

CURRICULUM VITA
Laura A. McNamara, PhD
Principal Member of Technical Staff
Sandia National Laboratories
Albuquerque, New Mexico, 87185

EDUCATION

Ph.D., Anthropology (Distinction)

Department of Anthropology

University of New Mexico

May 2001

Dissertation: *Ways of Knowing About Weapons: The Cold War's End at the Los Alamos National Laboratory*. Marta Weigle, Doctoral Chair.

M.A., Ethnology

Department of Anthropology

University of New Mexico

December 1994

B.S., Foreign Service (Cum Laude)

Georgetown University

Washington, D.C.

May 1991

PROFESSIONAL SERVICE

2006-Present. Member of Ad Hoc Commission on Intelligence and National Security, American Anthropological Association. Commission Conference and public discussion to be held at Watson Institute, Brown University, March 12-13, 2007; Final Report in November 2007.

SELECTED PUBLICATIONS AND WRITING PROJECTS

EDITED VOLUMES

Paton, Ray and McNamara, Laura A, eds. 2005. *Multidisciplinary Approaches to Theory in Medicine*. Amsterdam: Elsevier Press.

BOOK PROJECTS

Lead series editor for Elsevier Science Publications *Studies in Multidisciplinarity*, which focuses on interdisciplinary applied and theoretical work in the social, computational and physical sciences. Four volumes in publication, three volumes under contract. More information available upon request.

School of American Research, Santa Fe, NM. Co-Chair (with Neil Whitehead) of SAR Short Seminar, “Anthropology, the Military, and State Violence,” February 25-28, 2007. To be followed by an Advanced Seminar in Fall 2007, a panel at the Society for Applied Anthropology Meetings in 2008, and an edited volume in 2008-2009.

REFEREED PUBLICATIONS

McNamara, Laura. 2007. “Truth is Generated Here: The Production of Nuclear Confidence at the Nevada Test Site.” In Depoe, S., Kinsella, W., Metzler, M and Taylor, B., eds. *Nuclear Legacies: Communication, Policy, and Conflict at US Nuclear Weapon Production Facilities*. St. Paul, MN: University of Minnesota.

Wilson, Alyson; McNamara, Laura; Wilson, Gregory. 2007. “Information Integration for Complex Systems.” Accepted by *Technometrics*, publication date forthcoming.

McNamara, Laura and Leishman, Deborah. 2005. “Interlopers, Translators, Scribes and Seers: Anthropology, Knowledge Representation and Bayesian Statistics for Predictive Modeling in Multidisciplinary Science and Engineering Projects.” In Paton, R. and Leishman, D. eds. *Multidisciplinary Approaches to Visual Representation and Interpretation of Information: Studies in Multidisciplinarity*. Elsevier Science.

Booker, Jane and McNamara, Laura. 2004. “Expert Knowledge in Reliability Characterization: A Rigorous Approach to Eliciting, Documenting, and Analyzing Expert Knowledge.” In Ghiocel, D.M. and Nikolades, E., eds. *Engineering Design Reliability Handbook*. London: CRC Press.

McNamara, Laura. 2002. “Representing Time: The Language of Uncertainty in Post Cold War Los Alamos.” *Theoria et Historia Scientiarum, A Special Issue on Knowledge Representation: From Quanta to Culture*. 6: 70-84.

NONREFEREED REPORTS AND PUBLICATIONS

Available upon request.

RECENT INVITED PRESENTATIONS

McNamara, Laura A. June 2007. “Verification and Validation as Applied Epistemology.” Presented to the Greater London Economic Authority and the Ministry of Transport, London, England.

McNamara, Laura A; Timothy Trucano and George Backus. April 2007. “Verification and Validation Approaches for Computational Social Science.” Human Complex Systems Conference, Lake Arrowhead, CA.

McNamara, Laura A. May 2007. “Dimensions and Dilemmas: Applied Anthropology in the Intelligence Community.” Special panel for the second annual Intelligence Analysts’ Conference, sponsored by the Global Business Network, Fort Meade, Maryland.

McNamara, Laura A. November 2006. “Modeling and Simulation, Cultural Anthropology and National Security Decision Making.” United States Navy, Strategic Studies Group, Newport, Rhode Island, November.

McNamara, Laura A. and Timothy Trucano. October 2006. “Modeling and Simulation for National Security Decision Making: Notes Toward a Practical Epistemology of Scientific Computing.” Invited Seminar in X Division (Applied Physics), Los Alamos National Laboratory.

McNamara, Laura A. September 2006. “Closing Comments: Thoughts on Culture, Language and Power.” US Army Air War College Cultural Competency Conference, Montgomery, Alabama.

McNamara, Laura A. December 2005. “Culture, Complexity, Computational Modeling, and National Security Decision Making: Learning from Nuclear Weapons.” Naval Strategic Studies Group, Newport, Rhode Island.

OTHER PAPERS, PANELS, AND PROFESSIONAL ACTIVITIES

McNamara, Laura A. March 2007. “Consequential Knowledge and Intelligence Analysis: Why Software Doesn’t Equal Better Collaboration.” Knowledge Laboratory, Defense Intelligence Agency, Washington, DC.

McNamara, Laura A. 2006. “Modeling, Simulation, and National Security Decision Making: Where are the Anthropologists?” Editorial, *Anthropology News* October.

McNamara, Laura A. 2006. “Practicing Anthropology in the National Security and Intelligence Communities.” Invited Speaker at panel organized by Paul Nuti, Director of Government Relations, American Anthropological Association, San Jose, CA.

McNamara, Laura A. 2006. “The Moral Epistemology of Anthropology and Fieldwork in the Defense Community.” Paper for meetings of the Society for Applied Anthropology, Vancouver, Canada.

McNamara, Laura A. 2005. Organizer, *Bringing Anthropology into Science and Science into Anthropology: Cross-Disciplinary Trends*. Panel for the National Association for the Practice of Anthropology, American Anthropological Association, National Meetings, Washington, DC. December.

McNamara, Laura A. 2005. “Human Behavior, Physics, Complexity And Computational Modeling: Where Are The Anthropologists?” Paper for the National Association for the Practice of Anthropology, American Anthropological Association, National Meetings, Washington, DC. December.

McNamara, L.A. 2002. "Dispatch from the Front Lines: The Sociotechnical Construction of Threat in Theater Missile Defense," American Anthropological Association, New Orleans, LA (November).

Leishman, Deborah and McNamara, Laura. 2002. "Interlopers, Translators, Scribes and Seers: Anthropology, Knowledge Representation and Bayesian Statistics for Predictive Modeling in Multidisciplinary Science and Engineering Projects," Workshop on Visual Representation and Interpretation, Liverpool, UK (October).

Booker, Jane and McNamara, Laura. 2002. "Solving the Challenge Problems Using Expert Knowledge Principles and Methods." Poster presentation at the Epistemic Uncertainty Workshop, sponsored by Sandia National Laboratory, Albuquerque, NM (August).

McNamara, Laura and Leishman, Deborah. 2002. "Case Study in Ballistic Missile Defense," Spring Research Conference on Statistics in Industry and Technology, Ann Arbor, MI (March).

Wilson, Alyson, Leishman, Deborah, and McNamara, Laura. 2002. "Knowledge Integration to Support Decision Making," SMART Conference, Short Course, Salt Lake, UT (March).

HONORS, SERVICE, MEMBERSHIPS

HONORS AND AWARDS

Fellow, Society for Applied Anthropology. Spring 2007.

United States Intelligence Community Postdoctoral Award Competition, "Challenge Problems in Modeling Uncertainty." Proposal co-authored with Timothy Trucano, Sandia National Laboratories, resulted in two-year award of supervised postdoctoral position at Sandia National Laboratories. 2006.

Department of Energy, National Nuclear Security Administration, Distinguished Performance Award, Tri-Laboratory Security Working Group Team, Co-Team Leader, 2006.

Maxwell Museum Association/University of New Mexico Department of Anthropology. Ruth E. Kennedy Award for Outstanding Doctoral Candidate in Department of Anthropology. April 2001.

New Mexico Folklore Society/University of New Mexico Department of Anthropology. Outstanding Graduate Folklore Student. January 1996.

National Science Foundation. Honorable Mention, Graduate Research Fellowship Program. March 1994.

PROFESSIONAL MEMBERSHIPS

- American Anthropological Association
- Fellow, Inter University Seminar on the Armed Forces and Society (IUSAFS), 2004-present. American Anthropological Association
- Committee for the Anthropology of Science, Technology and Computing
- Society for Applied Anthropology
- Society for Cultural Anthropology
- American Ethnological Society
- Voting Member, Department of Energy/Sandia National Laboratories Institutional Review Board

PROFESSIONAL SERVICE/OTHER ACTIVITIES

- Volunteer and assistant fundraising coordinator for Southwest Llama Rescue, Silver City, New Mexico
- Volunteer, Walkin' in Circles Equine Rescue Ranch in Edgewood, New Mexico
- Consultant to Los Alamos Alliance, Proposal Bid team for Department of Energy/National Nuclear Security Administration, Los Alamos National Laboratory M&O Contract Competition, June-July 2005.

METHODOLOGICAL AND RESEARCH INTERESTS

- Organizational and team dynamics in interdisciplinary modeling and simulation projects
- Application of computational social simulation in high-consequence decision making environments
- Introduction of computational methodologies into communities not accustomed to use of computational tools
- Documenting emerging strategies for nuclear weapon certification under Science Based Stockpile Stewardship
- Post Cold War nuclear deterrence policy, especially relationship between testing and nuclear proliferation
- Development of environments for collaborative decision making
- Qualitative research methods to document expert knowledge in multidisciplinary technical projects
- Graphical representations (Conceptual Graphs) for collaborative research initiatives
- Elicitation and representation of expert judgment and expert uncertainty

EXPERIENCE

August 2006-Present. **Principal Member of Technical Staff, Exploratory Simulations Department, Sandia National Laboratories**

- Ethnographic studies of organizational dynamics impacting productivity in high performance (massively parallel) computing
- Epistemology of prediction for modeling and simulation aimed at high-consequence decision making, with emphasis on critique towards intelligence and military efforts to develop predictive social simulations
- Verification and validation methodology development for computational models of cognitive processes.

November 2003-July 2006. **Principal Member of Technical Staff, Advanced Concepts Group, Sandia National Laboratories**

- Team with ACG members in year-long study of decision making under uncertainty in intelligence and homeland security applications
- Perform ethnographic research in intelligence community to identify strategies for improved collaboration
- Work with uncertainty quantification and optimization experts to document changing requirements for confidence in computational modeling and simulation

July 2003-November 2004. **Principal Member of Technical Staff, Cooperative Monitoring Center (CMC), International Security Programs, Sandia National Laboratories**

- As member of Sandia's Regional Security Programs Organization,
- Develop cross-disciplinary, multinational research projects that focus on confidence building in areas of international conflict.
- Apply novel elicitation and representational formats to communicate critical tacit organizational knowledge from Sandia's CMC in Albuquerque to our sister center in Amman, Jordan.
- As member of interdisciplinary team, elicit community knowledge and develop qualitative models for decision support tools for water policymakers in the Middle Rio Grande Valley.

April 2001-July 2003. **Technical Staff Member, D-1, Statistical Sciences, Los Alamos National Laboratory.**

- As member of D-1's Knowledge Modeling Team, interface with scientists, engineers and statisticians in developing models to support collaborative decisionmaking. Major project areas listed below:
- Bayesian hierarchical reliability model for Critical Measurement Program at Space Missile Defense Command (SMDC) in Huntsville, Alabama.
- Elicitation and documentation of expert judgment for Predictive Code Assessment Team (PCAT), X-4, X Division, Los Alamos National Laboratory.
- Elicitation of expert judgment for W-88 Certification Project (WEEP).
- Enhanced Reliability Modeling (ERM): elicitation of physics knowledge for Bayesian model of nuclear weapon performance and reliability, Los Alamos National Laboratory.

September 2000-April 2001. **Graduate Research Assistant, D-1, Statistical Sciences, Los Alamos National Laboratory.**

- While completing dissertation, documented organization of expert knowledge in nuclear weapons programs to support D-1's Enhanced Reliability Methodology project.

January 1998-September 2000. **Graduate Research Assistant, Archives and History Programs, Los Alamos National Laboratory.**

- Working with LANL historian and weapons program staff members, conducted interviews and archival research for DOE Nevada Operations Office (NVOO) project entitled "Archiving Operation Julin," a knowledge-capture effort to document LANL's final series of nuclear tests.
- Assisted visiting researchers in navigating Laboratory's document collections.
- Ethnographic research for doctoral dissertation concerning impact of test moratorium on Los Alamos' nuclear weapons community.

August 1997-January 1998. **Graduate Research Assistant, Human Resources Division, Los Alamos National Laboratory.**

- Evaluated HR pilot project to promote mentoring relationships between junior and senior staff as part of Laboratory knowledge preservation effort.
-

January 1995-August 1997. **Research Assistant, Institute for Social Research, University of New Mexico.**

- Designed research methodology and wrote grants for evaluation projects focused on juvenile justice initiatives in New Mexico.
- Conducted interviews and tracked clients under Target Cities Initiative, a U.S. Department of Health project to evaluate centralization of client services for homeless substance abusers.

REFERENCES

Dr. Sallie Keller-McNulty
Dean, School of Engineering
Rice University
Houston, TX
sallie@rice.edu

Dr. Gerry Yonas
Vice President, Sandia National Laboratories
Advanced Concepts Group
gyonas@sandia.gov

Dr. Marta Weigle
Department of Anthropology
University of New Mexico
Albuquerque, NM
(505) 277-4524
mweigle@unm.edu