Curriculum Vitae

Bradley Warner

Educational Experience

Degrees

1996   Ph.D. in Analytic Health Sciences-Biometrics, University of Colorado Health Sciences Center, Denver, Colorado.

1993   M.S. in Mathematical and Computer Sciences (Major: Statistics/Operations Research), Colorado School of Mines, Golden, Colorado.

1984   B.S. in Geophysical Engineering, Colorado School of Mines, Golden, Colorado. (Graduated with High Scholastic Honors.)

Other Training

Leadership training at the Naval Officer Candidate School.

Advanced engineering training at the Naval Nuclear Power School.

Work Experience

June 1996- Present   Professor, United States Air Force Academy; responsible for developing leaders of character. Also responsible for developing undergraduate statistical and engineering math courses and directing the courses. Department Head (2008 – 2010), responsible for all aspects of running the largest academic department at the Air Force Academy, spearheaded 2-year effort for developing leaders of character in a math classroom. Deputy Department Head for Academics, responsible for the teaching, staffing, and administration of all courses taught in a department of over 50 faculty members. Developed many new courses that emphasized the use on computational modeling methods such as text analysis, social network analysis, the use of spark, machine learning methods, and deep learning.

May 1994-June 1996   Biostatistical Assistant, Denver Veterans Affairs Medical Center, Denver, Colorado; developed methodology and analysis of risk adjusted outcome based quality of care measures. Implemented a neural network model for prediction of outcomes.

August 1992-May 1994   Teaching Assistant, Colorado School of Mines, Golden, Colorado; instructed freshmen and sophomore students in a computer laboratory. Selected as the head-teaching assistant: responsible for organizing and supervising six teaching assistants to cover 16 sections.

July 1991-August 1992   Product Development Engineer, Siecor Corporation, Hickory, North Carolina; developed fiber optic cable products for the North American telecommunications industry. Secondary responsibility for support of the important Japanese market.

July 1989-July 1991   Applications Engineer, Siecor Corporation, Hickory, North Carolina; provided direct customer support, aided salespeople with customer issues, and completed technical specification reviews. Assisted in the development of a self-supporting aerial cable that was directly related to the procurement of a critical Bell Operating Company contract.

June 1982-June 1989   Naval Officer, United States Navy; a nuclear trained and submarine qualified Naval Officer. Qualified as Officer of the Deck: directly answerable to Commanding Officer for the safe and proper operation and navigation of the submarine. Qualified as Engineering Officer of the Watch: accountable for the safe operation of the nuclear power plant. Served Electrical, Reactor Controls, Communications, and Navigation Electronic divisions as Divisions Officer, responsible for up to 15 men and multi-million dollar technical equipment.

Patents

United States Patent # 5,636,305. "Magnetic Locatable Figure-8 Cable". **Warner, B. A.**, and Dodd, A. June 3, 1997.

Publications and Presentations

Publications

1. **Warner, B. A.**, and Misra, M., "Understanding Neural Networks as Statistical Tools", *American Statistician*, Volume 50, Number 4, November 1996. (Refereed)

2. Shroyer, A. L. W., Marshall, G., **Warner, B. A.**, Johnson, R., et. al., "No Continuous Relationship Between Veterans Affairs Hospital Coronary Artery Bypass Grafting Surgical Volume and Operative Mortality", *Annals of Thoracic Surgery*, Volume 61, Number 1, 1996. (Refereed)

3. **Warner, B.**, Editor requested review of "Bayesian Learning for Neural Networks", *Journal of the American Statistical Association*, Volume 92, Number 438, June 1997. (Not Refereed)

4. **Warner, B. A.**, "Thoughts and Considerations on Modeling Coronary Bypass Surgery Risk", *Annals of Thoracic Surgery*, Volume 63, Number 6, June 01, 1997, page 1529. (Refereed)

5. Revak, M. A. and **Warner, B. A.**, Bombs, Babies and Ball Games: Fostering Intellectual Curiosity in Basic Statistics, USAFA-TR-97-11, December 1997. (Not Refereed)

6. **Warner, B. A.** and Rutledge, J., Comparison of Intervals, USAFA-TR-98-1, January 1998. (Not Refereed)

7. **Warner, B. A.**, Pendergraft, D., and Webb, T., "That was Venn, This is Now", *Journal of Statistics Education*, Volume 6, Number 1, March 1998. (Refereed)

8. Simpson, K, and **Warner, B.**, "Society of Thoracic Surgeon Validation Study", DFMS-TR-98-2, January 1998. (Not Refereed)

9. **Warner, B.**, and Revak, M., "Meet Me in the Middle", *Mathematics Teacher*, Volume 92, Number1, January 1999. (Refereed)

10. **Warner, B. A.** and Misra, M., "Iteratively Re-weighted Least Squares Based Learning", *Proceeding of the 1998 IEEE International Joint Conference on Neural Networks*. (Refereed)

11. **Warner, B**., and Rutledge, J. "Simple Nonparametric Upper and Lower Tolerance Bounds Based on Order Statistics". (Not refereed.)

12. **Warner, B**., and Rutledge, J. "Checking the Chips Ahoy! Guarantee", *Chance*, Volume 12, Number 1, 1999. (Refereed)

13. Rutledge, J. and **Warner, B.,** "Using the Beta Distribution on Confidence Intervals for Proportions?", Proceedings of The Quality and Productivity Research Conference, May 1999. (Refereed)

14. **Warner, B**., and Kline, B., "A Probability Problem", *College Math Journal*, Volume 30, Number 5, November 1999. (Refereed)

15. **Warner, B**. "Introducing Descriptive Statistics and Graphical Summaries", *Statistics Teacher Network*, Spring, Number 54, April 2000. (Refereed)

16. MaWhinney, S., Brown, E., Malcolm, J. **Warner, B**. ,et al. "Identification of Risk Factors for Increases Cost, Charges, and Length of Stay for Cardiac Patients", *The Annals of Thoracic Surgery*, Volume 70, 2000. (Refereed)

17. Anderson, J., and **Warner, B.,** "Trees, Nets, Matches, and Mushrooms", DFMS-TR-00-2, July 2000. (Not Refereed)

18. Marshall, G., **Warner, B**., MaWhinney, S., and Hammermeister, K. "Prospective prediction in the presence of missing data", *Statistics in Medicine*, Volume 21, 2002. (Refereed)

19. **Warner, B.,** and Myers, L. "Lesson learned from running a problem-based course at USAFA", *Mathematica Militaris*, Volume 16, Issue 1, Spring 2006. (Not Refereed)

20. **Warner, B.,** Grobman, J., and Boedigheimer, R. "The Applicability of Equivalence Testing to Simulation Validation", *Phalanx*, Vol 39, No. 4, December 2006. (Refereed)

21. Rainey, L., Kreitman, K., **Warner, B**., and Johnson, S. (2007). Critical Thinking. In Loerch, A. and Rainey, L. (Ed), *Methods for Conducting Military Operational Analysis* (583 – 618). Alexandria: Military Operations Research Society. (Refereed)

22. **Warner, B.** "Being a Mathematician" *The USAFA Educator*, Volume 17, Issue 2, Fall 2008. (Not Refereed)

23. **Warner, B.** "DFMS's View of Achieving the Mission" *The USAFA Educator*, Volume 17, Issue 3, Spring 2009. (Not Refereed)

24. Basik K., **Warner, B.**, Keene, B., and Coyne, S. "Teacher Behavioral Integrity as the Pathway to Classroom Trust and Student Performance", In: *Proceeding of the Association of Leadership Educators Annual Conference*, Denver, CO, 10-13 July 2011. (Refereed)

25. **Warner, B.**, "In Math it All Counts", United States Air Force Academy Center for Character and Leadership Scholars Brief, Nov 2011.

26. Brilleslyper, M., Ghrist, M., Holcomb T., Schaubroeck, B., **Warner, B.**, and Williams, S. M., "What's the Point? The Benefits of Grading Without Points", *PRIMUS*, Volume 22, Issue 5, 2012. (Refereed)

27. Brilleslyper, M., Wakefield, N., Wallerstein, A., **Warner, B.** "Comparing the Growth of the Prime Numbers to the Natural Numbers", Fibonacci Quart. Volume 54, Number 1, 2016, 65–71. (Refereed)

28. Boedigheimer, R., Brilleslyper, M., Peterson, D., and **Warner, B.** "The Value of Air Force Sabbaticals to Operations, Academia, and Cadets", Mathematica Militaris, Vol. 22, Issue , 2017, 4-28. (Not Refereed)

Abstracts and Presentations

1. **Warner, B**., "Lightning Testing of Fiber Optic Cables", Broadband 89, Baltimore, Maryland. February, 1989.

2. **Warner, B**. and Paris, D., "Accelerated Aging of Fiber Optic Cable Components", National Fiber Optic Engineer Conference, Nashville, Tennessee. June, 1989.

3. **Warner, B**., "Understanding the Bootstrap". Invited presentation to researchers at the Colorado School of Mines, Golden, Colorado. February, 1995.

4. **Warner, B**., "Combining Complex Predictive Models and Additive Models", American Statistical Association Colorado-Wyoming Chapter Spring Meeting, Boulder, Colorado. May, 1995.

5. **Warner, B**., "Incorporating a Neural Network into Logistic Regression", Annual Meeting of the Classification Society of North America, Denver, Colorado. June, 1995.

6. **Warner, B**. and Marshall, G., "Predicting the Probability of an Adverse Outcome in the Presence of Missing Data", The Fourteenth Annual Epidemiological Research Exchange, Denver, Colorado. November, 1995.

7. **Warner, B.**, "Continuous Improvement in Cardiac Surgery", Colorado School of Mines Math Colloquium, November 8, 1996. (Invited)

8. Shroyer, L., MaWhinney, S., and **Warner, B.**, "No Relationship Between Coronary Artery Bypass Procedure Volume and Hospital Length of Stay", American Heart Association 69th Scientific Session, November 1996. (Poster Session)

9. **Warner, B.** and Rutledge, J., "Teaching Introductory Statistics at the United States Air Force Academy", Midwestern Conference on Teaching Statistics., March 21-22, 1997.

10. **Warner, B.** and Rutledge, J., "How Many?", CO-WY Chapter of the ASA Spring Meeting, April 1997. (Invited)

11. **Warner, B.** and Rutledge, J., "The Challenge?", University of Colorado - HSC Biometrics Seminar., June 1997. (Invited)

12. **Warner, B. A.**, "Use of S-Plus to Automate and Supplement the Semi-Annual Department of Veterans Affairs Continuous Improvement in Cardiac Surgery Reports", Proceedings of the S-Plus User Conference, October 1997.

13. Revak, M., and **Warner, B. A.**, "A Sampling from Statistics", Colorado Council of Teachers of Mathematics Annual Conference, October 1998.

14. Revak, M., and **Warner, B. A.**, "A Statistics Sampler", National Council of Teachers of Mathematics Annual Conference, April 2000.

15. Revak, M., and **Warner, B. A.**, "Tactile Statistics", Colorado Council of Teachers of Mathematics Annual Conference, October 2000.

16. **Warner, B. A.**, "Department of Veterans Affairs Continuous Improvement in Cardiac Surgery Program", Probability and Statistics Colloquium Department of Applied Mathematics, University of Colorado at Boulder, October 23, 2000. (Invited)

17. **Warner, B. A.**, "Department of Veterans Affairs Continuous Improvement in Cardiac Surgery Program", Seminar Series, University of Colorado at Denver, April 13, 2001. (Invited)

18. Revak, M., and **Warner, B. A.**, "Serving-up Statistics", Colorado Council of Teachers of Mathematics Annual Conference, September 2001.

19. **Warner, B. A.**, "Applicability of Equivalence Testing for Comparing OT&E and M&S Data", Military Operations Research Symposium, Albuquerque, October 2002.

20. Boedigheimer, Ralph, Grobman, Jeffrey, and **Warner, B. A.**, "Simulation V&V with Bioequivalence Testing", INFORMS Annual Meeting, Denver, October 24-27, 2004.

21. Brilleslyper, M., and **Warner, B. A.**, "Web-Based Reading Forms for Enhanced Classroom Discussion in Mathematics", International Conference on Technology in Collegiate Mathematics, Orlando, FL, March 2006.

22. Brilleslyper, M., and **Warner, B. A.**, "Web-Based Reading Forms for Enhanced Classroom Discussion in Mathematics", MAA Rocky Mountain Section Meeting, Grand Junction, CO, April 2006.

23. **Warner, B. A.**, Lehmkuhl, L. Kerchner, M., "Computer Intensive Tools for use in AoA Data Mining, Analysis, and.Summary", 74th Military Operations Research Society Symposium, Colorado Springs, 13-15 June 2006.

24. Ferguson, L., **Warner, B. A.**" Front-Line Instructors' Thoughts on Using Model Eliciting Activities in the Day-to-Day Classroom" ICTMA, University of Indiana, 2007.

25. **Warner, B. A.**, Nelson, C. "Practice What You Preach: The Use of Problem Solving and Literature Review in Faculty Development" Joint Mathematics Meetings, San Diego, CA, January 2008.

26. **Warner, B. A**. Keynote speaker for District-20 Faculty Development Day. The theme was conversations on teaching math. Colorado Springs, CO, January 2010.

27. **Warner, B**, Morris, D., Sagendorf, K., Anaejionu, P., and Lofters, A., "How do we develop a culture that engages faculty and students in the community and the world?", National Symposium: "Engaging Students in the Community and the World", Washington, D.C., 19-20 November 2010.

28. Basik, K., **Warner, B**, Keene, B., and Coyne, S., "Teacher Behavioral Integrity as the Pathway to Classroom Trust and Student Performance", Association of Leadership Educators Annual Conference, Denver, CO, 10-13 July 2011.

29. Basik, K., Behrens, S., Mercer, C., Meyers, P., and **Warner, B**., "Trust-Based Mentoring: An Inovative Way to Achieve Learning Outcomes", National Symposium: "Emerging Pedagogies for the New Millennium", San Juan, Puerto Rico, 18-19 November 2011.

30. Brilleslyper, M. and **Warner, B.**, "Growth of Integer Sequences: A Perspective Based on Multiplication", Joint Mathematical Meetings, Boston, MA, January 2012.

31. Wallerstein, A.J., **Warner, B.**, and Brilleslyper, M., "Interesting Properties of Sequences using a Multiplicative Metric" Pikes Peak Undergraduate Math Conference, University of Colorado at Colorado Springs, 5 February 2012.

32. Brilleslyper, M., Wallerstein, A.J., and **Warner, B.**, "Integer Sequences: Ideas about Growth Functions and Growth Limits" Rocky Mountain Section of the MAA Annual Meeting, Auraria Campus, Denver, CO, April 2012.

33. Brilleslyper, M. and **Warner, B.**, "Integer Sequences, Growth Functions, and Growth Limits: Measuring Divergence via Multiplication" MathFest, Madison, WI, August 2012.

34. Rolf, J., **Warner, B.**, and Scharff, L., "Peer Instruction via Learning Catalytics Compared to Active Learning". Joint Mathematics Meetings, San Diego CA, January 2013.

35. Wakefield, N., Brilleslyper, M., Wallerstein, A.J., and **Warner, B**., "Comparing the Growth of Prime Numbers to the Natural Numbers" University of Colorado, Boulder, Mathematics Department Number Theory Colloquium, October 2013.

36. **Warner, B.** and Varble, D. "Scholars Program and Math 300S", United States Air Force Academy, February 2014.

37. **Warner, B.** "Statistical Consulting Principles", Auburn University, February 2014. (Invited)

38. **Warner, B.**, Clark, M., Gerber, T., and Anson, W. "Training the Next Generation of Workforce", VACCINE Annual Meeting 2015, Purdue University, October 2015. (Invited guest panel speaker and moderator).

39. Hatton, W. and **Warner, B.** "Visual Analytics and a Solution to the VAST Challenge", Poster at the Innovation Showcase, Colorado Springs, November 2015.

40. **Warner, B.** "USAFA's Summer Experience with the VACCINE Center", 2016 Service Academies Faculty Training Workshop on Visual Analytics, Colorado Springs, October 2016.

41. **Warner, B.** "Thoughts on the Future of Teaching in Higher Education", USAFA Mathematics Department Lecture, Feb 2018.

42. **Warner, B.** "Teaching Data Science", USAFA Mathematics Department Lecture, Feb 2019.

Dissertation

Warner, B., "Neural Network Extensions to Generalized Linear Models with Shrinkage to Account for Model Uncertainty." Unpublished doctor's thesis, University of Colorado Health Sciences Center, Denver, Colorado, 1996.

Thesis

Warner, B., "Computer Based Bootstrap Simulation." Unpublished master's thesis, Colorado School of Mines, Golden, Colorado, 1993.

Teaching Experience

Instructor	Spring 1985	Naval Nuclear Power School	Physics
Teaching Assistant	Fall 1992	Colorado School of Mines	Fortran
Teaching Assistant	Spring 1993	Colorado School of Mines	Computer Packages

Teaching Assistant	Fall 1993	Colorado School of Mines	Fortran
Teaching Assistant	Spring 1994	Colorado School of Mines	Computer Packages
Assistant Professor	Fall 1996 - Spring 1998	USAFA	Statistics/Math
Associate Professor	Fall 1999 - Spring 2002	USAFA	Statistics/Math
Associate Professor	Fall 2002- Spring 2003	Sabbitical to U.S. Air Force Space Command	
Professor	Fall 2003- Spring 2010	USAFA	Statistics/Math
Scholar-in-Residence	Summer 2010- December 2010	USAFA – Center for Character and Leadership Development	
Scholar-in-Residence	January 2011- May 2011	New York University – Faculty Resource Network	
Professor	Summer 2011- Present	USAFA	Statistics/Math

Statistical Consulting Clients and Experience

Department of Veterans Affairs	Kirtland Air Force Base
McClellan AFB Casting Emissions Reduction Program	Society of Thoracic Surgeons
CSM Continuing Education Department	DFB (Biology) at USAFA
Kelly Air Force Base	Edwards Air Force Base
Synthes, USA	Boehringer Ingelheim
Ethicon	Joint Direct Attack Munitions at Eglin AFB
Luke AFB	Glaxo-Wellcome
Conseco	

A brief list of some of the projects

September 1993   Developed database structure and analysis plan for the results of a survey for Colorado School of Mines Department of Continuing Education.

June 1994   Analyzed data to determine the risk factors associated with salvage angioplasty. Required the development of custom software for determining linear breakpoint in generalized linear models.

September 1994   Investigated the relationship between age and change in functional status for geriatric patients after an episode in an intensive care unit.

June 1995   Determined the inter-rater agreement between observers at different sites and a gold standard.

August 1995   Implemented a risk-adjusted length of stay model using a Cox proportional hazards model. This model is used as a measure of the cost of care.

August 1996   Assisted the biology department in determining the prevalence of salmonella in iguanas.

August 1997   Assisted the casting emission reduction program at McClellan AFB in reducing their base line variance.

May 1998	Assisted Synthes USA in determining if their medical packaging passed accelerated strength testing.
June 1998	Conducted a three day workshop on neural networks for Boehringer-Ingelheim, an international pharmaceutical company.
July 1998	Taught a three day short course on statistical process control to process engineers for Ethicon in Puerto Rico.
June 1999	Conducted a three day workshop on design of experiments for Ethicon in Georgia.
September 2000	Conducted a one hour tutorial on Neural Networks for AFORS at USAF Academy.
October 2000	Performed confidential time sensitive data analysis for Glaxo-Wellcome.
December 2000	Taught a three day short course on statistical process control to process engineers for Ethicon in Somerville, New Jersey.
July 2001	Taught a three day short course on statistical process control to process engineers for Ethicon in Cornelia, Georgia.
August 2001	Assisted in the investigation of an F-16 crash. Developed software to calculate reliability for the F-16 engine.
July 2002	Analyzed financial data, loan fraud, for Conseco. Determined key identifiers of high loan default probability.
July 2003	One year sabbatical to United States Air Force Space Command at Peterson AFB. Consulted on a number of projects to include the Operational Responsive Spacelift Analysis of Alternatives, bomb accuracy analysis from Afghanistan conflict, and satellite tracking accuracy. I was awarded a civilian service medal for this work.
July 2012	Conducted a week long course on the design and analysis of experiments for personnel at MacDill Air Force Base.
November 2012	Assisted Air Force Personnel Center in the study design for enlisted promotions.
Spring 2013	Conducted a three day and a separate week long course on the design and analysis of experiments for personnel at Hanscom Air Force Base.
Summer 2015	Took two students to Purdue University for a summer research project. Obtained a grant from DHS to finance the work. We worked on using visual analytics methods and models. Received an honorable mention in the national VAST challenge. Also established the funding and opportunity for a summer research at Columbia for two students and a colleague.
Summer 2016	Obtained funding to send one student and a colleague to Stanford to work on aircraft collision avoidance using probabilistic graphical models.

Service

- Reviewed papers for Statistics in Medicine (1996 and 1998), two articles for the Western Decision Sciences Conference (1997), article for the Journal of Quality Technology (1998,2006), article for Journal of Statistical Education (2000 and 2002), book review for the American Statistician (2002), articles for PRIMUS (2011, 2012,2016,2017) .
- Served on the District 20 sub-committee for time. We developed a proposal to better utilize time for student and staff in the District 20 school district. Worked with this group outside of normal working hours and interfaced with many members of the community. (1996 – 1997)
- Advisor to many OR and math majors over the years.
- A member/chairman of the civilian hiring committee for the Department of Mathematical Sciences for three years. Responsible for hiring six new faculty members. On the
- Co-chairman and organizer of the Western Statistics Teachers' Conference, an international conference promoting the teaching of statistics. (March 1998)
- Assisted in developing a computer-based method to track research at USAFA. (Spring 1998)
- Sponsored two cadets.
- President of the CO-WY Chapter of the American Statistical Association.
- Hosted a national workshop on teaching statistics with Allan Rossman and Tom Short (Nov 99).
- Organized a workshop for local high school advanced placement statistics teachers (Feb 00).
- Co-organizer of the 4th Annual Undergraduate Data Analysis Contest. A national contest sponsored by the American Statistical Association.
- Taught numerous independent study courses to include deep learning, probabilistic graphical models, .
- Organized and obtained a $3500 grant to run a one-day workshop on statistical education reform. It was held here at the Academy and the presenters were Allan Rossman and Beth Chance.
- Member of numerous committees at the United States Air Force Academy to include Faculty Personnel Council, Faculty Council, Faculty Forum, USAFA Truman Scholarship selection (co-directed 2007-2008), several curriculum development, and many hiring committees.
- Attended the Aspen Seminar in the Fall 2008.
- Capstone mentor for two students, a paper was accepted for publication.
- Character coach for 4 students, nominated to be first STEM member of the Educational Advisory Council to the Character Education Partnership (2012), invited to attend a colloquium for statistics education experts (2012).
- SoTL (Scholarship of Teaching and Learning) consultant (2013).
- Ran a workshop in conjuction with Purdue and Georgia Tech on teaching visual analytics to undergraduates. Funded by a $50,000 grant from Department of Homeland Security (Fall 2016).
- Co-facilitated at workshop on Visual Analytics with Purdue, Arizona State, and Georgia Tech at Prairie View A&M University (May 2017).

Honors and Awards

Colorado Scholars Scholarships, 1980-1981
Tau Beta Pi Honor Society, Colorado School of Mines, 1982-1984.
Dean's Academic List, 1980-1984.
Union Oil Scholarship, 1983.
Topman at Naval Nuclear Power School, 1985.
Navy Achievement Medal, 1988.
Health Sciences Center Graduate School Doctoral Fellowship, 1995.
Division of Biometrics Strother Walker Outstanding Graduate Student Award, 1996.
Department of Veterans Affairs Certificate of Appreciation, 1997.
Best Paper at the S-PLUS Users Conference, October, 1997.
United States Air Force Academy Statistical Division Outstanding Instructor of the Year, 1998.

Nominated by United States Air Force Academy for AFORS Civilian Analyst of the Year, 1998.
Civilian Exemplary Service Medal, 2003.
Civilian Meritorious Service Medal 2010.
Visiting Scholar - USAF Academy Center for Character and Leadership Development fall semester 2010.
Visting Scholar - NYU spring semester 2011.
Mentor to Second Place finish in 2016 University of Denver Student Data Analytics Competition 2016.
Mentor to First Place finish in 2017 University of Denver Student Data Analytics Competition 2017.
Jim Lowe Outstanding Educator Award 2017.

Computing Experience

I have prgrammed in the following languages: R, Python, Spark, C, Fortran, SAS, Splus, Latex, and Visual Basic.
Operating Systems: DOS/Windows, OS X, and Unix.
Administrator of two Sun Sparc Workstations running Solaris.

Research Interests

Character and leadership development
Mathematical pedagogy
Complex modeling methods – machine learning, unstructured data, streaming data, Bayesian belief networks, visual analytics, and deep learning