

CURRICULUM VITAE

August 2009

Name:

Matthew Paul Wand PhD F AA

Address:

School of Mathematics and Applied Statistics,
University of Wollongong,
Northfields Avenue,
Wollongong, NSW 2522,
Australia

Current Position:

Research Professor in Statistics, School of Mathematics and Applied Statistics,
University of Wollongong, Australia.

Previous Positions Held:

2003-2006 Professor of Statistics, School of Mathematics and Statistics, University of New South Wales, Sydney, Australia.

1997-2002 Associate Professor in Biostatistics, School of Public Health, Harvard University, USA

1994-1997 Senior Lecturer in Statistics, Australian Graduate School of Management, University of New South Wales, Sydney, Australia

1992-1994 Lecturer in Statistics, Australian Graduate School of Management, University of New South Wales, Sydney, Australia

1990-1992 Visiting Assistant Professor, Rice University, Houston, USA

1989-90 Assistant Professor, Texas A&M University, USA

1989 (January – May) Visiting Assistant Professor, Texas A&M University

Date and Place of Birth:

23rd September, 1963 in Wollongong, New South Wales, Australia.

Citizenship:

Australian

Family:

Married to Handan, two children (Declan, 13 years; Jaida, 12 years).

Education:

1989 Doctor of Philosophy, Australian National University
(Supervisor: Professor Peter Hall)

1986 Bachelor of Mathematics (Honours Class I) and University Medal,
University of Wollongong

Awards and Fellowships:

- 2008 New South Wales Scientist of the Year Awards Category Winner (Mathematical Sciences)
- 2008 Fellow of the Australian Academy of Science
- 2007 Fellow of the Institute of Mathematical Statistics
- 2002 Mentoring Award, Harvard School of Public Health
- 2000 Fellow of the American Statistical Association
- 1997 Moran Medal for Statistical Science, Australian Academy of Science
- 1986 Austin Keane Memorial Prize, University of Wollongong
- 1985 S.A. Senior Prize, University of Wollongong
- 1985 Statistical Society of Australia (N.S.W. Branch) Prize

Current Research Interests:

Generalised linear mixed models, Graphical models, Nonparametric regression, Semiparametric regression modelling, Spatial statistics, Monte Carlo methods, Variational approximation, Computational statistics, Statistical methods for flow cytometry.

Books:

1. Ruppert, D., Wand, M.P. and Carroll, R.J. (2003). *Semiparametric Regression*. New York: Cambridge University Press.
2. Wand, M. P. and Jones, M. C. (1995). *Kernel Smoothing*. London: Chapman and Hall.

Refereed Statistics Publications:

1. Hall, P., Ormerod, J.T. and Wand, M.P. (2009). Theory of Gaussian variational approximation for a Poisson linear mixed model. *Statistica Sinica*, tentatively accepted.
2. Pearce, N.D. and Wand, M.P. (2009). Explicit connections between longitudinal data analysis and kernel machines. *Electronic Journal of Statistics*, **3**, 797–823.
3. Naumann, U. and Wand, M.P. (2009). Automation in high-content flow cytometry screening. *Cytometry A*, **75A**, 789–797.
4. Kauermann, G., Ormerod, J.T. and Wand, M.P. (2009). Parsimonious classification via generalised linear mixed models. *Journal of Classification*, in press.
5. Chacón, J.E., Duong, T. and Wand, M.P. (2009). Asymptotics for general multivariate kernel density derivative estimators. *Statistica Sinica*, tentatively accepted.
6. Ruppert, D., Wand, M.P. and Carroll, R.J. (2009). Semiparametric regression during 2003–2007. *Journal of the American Statistical Association*, tentatively accepted.
7. Duong, T., Koch, I. and Wand, M.P. (2009). Highest density difference region estimation with application to high flow cytometric data. *Biometrical Journal*, **51**, 504–521.
8. Wand, M.P. (2009). Semiparametric regression and graphical models. *Australian and New Zealand Journal of Statistics*, **51**, 9–41.

9. Staudenmayer, J., Lake, E.E. and Wand, M.P. (2009). Robustness for general design mixed models using the t -distribution. *Statistical Modelling*, in press.
10. Fan, Y., Leslie, D.S. and Wand, M.P. (2008). Generalised linear mixed model analysis via sequential Monte Carlo sampling. *Electronic Journal of Statistics*, **2**, 916–938.
11. Padoan, S.A. and Wand, M.P. (2008). Mixed-model based additive models for sample extremes. *Statistics and Probability Letters*, **78**, 2850–2858.
12. Wand, M.P. and Ormerod, J.T. (2008). On O’Sullivan penalised splines and semiparametric regression. *Australian and New Zealand Journal of Statistics*, **50**, 179–198.
13. Ormerod, J.T., Wand, M.P. and Koch, I. (2008). Penalised spline support vector classifiers: computational issues. *Computational Statistics*, **23**, 623–641.
14. Kuo, F., Dunsmuir, W.T.M., Sloan, I.H., Wand, M.P. and Womersley, R.S. (2008). Quasi-Monte Carlo for highly structured generalised response models. *Methodology and Computing in Applied Probability*, **10**, 239–275.
15. Duong, T., Cowling, A., Koch, I. and Wand, M.P. (2008). Feature significance for multivariate kernel density estimation. *Computational Statistics and Data Analysis*, **52**, 4225–4242.
16. Smith, A.D.A.C. and Wand, M.P. (2008). Streamlined variance calculations for semiparametric mixed models. *Statistics in Medicine*, **27**, 435–448.
17. Ganguli, B. and Wand, M.P. (2007). Feature significance in generalized additive models. *Statistics and Computing*, **17**, 179–192.
18. Wand, M.P. (2007). Fisher information for generalised linear mixed models. *Journal of Multivariate Analysis*, **98**, 1412–1416.
19. Pearce, N.D. and Wand, M.P. (2006). Penalized splines and reproducing kernel methods. *The American Statistician*, **60**, 233–240.
20. Zhao, Y., Staudenmayer, J., Coull, B.A. and Wand, M.P. (2006). General design Bayesian generalized linear mixed models. *Statistical Science*, **21**, 35–51.
21. Wand, M.P. (2006). Support vector machine classification. *Parabola*, **42 (2)**, 21–37.
22. Ganguli, B. and Wand, M.P. (2006). Additive models for geo-referenced failure time data. *Statistics in Medicine*, **25**, 2469–2482.
23. Crainiceanu, C., Ruppert, D., Claeskens, G. and Wand, M.P. (2005). Exact likelihood ratio tests for penalised splines. *Biometrika*, **92**, 91–103.
24. Crainiceanu, C., Ruppert, D. and Wand, M.P. (2005). Bayesian analysis for penalized spline regression using WinBUGS. *Journal of Statistical Software*, Volume 14, Article 14, 1–24.

25. Ganguli, B., Staudenmayer, J. and Wand, M.P. (2005). Additive models with predictors subject to measurement error. *Australia and New Zealand Journal of Statistics*, **47**, 193–202.
26. Salganik, M.P., Milford, E.L., Hardie, D.L., Shaw, S. and Wand, M.P. (2005). Classifying antibodies using flow cytometry data: class prediction and class discovery. *Biometrical Journal*, **47**, 740–745.
27. Durban, M., Harezlak, J., Wand, M.P. and Carroll, R.J. (2005). Simple fitting of subject-specific curves for longitudinal data. *Statistics in Medicine*, **24**, 1153–1167.
28. Ganguli, B. and Wand, M.P. (2004). Feature significance in geostatistics. *Journal of Computational and Graphical Statistics*, **13**, 954–973.
29. Ngo, L. and Wand, M.P. (2004). Smoothing with mixed model software. *Journal of Statistical Software*, Volume 9, Article 1, 1–54.
30. French, J.L. and Wand, M.P. (2004). Generalized additive models for cancer mapping with incomplete covariates. *Biostatistics*, **5**, 177–191.
31. Salganik, M.P., Wand, M.P. and Lange, N. (2004). Comparison of feature significance quantile approximations. *Australian and New Zealand Journal of Statistics*, **46**, 569–581.
32. Wand, M.P. (2003). Smoothing and mixed models. *Computational Statistics*, **18**, 223–249.
33. Kammann, E.E. and Wand, M.P. (2003). Geoadditive models. *Journal of the Royal Statistical Society, Series C*, **52**, 1–18.
34. Cai, T., Hyndman, R.J. and Wand, M.P. (2002). Mixed model-based hazard estimation. *Journal of Computational and Graphical Statistics*, **11**, 784–798.
35. Aerts, M., Claeskens, G. and Wand, M.P. (2002). Some theory for penalized spline generalized additive models. *Journal of Statistical Planning and Inference*, **103**, 455–470.
36. Wand, M.P. (2002). Vector differential calculus in statistics. *The American Statistician*, **56**, 55–62.
37. Betensky, R., Lindsey, J., Ryan, L.M. and Wand, M.P. (2002). Proportional hazards regression for interval censored data. *Statistics in Medicine*, **21**, 263–275.
38. Coull, B.A., Schwartz, J. and Wand, M.P. (2001). Respiratory health and air pollution: additive mixed model analyses. *Biostatistics*, **2**, 337–349.
39. Coull, B.A., Ruppert, D. and Wand, M.P. (2001). Simple incorporation of interactions into additive models. *Biometrics*, **57**, 539–545.
40. Mammen, E., Marron, J.S., Turlach, B.A. and Wand, M.P. (2001). A general framework for constrained smoothing. *Statistical Science*, **16**, 232–248.

41. Parise, H., Ryan, L.M., Ruppert, D. and Wand, M.P. (2001). Incorporation of historical controls using semiparametric mixed models. *Journal of the Royal Statistical Society, Series C*, **50**, 31–42.
42. Zanobetti, A., Wand, M.P., Schwartz, J. and Ryan, L.M. (2000). Generalized additive distributed lag models: quantifying mortality displacement. *Biostatistics*, **1**, 279–292.
43. Thurston, S., Wand, M.P. and Weincke, J. (2000). Negative binomial additive models, *Biometrics*, **56**, 139–144.
44. Wand, M.P. (2000). A comparison of regression spline smoothing procedures. *Computational Statistics*, **15**, 443–462.
45. Wand, M. P. (1999). A central limit theorem for local polynomial backfitting estimators. *Journal of Multivariate Analysis*, **70**, 57–65.
46. Wand, M.P. (1999). On the optimal amount of smoothing in penalized spline regression. *Biometrika*, **86**, 936–940.
47. Opsomer, J. D., Ruppert, D., Wand, M. P., Holst, U. and Hössjer, O. (1999). Kriging with nonparametric variance function estimation. *Biometrics*, **55**, 704–710.
48. Gijbels, I., Pope, A. and Wand, M. P. (1999). Understanding exponential smoothing via kernel regression. *Journal of the Royal Statistical Society, Series B*, **61**, 39–50.
49. Betensky, R.A, Lindsey, J.C., Ryan, L.M. and Wand, M.P. (1999). Local EM estimation of the hazard function for interval censored data *Biometrics*, **55**, 238–245.
50. Augustyns, I. and Wand, M. P. (1998). Bandwidth selection for local polynomial smoothing of multinomial data. *Computational Statistics*, **13**, 447–462.
51. Wand, M.P. (1998). Finite sample performance of deconvolving density estimators. *Statistics and Probability Letters*, **37**, 131–139.
52. Carroll, R.J., Fan, J., Gijbels, I. and Wand, M.P. (1997). Generalized partially linear single-index models. *Journal of the American Statistical Association*, **92**, 477–489.
53. Wand, M.P. and Gutierrez, R.G. (1997). Exact risk approaches to smoothing parameter selection. *Journal of Nonparametric Statistics*, **8**, 337–354.
54. Hyndman, R.J. and Wand, M.P. (1997). Nonparametric autocovariance function estimation. *Australian Journal of Statistics*, **39**, 313–324.
55. Wand, M.P. (1997). Data-based choice of histogram bin width. *The American Statistician*, **51**, 59–64.

56. Ruppert, D., Wand, M.P., Holst, U. and Hössjer, O. (1997). Local polynomial variance function estimation. *Technometrics*, **39**, 262–273.
57. Turlach, B.A. and Wand, M.P. (1996). Fast computation of auxiliary quantities in local polynomial regression. *Journal of Computational and Graphical Statistics*, **5**, 337–350.
58. González-Manteiga, W., Sánchez-Sellero, C. and Wand, M.P. (1996) Accuracy of binned kernel functional approximations. *Computational Statistics and Data Analysis*, **22**, 1–16.
59. Hall, P. and Wand, M.P. (1996). On the accuracy of binned kernel density estimators. *Journal of Multivariate Analysis*, **56**, 165–184.
60. Aldershof, B., Marron, J.S., Park, B.U. and Wand, M.P. (1995). Facts about the Gaussian probability density function. *Applicable Analysis*, **59**, 289–306.
61. Ruppert, D., Sheather, S.J. and Wand, M.P. (1995). An effective bandwidth selector for local least squares regression. *Journal of the American Statistical Association*, **90**, 1257–1270.
62. Fan, J., Heckman, N.E. and Wand, M.P. (1995). Local polynomial kernel regression for generalized linear models and quasi-likelihood functions. *Journal of the American Statistical Association*, **90**, 141–150.
63. Herrmann, E., Wand, M.P., Engel, J. and Gasser, Th. (1995). A bandwidth selector for bivariate kernel regression. *Journal of the Royal Statistical Society, Series B*, **57**, 171–180.
64. Wand, M.P. (1994). Fast computation of multivariate kernel estimators. *Journal of Computational and Graphical Statistics*, **3**, 433–445.
65. Ruppert, D. and Wand, M.P. (1994). Multivariate locally weighted least squares regression. *The Annals of Statistics*, **22**, 1346–1370.
66. Wand, M. P. and Jones, M. C. (1994). Multivariate plug-in bandwidth selection. *Computational Statistics*, **9**, 97–116.
67. Devroye, L. and Wand, M.P. (1993). On the influence of the density on the kernel estimate. *Statistics*, **24**, 215–233.
68. Wand, M.P. and Devroye, L. (1993). How easy is a given density to estimate? *Computational Statistics and Data Analysis*, **16**, 311–323.
69. Wand, M.P. and Jones, M.C. (1993). Comparison of smoothing parameterizations in bivariate density estimation. *Journal of the American Statistical Association*, **88**, 520–528.
70. Wand, M.P. (1992). Error analyses for general multivariate kernel estimators. *Journal of Nonparametric Statistics*, **2**, 1–15.

71. Marron, J. S. and Wand, M. P. (1992). Exact mean integrated squared error. *The Annals of Statistics*, **20**, 712–736 .
72. Jones, M.C. and Wand, M.P. (1992). Effectiveness of two families of higher-order kernels. *Journal of Statistical Planning and Inference*, **31**, 15 – 21.
73. Ruppert, D. and Wand, M.P. (1992). Correcting for kurtosis in density estimation. *Australian Journal of Statistics*, **34**, 19–29.
74. Wand, M.P. (1992). Finite sample performance of density estimators under moving average dependence. *Statistics and Probability Letters*, **13**, 109 – 115.
75. Scott, D.W. and Wand, M.P. (1991). Feasibility of multivariate density estimates. *Biometrika*, **78**, 197 – 206.
76. Wand, M.P., Marron, J.S. and Ruppert, D. (1991). Transformations in density estimation (with discussion). *Journal of the American Statistical Association*, **86**, 343–361.
77. Carroll, R.J. and Wand M.P. (1991). Semiparametric estimation in logistic measurement error models. *Journal of the Royal Statistical Society, Series B*, **53**, 573 – 585.
78. Wand, M.P. (1990). On exact L_1 rates of convergence in nonparametric kernel regression. *Scandinavian Journal of Statistics*, **17**, 251 – 256.
79. Wand, M.P. and Schucany, W.R. (1990). Gaussian-based kernels. *Canadian Journal of Statistics*, **18**, 197–204.
80. Härdle, W., Marron, J.S. and Wand, M.P. (1990) Bandwidth choice for density derivatives. *Journal of the Royal Statistical Society, Series B*, **52**, 223–232.
81. Hall, P. and Wand, M.P. (1988). On nonparametric discrimination using density differences. *Biometrika*, **75**, 541–547.
82. Hall, P. and Wand, M.P. (1988). Minimizing L_1 distance in nonparametric density estimation. *Journal of Multivariate Analysis*, **26**, 59–88.
83. Hall, P. and Wand, M.P. (1988). On the minimization of absolute distance in kernel density estimation. *Statistics and Probability Letters*, **6**, 311–314.

Refereed Medical and Public Health Publications:

1. Oakes, S.R., Robertson, F.G., Kench, J.G., Gardiner-Garden, M., Wand, M.P., Green, J.E. and Ormandy, C.J. (2007). Loss of mammary epithelial prolactin receptor delays tumor formation by reducing cell proliferation in low-grade preinvasive lesions. *Oncogene*, **26(4)**, 543–53.

2. Werneck, G.L., Costa, C.H.N., Walker, A.M., David, J.R., Wand, M. and Maguire, J.H. (2006). Multilevel modelling of the incidence of visceral leishmaniasis in Teresina, Brazil. *Epidemiology and Infection*, **135**, 195–201.
3. Salganik, M.P., Hardie, D.L., Swart, B., Dandie, G.W., Zola, H., Shaw, S., Shapiro, H., Tinckam, K., Milford, E.L and Wand, M.P. (2005). Detecting antibodies with similar reactivity patterns in the HLDA8 blind panel of flow cytometry data. *Journal of Immunological Methods*, **305**, 67–74.
4. Swart, B., Salganik, M.P., Wand, M.P., Tinckam, K., Milford, E.L, Drbal, K., Angelisova, P., Horejsi, V., Macardle, P, Bailey, S., Hollemweguer, E., Hodge, G., Naim, J., Millard, D., Dagdeviren, A., Dandie, G.W. and Zola, H. (2005). The HLDA8 blind panel: findings and conclusions. *Journal of Immunological Methods*, **305**, 75–83.
5. Wright, R., Finn, P., Contreras, J.P., Cohen, S., Wright, R.O., Staudenmayer, J., Wand, M.P., Perkins, D., Weiss, S. and Gold, D.R. (2004). Chronic caregiver stress and IgE expression, allergen-induced proliferation, and cytokine profiles in a birth cohort predisposed to atopy. *Journal of Allergy and Clinical Immunology*, **113**(6), 1051–1057.
6. Myatt, T.A., Johnston, S.J., Zhengfa Z., Wand, M. Keadze, T., Rudnick, S. and Milton, D.K. (2004). Detection of airborne rhinovirus and its relation to outdoor air supply in office environments *American Journal of Respiratory and Critical Care Medicine*, **169**, 1187–1190.
7. Kim, J.Y., Hauser R., Wand M.P., Herrick R.F., Houk, R.S, Aeschliman, D.B., Woodin, M.A. and Christiani, D.C. (2003). Association of expired nitric oxide with urinary metal concentrations in boilermakers exposed to residual oil fly ash. *American Journal of Industrial Medicine* **44**(5), 458–466.
8. Kim, J.Y., Hauser R., Wand M.P., Herrick R.F., Amarasiriwardena C.J. and Christiani D.C. (2003). The association of expired nitric oxide with occupational particulate metal exposure. *Environmental Research*, **93**(2), 158–166.
9. Hauser, R., Rice, T.M., Krishha Murthy, G.G., Wand, M.P., Lewis, D., Bledsoe, T. and Paulauskis, J. (2003). The upper airway response to pollen is enhanced by exposure to combustion particulates: a pilot human experimental challenge study. *Environmental Health Perspectives*, **111**(5), 676–680.
10. Kim, J.Y., Wand, M.P., Hauser, R., Mukherjee, S., Herrick, R.F. and Christiani, D.C. (2003). Association of expired nitric oxide with occupational particulate exposure. *Environmental Health Perspectives*, **111**(4), 472–477.
11. Werneck, G.L., Costa, C.H., Walker, A.M., David, J.R., Wand M. and Maguire, J.H. (2002). The urban spread of visceral leishmaniasis: clues from spatial analysis. *Epidemiology*. **13**(3), 364–7.
12. Moore, P.E., Laporte, J.D., Abraham, J.H., Schwartzman, I.N., Yandava, C.N., Silverman, E.S., Drazen, J.M., Wand, M.P., Panettieri, R. and Shore, S.A. (2000). Polymorphism of the β_2 -adrenergic receptor gene and desensitization in human airway smooth muscle. *American Journal of Respiratory and Critical Care Medicine*, **162**, 2117–2124.

13. Wechsler, M.E., Grasmann, H., Deykin, A., Silverman, E.K., Yandava, C.N., Isreal, E., Wand, M. and Drazen, J.M. (2000). Exhaled nitric oxide in patients with asthma: Association with NOS1 genotype. *American Journal of Respiratory and Critical Care Medicine*, **162**, 2043–2047.
14. Zeng, Q., Young, A.J., Boxwala, A., Rawn, J., Long, W., Wand, M., Salganik, M., Milford, E.L., Mentzer, S.J. and Greenes, R.A. (2001). Molecular identification using flow cytometry histograms and information theory. *Proceedings, American Medical Informatics Association Annual Fall Symposium*. 776–80.
15. Kim, E.Y., Zeng, Q., Rawn, J., Wand, M., Milford, E.L., Mentzer, S.J. and Greenes, R.A. (2002). Using a neural network with flow cytometry histograms to recognize cell surface protein binding patterns. *Proceedings, American Medical Informatics Association Annual Fall Symposium*, 380–384.
16. Zeng, Q., Wand, M., Young, A., Rawn, J., Milford, E.L., Mentzer, S.J. and Greenes, R.A. (200*). Matching flow-cytometry histograms using information theory in feature space. *Proceedings, American Medical Informatics Association Annual Fall Symposium*, 929–933.

Unrefereed Statistics Publications:

1. Ormerod, J.T. and Wand, M.P. (2009). Comment on paper by Rue, Martino and Chopin. *Journal of the Royal Statistical Society, Series B*, **71**, 377–378.
2. Ormerod, J.T. and Wand, M.P. (2008). Variational approximations for logistic mixed models. *Proceedings of the Ninth Iranian Statistics Conference, Department of Statistics, University of Isfahan, Isfahan, Iran*, pp. 450–467.
3. Fan, Y., Leslie, D.S. and Wand, M.P. (2006). Comment on paper by Del Moral, Doucet and Jasra. *Bayesian Statistics 8*, Oxford University Press.
4. Cowling, A., Duong, T., Koch, I. and Wand, M.P. (2006). Feature significance for multivariate data and kernel density estimation. *Proceedings of the 8th Workshop on Nonparametric Statistical Analysis and Related Areas*, Keio University, Tokyo, pp. 34–42.
5. Ormerod, J.T., Wand, M.P. and Koch, I. (2005). Penalised spline support vector classifiers: computational issues. In: *Proceedings of the 20th International Workshop on Statistical Modelling, Sydney, Australia* A.R. Francis, K.M. Matawie, A. Oshlack, G.K. Smyth (eds). pp. 33–47.
6. French, J.L., Kammann, E.E. and Wand, M.P. (2001). Comment on paper by Ke and Wang. *Journal of the American Statistical Association*, **96**, 1285–1288.
7. Brumback, B.A., Ruppert, D. and Wand, M.P. (1999). Comment on paper by Shively, Kohn and Wood. *Journal of the American Statistical Association*, **94**, 794–797.
8. Marron, J.S., Turlach, B.A. and Wand, M.P. (1997). Local polynomial smoothing under qualitative constraints, in L. Billard and N.I. Fisher (eds), *Graph-Image-Vision, Vol. 28 of Computing*

Science and Statistics, Interface Foundation of North America, Inc., Fairfax Station, VA 22039-7460, pp.647–652.

9. Opsomer, J. D., Ruppert, D., Wand, M. P., Holst, U. and Hossjer, O. (1997). An application of kriging with nonparametric variance function estimation," appeared in 1997 Proceedings of the Biometrics Section, American Statistical Association, Alexandria, VA, 123-128.
10. Simonoff, J.S. and Wand, M. P. (1996) Nonparametric Estimation of Probability and Density Functions, in *Collection of Procedures for Planning and Analysis of Experiments*, ed. D. Rasch, G. Herrendörfer, J. Bock, N. Victor and V. Guiard, Oldenbourg-Verlag: München, 633–643 (with J.S. Simonoff).
11. Sheather, S.J., Wand, M.P, Smith, M.S. and Kohn, R. (1996). Comment on Cleveland and Loader, Marron, and Seifert and Gasser, in *Statistical Theory and Computational Aspects of Smoothing* ed. W. Härdle and M.G. Schimek. Physica Verlag Series: "Contributions in Statistics".
12. Claeskens, G., Aerts, M. and Wand, M.P. (1999). Some results on penalized spline estimation in generalized additive and semiparametric models. *Proceedings of the 52nd Session of the International Statistical Institute, Helsinki*, 207–208.
13. Wand, M.P. and Schwartz, J. (2002). Smoothing in Environmental Epidemiology. *Encyclopedia of Environmetrics*, 4:2020-2023.

Book reviews:

1. M.P. Wand (2005). Review of *The Analysis of Variance: Fixed, Random and Mixed Models*, by H. Sahai and M.I. Ageel. *Australian and New Zealand Journal of Statistics*, **47**, 255.
2. M.P. Wand (2001). Review of *Local Regression and Likelihood* by C. Loader. *Journal of the American Statistical Association*, **96**, 343.
3. M.P. Wand (2000). Review of *Statistical Tests for Mixed Linear Models* by A.I. Khuri, T. Mathew and B.K. Sinha *Australian and New Zealand Journal of Statistics*, **42**, 247–248.
4. M.P. Wand (1998). Review of *Functional Data Analysis* by J.O. Ramsay and B.W. Silverman. *Australian and New Zealand Journal of Statistics*, **40**, 381–382.

Software Packages in the R Language:

1. Duong, T. and Wand, M.P. (2009). feature 1.2.0. Feature significance for multivariate kernel density estimation. R package. <http://cran.r-project.org>.
2. Ormerod, J.T. and Wand, M.P. (2006). LowRankQP 1.0. R package. <http://cran.r-project.org>
3. Wand, M.P., Coull, B.A., French, J.L., Ganguli, B., Kammann, E.E., Staudenmayer, J. and Zanobetti, A. (2005). SemiPar 1.0. R package. <http://cran.r-project.org>
4. Wand, M.P. and Ripley, B.D. (2009). KernSmooth 2.23. R package. <http://cran.r-project.org>

Grants:

1. *Generalised Linear Mixed Models: Theory, Methods and New Areas of Application*. Chief Investigator: M.P. Wand. Australian Research Council Discovery Project, 2008–2010. Amount: 250,000 Australian dollars.
2. University of Wollongong Faculty of Informatics Research Development Scheme, 2008. Amount: 1,500 Australian dollars.
3. *Statistical Methods for Flow Cytometric Data*. Chief Investigator: M.P. Wand, with I. Koch. Australian Research Council Discovery Project, 2005–2007. Amount: 301,000 Australian dollars.
4. *Semiparametric Regression and Environmental Health*. Principal Investigator: M.P. Wand. U.S. National Institute of Environmental Health Sciences, 2000. Amount: 482,284 U.S. dollars.
5. *New Spatial Analysis Methods for Improved Hazard/Risk Identification*. Joint with B. Wintle, J. Elith and D. Leonte. As part of the Australian Centre of Excellence for Risk Analysis, 2007. Amount: 38,300 Australian dollars.
6. *Development of Statistical Learning Methods for Classifying Antibodies from Flow Cytometry Data*. University of New South Wales Faculty Research Grants Program, 2003. Joint with I. Koch. Amount: 8,000 Australian dollars.
7. *Topics in Epidemiologically-based Environmental Risk Assessment*. (Principal Investigator: M.P. Wand, with P. Catalano, B. Coull and L. Ryan.) U.S. Environmental Protection Agency, 2000. Amount: 250,000 U.S. dollars.
8. *Advancement of Local Polynomial Smoothers*. Small Australian Research Council Grant, 1996. Amount: 12,500 Australian dollars.
9. *Topics in Nonparametric Curve Estimation*. (with S. Sheather and G. Eagleson) Small Australian Research Council Grant, 1995. Amount: 17,500 Australian dollars.
10. *Fast Computation of Multivariate Kernel Estimators*. Australian Graduate School of Management, 1993. Amount: 5,000 Australian dollars.

Citation Awards:

Member of the *ISI Highly Cited Researchers* list (one of 112 in Australia, 347 in Mathematics and 6 in Australian Mathematics; as of 24th June, 2009).

Ranked 23 among *Highly Cited Authors in Mathematics and Statistics 1991–2001* (*Science Watch, May-June, 2002*).

Citation Counts for Statistics Publications:

Publication	times cited
Wand & Jones (1995), book.	1060
Ruppert, Wand & Carroll (2003), book.	339
Ruppert & Wand (1994), <i>Ann. Statist.</i>	267
Ruppert, Sheather & Wand (1995), <i>J. Amer. Statist. Assoc.</i>	211
Marron & Wand (1992), <i>Ann. Statist.</i>	203
Carroll, Fan, Gijbels & Wand (1997), <i>J. Amer. Statist. Assoc.</i>	129
Fan, Heckman & Wand (1995), <i>J. Amer. Statist. Assoc.</i>	108
Carroll & Wand (1991), <i>J. Royal Statist. Soc. B.</i>	72
Wand, Ruppert & Marron (1991), <i>J. Amer. Statist. Assoc.</i>	72
Kammann & Wand (2003), <i>J. Royal Statist. Soc. C.</i>	71
Ruppert, Wand, Holst & Hossjer, (1997), <i>Technometrics.</i>	68
Wand & Jones (1993), <i>J. Amer. Statist. Assoc.</i>	55
Wand (2003), <i>Comput. Statist.</i>	54
Brumback, Ruppert & Wand (1999), <i>J. Amer. Statist. Assoc.</i> (comment)	44
Wand (1997), <i>The American Statistician</i>	41
Wand & Jones (1994), <i>Comput. Statist.</i>	42
Mammen, Marron, Turlach & Wand (2001) <i>Statistical Science</i>	43
Wand (1994) <i>J. Comput. Graph. Statist.</i>	32
Hall & Wand (1988), <i>J. Multiv. Ana.</i>	30

(source: *ISI Web of Knowledge* isiknowledge.com, 24th June, 2009, for publications with 30 or more citations.)

Teaching Experience:

Harvard University

- 2000, 2001, 2002 Methods I (for biostatistics doctoral students)
- 1998, 1999, 2000 Statistical Inference II (for biostatistics doctoral students)
- 1999, 2001 Smoothing in Biostatistical Research
- 1999, 2002 Spatial Statistics

University of New South Wales

- 1992 MNGT 0230 (statistics for first year MBA students)
- 1993 Total Quality Management (for open learning students)
- 1993-4,6-7 Statistical Inference and its Applications (for management PhD students)
- 1993-5 MNGT 0230, MNGT 0231 (statistics for first year MBA students)
- 1996 Advanced Statistical Inference (for Finance PhD students)
- 1997 Theoretical Mathematics (for Statistics and Finance PhD students)
- 2003-2006 Higher Theory of Statistics (for second year undergraduate students)
- Statistics for Life and Social Sciences (for first year undergraduate students)
- Statistical Analysis of Microarrays (guest lecturer on third year course for Bioinformatics majors)
- 2005-2006 Data Mining and Its Business Applications (guest lecturer on course for Masters of Statistics students)

Rice University

- 1990-91 and 1991-92 STATISTICS 310 (third year mathematical statistics)
- 1990-91 and 1991-92 STATISTICS 431, STATISTICS 432 (graduate-level mathematical statistics)

Texas A&M University

1988-89 STATISTICS 211 (second year calculus-based statistics)
1989-90 STATISTICS 211, STATISTICS 221 (second year engineering statistics)

University of Wollongong

2007-09 STATISTICS 902 (Honours-level advanced data analysis)

Post-Doctoral Fellow Supervision:

1. John Ormerod (2008–).
2. Tarn Duong (2005–2007).
3. Long Ngo (2001–2002).
4. John Staudenmayer (2000–2001).

Doctoral Student Supervision:

1. John Thomas Ormerod. PhD. The University of New South Wales, 2008.
Thesis title: *On Semiparametric Regression and Data Mining*.
Current position: Post-doctoral Research Fellow, University of Wollongong, Australia.
2. Mikhail Peter Salganik. DSc. Harvard University, 2006.
Thesis title: *Biomedical Applications of Smoothing and Feature Significance*.
Current position: Senior Statistician, Cytel Inc., Cambridge, Massachusetts, USA.
3. Yihua Zhao. PhD. Harvard University, 2003.
Thesis title: *General Design Bayesian Generalized Linear Models with Applications to Spatial Statistics*.
Current position: Statistician, Boehringer Ingelheim Pharmaceuticals, Inc, USA.
4. Bhaswati Ganguli. DSc. Harvard University, 2002.
Thesis title: *Feature Significance and Geo-Additive Models*.
Current position: Reader, Department of Statistics, University of Calcutta, Calcutta, India.
5. Erin Elizabeth Kammann. DSc. Harvard University, 2002.
Thesis title: *Geoadditve and Robust Mixed Models*.
Current position: Statistician, Eigenstat, Massachusetts, USA.
6. Jonathan Lloyd French, DSc. Harvard University, 2001.
Thesis title: *Analysis of Environmental Health Data with Missing Values*.
Current position: Director, Pharmacometrics, Pfizer Inc., Groton, Connecticut, USA.

Current Doctoral Students:

1. Nathan Pearce.
2. Shen Wang.

Master of Statistics Thesis Supervision:

1. Andrew Duncan Smith. MStats. The University of New South Wales, 2006. Thesis title: *Streamlined Error Covariance Matrix Estimation for Semiparametric Linear Mixed Models*
2. John Thomas Ormerod. MStats. The University of New South Wales, 2005. Thesis title: *Low Rank Kernel Penalized Spline Support Vector Machines*.

Honours Thesis Supervision:

1. Sarah Elizabeth Neville. BMath (Hons). University of Wollongong, 2008. Thesis title: *Spatial Statistics and Dynamic 3D Graphics*
2. Jennifer Kate Marley. BMath (Hons). University of Wollongong, 2007. Thesis title: *Illustrations of Non-standard Bayesian Semiparametric Regression*

Senior Administrative Roles:

Head of Department of Statistics, The University of New South Wales, 2006.

Director of the Environmental Health Training Grant, Department of Biostatistics, Harvard University, 1999-2002.

Professional Activities:

Member of the Institute of Mathematical Statistics ad hoc committee on Asia and Pacific Rim Meetings, 2006–2007.

Member of the Advanced Coursework Advisory Committee of the International Centre of Excellence in Education of Mathematics, 2004–2007.

Member of the Scientific Program Committee for the International Workshop on Statistical Modelling, Cornell University, July, 2009.

Co-organiser of “Australian Mathematical Sciences Institute Symposium on Statistical Learning” (with Inge Koch); 2-day symposium at The University of New South Wales in October 2003 with over 100 participants.

Member of editorial board for the *Australian Mathematics Society Lecture Series* (2008-)

Associate Editor for *Electronic Journal of Statistics* (2007-)

Associate Editor for *Statistica Sinica* (2006-)

Associate Editor for *Australian and New Zealand Journal of Statistics* (2001-)

Associate Editor for *Biometrika* (1998-2003)

Associate Editor for *Journal of the American Statistical Association* (1995-2005)

Member of Statistics & Probability Screening Panel, US National Science Foundation, December 2000.

Referee for more than 50 journals.

Referee for grant proposals from several funding agencies including:

- Australian Research Council
- Engineering and Physical Sciences Research Council (United Kingdom)
- National Science Foundation (USA)
- Research Grants Council of Hong Kong
- Research Council of Norway

Professional Society Memberships:

- American Statistical Association
- International Biometrics Society
- Institute of Mathematical Statistics
- Statistical Society of Australia

Special Invited Lectures:

1. 2008 Knibbs Lecture; Canberra Branch of the Statistical Society of Australia: “Variational Approximation and Statistics”, November, 2008.
2. Presidential Invited Address: “Semiparametric Regression and the Data Explosion” Australian Statistical Conference, Cairns, Australia, July 2004.

Keynote Speakerships:

1. "Semiparametric Regression and the Computer Science Interface". Centro de Matemática Aplicada á Previsão e Decisão Económica Conference on *Advances in Semiparametric Methods and Applications*. Satellite meeting of International Statistical Institute meeting; Lisbon, Portugal; August, 2007.
2. "Penalised Spline Support Vector Classifiers: Computational Issues". International Workshop on Statistical Modelling. Sydney, Australia; July, 2005.
3. "Smoothing and Mixed Models". Euroworkshop on Nonparametric Models. Munich, Germany; November, 2001

Short Courses:

1. "Advanced Data Analysis" Australian Mathematical Sciences Institute/ International Centre of Excellence for Education in Mathematics Summer School, University of Wollongong, January–February 2009 (26 hours over 4 weeks).
2. "Semiparametric Regression". Commonwealth Scientific and Industrial Research Organisation: Mathematics and Information Sciences. Creswick, Victoria, Australia. November 2008 (5 hours).
3. "Bayesian inference using BRugs". Australian Mathematical Sciences Institute/ Statistical Society of Australia Inc. Australian Statistical Conference 2008 Satellite Workshop: Computing with R; Melbourne; July 2008 (1½ hours).
4. "Semiparametric Regression". Dipartimento di Scienze Statistiche, Università di Padova, Italy. February 2008 (6 hours).
5. "Modern Nonparametric and Semiparametric Inference". Australian Bureau of Statistics; Canberra; October 2007 (3 hours).
6. "Semiparametric Regression; Classification; Support Vector Machines". Complex Systems Beyond the Metaphor: Your Mathematical Toolset; The University of New South Wales; February 2007 (5 hours).
7. "Longitudinal Data Analysis" Australian Mathematical Sciences Institute Summer School; The University of New South Wales; February 2004 (3 hours).
8. "Semiparametric Regression" International Biometric Society, Eastern North American Region, 2004 Spring Meeting, Pittsburgh, USA; March 2004 (1 day).
9. "Semiparametric Regression" Department of Medical Epidemiology and Biostatistics, Karolinska Institutet, Stockholm, Sweden; March 2002 (3 days).
10. "Smoothing Techniques and Software" International Biometric Society, Eastern North American Region, 2001 Spring Meeting, Charlotte, North Carolina, USA; March, 2001 (2 hours).
11. "An Introduction to Kernel Regression" Faculty of Economics, University of Pompeu Fabra, Barcelona, Spain, February, 1994.

Other Invited Conference Presentations:

1. "Variational Approximations in Semiparametric Regression" Eleventh Annual Winter Workshop, University of Florida, Department of Statistics. Workshop on Semiparametric Methodology. January, 2009, Gainesville, Florida, USA.
2. "Variational Approximations for Logistic Mixed Models". Ninth Iranian Statistical Conference, August, 2008, Esfahan, Iran.

3. "Parsimonious Classification via Generalised Linear Mixed Models." Taipei International Statistics Workshop, December 2006, Taipei, Taiwan.
4. "Identifying Regions of Differing Density Among Flow Cytometric Samples" Australasian Flow Cytometry Group, 29th Annual Scientific Meeting, August 2006, Sydney, Australia.
5. "Identifying Regions of Differing Density Among Flow Cytometric Samples" The Australian Statistical Conference/ New Zealand Statistical Association Conference 2006, Auckland, New Zealand.
6. "Penalised Spline Support Vector Classifiers" The Australian Statistical Conference/ New Zealand Statistical Association Conference 2006, Auckland, New Zealand.
7. "Statistical Methods for Flow Cytometric Data" 55th Session of the International Statistical Institute, 2005, Sydney, Australia.
8. "Statistical Learning for Statisticians" XXIIInd International Biometric Conference, 2004, Cairns, Australia.
9. "Subject-specific Curves for Longitudinal Data: Keeping it Simple and Computable", Biennial Conference of the International Biometric Society (Australasian Region) 2003, Canberra, Australia.
10. "The Mixed Model Revolution in Smoothing" International Biometric Society Eastern North American Region, Spring 2002 Meeting, Arlington, Virginia, USA.
11. "Conditional Panel Designs for Surveillance Data" International Biometric Society Eastern North American Region, Spring 2000 Meeting, Chicago, Illinois, USA.
12. "Cancer Mapping on Upper Cape Cod using Generalized Additive Models with a Bivariate Component" Joint Statistical Meetings, Baltimore, Maryland, USA (August, 1999)
13. "Penalized Spline Regression" Interface '98, Minneapolis, Minnesota, USA (May, 1998)
14. "Generalized Partially Linear Single-Index Models" XXII (VI International) Conference on Mathematical Statistics, Jachranka, Poland (June, 1996).
15. "Binned Kernel Estimators: theory and practice" New Directions in Smoothing, Australian National University, Canberra, Australia (June, 1994).
16. "Fast Computation of Multivariate Kernel Estimators" Statcomp '93, Wollongong, Australia (September, 1993).
17. "Comparison of Smoothing Parameterizations in Multivariate Curve Estimation" Conference of Texas Statisticians, Dallas, U.S.A. (April 1991).

Other Presentations:

"Variational Approximations in Semiparametric Regression" School of Applied Mathematics and Statistics, Queensland University of Technology (May, 2009); School of Mathematics and Statistics, University of Sydney (August, 2009).

"Variational Approximations in Statistics". Department of Mathematics and Statistics, University of Melbourne (September, 2008).

"Semiparametric Regression and Graphical Models" Goulburn 7 Meeting, Centre for Survey and Statistical Methodology, Goulburn (July, 2008); Department of Statistics, Shiraz University, Iran (August, 2008); New South Wales Department of Primary Industry Retreat, Wollongong (October, 2008).

“Ideas on Building an International Research Profile” Research conference of the Applied Statistics Education and Research Collaboration. University of Western Sydney, Campbelltown (December, 2007).

“Highest Density Difference Region Estimation with Application to Flow Cytometric Data” Goulburn 4 Meeting, Centre for Survey and Statistical Methodology, Goulburn (July, 2007).

“Semiparametric Regression and the Computer Science Interface” Australian Capital Territory Branch of the Statistical Society of Australia, Canberra (February, 2007), University of Wollongong (October, 2007), National University of Singapore, Singapore (March, 2008).

“Parsimonious Classification via Generalised Linear Mixed Models” Fred Hutchinson Cancer Research Center, Seattle, USA (November, 2006).

“Feature Significance for Multivariate Density Estimation” Address to New South Wales Branch of the Statistical Society of Australia, (October, 2001); Fred Hutchinson Cancer Research Center, Seattle, USA (November, 2006).

“Penalised Spline Support Vector Classifiers: Computational Issues” Centre of Excellence for Mathematics and Statistics of Complex Systems, Melbourne (June, 2006), University of Sydney (September, 2005), University of Calcutta, India (September, 2005), Indian Statistical Institute, Calcutta, India (October, 2005).

“Statistical Methods for Flow Cytometric Data” The Centre for Immunology, Sydney, Australia (April, 2005), Burdwan University, India (September, 2005), University of Calcutta, India (September, 2005).

“Semiparametric Regression and the Data Explosion” Faculty of Science Seminar Series, The University of New South Wales (September, 2004).

“Penalised Splines and Reproducing Kernel Methods” Monash University (September, 2004), Hong Kong University of Science and Technology (December, 2004), University of Hong Kong (December, 2004).

“Statistical Learning for Statisticians” The University of New South Wales (October, 2003)

“Feature Significance in Geostatistics” The University of New South Wales (April, 2003)

“Towards General Design Bayesian GLMM” The University of New South Wales (April, 2003), Australian National University (July, 2003), University of Sydney (September, 2003).

“Geoadditive models” Memorial Sloan-Kettering Cancer Center, USA (April, 2001), Michigan University, USA (November, 2000), Massachusetts Institute of Technology, USA (December, 2000).

“Smoothing and mixed models” Macquarie University, Australia (October, 2001) The University of New South Wales, Australia (November, 2001) University of Wisconsin, USA (December, 2001), University of Massachusetts, USA (May, 2002), Rice University, USA (October, 2002).

“Semiparametric regression and mixed models” Yale University, USA (November, 1999).

“Semiparametric regression in environmental health research” University of Florida, USA (December, 1998), University of Rochester, USA (February, 1999).

“Penalized spline regression” University of North Carolina, USA (March, 1998).

“Smoothing: recent developments and applications” Harvard University, USA (October, 1996), Iowa State University, USA (November, 1996), University of Minnesota, USA (November, 1996). University of Technology, Sydney, Australia, (May, 1997).

“Local polynomial variance function estimation” Monash University, Melbourne (November, 1995), Royal Melbourne Institute of Technology (November, 1995), Limburg University Central, Belgium (January, 1996), Catholic University of Louvain, Belgium (February, 1996), Lund Technical University, Sweden (August, 1996), University of Oslo, Norway (August, 1996), University of Illinois, USA (September, 1996), New York University, USA (October, 1996), Humboldt University, Germany (December, 1996).

“Generalized Partially Linear Single-Index Models” 1995 IMS Annual Meeting, Orlando, U.S.A. (August, 1995).

“Versatility of kernel smoothers” Macquarie University, Sydney (October, 1994), Australian National University (January, 1995), La Trobe University (March, 1995), Limburg University Central, Belgium (May, 1995), University of Newcastle (August, 1995).

“Accuracy of binned kernel functional approximations” 1994 IMS Annual Meeting, Toronto, Canada (August, 1994).

“Plug-in bandwidth selection for local least squares regression” University of Santiago de Compostela, Spain (January, 1994), Australian National University, Canberra (May, 1994).

“Fast computation of kernel estimators”: University of Newcastle (June, 1993), 1993 IMS Annual Meeting, San Francisco, California (August, 1993), University of Santiago de Compostela at La Coruna, Spain (January, 1994).

“Recent developments in local polynomial kernel regression”: Australian National University (October, 1992), The University of New South Wales (March, 1993).

“Multivariate locally weighted least squares regression”: University of British Columbia (May, 1992), IMS-WNAR Western Regional Meeting, Corvallis, Oregon (June, 1992).

“Some topics in kernel smoothing”: Rice University (January, 1992), University of Texas (February, 1992), Cornell University (February, 1992).

“Recent developments in nonparametric curve estimation”: (series of 3 lectures) National University of Singapore.

“Assessing and improving the flexibility of kernel estimators”: Rice University (September, 1990), Meeting *Trends in the Analysis of Curve Data*, Heidelberg, Germany (March, 1991), University of British Columbia (March 1991).

“Exact mean integrated squared error for dependent data”: NATO Institute of Advanced Studies conference on *Nonparametric Functional Estimation*, Spetses, Greece (August, 1990)

“Transformations in density estimation”: North Carolina State University (August 1989), Southern Methodist University (November 1989), University of Bath (January 1990), University of Glasgow (January 1990), New York University (February 1990), McGill University (March 1990), University of Heidelberg (April 1990).

“Minimisation of L_1 distance in density estimation”: Rice University (March 1989), Texas A&M University (April 1989), IBM Thomas J. Watson Research Center (July 1989), Rutgers University (July 1989).

Academic Visits:

1. Department of Statistics, University of Florida, Gainesville, Florida, USA: January, 2009 (one week).

2. Department of Statistics, National University of Singapore, Singapore: March, 2008 (one week).
3. Dipartimento di Scienze Statistiche, Università di Padova, Italy: February, 2008 (one week).
4. Fred Hutchinson Cancer Research Center, Seattle, USA: September, 2007 (one week).
5. Fred Hutchinson Cancer Research Center, Seattle, USA: November, 2006 (one week).
6. Indian Statistical Institute, Calcutta, India: October, 2005 (one week).
7. Department of Statistics, University of Calcutta, India: September, 2005 (one week).
8. Garvan Institute of Medical Research, Sydney, Australia: July–December, 2005 (one day a week for 5 months).
9. Department of Operations Research and Industrial Engineering, Cornell University, USA: July, 2001 (one week).
10. Center for Applied Statistics & Economics, Humboldt-Universität zu Berlin, Germany, December, 1996 (three weeks).
11. Department of Statistics, University of Illinois, USA: August–November, 1996 (five months).
12. Department of Mathematics and Statistics, Lund University, Sweden: July–August, 1996 (two months).
13. Institut de Statistique, Université Catholique de Louvain, Louvain-la-Neuve, Belgium: January–February, 1996 (six weeks).
14. Centre for Mathematics and Its Applications, Australian National University, Canberra, Australia: January, 1995 (one week).
15. Center for Statistics, Limburgs Universitair Centrum, Diepenbeek, Belgium: May, 1995 (three weeks).
16. Department of Operations Research and Industrial Engineering, Cornell University, USA: July, 1994 (two weeks).
17. Centre for Mathematics and Its Applications, Australian National University, Canberra, Australia: May, 1994 (one week).
18. Department of Statistics and Operations Research, University of Santiago de Compostela, Santiago, Spain: January, 1994 (two weeks).
19. Department of Statistics, University of British Columbia, Vancouver, Canada: May–June, 1992 (two months).
20. Department of Statistics, Open University, Milton Keynes, United Kingdom: May–June, 1991 (two months).
21. Department of Mathematics, National University of Singapore: April–May, 1991 (six weeks).
22. Institut für Angewandte Mathematik, Universität Heidelberg, Germany: April–May, 1990 (two months).
23. School of Computing Science, McGill University, Montreal, Canada: March, 1990 (one month).
24. Department of Operations Research and Industrial Engineering, Cornell University, USA: February, 1990 (one week).
25. Department of Statistics, University of Glasgow, United Kingdom: January, 1990 (two weeks).
26. Department of Statistics, University of Bath, United Kingdom: January, 1990 (two weeks).
27. Department of Statistics, University of North Carolina, USA: August, 1989 (one week).
28. Department of Operations Research and Industrial Engineering, Cornell University, USA: June–July, 1989 (two months).