

# ***CURRICULUM VITAE***

## **Personal Information**

*Name in full:* Jason Robert Warren Merrick  
*Office Address:* Oliver Hall, 2037B, 1001 W. Main St., Richmond, VA, 23284  
*Office Telephone Number:* (804) 828 1301 x.136

## **Education**

- MA (Oxon.) Mathematics and Computation (1993). Oxford University, Oxford, UK. 1990 to 1993.
- D.Sc. Operations Research (January 1998). George Washington University, Washington DC. 1993 to 1997.  
Dissertation: "Bayesian Reliability Modeling and Inference using Covariate Information with Applications to Optimal Replacement Strategies."  
Advisor: Professor Refik Soyer.

## **Academic Appointments**

- Association of American Railroads Merit Fellow. The George Washington University. September 1993 - September 1995.
- Research Fellow. Department of Operations Research. The George Washington University. October 1995 - December 1996.
- Research Associate. The Institute for Crisis, Disaster & Risk Management. The George Washington University. January 1996 - June 1997.
- Senior Research Scientist. The Institute for Crisis, Disaster & Risk Management. The George Washington University. July 1997 – July 1998.
- Assistant Professor. Department of Mathematical Sciences, Virginia Commonwealth University. September 1998 – December 2001.
- Assistant Professor. Department of Statistical Sciences and Operations Research, Virginia Commonwealth University. January 2002 – August 2003.
- Associate Professor. Department of Statistical Sciences and Operations Research, Virginia Commonwealth University. August 2003 on

## **Other Significant Work Experience**

- Software Development. IMI Computing Ltd. UK 1989 - 1990.
- Consultant (Pro Bono). Prince William Sound Regional Citizens Advisory Committee. 1999.
- Trainer. Infineon Technologies Richmond. 2001 - 2002.
- Consultant. Ship Escort Response Vessel Service. 2002 –2002.
- Consultant. San Francisco Bay Water Transit Authority. 2002–2002.
- Consultant. American Bureau of Shipping and Sea River Maritime Inc. 2003 – 2007.

## **Membership - Scientific, Honorary and Professional Societies**

Member of the Institute for Operations Research and Management Science.

Member of the Decision Analysis Society.

## **Awards**

2005 Excellence in Scholarship Award, Virginia Commonwealth University.

Nominated by VCU for the 2006 Outstanding Faculty Award for the State Council of Higher Education for Virginia.

## RESEARCH

### Articles Submitted (8)

1. Merrick, J. R. W. and McLay, L. A. Is Screening Cargo Containers for Nuclear Threats Worthwhile? Submitted to *Decision Analysis*.
2. Merrick, J. R. W. and Grabowski, M. Finding Leading Indicators of Safety in Maritime Transportation with Value Focused Thinking. Re-submitted to *Risk Analysis*.
3. van Dorp, J. R. and Merrick, J. R. W. Towards the Development of a Comprehensive Vessel Traffic Risk Management Procedure. In revision for *Annals of Operations Research*.
4. Merrick, J. R. W. and Soyer, R. Computational issues in semiparametric Bayesian replacement models. Submitted to *High Dimensional Modeling and Data Mining*, CRC/Chapman Hall.
5. Grabowski, M., Ayalasomayajula, P., Wang, H., Merrick, J. R. W., Kullick, G. Safety Subcultures and Leading Indicators: Lessons from Energy Transportation. Submitted to *Journal of Operations Management*.
6. Wang, H., M. Grabowski, J. R. W. Merrick, H. Woo. Respect, Integrity and Willingness to Change: Leading Indicators of Safety in Maritime Container Transportation. Submitted to *Safety Science*.
7. You, Z., H. Wang, H. Song, M. Grabowski, J. R. W. Merrick. Beyond Sailing on Friday: Developing the Link between Organizational Safety Culture and Performance in Safety-Critical Systems. Submitted to *IEEE Transactions on Systems, Man & Cybernetics, Part A*.
8. Merrick, J. R. W. and Soyer, R. Semiparametric Bayesian Decision Models for Optimal Replacement. Revision requested by *IIE Transactions*.

### Journal Articles (23)

1. Harrald, J., Mazzuchi, T., Merrick, J., van Dorp, R. and Spahn, J. (1998) Using System Simulation to Model the Impact of Human Error in a Maritime System. *Safety Science*, Vol. 30, No. 1-2, pp. 235-247.
2. Merrick, J. R. W., van Dorp, J. R., Harrald, J., Mazzuchi, T., Spahn, J. and Grabowski, M. (2000). A Systems Approach to Managing Oil Transportation Risk in Prince William Sound. *Systems Engineering*, Vol. 3, No. 3, pp. 128-142.
3. Grabowski, M., Merrick, J. R. W., van Dorp, J. R., Harrald, J., and Mazzuchi, T. (2000). Risk Modeling in Distributed, Large Scale Systems. *IEEE Systems, Man & Cybernetics, Series A*, Vol. 30, No. 6, pp. 651-660.
4. Parnell, G., Metzger, R., Merrick, J. R. W. and Eilers, R. (2001). Multiobjective Decision Analysis of Theater Missile Defense Architectures. *Systems Engineering*, Vol. 4, No. 1, pp. 24-34.
5. van Dorp, J. R., Merrick, J. R. W., Harrald, J., Mazzuchi, T. and Grabowski, M. (2001) A Risk Management Procedure for the Washington State Ferries. *Risk Analysis*, Vol. 21, No. 1, pp. 127-142.
6. Merrick, J. R. W. (2002). Evaluation of Tug Escort Schemes Using Simulation of Drifting Tankers. *Simulation: Transactions of the Society for Modeling and Simulation International*, Vol. 78, No.6, pp. 380-388.
7. Merrick, J. R. W., van Dorp, J. R., Mazzuchi, T., Harrald, J., Spahn, J. and Grabowski, M. (2002). The Prince William Sound Risk Assessment. *Interfaces*, Vol. 32, No. 6, pp. 25-40.
8. Merrick, J. R. W., Soyer, R. and Mazzuchi, T. (2003) A Bayesian Semi-parametric Analysis of the Reliability and Maintenance of Machine Tools. *Technometrics*, Vol. 45, No. 1, pp. 58-69.
9. Merrick, J. R. W., van Dorp, J. R., Blackford, J. P., Shaw, G. L., Harrald, J., Mazzuchi, T.A. (2003). Traffic Density Analysis of Proposed Ferry Service Expansion in San Francisco Bay

- Using a Maritime Simulation Model. *Reliability Engineering and System Safety*, Vol. 81, No. 2, pp. 119-132.
10. Merrick, J. R. W., Garcia, M. (2004). A Value Focused Thinking Approach to Watershed Improvement. *Journal of the American Planning Association*, Vol. 70, No. 3, pp. 313-328.
  11. Merrick, J. R. W., R. Soyer and T. Mazzuchi (2005). Are Maintenance Practices for Railroad Tracks Effective? *Journal of the American Statistical Association*, Vol. 100, Nos. 469, pp. 17-25.
  12. Merrick, J. R. W., van Dorp, J. R. and Dinesh, V. (2005) Assessing Uncertainty in Simulation Based Maritime Risk Assessments. *Risk Analysis*, Vol. 25, No. 3, pp. 731-743.
  13. Merrick, J. R. W., J. R. van Dorp and A. Singh. (2005) Analysis of Correlated Expert Judgments from Pairwise Comparisons. *Decision Analysis*, Vol. 2, No.1, pp. 17-29.
  14. Merrick, J. R. W., Parnell, G., Barnett, J., and Garcia, M. (2005) A Multiple-Objective Decision Analysis of Stakeholder Values to Identify Watershed Improvement Needs. *Decision Analysis*, Vol. 2, No.1, pp. 44-57.
  15. Merrick, J. R. W., M. Grabowski, P. Ayalasomayajula and J. Harrald. (2005) Understanding Organizational Safety Using Value Focused Thinking. *Risk Analysis*, Vol. 25, Nos. 4, pp. 1029-1041.
  16. Szwed, P., van Dorp, J. R., Merrick, J. R. W., Mazzuchi, T. A. and Singh, A. (2006) A Bayesian Paired Comparison Approach for Relative Accident Probability Assessment with Covariate Information. *European Journal of Operational Research*, Vol. 169, No. 1, pp. 157-177.
  17. Merrick, J. R. W. and J. R. van Dorp. (2006) Speaking the Truth in Maritime Risk Assessment. *Risk Analysis*, Vol. 26, No. 1, pp. 223-237.
  18. Merrick, J. R. W., J. R. Hardin and R. Walker. (2006) Partnerships in Training. *Interfaces*, Vol. 36, No. 4, pp. 359-370.
  19. Merrick, J. R. W. and J. Harrald. (2007) Making Decisions about Safety in US Ports and Waterways. *Interfaces*, Vol. 37, No. 3, pp. 240-252.
  20. Grabowski, M., Ayalasomayajula, P., J. R. W. Merrick, J. Harrald, and K. Roberts. (2007) Leading Indicators of Safety in Virtual Organizations. *Safety Science*, Vol. 45, No. 10, pp. 1013-1043.
  21. Grabowski, M., Ayalasomayajula, P., Merrick, J. R. W., and D. McCafferty. (2007) Accident Precursors and Safety Nets: Leading Indicators of Tanker Operations Safety. *Maritime Policy and Management*, Vol. 34, No. 5, pp. 405-425.
  22. Merrick, J. R. W. (2008) Getting the Right Mix of Experts. *Decision Analysis*, Vol. 5, No. 1, pp. 43-52.
  23. Merrick, J. R. W. Bayesian simulation and decision analysis: an expository survey. Accepted by *Decision Analysis*.

### **Conference Proceedings and Book Chapters (13)**

1. Singpurwalla, N., and J. R. W. Merrick. (1995) The Assignment of Membership in Capability Maturity Models for Software Production. Invited Paper. *Proceedings of the 50th Session of The International Statistical Institute*, Beijing, China, pp. 727-733.
2. Merrick, J. R. W. and Singpurwalla, N. (1996) The Role of Decision Analysis In Software Engineering. Chapter in *Reliability and Maintenance of Complex Systems*, Suleyman Ozekici (Editor), NATO ASI Series F: Computer and Systems Sciences, Vol. 154, Springer Verlag, pp. 368-388.
3. Harrald, J., Mazzuchi, T., Merrick, J. R. W., Spahn, J. and van Dorp, R. (1997) Hidden assumptions and Misleading Data: Accounting for Human Error in Maritime Risk Assessment. *Proceedings of 1997 Maritime Operations: The Human Element Conference*.

4. HARRALD, J., MAZZUCHI, T., MERRICK, J. R. W., SPAHN, J. and VAN DORP, R. (1997) Using Simulation to Model the Impact of Human Error in Maritime Risk Assessment. *Proceedings of the International Emergency Management Society Conference*, pp. 41-54.
5. HARRALD, J., MAZZUCHI, T., MERRICK, J. R. W., VAN DORP, R. and SPAHN, J. (1998) System Simulation - A Risk Management Tool for Prince William Sound. *Proceedings of the 1998 Oil Spill Conference*, pp. 545-550.
6. HARRALD, J., MERRICK, J. R. W., MAZZUCHI, T. and VAN DORP, R. (1999) The Analysis of Alternative Escort Requirements for Tank Vessels in Prince William Sound. *Proceedings of the 1999 Oil Spill Conference*, pp. 403-407.
7. HARRALD, J., GRABOSWIKI, M., VAN DORP, R. and MERRICK, J. R. W. (1999) Assessing Risk in the Washington State Ferry System. *Proceedings of the International Emergency Management Society (TIEMS)*, pp. 427-436.
8. HARRALD, J. and MERRICK, J. R. W. (2000) Development of a Decision Support Tool for Assessing Vessel Traffic Management Requirements for U.S. Ports. *Proceedings of the International Emergency Management Society (TIEMS)*, pp. 165-174.
9. HARRALD, J., MAZZUCHI, T., MERRICK, J. R. W., VAN DORP, R. and SPAHN, J. (2000). Prince William Sound Risk Assessment: System Risk Analysis by Simulation and Expert Judgment. *Risk Management in the Marine Transportation System*, Conference Proceedings 22, National Academy Press, Washington, DC, pp. 65-72.
10. MERRICK, J. R. W. and VAN DORP, J. R. (2001) Modeling Risk in the Dynamic Environment of Maritime Transportation. *Proceedings of the Winter Simulation Conference 2001*, B. A. Peters, J. S. Smith, D. J. Medeiros, and M. W. Rohrer, eds., pp. 1090-1098.
11. MERRICK, J. R. W., DINESH, V., SINGH, A., VAN DORP, J. R. and MAZZUCHI, T. A. (2003) Propagation of Uncertainty in a Simulation-Based Maritime Risk Assessment Model Utilizing Bayesian Simulation Techniques. *Proceedings of the 2003 Winter Simulation Conference*, S. Chick, P. J. Sánchez, D. Ferrin, and D. J. Morrice, eds., pp. 449-455.
12. GRABOSWIKI, M., AYALASOMAYAJULA, P., WANG, H., MERRICK, J. R. W., MCCAFFERTY, D., MEADOR M., and KINNEY, C. (2007) Accident Precursors and Safety Nets: Initial Results from the Leading Indicators of Maritime Safety Project. *Proceedings of the Annual Meeting of the Society of Naval Architects and Marine Engineers*, Fort Lauderdale, Florida, 14-1 November 2007. D19-D27.
13. SOYER, R., ERKANLI, S., and MERRICK, J. R. W. (2008). Bayesian Models for Accelerated Life Tests. *Encyclopedia of Quality and Reliability*. Wiley: New York.

### **Published Presentations**

1. Jason R. W. Merrick. *Decision and Risk Analysis*. System Engineering Boot Camp, Hampton Roads Area Chapter and the Washington Metropolitan Area Chapter of INCOSE, Hampton, VA, November 5-6, 2002. Available at: [http://www.hra-incose.org/se101/se\\_boot\\_camp\\_2002/17.html](http://www.hra-incose.org/se101/se_boot_camp_2002/17.html). **Voted Best Tutorial**.
2. Jason R. W. Merrick, J. HARRALD and J. R. van DORP. (2003) Managing Port Safety and Security Risk Using Dynamic Simulation. Institute for Defense and Homeland Security Research Summit, June 25, Ronald Reagan Building, Washington, DC. Available at: <http://www.seas.gwu.edu/~dorjpr/Publications/TechnicalReports/NSFProject/06-25-03-gwu-merrick.pdf>.

### **Project Reports**

1. John R. HARRALD, Thomas A. MAZZUCHI, Jason R. W. MERRICK, John E. SPAHN, Sunil SHRESTHA, J. Rene VAN DORP. *Prince William Sound Risk Assessment: Results of Additional Analysis*. Report to the Prince William Sound Steering Committee by George Washington University, 1997.

2. J. Rene van Dorp, Jason R. W. Merrick. *Prince William Sound Risk Assessment: Modified PWS Risk Simulation*. Report to the Prince William Sound Steering Committee by George Washington University, 1998.
3. Jason R. W. Merrick, J. Rene van Dorp, Jack Harrald. *Prince William Sound Risk Assessment: Analysis of Proposed Outbound Speed Increase And Removal of the Southern Dogleg*. Report to the Prince William Sound Steering Committee by George Washington University, 1998.
4. John Harrald, Martha Grabowski, Jason R. W. Merrick, J. Rene Van Dorp. *The Washington State Ferries Risk Assessment: Final Report*. Report to the Blue Ribbon Panel on Washington State Ferry Safety and the Washington State Transportation Commission Olympia, Washington By George Washington University, Rensselaer Polytechnic Institute, Virginia Commonwealth University, 1999.
5. J. Rene Van Dorp, Jason R. W. Merrick, Jack Harrald, Thomas A. Mazzuchi, G. L. Shaw, J. P. Blackford. *Maritime Simulation Model of San Francisco Bay*. Report to the San Francisco Bay Water Transit Authority by George Washington University, 2002.
6. Jason R. W. Merrick, Martha Grabowski, Jack Harrald. *Developing Leading Indicators for Maritime Safety Using Value Focused Thinking*. Report to American Bureau of Shipping and ExxonMobil - SeaRiver Maritime Inc.
7. Jason R. W. Merrick, Martha Grabowski, Jack Harrald. *Measuring the Fundamentals of Safety*. Report to American Bureau of Shipping and ExxonMobil - SeaRiver Maritime Inc.
8. Jason R. W. Merrick, J. Rene van Dorp, Jack Harrald. *Analysis of Proposed Traffic Routes Changes for Ferries in the San Francisco Bay Region*. Report to the San Francisco Bay Water Transit Authority, 2006.
9. Martha R. Grabowski, Premnath Ayyalasomayajula, Haiyuan Wang, Jason R. Merrick, Denise McCafferty, Martin L. Meador, Craig Kinney. *Accident Precursors and Safety Nets: Leading Indicators of Tanker Operations Safety*. ABS Technical Papers 2007.

### **Funded Research (\$791,939)**

1. Blue Ribbon Panel Risk Assessment of Washington State Ferries, George Washington University, \$25,685. September 1998 – December 1998.
2. Accident Probability and Consequence Modeling. Situational and Organizational Dependence and Risk Reduction Evaluation, George Washington University, \$25,688. January 1999 – April 1999.
3. Accident Probability and Consequence Modeling. Situational and Organizational Dependence and Risk Reduction Evaluation, George Washington University, \$6,559. May 1999 – August 1999.
4. Ports and Waterways Safety Assessment Model Revisions, U.S. Coast Guard, \$52,008. September 2000 – May 2001.
5. Pre-Tenure Leave Fellowship, Sloan Foundation, \$7,400, January 2002 - December 2002.
6. A Value Model for the Runway Incursion Problem. Booz Allen Hamilton Inc., \$50,000. March 2002-December 2002.
7. Collaborative Research: Speaking the Truth in Maritime Risk Assessment. NSF, \$138,000. August 2002 – August 2004. Co-PI: David Primeaux.
8. Mail Center Simulation. Capital One, \$6,400. March 2003 – April 2003.
9. Assessment of Oil Spill Risk due to Potential Increased Vessel Traffic at Cherry Point, Washington, BP Refineries. \$158,755. May 2006 – February 2008.
10. Buoy J and Puget Sound Extension for the Assessment of Oil Spill Risk due to Potential Increased Vessel Traffic at Cherry Point, Washington, BP Refineries. \$129,367. February 2008 – May 2008.

11. ARI-SA: Multi-Layered System Level Screening for Port Security, National Science Foundation and Department of Homeland Security. \$292,077, September 2007 – August 2010. Co-PI, PI: McLay.

### **Research Faculty for Funded Research (\$2,000,000)**

1. An Integrated Multi-Objective Decision Analysis Model for an Urban Watershed in the Richmond, VA Metropolitan Area. NSF Award 9874924, \$500,000. 1999 – 2002. PI: Margot Garcia.
2. The Howard Hughes Medical Institute Program for Undergraduate Education and Research in Systems Biology, Howard Hughes Medical Institute, \$1.5 million. September 2006 – August 2010. PI: Len Smock, Greg Buck.

### **Research Assistants Funded & Supervised**

1. Christopher Keaveney – Washington State Ferries – Fall 1998 to Summer 1999
2. Jamison Barnett – National Science Foundation – Summer 1999 and 2000
3. Teresa Kyte – United States Coast Guard – Fall 2000 to Spring 2001
4. David Gibbons – Federal Aviation Administration – Summer 2002 to Spring 2003
5. Varun Dinesh – National Science Foundation – Fall 2002 to Summer 2003
6. Akriti Saxena – National Science Foundation – Fall 2003 to Summer 2004
7. Christina Werner – BP – Fall 2005 to Spring 2007.

### **Invited Research Talks (20)**

1. “The Prince William Sound Risk Assessment”, Richmond Tidewater Chapter of INFORMS. October 1998.
2. “Costs and Benefits of Escort Tugs: the Prince William Sound Experience”, Port and Waterway Safety Management: Focus on Escort Tugs, MIT Department of Ocean Engineering. March 1999.
3. “The Analysis of Escort Requirements for Tank Vessels in Prince William Sound.” At 1999 Oil Spill Conference. April 1999.
4. “A Bayesian Analysis of the Reliability of Machine Tools using a Semi-parametric Proportional Hazards Model”. At Philadelphia INFORMS 1999. November 1999.
5. “Semi-parametric Models for Accelerated Life Tests”. At Philadelphia INFORMS 1999. November 1999.
6. “Bayesian Replacement Strategies for Railroad Tracks”. At Philadelphia INFORMS 1999. November 1999.
7. “Using Simulation in Maritime Risk Management”. At Philadelphia INFORMS 1999. November 1999.
8. “The Washington State Ferries Risk Assessment”. Richmond-Tidewater Chapter of INFORMS. October 1999.
9. “Operations Research at VCU”, Capital One Risk Management Division. March 2001.
10. “Modeling Risk in the Dynamic Environment of Maritime Transportation.” At Winter Simulation Conference 2001. December 2001.
11. “The Ports and Waterways Safety Assessment”, Richmond-Tidewater Chapter of INFORMS. July 2002.
12. "The Ports and Waterways Safety Assessment" Briefing to the Federal Aviation Administration, Runway Safety Office, September, 2002.
13. “Assessing Uncertainty in Simulation Based Maritime Risk Assessment”. INFORMS Atlanta, October 2003.
14. “Propagation of Uncertainty in a Simulation-Based Maritime Risk Assessment Model Utilizing Bayesian Simulation Techniques.” Winter Simulation Conference December 2003.

15. "Analysis of Correlated Expert Judgments from Pairwise Comparisons" INFORMS Denver, October 2004.
16. "National Response for Homeland Security", with William Parrish and William Newmann, Institute for Defense and Government Advancement's Border Management 2005, Georgetown University Conference Center, October 24th, 2005.
17. "Speaking the Truth in Maritime Risk Assessment." INFORMS San Francisco, November 2005.
18. "A Bayesian paired comparison approach for relative accident probability assessment with covariate information." Society for Risk Analysis, December 2006.
19. "Assessing the Risk of Oil Spills." London School of Economics, May 2007.
20. "Getting the Right Mix of Experts." INFORMS Seattle, November 2007.
21. "Vessel Traffic Risk Assessment Methodology", National Research Council, January 2008.
22. "Assessing the Risk of Oil Spills", Decision Analysis Affinity Group Annual Conference, April, 2008.
23. "Multi-Layered System Level Screening for Port Security", Advanced Research Initiative, Domestic Nuclear Detection Office, Department of Homeland Security, April 2008, with Laura McLay.
24. "Development of a Comprehensive Vessel Traffic Risk Management Tool", National Harbor Safety Conference, May 2008, with Rene van Dorp.
25. "The Search for Indicators of Future Performance", INFORMS Annual Meeting, Washington DC, October 2008.
26. "Expert Judgment Based Risk Ranking in Port Security", INFORMS Annual Meeting, Washington DC, October 2008.
27. "Using Simulation in Transportation Risk Assessment." Operations Research Seminar Series, Rutgers University November 2008.
28. "Is Screening a Container Once Enough to Stop Dirty Bombs?." Rutgers's Conference on Port Security, November 2008.

## **TEACHING**

### **Course Taught at VCU\***

1. STAT 210 Basic Practice of Statistics (lab), 9 times
2. STAT 212 Concepts of Statistics, 1 time
3. OPER 527 Deterministic Operations Research, 3 times
4. OPER 528 Stochastic Operations Research, 9 times
5. OPER 641 Discrete Event System Simulation, 6 times
6. OPER 643 Decision and Risk Analysis, 4 times
7. OPER 647 Multi-objective Decision Analysis, 2 times
8. OPER/STAT 648 Systems Reliability Analysis, 2 times
9. OPER/STAT 649 Statistical Quality Control, 1 time
10. HSEP 310 Risk and Vulnerability Analysis, 2 times.
11. HSEP 603 Risk Assessment, 1 time – online.

**Average evaluations:** Instructor 4.6, Course 4.3, Learning 4.2 (5 – Excellent, 1 – Poor).

\* Current course names.

### **Curriculum Development**

1. Created STAT 648 Systems Reliability & Risk Analysis
2. Modified MATH 527 Deterministic Operations Research
3. Modified MATH 528 Stochastic Operations Research
4. Modified STAT 649 Statistical Quality Control

5. Modified MATH 623 Discrete Event System Simulation
6. Led major modification of the curriculum for the Master of Science Degree in Mathematical Sciences with a specialization in Operations Research. Included re-design of the core courses and a sequence of courses in a complementary subject.
7. Organized the introduction of the OPER course designation for operations research and modification of all such courses.
8. Member of the Quantitative Bioinformatics Committee. 2001-2003. Committee assisted the development the curriculum for the new Bioinformatics BS, MS and 5-year BS/MS degrees with a track in quantitative bioinformatics.
9. Member of the MS in Homeland Security development committee. 2005-2006.
10. Member of the Mathematical Biology track committee. 2005-2006.
11. Created OPER 690: Research and Communications Seminar, with Darcy Mays.
12. Created HSEP 310: Risk and Vulnerability Assessment.
13. Created HSEP 603: Risk Management.
14. Leading the proposal for a PhD in Systems Modeling and Analysis. Approved.
15. Created OPER 741 Simulation II.
16. Created OPER 743 Decision Analysis II.
17. Created SYSM Systems Seminar I, II, and III.

### **Manuals Developed**

1. Al Best. Jason R. W. Merrick, R. K. Elswick, James Davenport. *Design and Analysis of Experiments for Process Improvement*. Training manual developed by Data Ink, L. C., for Infineon Technologies, Richmond VA, 2001.
2. Al Best. Jason R. W. Merrick, R. K. Elswick, James Davenport. *Statistical Analysis for the Semiconductor Industry*. Training manual developed by Data Ink, L. C., for Infineon Technologies, Richmond VA, 2001.
3. Al Best. Jason R. W. Merrick, R. K. Elswick, James Davenport. *JMP Fundamentals*. Training manual developed by Data Ink, L. C., for Infineon Technologies, Richmond VA, 2001.
4. Jason R. W. Merrick, Jill Hardin. *System Simulation: Modeling and Analysis*. Training manual developed by Virginia Commonwealth University for Capital One Service, Inc, 2002.
5. Jill Hardin, Jason R. W. Merrick, Russell Walker. *Optimization Models*. Training manual developed by Virginia Commonwealth University for Capital One Service, Inc, 2003.
6. Jason R. W. Merrick, Russell Walker. *Forecasting and Modeling*. Training manual developed by Virginia Commonwealth University for Capital One Service, Inc, 2003.
7. Jason R. W. Merrick. *Simulation Modeling and Analysis*. Training manual developed by Virginia Commonwealth University for Wyeth Pharmaceuticals, Inc, 2007.

### **Public Teaching & Conference Tutorials**

1. "Decision and Risk Analysis Tutorial", INCOSE Boot Camp, Hampton Roads and Washington Area Chapters, November 2002. **Voted best tutorial.**
2. "Why Statistics?" St. Catherine's School for Girls, Richmond, VA, March 4<sup>th</sup>, 2003.
3. "Business Games" Virginia Math and Science Center, Richmond, VA, July 20<sup>th</sup>, 2003.
4. "Oil Spills, Plane Crashes & Terrorist Attacks: Managing Risk in a Technological World." Honors Program Lunchtime Series. September 12th 2003.
5. "Using Computer Simulation in Transportation Risk Assessment", VCU Colloquium Series in Mathematics, March, 2004.
6. "Risk and Vulnerability Assessment", Public Safety Institute, October 28th, 2005.
7. "Computer Games for CEOs", Operations Research Applications Seminar Series, VCU, April 2006.

## **Internal Teaching Grants**

1. Bringing Discussion Leadership and Participant Centered Learning to the Teaching of Operations Research. VCU Center for Teaching Excellence, \$3,400. January 2005 – August 2005.

## **Professional Training (\$223,397)**

1. Forecasting and Modeling Course 1. Capital One Services, \$39,000. October 2002 – April 2003.
2. System Simulation – Modeling and Analysis, Capital One Services, \$22,272. November 2002 – May 2003.
3. Forecasting and Modeling Course 2. Capital One Services, \$39,000. May 2003.
4. Forecasting and Modeling Course 3. Capital One Services, \$29,250, August 2003.
5. Forecasting and Modeling Course 4. Capital One Services, \$39,000. October 2003.
6. Forecasting and Modeling Course 5. Capital One Services, \$17,875. October 2003.
7. Forecasting and Modeling Course 6. Capital One Services, \$17,000. November 2004.
8. Simulation Modeling and Analysis. Wyeth Pharmaceuticals, \$20,000, January 2007.

## **Non-Course Teaching**

MATH 690 Research Seminar:

1. Christopher Keaveney – Fall 1998
2. Tina Hogue – Spring 2000
3. Jamison Barnett – Spring 2000
4. Chris Zaffron – Spring 2000
5. Derek Anderson – Summer 2000
6. Basu Biswanath – Fall 2002
7. Rajat Khanna – Fall 2002, Spring 2003
8. Varun Dinesh – Spring 2003
9. David Gibson – Spring 2003 x2
10. John Tozcek – Fall 2003, Spring 2004, Fall 2004
11. Ted Roofner – Fall 2003 x2
12. Akriti Saxena – Spring 2004
13. Madhumita Basu – Spring 2004
14. Sudeep Behari – Fall 2005, Spring 2006

MATH 697 Directed Research:

1. Christopher Keaveney – Spring 2000 – Bayesian Computational Methods (3 credits)
2. Tina Hogue – Spring 2000 – Advanced System Simulation (2 credits)
3. Crystal Hill – Spring 2000 – Advanced System Simulation (2 credits)
4. Crystal Hill – Fall 2000 – Traffic Engineering (3 credits)
5. Lee Edmonson – Summer 2001– Stochastic Processes (3 credits)
6. Craig Snodgrass – Summer 2001– Systems Dynamics (3 credits)
7. Derek Anderson – Fall 2001– Deterministic Operations Research (3 credits)
8. Zachary Zimmer – Spring 2005 – Markov Chain Monte Carlo (2 credits)

## **MS Thesis Supervision**

1. Prentice Frasier – Spring 1999
2. Christopher Keaveney – Fall 1999
3. Christopher Zaffron – Spring 2000
4. Jamison Barnett – Spring 2000
5. Crystal Hill – Fall 2001

6. Teresa Kyte – Spring 2001
7. Varun Dinesh – Summer 2003
8. Zachary Zimmer – Spring 2006.
9. Margaret Erin Keck – Spring 2006.

### **Service on MS Thesis Committees**

1. Jie Zhang – Statistics – Spring 2001.
2. David Allen – Information Systems – Spring 2004.
3. Jeff Huang – Computer Science, Spring 2004.
4. Bruce Cox – Applied Mathematics, Fall 2005.
5. Brett Kliner – Bioinformatics, Spring 2006.

### **Service on PhD Dissertation Committees**

1. Niki Kunene – Information Systems – current.
2. Chuck Bell – Mechanical Engineering – current.
3. David Webb – Computer Science – current.

### **Advising**

1. Undergraduate advisor for Mathematical Sciences, September 1998 – December 2001 (5-8 students per year).
2. Undergraduate advisor for Operations Research, September 1998 – December 2001 (4-5 students per year).
3. Graduate advisor for Operations Research, September 1999 – present (10 to 20 students per year).
4. Advisor for Quantitative track for the BS, MS in Bioinformatics, March 2005 – August 2006.
5. Graduate advisor for PhD in Systems Modeling and Analysis, January 2009 – present.

### **Internship Supervision**

1. Crystal Hill – Spring 2001 – Norfolk Department of Traffic Engineering
2. Varun Dinesh – Summer 2002 – Capital One Financial
3. Rajat Khanna – Summer 2002 – Capital One Financial
4. Basu Biswanath – Summer 2002 – Capital One Financial
5. Adam Martin – Summer 2002 – Capital One Financial
6. Abigail Robinson – Summer 2002 – Capital One Financial

### **Publications with Students**

1. Parnell, G., Metzger, R., Merrick, J. R. W. and Eilers, R. (2001). Multiobjective Decision Analysis of Theater Missile Defense Architectures. *Systems Engineering*, Vol. 4, No. 1, pp. 24-34. **R. Metzger MS student at VCU.**
2. Merrick, J. R. W., van Dorp, J. R., Blackford, J. P., Shaw, G. L., Harrald, J., Mazzuchi, T.A. (2003) Traffic Density Analysis of Proposed Ferry Service Expansion in San Francisco Bay Using a Maritime Simulation Model. *Reliability Engineering and System Safety*, Vol. 81, No. 2, pp. 119-132. **J. P. Blackford PhD student at GWU.**
3. Merrick, J. R. W., Dinesh, V., Singh, A., van Dorp, J. R. and Mazzuchi, T. A. (2003) Propagation of Uncertainty in a Simulation-Based Maritime Risk Assessment Model Utilizing Bayesian Simulation Techniques. *Proceedings of the 2003 Winter Simulation Conference*, S. Chick, P. J. Sánchez, D. Ferrin, and D. J. Morrice, eds., pp. 449-455. **V. Dinesh student at MS VCU. A. Singh PhD student at GWU.**
4. Merrick, J. R. W., van Dorp, J. R. and Dinesh, V. Assessing Uncertainty in Simulation Based Maritime Risk Assessments. Accepted by *Risk Analysis*. **V. Dinesh MS student at VCU.**

5. Merrick, J. R. W., Parnell, G., Barnett, J., and Garcia, M. Considering the Multiple Objectives of Watershed Management. In revision for *Decision Analysis*. **J. Barnett MS student at VCU.**
6. Merrick, J. R. W., J. R. van Dorp and A. Singh. Analysis of Correlated Expert Judgments from Pairwise Comparisons. Accepted by *Decision Analysis*, November 2004, Second Revision. **A. Singh PhD student at GWU.**
7. Merrick, J. R. W., M. Grabowski, P. Ayalasomayajula and J. Harrald. Understanding Organizational Safety Using Value Focused Thinking. Submitted to *Risk Analysis*, September 2004. **P. Ayalasomayajula PhD student at RPI.**
8. Grabowski, M., P. Ayalasomayajula, J. R. W. Merrick, J. Harrald, and K. Roberts. Leading Indicators of Safety in Virtual Organizations. *Safety Science*, in press. **P. Ayalasomayajula PhD student at RPI.**
9. Grabowski, M., P. Ayalasomayajula, Merrick, J. R. W., and D. McCafferty. Accident Precursors and Safety Nets: Leading Indicators of Tanker Operations Safety. *Maritime Policy and Management*, in press. **P. Ayalasomayajula PhD student at RPI.**
10. Grabowski, M., **Ayalasomayajula, P., Wang, H.**, Merrick, J. R. W., McCafferty, D., Meador, M., and Kinney, C. (2007) Accident Precursors and Safety Nets: Initial Results from the Leading Indicators of Maritime Safety Project. *Proceedings of the Annual Meeting of the Society of Naval Architects and Marine Engineers*, Fort Lauderdale, Florida, 14-16 November 2007. D19-D27. **P. Ayalasomayajula and H. Wang PhD students at RPI.**
11. Grabowski, M., **Ayalasomayajula, P.**, J. R. W. Merrick, J. Harrald, and K. Roberts. (2007) Leading Indicators of Safety in Virtual Organizations. *Safety Science*, Vol. 45, No. 10, pp. 1013-1043.
12. Grabowski, M., **Ayalasomayajula, P.**, Merrick, J. R. W., and D. McCafferty. (2007) Accident Precursors and Safety Nets: Leading Indicators of Tanker Operations Safety. *Maritime Policy and Management*, Vol. 34, No. 5, pp. 405-425.

## SERVICE

### Service to Department

1. Department of Mathematical Sciences Undergraduate Credentials Committee, Member, August 1998-July 2001.
2. Organized search for new OR faculty position. Interviews at Philadelphia INFORMS meeting, 1999. No hire resulted.
3. Organized search for new OR faculty position. Interviews at San Antonio INFORMS meeting, 2000. Hired Dr. Jill Hardin.
4. Set-up and ran computer labs and classrooms for the Department of Statistical Sciences and Operations Research and the Department of Mathematics, January 2002 – August 2004.
5. Joint Graduate Affairs Committee for the Department of Statistical Sciences and Operations Research and the Department of Mathematics, Member, January 2001-present.
6. Run the Modeling and Analysis Workshop series and 1-9 account, May 2003 – May 2006.
7. Funded tuition part of 2 new graduate teaching assistantships from 1-9 account revenue, August 2004 – May 2005.
8. Anthony Sherman's Peer Review Committee, August 2004 – December 2004.
9. Scott Street's Peer Review Committee. September 2005 – November 2005.
10. Search Committee for OR Faculty Position, Chair, November 2005 – April 2006. Hired Laura Mclay and Paul Brooks.
11. Jill Hardin's Peer Review Committee, Chair, April 2006 – November 2006.
12. Led revision of department's promotion and tenure guidelines.
13. Leading the proposal for a PhD in Systems Modeling and Analysis. Approved.

14. Third Year Review Committee for Paul Brooks (chair), Laura McLay, Ed Boone.
15. Program Director for the PhD in Systems Modeling and Analysis.

### **Service to College**

1. College of Humanities and Sciences Technology Committee, Member, August 2001-August 2004.
2. Arranged for a donation of furniture to the College by Capital One Services, equivalent value \$800,000.
3. College Promotion and Tenure Committee, Deans Appointment, 2004-2007.
  - Secretary, 2004-2005.
  - Chair 2005-2006.
  - Chair 2006-2007.
4. Search Committee for Transportation Policy and Planning Faculty Position, Member, January 2006 – February 2007.
5. 2006 Awards Committee, April 2006.
6. Faculty Council, representative for Promotion and Tenure Committee, 2005 - 2007.
  - P&T Representative, 2005-2006.
  - President, 2006 - 2007.
7. Sabbatical Proposal Review Committee, 2007.
8. General Education Committee, Faculty Council representative, 2007.
  - Subcommittee on Experiential Arts Requirement, 2007.
9. Graduate Academic Committee, 2007 – 2010.

### **Service to University**

1. University Research Conflict of Interest Committee, Member, 2004-present.
2. University Bioinformatics Program Committee, Member, 2004-2006.
3. Howard Hughes Medical Institute Grant Proposal Committee, Member, January 2005 – May 2006.
4. Center for Teaching Excellence Workshop on Teaching Evaluations, March 2005.
5. University Homeland Security Coordinating Council, Member, April 2005 – April 2006.
6. Search Committee for the Dean of the College of Humanities and Sciences, February 2006 – July 2006.
7. Homeland Security Task Force. With Department of Emergency Medicine and the Wilder School. April 2006 – August 2006.
8. Howard Hughes Medical Institute Advisory Committee, Member, September 2006 – December 2006.
9. University Promotion and Tenure Review Committee, Member, September 2007 – August 2010.

### **Service to Professional Societies**

1. Member of the committee for the 2001 Decision Analysis Publication Prize. July 2001 - November 2001.
2. President of the Richmond Tidewater Chapter of INFORMS. September 2001 – September 2003.
3. Member of the Strategic Planning Committee for the Decision Analysis Society. October 2004.
4. Reviewer for the Decision Analysis Society's appraisal of decision analysis graduate programs.
5. Newsletter Editor for the Decision Analysis Society. January 2005 to December 2006.

6. Design of the Decision Analysis Society's website with Christina Werner, November 2005 - September 2006.
7. Elected to the Decision Analysis Society's Council. 2006-2008.
8. Information Office for the Decision Analysis Society. 2007-present.

### **Service to Academic Conferences**

1. Session organizer for Philadelphia INFORMS 99: Non-parametric Reliability Models. November 1999.
2. Session organizer for Atlanta INFORMS 2003: Analyzing Uncertainties in Risk Assessment. October 2003.
3. Session organizer for Denver INFORMS 2004: Expert Judgment: Overconfidence, Dependence and Aggregation. October 2004.
4. Session chair, San Francisco INFORMS 2005: Dana Clyman's Decision Analysis Arcade, November 2005.
5. Session chair, San Francisco INFORMS 2005: The Future of Decision Analysis Research, November 2005.
6. Cluster chair, Decision Analysis Society, San Francisco INFORMS 2005, with Eric Bickel, November 2005.
7. Technical committee, INFORMS Simulation Society Research Workshop: Simulation for better decisions in an uncertain world, July 5-7, 2007 at INSEAD in Fontainebleau, France.

### **Editorial Boards**

1. Associate Editor, *ACM Transactions on Modeling and Computer Simulation*, March 2006 – present.
2. Editorial Board. *Decision Analysis*, January 2007 – January 2008.
3. Associate Editor, *Decision Analysis*, January 2008 – present.
4. Associate Editor, *Operations Research*, January 2008 – present.

### **Journal Reviews**

1. Risk Analysis (9)
2. Decision Analysis (7)
3. Journal of Homeland Security and Emergency Management (6)
4. Management Science (3)
5. Simulation: Transactions of the Society for Modeling and Simulation International (2)
6. INFORMS Transactions on Education (2)
7. Operations Research (1)
8. INFORMS Cases (1)
9. European Journal of Operational Research (1)
10. Environmental Management (1)
11. Reliability Engineering and System Safety (1)
12. Journal of Multi-Criteria Decision Analysis (1)
13. IEEE System, Man, Cybernetics, Series A (1)
14. Technometrics (1)
15. Journal of Risk and Reliability (1)
16. Information Sciences (1)

Does not include papers handled in editorial roles.

### **Textbook Reviews**

1. *Data Analysis and Decision Making* (Duxbury Press)
2. *Practical Management Science* (Duxbury Press)

3. *Applied Simulation Modeling* (Duxbury Press)
4. *Making Hard Decisions* (Duxbury Press)
5. *Spreadsheet Modeling and Decision Analysis* (Southwestern Publishing)

### **Grant Proposal Reviews**

1. Reviewer for National Science Foundation joint Committee for Decision, Risk and Management Science Program and Infrastructure Management and Hazard Response Program.
2. Reviewer for National Science Foundation International Program.
3. Michigan Technology Tri-Corridor Fund and the American Association for the Advancement of Science (2).

### **Service to Government Entities and the Public**

1. Part of team that performed the *Prince William Sound Risk Assessment* for the State of Alaska, the United States Coast Guard, the Prince William Sound Regional Citizens' Advisory Council and the PWS Shipping Companies. Decreased risk of oil spill by 75%.
2. Performed an analysis of proposed speed increases and lane changes in Prince William Sound for oil tankers for the Prince William Sound Regional Citizens' Advisory Council (pro bono). Report used by the United States Coast Guard to change international maritime law.
3. Created the *Ports and Waterways Safety Assessment* decision tool used to determine appropriate requirements for automated identification systems (AIS) and differential GPS systems on all commercial vessels in US waters, determine the need for ice radar in Prince William Sound, justify federal funding for a vessel traffic service (VTS) in Port Arthur and build public/private partnerships for vessel traffic information services (VTIS) in Charleston, Corpus Christi and Tampa.
4. Part of team that performed the *Washington State Ferries Risk Assessment* for the Blue Ribbon Panel on Ferry Safety appointed by the Governor of the State of Washington. Results used to justify state legislature funding for implementation of the International Safety Management (ISM) code across the Washington State Ferries.
5. Part of the team that performed a traffic density analysis of proposed ferry service expansions in San Francisco Bay. Analysis part of the *Implementation and Operations Plan* written by the San Francisco Bay Area Water Transit Authority for the California legislature.
6. Appeared on *Modern Marvels: Engineering Disasters V* on History Channel. Interviewed about the Exxon Valdez disaster and our ensuing risk assessment.
7. Member of Governor Warner's Critical Infrastructure Protection Work Group for the Commonwealth of Virginia, January 2005 to December 2005.
8. Performed an analysis of proposed ferry lanes in San Francisco Bay for the San Francisco Bay Water Transit Authority and the United States Coast Guard. The proposed lanes were modified and adopted based on our study results.
9. Part of the team performing an Environmental Impact Statement for the US Corps of Engineers to assess the relative impact of the construction of the north dock at BP's Cherry Point Refinery. This study is part of the settlement in federal court between Ocean Advocates and BP. The settlement requires a complete vessel traffic risk assessment of tankers and tugs using the Cherry Point Refinery and Washington State waters.

## Courses Taught

| Semester    | Course   | Nos. Students                           | Course Rating              | Instructor Rating | Learning Rating |
|-------------|--|---|----------------------------|-------------------|-----------------|
| Fall 1998   | STAT 212<br>Concepts of Statistics               | 18                                      | 4.2                        | 4.6               | 4.2             |
|             | MATH 527<br>Deterministic Operations Research    | 7                                       | 3.4                        | 4.1               | 4.1             |
|             | MATH 001/141<br>Math Lab                         | 35                                      | No evaluations in Math Lab |                   |                 |
| Spring 1999 | MATH 528<br>Stochastic Operations Research       | 7                                       | 4.29                       | 4.29              | 4.17            |
|             | STAT 691<br>Systems Reliability & Risk Analysis  | 5                                       | 4.2                        | 4.4               | 3.75            |
|             | MATH 001/141<br>Math Lab                         | 35                                      | No evaluations in Math Lab |                   |                 |
| Fall 1999   | MATH 527<br>Deterministic Operations Research    | 13                                      | 4.15                       | 4.31              | 4.23            |
|             | MATH 523/691<br>Discrete Event System Simulation | 8                                       | 3.5                        | 4                 | 3.75            |
|             | MATH 001/141<br>Math Lab                         | 35                                      | No evaluations in Math Lab |                   |                 |
| Spring 2000 | MATH 528<br>Stochastic Operations Research       | 9                                       | 4.2                        | 4.7               | 4.2             |
|             | STAT 549<br>Statistical Quality Control          | 5                                       | 5                          | 5                 | 4.8             |
|             | MATH 001/141<br>Math Lab                         | 35                                      | No evaluations in Math Lab |                   |                 |
| Fall 2000   | MATH 527<br>Deterministic Operations Research    | 10                                      | 4.3                        | 4.6               | 3.9             |
|             | STAT 691<br>Systems Reliability & Risk Analysis  | 7                                       | 4.6                        | 4.4               | 4.6             |
|             | Course Buy Out                                   | -                                       | -                          | -                 | -               |
| Spring 2001 | MATH 528<br>Stochastic Operations Research       | 9                                       | 4.6                        | 4.8               | 4.8             |
|             | MATH 691<br>Discrete Event System Simulation     | 4                                       | 5                          | 5                 | 5               |
|             | MATH 001/141<br>Math Lab                         | 35                                      | No evaluations in Math Lab |                   |                 |
| Fall 2001   | MATH 643<br>Decision & Risk Analysis             | 8                                       | 4.9                        | 4.9               | 4.6             |
|             | Mid-tenure Course Reduction                      | -                                       | -                          | -                 | -               |
|             | Mid-tenure Course Reduction                      | -                                       | -                          | -                 | -               |
| Spring 2002 | MATH 528<br>Stochastic Operations Research       | Paternity Leave<br>Taught till Mid-term |                            |                   |                 |
|             | MATH 647<br>Multi-objective Decision Analysis    | Paternity Leave<br>Taught till Mid-term |                            |                   |                 |
|             | MATH 001/141<br>Math Lab                         | -                                       | -                          | -                 | -               |

| Semester    | Course   | Nos. Students | Course Rating                     | Instructor Rating | Learning Rating |
|-------------|--|---------------|-----------------------------------|-------------------|-----------------|
| Fall 2002   | MATH 528<br>Stochastic Operations Research           | 11            | 4.3                               | 4.7               | 4.2             |
|             | MATH 623<br>Discrete Event System Simulation         | 8             | 4.8                               | 5.0               | 4.6             |
|             | STAT 210<br>Statistics Lab                           | 21            | 3.6                               | 4.6               | 3.3             |
| Spring 2003 | MATH 327<br>Mathematical Modeling                    | 22            | 4.0                               | 4.7               | 4.0             |
|             | MATH 528<br>Stochastic Operations Research           | 3             | No Evaluation<br>Too Few Students |                   |                 |
|             | MATH 643<br>Decision & Risk Analysis                 | 4             | No Evaluation<br>Too Few Students |                   |                 |
|             | Course Buy Out                                       | -             | -                                 | -                 | -               |
| Fall 2003   | MATH 528<br>Stochastic Operations Research           | 6             | 4.3                               | 4.7               | 4.0             |
|             | MATH 647<br>Multi-objective Decision Analysis        | 8             | 3.6                               | 4.4               | 3.6             |
|             | STAT 210<br>Statistics Lab                           | 20            | 4.1                               | 4.6               | 4.2             |
| Spring 2004 | OPER 641<br>Discrete Event System Simulation         | 15            | 4.2                               | 4.5               | 4.0             |
|             | STAT 210<br>Statistics Lab                           | 21            | 4.5                               | 4.8               | 4.3             |
|             | Course Buyout  | -             | -                                 | -                 | -               |
| Fall 2004   | OPER 528<br>Stochastic Operations Research           | 16            | 4.1                               | 4.3               | 4.3             |
|             | STAT 210<br>Statistics Lab                           | 21            | 3.9                               | 4.9               | 4.3             |
|             | Course Reduction                                     | -             | -                                 | -                 | -               |
| Spring 2005 | MATH/OPER 327<br>Mathematical Modeling               | 18            | 4.1                               | 4.4               | 3.6             |
|             | OPER 643<br>Decision & Risk Analysis                 | 24            | 4.1                               | 4.4               | 3.9             |
|             | Course Reduction                                     | -             | -                                 | -                 | -               |
| Fall 2005   | MATH/OPER 327<br>Mathematical Modeling               | 22            | Lost by math department           |                   |                 |
|             | OPER 528<br>Stochastic Operations Research           | 16            | 4.3                               | 4.7               | 4.4             |
|             | OPER/STAT 690<br>Research and Communications Seminar | 7             | 3.7                               | 4.5               | 3.7             |
| Spring 2006 | HSEP 310<br>Risk and Vulnerability Assessment        | 37            | 4.4                               | 4.7               | 4.5             |
|             | STAT 210<br>Statistics Lab                           | 19            | 4.0                               | 5.0               | 4.0             |
|             | Course Reduction                                     | -             | -                                 | -                 | -               |
| Fall 2006   | HSEP 310<br>Risk and Vulnerability Assessment        | 29            | 4.7                               | 4.8               | 4.8             |
|             | OPER/STAT 690<br>Research and Communications Seminar | 4             | -                                 | -                 | -               |
|             | Course buyout  | -             | -                                 | -                 | -               |

| Semester    | Course                                       | Nos. Students | Course Rating                     | Instructor Rating | Learning Rating |
|-------------|--|---------------|-----------------------------------|-------------------|-----------------|
| Spring 2007 | OPER 641<br>Discrete Event System Simulation | 2             | No Evaluation<br>Too Few Students |                   |                 |
|             | STAT 210<br>Statistics Lab                   | 18            | 4.7                               | 4.8               | 4.5             |
|             | STAT 210<br>Statistics Lab                   | 21            | 4.7                               | 4.7               | 4.7             |
| Fall 2007   | OPER 643<br>Decision and Risk Analysis       | 5             | 4                                 | 5                 | 4               |
|             | HSEP 603<br>Risk Assessment - online         | 18            | 4.1                               | 4.3               | 4.1             |
| Spring 2008 | OPER 641<br>Discrete Event System Simulation | 8             | 4.8                               | 4.6               | 4.3             |
|             | STAT 210<br>Statistics Lab                   | 16            | 4.4                               | 4.9               | 4.4             |
|             | STAT 210<br>Statistics Lab                   | 21            | 3.8                               | 4.9               | 3.8             |
| Fall 2008   | OPER 643<br>Decision and Risk Analysis       | 9             | Lost by VCU                       |                   |                 |
| Spring 2009 | OPER 641<br>Discrete Event System Simulation | 10            |                                   |                   |                 |
|             | OPER 743<br>Decision Analysis II             | 3             | No Evaluation<br>Too Few Students |                   |                 |

|                |  |  |     |     |     |
|----------------|--|--|-----|-----|-----|
| <b>Average</b> |  |  | 4.3 | 4.6 | 4.2 |
|----------------|--|--|-----|-----|-----|