate Statistical Methods in Medicine and Science*, 26 December 2008, Naresuan University Faculty of Allied Health, Phitsanulok, Thailand (sponsored by Prof. Orathai Tangvarasittiehai)
- Applications of Biostatistics in Clinical Research*, 24 December 2008, Chiang Mai University Faculty of Medicine, Chiang Mai, Thailand (sponsored by Associate Dean Pongruk Sribanditmongkol).
- Applications of Differential Geometry, Abstract and Linear Algebra in Statistics*, 26 June 2008, Centro de Investigación en Matemáticas AC, Guanajuato Mexico (sponsored by Prof. Rogelio Ramos).
- Recent Developments in Applied Statistics*, 26 December 2007, Naresuan University, Department of Mathematics and Statistics, Phitsanulok, Thailand (sponsored by Prof. Katechan Jampachaisri).
- Statistical Methods in Biomedical Research* (25 December 2007), and *Biostatistical Ethics* (28 December 2007), Chiang Mai University, School of Medicine (sponsored by Prof. Somdet Srichairatanakool)
- Tailoring Statistical Methods to Answer One's Questions – Not Vice Versa*, 7 September 2007, Loyola University Chicago, Center for Urban Learning and Research (sponsored by Prof. Philip Nyden).
- Practical Considerations in Applied Nonlinear Regression Modelling: Design, Estimation, and Testing*, 22 March 2007, Northern Illinois Chapter of the American Statistical Association Workshop.
- Odds Ratios, Regression and Maximum Likelihood Techniques*, 20 February 2007, Chiang Mai University Department of Statistics (sponsored by Prof. Preecha Lamchang).
- Current Topics in Statistical Genetics*, 26 January 2007, Chiang Mai University Department of Biology (sponsored by Prof. Siripen Traichaiyaporn).
- New Directions for Statistical Research – Forging Better Connections with Mathematicians*, 19 January 2007, Thammasat University Dept. of Math and Statistics (sponsored by Prof. Kamon Budsaba).
- Challenges in Applied Statistics – Statistical Modelling*, (18 January 2007) and *Challenges in Applied Statistics – Experimental Design* (19 January 2007), National Institute of Development Administration School of Applied Statistics, (sponsored by Prof. Jirawan Jitthaveth).
- Applied Statistics- What's Old and What's New?*, 20 December 2006, Maejo University Department of Mathematics and Statistics (sponsored by Prof. Kisana Lanumteang).
- Some Uses of Calculus of Variations in Applied Statistics*, 24 November 2006, Mahidol University Department of Mathematics and Statistics (sponsored by Prof. Montip Tiensuwan).
- Modern Statistical Methods in Applied Research*, Loyola University Chicago Center for Urban Environmental Research and Policy, 15 September 2006 (sponsored by Prof. Nancy Tuchman).
- Biostatistics, Medical Research, and Medical Ethics*, Loyola University Chicago AEA (pre-health Honor Society), 2 May 2006.

**INVITED SEMINARS (continued)**

- What's New in Medical Statistics and Research*, Hines VA Hospital – Loyola University Medical Center, Department of Neuroscience, 24 March 2006 (sponsored by Prof. G. W. Kartje)
- Statistics and Risk Assessment*, US-Japan Radiation Effects Research Foundation Department of Statistics in Hiroshima Japan, 7 March 2006 (sponsored by Director John Cologne).
- Recent Developments in Statistical Theory and Practice*, Georgetown University Department of Mathematics, 27 January 2006.
- The Mathematical Underpinnings of Applied Statistical Methods*, Murray State University, Biomathematics Seminar Series, 31 October 2005 (presented again at Loyola on 16 November).
- Assessing Interactions in Combined Drug Studies – Efficacy and Safety*, invited luncheon talk for the Chicago Chapter of the American Statistical Association, 22 February 2005.
- Recent Developments in Medical Statistics – Methodology and Pedagogy*, Virginia Commonwealth Univ., Departments of Biostatistics and Nursing, 10 December 2004 (sponsored by Prof. R.K. Elswick).
- Curvature and Optimal Design in Applied Statistics*, Virginia Commonwealth University, Department of Biostatistics, 15 October 2004 (sponsored by Prof. Chris Gennings).
- Musings of a Consulting Statistician*, North Carolina State University, Department of Statistics – Undergraduate Mentoring Program, 27 September 2004 (faculty contact Prof. Marcia Gumpertz).
- Optimal Experimental Design in Practice*, University College Dublin (Ireland), Department of Statistics, 5 July 2004 (sponsored by Prof. John Connolly).
- An Overview of Modern Medical Statistics*, Hines VA Hospital – Loyola University Medical Center, Department of Neuroscience, 27 May 2004 (sponsored by Prof. G. W. Kartje)
- Current Issues in Teaching Biostatistics to (pre) Medical Researchers*, Emory University Dept. of Epidemiology and Biostatistics, 8 April 2004 (sponsored by Prof. Amita Manatunga).
- Recent Topics in Biomedical Research*, Université Catholique de Louvain (Belgium), 12 December 2003 (sponsored by Prof. Bernadette Govaerts).
- Incorporating Quality of Life Measures in Drug Synergy Studies and Designs*, Limburgs Universitair Centrum (Belgium), 15 Dec 2003 (sponsored by Profs. Marc Aerts and Tomasz Burzykowski).
- Recent Developments in Chemometrics*, Loyola University Chicago Department of Chemistry, 9 October 2003 (sponsored by Prof. Daniel Graham).
- Empowering Econometrics Students and Financial Leaders to Make Better Decisions*, Loyola University Chicago Department of Economics, 24 September 2003 (sponsored by Prof. David Merriman).
- Why and What Biostatisticians Need to Know About Differential Geometry*, University of Illinois at Chicago, 14 Feb. 2003 (sponsored by Prof. Sam Hedayat).
- Practical Issues Associated with Subset Designs with Applications in Biometry and Biostatistics*, University of Sheffield (UK), 17 May 2002 (sponsored by Prof. Alexander Donev).
- Practical Aspects of Experimental Design and Logistic Regression*, Université Liege (BE), 20 Feb 2002 (sponsored by Professor A. Albert).
- Current Issues in Optimal Design*, University of Warwick (UK), 7 Dec 2001.
- Optimal Experimental Design in Practical Settings*, Janssen Research Foundation (Johnson & Johnson Pharmaceuticals), Beerse (Belgium), 28 November 2001.
- Design and Estimation Issues Associated with Logistic Regression, Relative Risk and Other Biostatistical Applications*, Katholieke Universiteit Leuven, Statistics Centre (BE), 23 Nov 2001.
- Experimental Design Strategies in Agriculture*, Universiteit Gent – Dept. of Applied Mathematics and Biometrics, Gent (Belgium), 21 November 2001.
- Curvature Measures for Generalised Nonlinear Models*, RUHR-Universitaet Bochum – Dept. of Mathematics (Germany), 6 November 2001 (sponsored by Prof. Dr. Holger Dette).
- Statistical Curvature, Confidence Intervals, and Optimal Design*, Katholieke Universiteit Leuven – Dept. of Mathematics (Belgium), 26 October 2001.

### **INVITED SEMINARS (continued)**

- Robust Design in Pharmacology*, Queen Mary Univ. of London – Dept. of Statistics (UK), 18 Oct. 2001.
- Statistical Curvature in Biostatistics*, University of Natal – Dept. of Statistics and Biometry, Pietermaritzburg (South Africa), 1 June 2001 (sponsored by Prof. Linda M. Haines).
- Experimental Design in Economics and Marketing*, Katholieke Universiteit Leuven – Dept. of Applied Economics (Belgium), 21 May 2001 (sponsored by Prof. Martina Vandebroek).
- Current Issues in the Design of Pharmacokinetic Experiments*, Institut National de la Santé et de la Recherche Médicale, Paris (France), 19 May 2000 (sponsored by Prof. France Mentré).
- Why so confident? – Curvature and Empirical Coverage Rates of Nominal Confidence Intervals*, Rush-St. Luke's Medical Center, Chicago, 18 February 2000 (sponsored by Prof. Shande Chen).
- Differential Geometry in Statistics*, Institut National de Recherche Agronomique (INRA), Versailles (France), 8 July 1998 (sponsored by Dr. André Kobilinsky).

### **GRADUATE STUDENT RESEARCH SUPERVISION**

- Ph.D. major supervisor and research director for Ms. Somsri Jamroenpinyo, Statistics, Thammasat University (Bangkok Thailand), Optimal Design for Multinomial Models, 2008-present.
- Ph.D. committee member and external examiner of Mr. Victor López, Mathematics, Centro de Investigación en Matemáticas AC (Guanajuato Mexico), Optimal Design for Discrimination and Estimation in Nonlinear Models, 2008.
- M.Sc. major co-advisor (with Professor Kamon Budsaba) of Ms. Pacanat Pragobsai, Statistics, Thammasat University (Bangkok Thailand), Extending the Statistical Model to Detect Drug Synergy for Censored Data, 2007-2008.
- External examiner and Ph.D. dissertation co-advisor (with Professor Linda Haines) of Mr. Legesse Kassa, Statistics, Univ. of Natal Pietermaritzburg (S. Africa), Optimal Design for Mixed Models, 2004.
- Ph.D. major co-advisor (with Professor Linda Haines) of Mr. Gaeten Kabera, Statistics, University of Natal Pietermaritzburg (South Africa), Optimal Design for Drug Synergy, 2003-present.
- Ph.D. major co-advisor (with Professor Chris Gennings) of Ms. Sharon Parker, Biostatistics, Virginia Commonwealth University, Curvature and Differential Geometry, 2004-2006.
- Ph.D. committee member and external examiner of Mr. Lieven Tack, Statistics, Katholieke Universiteit Leuven (Belgium), Optimal Design for Models with Time Trends, 2001-2002.
- Ph.D. major co-advisor (with Professor Lynne Billard) of Ms. Ye Wang, Statistics, University of Georgia, Bilinear Models, 1996.
- M.A. major advisor of Ms. Ye Wang, Statistics, Washington State University, Applications of Optimal Design in Agriculture, 1994-1995.

### **PROFESSIONAL DISTINCTIONS**

- Awarded Loyola University's *Master Teacher Award*, April 2009.
- Listed in 2009 edition of *Marquis Who's Who in America*.
- Awarded *Certificate of Recognition for Demonstrated Excellence in Teaching, Mentoring, and Advising of Graduate Students*, Loyola University Chicago, 27 March 2006.
- Approved by the J. William Fulbright Scholarship Board and the Council for International Exchange of Scholars as a *Fulbright Senior Specialist Candidate* in Biostatistics, Statistical Genetics, Bioinformatics and Statistical Consulting, 2006.

## **AWARDS**

Loyola University Chicago (ORS), Travel Grant (\$1450) to attend and give invited presentation at International Conference in Mathematics and Applications in Bangkok, Thailand, August 2007.

Loyola University Chicago (ORS), Travel Grant (\$2100) to give Travelling Short Course in Singapore, October 2006.

Elected member of the International Statistical Institute, August 2004.

Travel and Registration Award to attend 2003 DAE Conference, Chicago, May 2003.

Travel Award to attend Gordon Research Conference on Statistics in Chemistry and Chemical Engineering, Oxford, UK, 1996.

SUGI *Best Contributed Paper Award*, 1995.

WSU Department of Statistics Travel Grant, 1993.

NCSU Department of Statistics Travel Grants, 1991, 1992, and 1993.

Kansas State University Agricultural Conference Travel Grants, 1991, 1992.

NCSU Graduate Student Association Travel Grant, 1991.

## **PROFESSIONAL DEVELOPMENT**

Participated in the 2005 Summer Institute in Statistical Genetics, May 23 – June 10, North Carolina State University, taking courses in

- Introduction to Genetics
- Evolutionary Population Genetic Data
- Principles of Quantitative Genetics
- Introduction to Bioinformatics
- Markov Chain Monte Carlo for Geneticists
- Microarray Analysis

## **PROFESSIONAL ASSOCIATIONS**

American Statistical Association.

International Biometric Society – ENAR.

International Association of Statistical Computing.

International Association of Statistics Education.

International Statistical Institute – Elected member (2004).

Phi Beta Delta – Honor Society for International Scholars (Loyola Chapter).

Royal Statistical Society, Elected Fellow (2007).

## **TECHNICAL SUMMARY**

Proficient in

- BMDP, BUGS, JMP, MINITAB, NONMEM, SAS (BASE, ETS, GIS, GRAPH, IML, INSIGHT, OR, QC, STAT), SIMUSOLV, SPSS, STATA, and SYSTAT software packages;
- BASIC, FORTRAN, GAUSS, MAPLE, MATHEMATICA, MATLAB, R, SAS/IML, and S-PLUS programming languages;
- UNIX, Linux and Windows/XP operating systems.

### **SERVICE AND ACTIVITIES – STATISTICAL COMMUNITY**

Fulbright (CIES) Statistics Discipline Review Committee, peer review committee member, 2009.  
Associate Editor, *The Thai Statistician Journal*, 2007-present.  
Provide pro bono statistical advice to researchers involved with Partners in Health, 2007-present.  
Reviewer of Statistics grant proposal submissions to South African National Research Foundation, 2007 and 2008.  
Reviewer for promotion to the rank of Associate Professor with tenure, Dr. Jane Chang, Bowling Green State University, Fall 2006.  
Reviewer for promotion to the rank of Associate Professor with tenure, Dr. Zhide Fang, University of New Orleans, Fall 2004.  
Reviewer for promotion to the rank of Full Professor, Dr. Donald White, U. Toledo, Fall 2003.  
Reviewer of submissions to *Proc. of 15<sup>th</sup> Conference on Applied Statistics in Agriculture*, 2004.  
Assisted in the organization of the Spring ASA-Chicago Spatial Statistics Conference, May 2001.  
Appointed to the ASA Committee on International Relations in Statistics, 1995-97, 1997-99.  
Appointed to the WNAR Regional Advisory Board (Biometric Society), 1995-1997.  
Participant at Western Region Teaching Symposium, Utah State University, September 1993.  
NCSU Graduate Student Representative to local chapter of ASA, 1990-91.  
Member of NCSU Statistics Department Graduate Admissions Committee, 1989-90.

### **SERVICE AND ACTIVITIES – STATISTICAL COMMUNITY – Paper and Book Reviews**

Reviewer for paper submissions to:

*Annals Inst. Statistical Mathematics*, 1999.  
*Applied Statistics*, 2002.  
*Biometrics*, 1996-1999; 2006.  
*Computational Statistics and Data Analysis*, 2005, 2006 (2).  
*Journal of Agricultural, Biological and Environmental Statistics*, 2004, 2005(2), 2006.  
*Journal of Chemometrics*, 1996.  
*Journal of Great Lakes Research*, 2000.  
*Journal of Pharmaceutical Sciences*, 2001, 2003, 2006.  
*Journal of Statistical Education*, 2003.  
*Journal of Statistical Planning and Inference*, 1994, 1998, 2002, 2005(2), 2008.  
*Journal of the American Statistical Association*, 2000, 2005.  
*Pharmacological Research*, 2006.  
*Risk Analysis*, 1999.  
*South African Statistical Journal*, 2004, 2005.  
*Statistical Methodology*, 2008.  
*Technometrics*, 1995-2004.  
*The American Statistician*, 1995, 2004, 2008.  
*The Thai Statistician Journal*, 2007(2), 2008, 2009(2).

Assessment of Book Plan, *Generalized Nonlinear Models* by Firth and Turner, Springer, 2006.  
Assessment of Book Plan, *R by Example: Concepts to Code* by Jim Albert & Maria Rizzo, Springer, 2009.  
Provided suggestions for revision, *Statistics for the Life Sciences* (3<sup>rd</sup> Edition, 2003) by Samuels and Witmer, 2008.

## **SERVICE AND ACTIVITIES – UNIVERSITY AND DEPARTMENT**

Faculty Advisor to Loyola Graduate Student StatCom chapter, 2007-present.

Represent Department at Loyola Admission Open Houses, 2007-present.

Provide statistical advice to researchers and students in Loyola's Biology Department, Center for Urban Environmental Research and Policy and Center for Urban Research and Learning.

Faculty Mentor, Loyola's Carbon Undergraduate Research Scholars Program, 2007-present (two students).

Faculty Mentor, Loyola's Summer REU Program in Bioinformatics, 2006, 2007 and 2008.

Coordinate the offerings, timetable, and textbook selection of Statistics courses in Department.

Coordinate Department's Actuarial Science, Biostatistics and Certificate programs; advise students.

Member of Loyola's Bioinformatics program since 2006 – including representing the program at Loyola student fairs.

Assisted and mentored Loyola UG Statistics major Denis Agniel in his CUERP-funded research on the statistical assessment of pollution in Chicago, Summer and Fall 2006.

At-large member of Loyola's Academic Council, 2005-2006; service on AC Election Committee.

Obtained financial assistance from American Statistical Association to invite Dr. Tom Bradstreet (Merck Pharmaceuticals) to meet with Loyola students, give seminars, and discuss employment opportunities and interview strategies, Spring semester 2006.

Invited and hosted Dr. Daniel Roth (Vice President and Actuary, CNA Insurance) to give a seminar, meet with students, and discuss actuarial field and career opportunities; 2004 – 2006.

Invited and hosted Professor Marie Diener-West, Johns Hopkins Dept. of Biostatistics (and Loyola alumnus) to give biostatistical seminars and meet students and faculty, 20 September 2004.

Sponsored and mentored statistics UG major (Jennifer Chang) for Loyola Graduate Forum, poster presentation, 11 Mar 2004.

Obtained financial assistance from American Statistical Association to invite Ms. Melanie Filas (Anheuser-Busch) to meet with Loyola students, to give a seminar, and discuss employment opportunities and interview strategies, Spring semester 2003.

Organizer of proposed Biostatistics major and minor (approved) and of Loyola's Masters Program in Statistics (approved).

Advisor for statistics and biostatistics majors and minors at Loyola, 2002 – present.

Loyola University Liaison to Casualty Actuarial Society and Society of Actuaries, ongoing.

Assisted Loyola BS-MS student Paul Bell in his application for Loyola Mulcahy Scholarship (awarded) for 2000-1 academic year, in his research, and with his presentation at an international professional conference (2001 International Biometric Conference in Vancouver).

Voluntarily taught introductory biostatistics course to graduate students at Loyola Medical Center, Spring 1999.

Volunteered as Faculty Advisor for CAS undeclared freshmen, 1998 – 2001.

## **STATISTICAL CONSULTING SERVICES**

Provided consulting and mentoring assistance to administrators, educators, colleagues and researchers at universities, businesses and governmental organizations, including:

- Universities (University of Rochester, Washington State University, University of Natal Pietermaritzburg in South Africa, University of Georgia, Loyola University Chicago, Chiang Mai University in Thailand, National University of Singapore, National University of Laos.
- Research Institutes and Government Agencies (Hines VA Hospital in Chicago, U.S. Department of State, U.S. Fish and Wildlife Service, U.S. EPA, INRA in France, and INSERM in France)
- Corporations (Glaxo SmithKline, Bristol Myers Squibb, Novartis Pharmaceutical AG, Janssen Pharmaceutica NV, Chiron, Amgen, Amylin Pharmaceuticals, MedImmune, and Goble and Associates).

Additional details provided in a Consulting Addendum (available upon request).

## EDUCATIONAL ACTIVITIES

### Courses Taught, C.E.M.G de Savalou (Benin, French West Africa)

- Various courses in mathematical analysis, algebra and topology (in French) – required to prepare lycée students for the French Baccalaureate exam and entrance into university, series L (Léttres), series BG (Biologie et Geologie) and series ST (Science et Technologie), 1980-82
- Conducted problem sessions to review for French Baccalaureate mathematics exam, 1981-82

### Courses Taught, Syracuse University (all courses at undergraduate level)

- Precalculus, 1983
- Calculus I-III, 1983, 1984
- Ordinary Differential Equations, 1985

### Courses Taught, Washington State University (all courses at graduate level)

- Biometry, 1993, 1994
- Applied Linear Models, 1994
- Statistical Computing and Packages (including SAS®), 1994
- Statistical Consulting, 1995

### Course Taught, University of Natal Pietermaritzburg (South Africa)

- Statistical Theory, 1995

### Courses Taught, University of Georgia (all courses at graduate level)

- Statistical Methods, 1996
- Advanced Topics in Optimal Design Theory, 1996

### Courses Taught, Loyola University Chicago

- Statistical Theory (UG level), 1998
- Fundamentals of Statistics for Honors Students (UG level), 1998, 1999, 2000, 2002, 2005
- Statistical Design and Analysis of Experiments (UG/G level), 1999, 2001, 2004
- Introduction to Biostatistics (UG level), 1999, 2000, 2001, 2003, 2004, 2005, 2008, 2009
- Categorical Data Analysis (UG/G level), 2000, 2003, 2005, 2007
- Actuarial Seminar (UG level), 2000, 2003, 2005, 2007, 2008
- Advanced Biostatistics (UG/G level), 2001, 2003, 2004, 2005, 2006, 2008 (2), 2009
- SAS® Programming and Applied Statistics (UG/G level), 2001, 2004
- Applied Regression Analysis (UG/G level), 2003
- Statistical Genetics (UG/G level), 2005
- Quantitative Methods in Bioinformatics (UG/G level), 2006
- Statistics and Medical Ethics (UG level), 2006, 2007
- Statistical Methods in Genetic Epidemiology (UG/G level), 2006
- Statistics for the Sciences (UG level), 2007, 2008 (2), 2009

Courses Taught, Loyola University Chicago (continued)

- Environmental Statistics (UG/G level), 2008
- Medical Literature (G level), 2007
- Research in Optimal Experimental Design (UG level), 2002, 2008, 2009
- Statistical Consulting (G level), 2008, 2009
- Sampling Methods (UG/G level), 2009

Courses Taught, Loyola University Medical Center

- Introduction to Biostatistics, Spring 1999 (taught on a *pro bono* basis to Loyola biomedical graduate students to support graduate students of Loyola medical colleagues)

Courses Taught, Katholieke Universiteit Leuven (Belgium)

- Applied Statistical Experimental Design in Finance and Marketing, Fall 2002

Courses Taught, Limburgs Universitair Centrum (Belgium)

- Statistical Theory and Methods Associated with Bioassay and Drug and Similar Compounds Synergy, Summer 2003. Developed and distributed own *Course Notes*

Courses Taught, Chiang Mai University (Thailand) – all courses at the Graduate level

- Applied Multivariate Statistical Methods, 2006-7
- Linear Statistical Models, 2006-7
- Statistical Methods for Gene Expression Microarray Data, 2006-7

Courses Taught, Thammasat University (Bangkok Thailand) – all courses at the Ph.D. level

- Nonlinear Statistical Theory and Methods, 2007
- Optimal Experimental Design, 2008

Courses Taught, NIDA (Bangkok Thailand) – Ph.D. level

- Categorical Data Analysis, 2009

Directed Reading Courses (all courses at the graduate level), Loyola University Chicago

- Nonlinear Mixed Modelling, 2000
- Applied Generalized Linear Models, 2000
- Applied Nonlinear Regression Models, 2001
- Differential Geometry in Generalized Linear and Nonlinear Models, 2001
- Optimal Experimental Design, 2002, 2008
- Drug Resistance and Synergy in Malaria Research, 2002
- Generalized Linear Models in Engineering, 2003
- Applied Multivariate Statistical Methods, 2003

Directed Reading Courses (all courses at the graduate level), Loyola University Chicago - continued

- Applied Survival Analysis in Biomedical Research, 2004, 2005
- Advanced Topics in Statistical Theory, 2004, 2005
- Biological Sequence Analysis, 2005
- Bayesian Statistical Analysis, 2006
- Time Series – Theory and Methods, 2009

Courses Developed, Loyola University Chicago

Nonlinear Mixed Modelling, as a directed reading course, worked through *Nonlinear Models for Repeated Measurement Data* by Davidian and Giltinan with math graduate student; Summer 2000.

Categorical Data Analysis, a senior/graduate level course for UG biology and mathematics majors, UG biostatistics minors and G mathematics majors focusing on logistic regression, mixed generalized linear and nonlinear models using SAS® software; Fall 2000, Fall 2003, Spring 2005, and Fall 2007.

Applied Generalized Linear Models, as a directed reading course, worked through *University of Natal Pietermaritzburg Lecture Notes on Generalized Linear Models* by J. Levine with mathematics graduate student; Fall 2000.

Advanced Biostatistics, a senior/graduate level course for UG biology and G mathematics majors and UG biostatistics minors, focusing on experimental design, generalized linear and nonlinear modelling, bioassay and synergy, spatial statistic, survival methods, mixed models, multivariate statistical methods using Minitab, SAS® and S-Plus; Spring 2001, 2003, 2004, 2005, 2006, and 2008.

Applied Nonlinear Regression Models, as a directed reading course, worked through *Nonlinear Regression* by Bates and Watts with two mathematics graduate students; Spring 2001.

Differential Geometry in Generalized Linear and Nonlinear Models, worked collaboratively with mathematics graduate student on new research extending Gaussian curvature measures to cover linear and nonlinear models for other distributions; Spring 2001.

Optimal Experimental Design (while based at Katholieke Universiteit Leuven in Belgium – via phone, email and Fax), as a directed reading course to two Loyola mathematics graduate students, worked through (and with students wrote computer programs for) *Optimum Experimental Design* by Atkinson and Donev; Spring 2002.

Drug Resistance and Synergy in Malaria Research, as a directed reading course, worked through several texts and research papers related statistical malarial modelling with a mathematics graduate student; Fall 2002.

Generalized Linear Models in Engineering, as a directed reading course, worked through *Generalized Linear Models (with applications in Engineering and the Sciences)* by Myers, Montgomery and Vining with mathematics graduate student; Spring 2003.

Applied Multivariate Statistical Methods, as a directed reading course, worked through *Applied Multivariate Statistical Analysis* by Johnson and Wichern with three graduate students; Fall 2003.

Courses Developed, Loyola University Chicago (continued)

Applied Survival Analysis in Biomedical Research, as a directed reading course, worked through *Modelling Survival Data in Medical Research* by David Collett with two graduate students; Summer 2004 and Spring 2005.

Advanced Topics in Statistical Theory, as a directed readings course, worked through *In All Likelihood* by Yudi Pawitan with graduate students; Fall 2004 and Fall 2005.

Statistical Genetics, as a directed readings course, worked through *Mathematical and Statistical Methods for Genetic Analysis* by Kenneth Lange with graduate students; Summer 2005.

Biological Sequence Analysis, as a directed readings course, worked through text on BSA by Durbin, Eddy, Krogh, and Mitchison with UG biology students; Fall 2005.

Statistical Concepts, an algebra-based, writing-intensive, non-formulaic statistical literacy course with specific focus on medical experiments and findings, the communication media (e.g., newsprint), political studies and “spin”, and financial numerical misrepresentations; Fall 2005.

Quantitative Methods in Bioinformatics, a senior/graduate level course for UG biology and G mathematics majors and UG biostatistics minors, focusing on mathematical, probabilistic and statistical methods and models used in bioinformatics and DNA microarray and protein array data analysis; Spring 2006.

Bayesian Statistical Analysis, as a directed readings course, working through *Bayesian Statistics: An Introduction* by Peter M. Lee with graduate students; Spring 2006

Statistics and Medical Ethics, an introductory course focusing on statistical and ethical issues of drug studies based on *The Truth About the Drug Companies* by Marcia Angell and *Powerful Medicines: The Benefits, Risks and Costs of Prescription Drugs* by Jerry Avorn; Spring 2006.

Statistical Methods in Genetic Epidemiology, a senior/graduate level course for UG biology and G mathematics majors and UG biostatistics minors focusing on mathematical, probabilistic and statistical theory and techniques used in public health and epidemiology; Summer 2006.

Medical Literature, a graduate level course for MS biology students enrolled in Loyola’s MAMS program discussing and criticizing statistical techniques used in various research articles chosen from current biological and medical literature; Fall 2007.

Environmental Statistics, a senior/graduate level course for biology and mathematics students exploring applications of the R programming language in applied statistics and highlighting multivariate techniques such as principal components analysis and detrended correspondence analysis in ecology and environmental science; Spring 2008.

Statistical Consulting, a graduate level course for MS students enrolled in Loyola’s Applied Statistics graduate program focusing on different strategies to conduct statistical consulting and facilitating on-campus statistical consulting sessions as the course practicum; Fall 2008.

Time Series – Theory and Methods, a graduate level course for a Loyola Applied Statistics MS student working through the text *Introduction to Time Series and Forecasting* by Brockwell and Davis, Summer 2009.

Course Developed, Limburgs Universitair Centrum (Belgium)

Statistical Theory and Methods Associated with Bioassay and Drug and Similar Compounds Synergy, a postgraduate level university course (also attended by numerous Ph.D.-level professional pharmaceutical biostatisticians and medical researchers) introducing novel and original approaches to the detection and quantification of synergy and interactions of drugs and other compounds (including insecticides, herbicides and pollutants). Wrote and discussed own computer programs and developed own *Course Notes*; Summer, 2003.

Courses Developed, Chiang Mai University (Thailand)

Applied Multivariate Statistical Methods, a Masters-level course focussing on testing, clustering, and estimation techniques for multivariate data, using *Applied Multivariate Statistical Analysis* by Johnson and Wichern; Second semester, 2006-7.

Linear Statistical Models, a Masters-level course focussing on theoretical results for testing, and estimation of linear, generalized linear and nonlinear statistical models, using *Linear Regression Analysis* by Seber and Lee; Second semester, 2006-7.

Statistical Methods for Gene Expression Microarray Data, a Masters-level course over viewing recent developments in analytic methods for the evaluation of microarray data, using *Exploration and Analysis of DNA Microarray and Protein Array Data* by Amaratunga and Cabrera; Second semester, 2006-7.

Courses Developed, Thammasat University (Bangkok Thailand)

Nonlinear Statistical Theory and Methods, a five-week Ph.D.-level course focussing on theory and applications of nonlinear models, using *Contemporary Statistical Models for the Plant and Soil Sciences* by Schabenberger and Pierce; Summer, 2007.

Optimal Experimental Design, a three-week Ph.D.-level course covering the theoretical developments in optimal design and providing applications, using *Optimum Experimental Design, Using SAS* by Atkinson, Donev and Tobias; Summer, 2008.