

Department of Health and Human Services Public Health Service		PI: SAID, YASMIN H		Council: 01/2006	
Ruth L. Kirschstein National Research Service Award		1 F32 AA015876-01 A1		IPF:819801	
Application Number: 10050646		Dual:		Received: 08/05/2005	
1. TITLE OF RESEARCH TRAINING PROPOSAL (Do not exceed 56 characters, including spaces and punctuation.)		3. PROGRAM ANNOUNCEMENT/REQUEST FOR APPLICATIONS			
A Social Network Model of Ecological Alcohol Systems		PA-03-067			
2. LEVEL OF FELLOWSHIP F32:Post Doc		4a. NAME OF APPLICANT (Last, First, Middle Initial)		4b. EMAIL ADDRESS	
4a. Said, Yasmin H.		4b. [REDACTED]		4c. HIGHEST DEGREE(S) MS Ph.D	
4d. PRESENT MAILING ADDRESS (Street, City, State, Zip Code)		4e. PERMANENT MAILING ADDRESS (Street, City, State, Zip Code)			
4d. [REDACTED]		4e. [REDACTED]			
4f. OFFICE TELEPHONE NO. (Area Code, No. and Ext.)		4g. HOME TELEPHONE NO. (Area Code and No.)		4h. PERMANENT PHONE NO. (Area Code and No.)	
4f. [REDACTED]		4g. [REDACTED]		4h. [REDACTED]	
4i. FAX NUMBER (Area Code and No.)		4i. [REDACTED]			
4j. <input checked="" type="checkbox"/> U.S. CITIZEN OR U.S. NONCITIZEN NATIONAL or <input type="checkbox"/> PERMANENT RESIDENT OF U.S.					
5. TRAINING UNDER PROPOSED AWARD (See Fields of Training)			6. PRIOR AND/OR CURRENT NRSA SUPPORT (Individual or Institutional)		
Discipline No.: 3950 Subcategory Name: Health Policy Research			<input checked="" type="checkbox"/> NO <input type="checkbox"/> YES (If "Yes," refer to item 24, Form Page 5)		
7a. DATES OF PROPOSED AWARD		7b. PROPOSED AWARD DURATION		8. DEGREE SOUGHT DURING PROPOSED AWARD	
From (MM/DD/YY): 01/01/06 Through (MM/DD/YY): 12/31/08		(in months) 36		Degree: Expected Completion Date:	
SPONSOR COMPLETES ITEMS 9 THROUGH 14					
9. HUMAN SUBJECTS <input type="checkbox"/> NO <input checked="" type="checkbox"/> YES		9a. RESEARCH EXEMPT <input type="checkbox"/> NO <input checked="" type="checkbox"/> YES If "Yes" Exemption No.: 4		9b. HUMAN SUBJECTS ASSURANCE NO. A00000549	
9c. NIH-DEFINED PHASE III CLINICAL TRIAL <input checked="" type="checkbox"/> NO <input type="checkbox"/> YES		10a. VERTEBRATE ANIMALS <input checked="" type="checkbox"/> NO <input type="checkbox"/> YES		10b. ANIMAL WELFARE ASSURANCE NO.	
11a. NAME OF SPONSOR (Last, First, Middle Initial) Wegman, Edward J., Ph.D. Telephone: (703) 993-1691 Fax: (703) 993-1700 Email: ewegman@galaxy.gmu.edu			11b. NAME OF PROPOSED SPONSORING INSTITUTION George Mason University Address: Center for Computational Statistics, MS 4A7 4400 University Drive Fairfax, VA 22030-4444		
11c. DEPARTMENT, SERVICE, LABORATORY, OR EQUIVALENT Center for Computational Statistics			11d. MAJOR SUBDIVISION School of Computational Science		
12. ENTITY IDENTIFICATION NO. [REDACTED]			DUNS NO. 07-781-7450		
13. NAME AND TEL. NO. OF ADVISOR IF DIFFERENT FROM 11a. same as 11a. Telephone: Name and address of institution where research training will take place if different from item 11b. same as 11b. Address:			14. NAME OF OFFICIAL IN BUSINESS OFFICE Ann T. McGuigan, Ph. D. Telephone: (703) 993-2298 Fax: (703) 993-2296 Title: Director, Office of Sponsored Programs Address: 4400 University Drive, MS 4C6 Fairfax, Virginia 22030 Email: amcguiga@gmu.edu		
15. APPLICANT CERTIFICATION AND ACCEPTANCE: I certify that the statements herein are true, complete, and accurate to the best of my knowledge, and I agree to comply with the terms and conditions of award if an award is issued as a result of this application. I am aware that any false, fictitious, or fraudulent statements or claims may subject me to criminal, civil, or administrative penalties. I certify that I have read the Ruth L. Kirschstein National Research Service Award Assurance, that I will abide by the Assurance if an award is made, and that the award will not support residency training.					
SIGNATURE (Required of each applicant) [Signature]			DATE 8-3-2005		

Kirschstein-NRSA Individual Fellowship Application <i>(To be completed by applicant – follow PHS 416-1 instructions)</i>				NAME OF APPLICANT <i>(Last, first, middle initial)</i> Said, Yasmin H.	
16. APPLICANT'S EDUCATION					
DEGREE	MONTH / YEAR	FIELD	INSTITUTION	MENTOR	
AB	8/1998	Pure Mathematics	Trinity College	Lee Chiang	
MS	5/2003	Computer Information Systems	American University	D. Crosby, N. Flournoy	
Ph.D.	5/2005	Computational Statistics	George Mason University	Edward J. Wegman	
17. APPLICANT'S TRAINING/EMPLOYMENT <i>(After college)</i>					
ACTIVITY/OCCUPATION	BEGINNING DATE (mm/yy)	ENDING DATE (mm/yy)	FIELD	INSTITUTION/COMPANY	SUPERVISOR/ EMPLOYER
Instructor	8/98	6/00	Mathematics	Emerson Preparatory, DC	Ann Walsh
Instructor	1/02	1/05	Mathematics	Islamic Saudi Academy	Peter Gressis
18. GOALS FOR KIRSCHSTEIN-NRSA FELLOWSHIP TRAINING AND CAREER					
<p>My background has been principally in mathematics, statistics, and computer science. Dr. Wegman has been working with NIAAA since 2001. In addition, his brother died of alcohol-induced cardiomyopathy. He has been so passionate about issues related to alcohol abuse and alcoholism that he has inspired me to want to work in this area as a life career. My immediate desires for the postdoctoral fellowship is to broaden my background so that I can bring to bear a wide variety of interdisciplinary skills to problems. To this end I am seeking to develop skills in social networks, geographic information systems, neuroscience, biology, and alcohol studies in general, to complement my background in mathematics, statistics, and computer science. I believe that this will position me to be a very significant contributor to the field of alcohol studies. Again, it is my strong desire to continue working in this health related area for my entire career.</p>					
SPONSOR					
19. NAME AND DEGREE(S) Dr. Edward J. Wegman					
20. POSITION/RANK Professor (Bernard J. Dunn Chair)					
21. RESEARCH INTERESTS/AREAS Computational Statistics, Data Graphics and Visualization, Modeling of Alcohol Ecology					
RESEARCH PROPOSAL					
22. DESCRIPTION <i>(Do not exceed space provided)</i>					
<p>We recognize that alcohol abuse leads to acute outcomes for both society and individuals. Among these, we identify DWI crashes with fatalities, assault and battery, suicide, murder, sexual assault, domestic violence, and child abuse. Alcohol abusers are embedded in a social network that involves the user, family and friends, producers and distributors of alcohol products, law enforcement, the judiciary, remediation, education, and intervention facilities such as Alcohol Safety Action Programs, and detox and treatment facilities, which are, of course, coupled to insurance and managed-care programs. This complex network is reminiscent of more traditional biologic ecology systems, hence the name. The basic idea is to formulate a model of this network with the goal of exploring short- and long-term interventions that reduce the overall probability of acute outcomes. The unique feature of this proposed work is that we are attempting to explore the simultaneous reduction of all acute outcomes. Historically, modeling attempts have focused on specific acute outcomes. The framework we are pursuing is a dynamic agent-based simulation.</p>					

Kirschstein-NRSA Individual Fellowship Application
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NAME OF APPLICANT (Last, first, middle initial)
 Said, Yasmin H.

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Section 3 — References (Minimum of 3)

(See instructions for submission of references.)

List full name, institution, and department of individuals submitting reference letters.

_____, American University
 _____, Naval Surface Warfare Center
 _____, George Mason University
 _____, Buffalo State (SUNY)
 _____, George Mason University

Other Items (list):

Personal Data Page for Fellowship Applicants

Section 4 — Appendix

(3 collated sets. No page numbering necessary. Not to exceed 3 publications; 2 for predoctoral candidates.)

☐ Check if Appendix is included

**Kirschstein-NRSA Individual Fellowship Application
Background**

(To be completed by applicant – follow PHS 416-1 instructions.)

NAME OF APPLICANT (Last, first, middle initial)

Said, Yasmin H.

24. PRIOR AND/OR CURRENT KIRSCHSTEIN-NRSA SUPPORT. List type (individual and/or institutional), level (pre or post), dates, and grant or award numbers.

None

25a. ACADEMIC AND PROFESSIONAL HONORS. Include all scholarships, traineeships, fellowships, and development awards other than Kirschstein-NRSA. Indicate source of awards (NSF, Woodrow Wilson, etc.), dates, and grant or award numbers. List current professional societies, if applicable.

The Daily Mason Gazette: Featured Outstanding Graduating Student, 2005 (see

<http://gazette.gmu.edu/articles/index.php?id=6811>)

George Mason University Best Dissertation Award in Statistics, 2005

American University Women's Leadership Award, 2001-2002

American University Leadership Award, 2001

Trinity College Leadership Scholarship, 1994-1998

National Dean's List, 1997

Trinity College Dean's List, 1997

American University Mathematics Contest, First Place, 1996

NIH-DNA Project "Bootstrapping DNA", 1996

Trinity College Sophomore Award, 1995

Trinity College Freshman Medal, 1994

25b. TITLE(S) OF THESIS/DISSERTATION(S)

Agent-Based Simulation of Ecological Alcohol Systems

26. NAME OF DISSERTATION ADVISOR OR CHIEF OF SERVICE
(If reference report not included, explain why not.)

Dr. Edward J. Wegman

TITLE, DEPARTMENT, AND INSTITUTION

Professor

Center for Computational Statistics

George Mason University

27. APPLICATION FOR CONCURRENT SUPPORT

☒ NO ☐ YES

Using format below, list all support (training, research, supplies, travel, etc.) applied for that would run concurrently with the period covered by this application. Include the type, dates, source, and amount.

Type:

Dates:

Source:

Amount:

Type:

Dates:

Source:

Amount:

Type:

Dates:

Source:

Amount:

Type:

Dates:

Source:

Amount:

Type:

Dates:

Source:

Amount:

Kirschstein–NRSA Individual Fellowship Application Research

(To be completed by applicant – follow PHS 416-1 instructions.)

NAME OF APPLICANT (Last, first, middle initial)

Said, Yasmin H.

28. RESEARCH EXPERIENCE

- a. Summary
- b. Doctoral Dissertation
- c. Publications (published, accepted, submitted, or in preparation)

29. REVISED APPLICATION

30. RESEARCH TRAINING PLAN

- a. Approximate percentage of proposed award time in activities identified below. (See instructions.)

Year	Research	Course Work	Teaching	Clinical
First	50%	50%		
Second	65%	25%	10%	
Third	90%		10%	

- b. Research Training Proposal
- c. Respective Contributions
- d. Selection of Sponsor and Institution
- e. Responsible Conduct of Research

28. RESEARCH EXPERIENCE

a. Summary: I have had fairly extensive experience in independent research as an undergraduate and graduate student at the M.S. Level. These reports include in 1998, "Cardinality of Infinite and Finite Sets, (an undergraduate thesis of 75 pages length), in 1999, "Statistical Analysis of Star Measurements," (under guidance of Professor David Crosby, approximately 980 pages, report submitted to NOAA), in 1999, "Adaptive Design: Optimal Drug Dosage for Patient Treatment - The Migrating Urn," (under guidance of Professor Nancy Flournoy, 276 pages, material incorporated in "A birth and death urn for randomized clinical trials: Asymptotic methods," by A. Invanova, W. Rosenberger, S. Durham, N. Flournoy, (2000) Sankhya: The Indian Journal of Statistics 2000, Volume 62, Series B, Pt. 1, 104-118), in 2001, "Video Conferencing TV-Product Development and Marketing Strategy," (under guidance Professor David Eppright, approximately 100 pages), in 2001, "Automated Prescription System," (under guidance of Professor Anita La Salle, approximately 200 pages), and in 2002, "Demand for Video Conferencing Television," (under guidance of the late Professor Thomas Slavinski, approximately 100 pages). I am a member of the following professional/research societies: American Statistical Association, Institute of Mathematical Statistics, Institute of Electrical and Electronic Engineers, American Association for the Advancement of Science, American Mathematical Society, Society for Industrial and Applied Mathematics, The Interface Foundation of North America, Royal Statistical Society (Fellow), and Research Society on Alcoholism (Elected).

b. Doctoral Dissertation: Agent-Based Simulation of Ecological Alcohol Systems, under the direction of Professor Edward J. Wegman

c. Publications

2005 "On genetic algorithms and their applications," *Handbook on Statistics: Data Mining and Data Visualization*, 24, (Rao, C. R., Wegman, E.J. and Solka, J.L., eds.), Amsterdam: Elsevier North Holland, 359-390.

2005 "Alcohol tree simulator," <http://www.alcholecolgy.com>

2005 *Agent-Based Simulation of Ecological Alcohol Systems*, Ph.D. dissertation, School of Computational Science, George Mason University, 144 pages.

2006 "Statistics," to appear *Encyclopedia of the Modern World*, (Stearns, Peter N., ed.), New York: Oxford University Press.

PRESENTED PAPERS:

- 2005 *Ecology of Alcohol and Alcoholism*, Invited, Edward Wegman and Yasmin Said, CSNA/Interface 2005, St. Louis, MO, June, 2005.
- 2005 *Modeling Alcohol Abuse and Consequences*, Invited, Yasmin Said and Edward Wegman, CSNA/Interface 2005, St. Louis, MO, June, 2005.
- 2005 *Comparing Nonlinear Approaches for Classification*, Invited, Carlos Alzola and Yasmin Said, CSNA/Interface 2005, St. Louis, MO, June, 2005.
- 2005 *A Digraph Model of Alcohol Ecology*, Contributed, Yasmin Said and Edward Wegman, JSM, Minneapolis, MN, August, 2005.
- 2005 *Tutorial on Regression Splines*, Contributed, Jill McCracken, Pier Bobys, Yasmin Said, Carlos Alzola, JSM, Minneapolis, MN, August, 2005.
- 2005 *Statistical Analysis of Star Data*, Contributed, John Rigsby and Yasmin Said, JSM, Minneapolis, MN, August, 2005.

INVITED PRESENTATIONS:

- 2005 *Geo-Spatial Analysis of Alcohol Ecology*, Invited, Yasmin H. Said, Lawrence Livermore National Laboratory, Livermore, CA, July 5, 2005.
- 2005 *Spatial Topologies of Complex Social Systems*, Invited, Yasmin H. Said, Jet Propulsion Laboratory, Pasadena, CA, July 22, 2005.
- 2005 *Agent-Based Model for Homeland Security and Disease Control*, Invited, Yasmin H. Said, SAMSI Workshop on Homeland Security, Research Triangle Park, NC, September 11-14, 2005.
- 2005 *Agent-Based Model Applicable to Food and Drug Administration*, FDA, Rockville, MD, August 22, 2005.
- 2005 *Applications to Agent-Based Model*, WESTAT, Rockville, MD, August 25, 2005.
- 2005 *Adaptation of an Alcohol Ecological Agent-Based Model to Homeland Security*, Invited, Yasmin H. Said, Bureau of Labor Statistics, Washington Statistical Society Workshop on Homeland Security, Washington, DC, September 28-29, 2005.

PROFESSIONAL ACTIVITIES:

Member, Program Committee, SIAM Conference on Data Mining (SDM06), Washington, DC, April, 2006.

Co-Chair (with Dr. Amy Braverman), Interface 2006: Massive Data Sets and Streams, Pasadena, CA, May, 2006.

Editor, Interface Publications, 2005-2007.

Interface Webmaster, The Interface Foundation of North America, 2005-2007.

Editor, US Army Conference on Applied Statistics Publications, 2005-2007.

Army Conference Webmaster, US Army Conference on Applied Statistics, 2005-2007.

Invited Session Organizer, Symposium on Interface –Joint Meeting of the Interface and Classification Society of North America 2005: "Modeling Alcohol Abuse and Consequences," St. Louis, MO, June 8-12, 2005.

Invited Session Organizer, Symposium on Interface –NASA Data Mining Workshop/Interface 2006: "Alcoholism," Pasadena, CA May 23-27, 2006.

30. RESEARCH TRAINING PLAN

My Ph.D. dissertation was entitled *Agent-Based Simulation of Ecological Alcohol Systems*. The basic idea was to attempt the construction of a social network model of the complex interactions between various agents within a specific geospatial region including alcohol abusers, casual users, peers, family, law enforcement, courts, producers and distributors of alcohol, remediation facilities, treatment centers, health insurers, and managed care providers. The fundamental concept was that alcohol use and abuse can cause acute outcomes such as DWI with fatalities, assault, murder, suicide, sexual assault, domestic violence and child abuse. Of course it does not always do so the outcome may also be benign. The basic model I implemented was a stochastic directed graph with leaf nodes being the potential acute or benign outcomes and with transitions between nodes of the graphs (states) being determined by transition probabilities estimated from publicly available data. The focal geographic region was Fairfax County in Virginia. Data were collected from such sources as NLAES, US Census Bureau, Bureau of Labor Statistics, and a large number of local Fairfax County and Virginia data sources. The dissertation was intended to be a proof of principle for the much larger effort that I would like to commit to and for which the application was developed. The dissertation was based on zip code regions and accounted for density of outlets, racial/ethnic composition, job classes, alcohol abusers or not. The goal is to create a public policy tool that allows policy makers to examine the effects of interventions and examine how those interventions might adjust (reduce) the overall distribution of probabilities of acute outcomes associated with alcohol use. It is especially useful to examine at what levels and where interventions might be most effective. In my current model, one is able to adjust population size, ethnic distribution (among white, African American, and Hispanic populations), proportion of alcohol abusers, and the density of alcohol outlets. I created a website using object-oriented JAVA programming, <http://alcohol ecology.com> that illustrates my model. I currently do not take into account time of day, day of week effects, gender, age distribution, and spatial mobility considerations (except as represented by geographic distribution of people and outlets). I also do not currently represent the full suite of agents listed above. Consequently, I am presently not accounting for long-term effects such as aging populations, adaptation to interventions, and recidivism and relapse. The basic model seems highly appropriate, but needs considerably more development than could be accomplished with unfunded dissertation research.

Figure 1 illustrates the directed graph I used in my dissertation. I include this to give some sense of the architecture I used. The "parameters" are the conditional probabilities along the edges and the final multinomial distribution probabilities of the acute and benign outcomes. The probabilities on the edges are estimated in some sense as a series of Bernoulli trials, hence a frequentist approach to estimating the conditional probabilities. The planned research, as indicated above, will have a much more intricate graph model with more complex agent interactions represented.

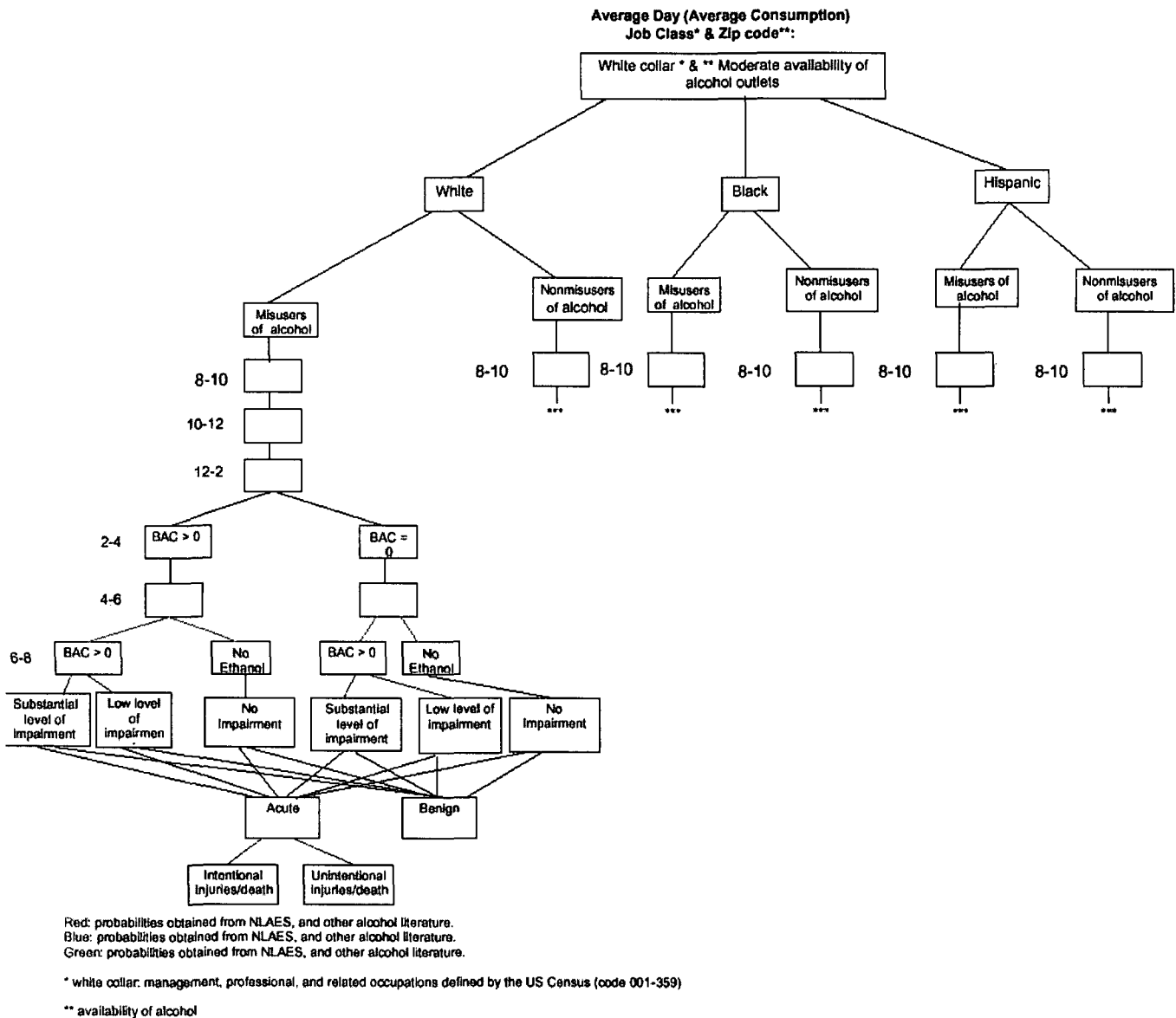


Figure 1. The agent directed graph for population.

30b. RESEARCH TRAINING PROPOSAL

SPECIFIC AIMS: My training in statistics, mathematics, and computer science is very strong. However, I have not focused in my previous academic career on the social, psychological, and geospatial dimensions necessary for my desired career in health-related research. My goal is to augment my statistical, mathematical and computer science skills with other skills aimed at providing a well-rounded background to complete the research agenda outlined above. Specific aims are

1. To increase my direct knowledge of social science, health policy, and alcohol epidemiology topics in support of developing a career in modeling these issues.
2. To expand the proof of principle simulation model developed in my dissertation to a fully agent based simulation as described below.

**Kirschstein-NRSA Individual Fellowship Application
Continuation Page**

NAME OF APPLICANT (Last, first, middle initial)
Said, Yasmin H.

I plan to take the following courses at George Mason University.

From the Psychology Department

PSYC 561 – Behavioral Biology of Substance Abuse

PSYC 822 – Psychopathology

From the Computational Social Science Program

CSS 645 – Spatial Agent-Based Models of Human-Environment Interactions

CSS 692 – Social Network Analysis

From the School of Public Policy

PUBP 713 – Policy and Program Evaluation

From the Earth Systems Program

GEOG 553 – Geographic Information Science

From the Program in Health Science

HSCI 712 – Epidemiology and Health Service Research

And From the Data Sciences Program

DATA 789 – Spatial Statistics

This broad interdisciplinary background is intended to focus specifically of tools necessary to carry out the proposed research, but also enrichment background that will allow me to focus my career on broader health related research. My planned distribution of courses is four each semester for the first year, two each semester for the second year and one each semester for the third year. The exact sequence in which I study these topics will depend on the sequence in which the courses are offered. All of the listed courses are graduate courses and generally are sequenced so that lower numbered courses are prerequisites for higher numbered courses. My highest priorities are PSYC 561, CSS 645 and 692, GEOG 553, PUBP 713, and HSCI 712.

The Earth Systems Program, the Computational Social Science Program, and the Data Sciences Program are all a part of the proposed Department of Computational and Data Sciences. George Mason is currently undergoing a substantial reorganization and developing a College of Science by merging the legacy science departments in the present College of Arts and Sciences with new Departments formed from the present School of Computational Sciences and the Krasnow Institute (of Neuroscience). It is anticipated that Professor Wegman will become the founding Chair of the new Department of Computational and Data Sciences. Coupled with his strong interest in accelerating his efforts in alcohol research, he will be an ideal mentor focused on the mathematical, statistical and computer science side of this proposed effort. Dr. Wegman and Dr. Wieczorek have been discussing the approach I outlined above for more than a year. They are planning an R01 to complement the effort represented by this F32.

I am also planning to complete the on-line human subjects training from the DHHS/NIH website, and to complete a course on human subject ethics.

Dr. Wieczorek is also intended to be my other mentor on this F32. The strong interaction Dr. Wegman and Dr. Wieczorek have makes this joint mentorship very natural. (They have each visited each other Centers.) I will meet with Dr. Wieczorek face-to-face quarterly during at least the first year and we will have telephone meetings on a bi-weekly basis. Dr. Wieczorek's mentoring will focus on the etiology and epidemiology of drinking and driving, spatial aspects of alcohol use and problems, and the general epidemiology of alcohol use including measurement, data sources, and overviews of treatment and prevention activities. We will do

this through directed readings and continuing conversations and feedback. I plan to visit his Center at least twice a year to see projects in the field and to meet with him and his staff to discuss any issues related to our work.

Dr. Wegman has also been appointed to the George Mason University Taskforce on Underage Drinking on University Campuses. As additional complementary education, Dr. Wegman and I are anticipating working with Dr. David Anderson in his activity doing data analysis and reduction on his long-term surveys. This will complement the mentoring of Dr. Wieczorek by dealing directly with data on underage drinking.

PURPOSE OF THE RESEARCH

I propose to expand the model of the alcohol system I developed in my dissertation in order to provide a comprehensive policy tool to policy planners attempting to assess the utility of intervention designed to reduce the acute outcomes associated with alcohol use. The concept is that relatively homogeneous clusters of people, i.e. agents, will be identified along with their daily activities. These activities will be characterized by different states in the directed graph, and decisions resulting in actions by an agent will move the agent from state to state in the directed graph. The leaf nodes in the graph will represent a variety of outcomes, some of which are benign, but a number of which will be acute alcohol-related outcomes. Specifically, I have in mind studying simultaneously the following acute outcomes: 1) assault, 2) suicide, 3) domestic violence, 4) child abuse, 5) sexual assault, 6) murder, 7) DWI (with motor vehicle crashes including crashes that result in fatalities). The agents will have probabilities associated with their transit from state to state through the directed graph. The structure of the directed graph and the associated probabilities will be assessed based on national and local data and expert opinion. In order to increase the richness of the possible behaviors for the agents from a given cluster, a hierarchical Bayesian structure will be introduced. One significant difference from my dissertation model is that agents representing law enforcement, judiciary, remediation facilities, distributors and producers of alcohol, treatment facilities will be introduced so that interactions among all the agents will be modeled so that a true social interaction can be modeled. I recognize the most likely implications may be direct policy implications, and many of these implications will need to be tested in field-based research projects to validate the implications suggested by the simulation model.

Also time of day and day of week effects will be modeled. Also I am planning to account for transportation related issues, i.e. agents are not simply locked into their home region, but also have work or entertainment related destinations that allows them to interact with other alcohol outlets than those in their home region. Finally I realize that zip codes are probably too coarse for effective modeling, so that I want to refine the spatial scale that I model.

As agents are introduced into the directed graph model, their ultimate outcomes whether benign or acute will be accumulated so that a (multinomial) probability distribution over all outcomes can be estimated. The ultimate goal, then, is to introduce interventions that will alter the structure of the directed graph or its associated probabilities and assess how those interventions affect the probability distribution over the outcomes. It is possible that an intervention may reduce the incidence of one acute outcome, but increase the prevalence of other acute outcomes. The goal is to study the alcohol system as a whole in order to evaluate best interventions for reducing the overall incidence of acute outcomes.

It is anticipated that in addition to use of publicly available data from national, regional, and local sources, I believe the additional modeling structures outlined above will also create insights into data collection needs that have not previously been anticipated. To date I have collected extensive data from Census Bureau, Bureau of Labor Statistics, the Commonwealth of Virginia including data from DMV, Department of Alcoholic Beverage Control, State Criminal Investigation Laboratory, as well as local (Fairfax) police, courts, and ASAP data. A major effort is still needed to collect data on time-of-day effects as well as transportation

effects. Dr. Wieczorek has extensive data on Erie County, New York so that a comparison between Erie County New York and Northern Virginia will provide an effective method for assessing the transportability of my model. To reiterate, the ultimate purpose of this research is to provide a policy assessment tool for determining which interventions might be most effective, to estimate the effect of changing population dynamics, and also to estimate the large scale effect of significant changes in public attitudes about drinking.

HYPOTHESES TO BE TESTED

Ultimately, this is a complex agent-based, time-dependent stochastic social network model of drinking behavior. The time frame for development of the model is only three years. Critical issues for the model are verification and validation, i.e. does it do what I think it is supposed to do and does it reproduce reality. And if so can it be used to successfully model the effects of interventions? I think this is a high potential payoff approach, which at the very least will suggest new directions and bring into the alcohol research establishment a more intensively mathematical perspective. Current approaches based on field trials and clinical research slowly yield incremental information. The development of the proposed directed graph model offers the opportunity to move the alcohol field forward at a highly accelerated pace by (1) allowing simulations of the impact of known as well as innovative concepts for interventions, and (2) using the results of the simulations to conduct targeted field studies of the promising interventions identified through the simulations.

RESEARCH DESIGN AND METHODS

- This research involves three significant components. The first involves careful thinking and development of the inter-relationships among the agents represented in the directed graph. This implies the development of scenarios by which the agents interact. This essentially establishes the topology of the directed graph and will be accomplished by known interactions as well as expert opinion of those deeply immersed in alcohol studies. The second involves data collection reflecting the conjectured interactions. Some of this data may not have been routinely collected, so that new data collection mechanism and efforts will be suggested and undertaken. Closely connected to this is the estimation of the corresponding probabilities and the calibration of the model to reflect actual observed acute outcome frequencies. The third component is the linkage of hypothetical interventions to adjustments in the corresponding conditional probabilities attached to edges in the directed graph. This is the proof of the pudding so to speak. Adjusting the conditional probabilities without having them tied to real interventions would be a relatively sterile exercise. Again the dual mentorship of a technically sophisticated mathematician/statistician together with a world-class expert in alcohol studies offers a highly plausible mechanism for accomplishing this component.
- The sequence will be (1) development of the topology of the directed graph, (2) data collection and estimation of the conditional transition probabilities, and (3) linkage of probability adjustments to intervention strategies.
- This modeling effort while highly stochastic in nature is not a conventional statistical data analysis effort. Model fit will likely be based on Chi-square goodness of fit.
- There are no hazardous issues associated with this effort.
- See the list of courses outlined above. They are targeted for addressing specific issues on the modeling, e.g. agent based, GIS, Social Network Analysis, Spatial Statistics, and some are targeted for addressing longer-term educational objectives for working in health related research, e.g. psychopathology, human subjects ethics, and epidemiology.

- Finally, I would like to note that as I proceed with the development of scenarios, my approach may be modified to focus on one or a few paths associated with specific acute outcomes. My approach to research in general is to be adaptive as the research progresses and be led by both data and practical considerations.

c. RESPECTIVE CONTRIBUTIONS

As outlined above, the training plan is designed to complement my technical background in statistics, mathematics and computer science and to round out my ability to do both focused research on model building for my alcohol ecology model and provide longer term background for a career in health related research. The collaboration between Dr. Wegman and Dr. Wieczorek, between GMU's Program in Data Sciences and Buffalo State's Center for Health and Social Research, provides an excellent environment for the technical aspects of the model building and the understanding of and application to alcohol studies.

d. SELECTION OF SPONSOR AND INSTITUTION

As mentioned above the already enthusiastic collaboration between Drs. Wegman and Wieczorek provides an ideal framework. I have chosen George Mason University as the base institution because of the breadth and diversity of research level courses, because of the proximity to NIH/NIAAA/NIDA, because of my respect for Dr. Wegman, and finally because my home is nearby saving more costly living expenses. I have chosen Buffalo State as a secondary institution because of the excellence of the Center for Health and Social Research and its Director, Dr. Wieczorek.

e. RESONSIBLE CONDUCT OF RESEARCH

HUMAN SUBJECTS RESEARCH

I am planning to complete the on-line human subjects training from the DHHS/NIH website, and to complete a course on human subject ethics. I have obtained permission to sit in on the IRB (human subjects). I believe this will position me better for future research even though the present research is exempt by virtue of Exemption 4. This particular effort is not clinical research.

31. BIOGRAPHICAL SKETCHProvide the following information for the sponsor (co-sponsor). **DO NOT EXCEED FOUR PAGES.**

NAME OF SPONSOR (CO-SPONSOR)	POSITION TITLE		
Edward J. Wegman, Ph.D.	The Bernard J. Dunn Professor Director, Center for Comp. Statistics		
EDUCATION/TRAINING (Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)			
INSTITUTION AND LOCATION	DEGREE (if applicable)	YEAR(s)	FIELD OF STUDY
Saint Louis University	B.S.	1965	Mathematics
University of Iowa	M.S.	1967	Statistics & Computer Sci.
University of Iowa	Ph.D.	1968	Statistics & Computer Sci.

A. Positions and Honors.**Positions and Employment**

1968-1978, Assistant, then Associate Professor of Mathematical Statistics, University of North Carolina, Chapel Hill
 1978-1982, Program Director, Statistics and Probability Program, Office of Naval Research (GM-15)
 1982-1986, Division Director, Mathematics and Computer Science Division, Office of Naval Research (SES-3)
 1986-present, The Bernard J. Dunn Professor of Information Technology and Applied Statistics
 1986-present, Director of the Center for Computational Statistics, George Mason University
 1992-2000, Founding Chair of the Department of Applied and Engineering Statistics, George Mason University
 2004-present, Chair, Data Sciences Program, George Mason University

Other Experience and Professional Memberships

American Statistical Association (Fellow)
 Institute of Mathematical Statistics (Fellow)
 Royal Statistical Society (Fellow)
 International Statistical Institute (Elected Member)
 Mathematical Association of America
 Society of Industrial and Applied Mathematics
 American Mathematical Society
 Institute of Electrical and Electronic Engineers (Senior Member)
 Sigma Xi Research Society
 American Association for the Advancement of Science (Fellow)
 Washington Academy of Science (Fellow)
 Research Society on Alcoholism (Elected Member)
 Interface Foundation of North America, a professional society (Founder)

Honors

Selected by the Washington Academy of Science as the 1983 Outstanding Mathematician in the Washington, DC area and elected Honorary Fellow, 1983
 Awarded the U. S. Navy Meritorious Civilian Service Medal, 1981
 Awarded the U. S. Navy Merit Pay Performance Award, 1981
 Awarded the U. S. Navy Merit Pay Performance Award, 1982
 Promoted to the U. S. Senior Executive Service, 1982
 Awarded the U. S. Navy Special Achievement Award, 1983

Honors and Awards (continued)

Selected as the first Bernard J. Dunn Professor of Information Technology and Applied Statistics, George Mason University, 1986
Elected President-elect of the Washington Statistical Society, 1989, President, 1990
Awarded the George Mason University Distinguished Faculty Award, 1990
Elected President-elect, International Association for Statistical Computing, 1995-1997, President, 1997-1999, Past President, 1999-2001
Awarded the GMU-IT&E Outstanding Research Award for 1999 (First Recipient)
Awarded the Army Wilks Medal for Distinguished Research Contributions, 1999
Awarded the American Statistical Association 2002 Founder's Award, 2002
Awarded the University of Iowa Distinguished Alumni Achievement Award, 2004
Appointed Chair of the Committee on Applied and Theoretical Statistics, National Academy of Science, 2004
Appointed Member of the Board of Mathematical Sciences and their Applications, National Academy of Sciences, 2004

B. Selected Peer Reviewed Publications (selected from total publications of 168 papers, 7 books)

- Davis, J., Newburgh, R., and Wegman, E. (eds.) (1988) Brain Structure, Learning and Memory, Boulder, CO: Westview Press, Inc. for the AAAS, Washington, DC.
- Nour, E. and Wegman, E. (1978) "A stochastic model of fertility based on age-parity distribution," Mathematical Biosciences, 39, 71-95.
- Wegman, E., Nour, E., and Kukuk, C. (1980) "A time series approach to life table construction," Communications in Statistics - Theory and Methods, A9(15), 1587-1607.
- Wegman, E. and Wright, I. (1983) "Splines in statistics," Journal of the American Statistical Association, 78, 351-365.
- Wegman, E. (1990) "Hyperdimensional data analysis using parallel coordinates," Journal of the American Statistical Association, 85, 664-675.
- Wegman, E. and Habib M. (1992) "Stochastic methods for neural systems," Journal of Statistical Planning and Inference, 33, 5-26.
- Wegman, E. and Carr, D. (1993) "Statistical graphics and visualization," in Handbook of Statistics 9: Computational Statistics, (Rao, C. R., ed.), Amsterdam: North Holland, 857-958.
- Solka, J., Wegman, E. and Poston, W. (1995) "A new visualization technique to study the time evolution of finite and adaptive mixture estimators," Journal of Computational and Graphical Statistics, 4(3), 180-198.
- Wegman, E. (1995) "Huge data sets and the frontiers of computational feasibility," Journal of Computational and Graphical Statistics, 4(4), 281-295.
- Takacs, B, Wegman, E. and Wechsler, H. (1997) "Geometric modeling methods for facial landmark detection and recognition," Computing Science and Statistics, 28, 278-286.
- Wegman, E. and Luo, Q. (1997) "High dimensional clustering using parallel coordinates and the grand tour," Computing Science and Statistics, 28, 352-360
- Poston, W., Wegman, E. and Solka, J. (1998) "D-optimal design methods for robust estimation of multivariate location and scatter," Journal of Statistical Planning and Inference, 73, 205-214.
- Martinez, W. and Wegman, E. (2000) "An alternative criterion useful for finding E-optimal designs," Statistics and Probability Letters, 47, 325-328.
- Wegman, E. and Luo, Q. (2002) "On methods of computer graphics for visualizing densities," Journal of Computational and Graphical Statistics, 11(1), 137-162.
- Wegman, E. "Visual data mining," Statistics in Medicine, 22, 1383-1397+ 10 color plates.
- Khumbah, N-A and Wegman, E. (2003) "Data compression by geometric quantization," in Recent Advances and Trends in Nonparametric Statistics, (M. Akritas and D. Politis, eds.), Elsevier, 35-48.
- Wegman, E., Solka, J., and Marchette, D. (2004) "Data mining strategies for detection of chemical warfare agents," Statistical Data Mining and Knowledge Discovery, 71-92.

**Kirschstein-NRSA Individual Fellowship Application
Continuation Page**

NAME OF APPLICANT (Last, first, middle initial)
Said, Yasmin H.

. Research Support

On-Going Research Support

W911NF-04-1-0447 Wegman (PI) 10/15/2004-10/14/2007
Army Research Office (ARO)
Analytical and Graphical Methods for Streaming Data with Applications to Netcentric Warfare
Development of modeling and analysis tools for streaming data with a focus on Internet security
Role: PI

[REDACTED] Wegman (PI) 7/1/2000-6/30/2005
Subcontract from [REDACTED] funded by Defense Advanced Research Projects Agency
(DARPA)
Adaptive Data Cube for Integrated Sensing and Processing
Development of analysis and visualization tools for on-board sensing platforms
Role: PI on subcontract

Completed Research Support

F49620-01-1-0274 Wegman(PI) 4/15/2001-10/14/2004
Air Force Office of Scientific Research (AFOSR)
Intrusion Detection Using Data Mining Techniques
Develop hardware and analytic methods for monitoring Internet header traffic on a massive scale
Role: PI

DAAD19-99-1-0314 Wegman(PI) 8/1/1999-7/31/2003
Office of Naval Research (ONR) monitored by ARO
Nonparametric Function Estimation and Visualization with Applications to C2
Basic research on statistical estimation and visualization with application to command and control
Role: PI

DAAD19-01-1-0464 Wegman(PI) 4/1/2001- 12/31/2002
AFOSR monitored by ARO
Optimization Methods for Analyte Recognition from Optical Sensor Arrays
Developed data mining tools for classification of organic chemical analytes using a optical sensor array
(artificial nose)
Role: PI

BIOGRAPHICAL SKETCH

Provide the following information for the key personnel in the order listed for Form Page 2.
Follow the sample format for each person. **DO NOT EXCEED FOUR PAGES.**

NAME	POSITION TITLE
William F. Wieczorek, Ph.D.	Director and Professor

EDUCATION/TRAINING (Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)			
INSTITUTION AND LOCATION	DEGREE (if applicable)	YEAR(s)	FIELD OF STUDY
State University of New York at Buffalo	B.A.	1982	Interdisciplinary Social Studies
State University of New York at Buffalo	M.A.	1984	Geography
State University of New York at Buffalo	Ph.D.	1988	Geography

Experience

1988-present	Research Scientist/Senior Scientist (1993-97)/Associate Scientist (1997-present), Research Institute on Addictions, Buffalo, NY.
1994-present	Research Assistant Professor, Dept. of Social and Preventive Medicine, University at Buffalo.
1997-present	Director, Center for Health & Social Research & Professor of Geography and Planning, State University of New York College at Buffalo (Buffalo State).
1999-present	Co-Director and Visiting Professor, Dalian Medical University, Joint Dalian Medical University-Buffalo State Institute of Behavioral Medicine, Dalian, China.

Honors

1977-1982	New York State Regents Scholarship
1991-1994	First Independent Research Support and Transition (FIRST) Award, NIAAA (R29 AA08920), "A Treatment Oriented Typology of DWI Offenders."
1993-1998	Independent Scientist Award, NIAAA (K02 AA00154), "Geographic and Individual Factors in Alcohol Problems."
1996	Invited Participant, "Workshop on Sentencing Options for DUI Offenders" NIAAA and NHTSA, Washington, DC, May, 1996.
1998-2003	Editorial Board Member, <u>Journal of Studies on Alcohol</u>
2000-present	Who's Who in Medicine and Health Care
2001-present	International Who's Who of Professionals
2002-present	Who's Who in America
2001	President's Award for Excellence in Research, Creativity, and Scholarship, Buffalo State College
2002	Invited Discussant, Joint NIMH/NIAAA Workshop on Suicide, Washington DC, April, 2002.
2002	Invited Presenter, Ecological Modeling of Alcohol-Related Behavior Workshop, National Institute on Alcohol Abuse and Alcoholism, Philadelphia, November, 2002.
2002	State University of New York Chancellor's Award Honoring Research and Scholarship in the Humanities, Arts and Social Sciences.
2003	Invited Participant, Prevention of Suicide in the Middle Years, Workshop sponsored by the University of Rochester Center for the Study and Prevention of Suicide, Washington, DC, June, 2003.
1995-present	NIAAA center grant review and SBIR contract reviewer, NIH Grant Reviewer, Behavioral Genetics and Epidemiology Study Section (formerly SNEM-2, 2002-present)).
2004	Faculty and Mentor, Summer Research Institute in Suicide Prevention, University of Rochester Center for the Study and Prevention of Suicide, June, 2004.

Publications

- Welte, J.W., Abel, E.L., & Wieczorek, W. (1988). The role of alcohol in suicides in Erie County, NY 1972-1984. Public Health Reports, 103, 648-652.
- Wieczorek, W.F., Welte, J.W., & Abel, E.L. (1990). Alcohol, drugs, and murder: A study of convicted homicide offenders. Journal of Criminal Justice, 18, 217-227.

- Wieczorek, W.F., Miller, B.A., & Nochajski, T.H. (1992). Multiple and single location drinking among DWI offenders referred for alcoholism evaluation. American J. Drug and Alcohol Abuse, 18(1), 103-116.
- Wieczorek, W.F., Miller, B.A., & Nochajski, T.H. (1992). The limited utility of BAC for identifying alcohol problems among DWI offenders. Journal of Studies on Alcohol, 53(5), 415-419.
- Wieczorek, W.F. & Miller, B.A. (1992). A preliminary typology designed for treatment matching of DWI offenders. Journal of Consulting and Clinical Psychology, 60(5), 757-765.
- Wieczorek, W.F., Mirand, A.L., & Callahan, C.P. (1994). Perception of the risk of arrest for drinking-and-driving. Criminal Justice and Behavior, 21, 312-324.
- Wieczorek, W.F. (1995). The role of treatment in reducing alcohol-related accidents involving DWI offenders. In Watson, R.R. (Ed.), Alcohol, Cocaine, and Accidents, pp. 105-129, Totowa, NJ: Humana Press.
- Wieczorek, W.F. (1995). DWI offenders and alcohol-related crashes. In Kloeden, C.N. and McLean, A.J. (Eds.), Proceedings of the 13th International Conference on Alcohol, Drugs and Traffic Safety Volume 1, pp. 231-236, Adelaide: NHMRC Road Accident Research Unit, The University of Adelaide, Australia.
- Zhang, L., Wieczorek, W.F. & Welte, J.W. (1997). The impact of age of onset of substance use on delinquency. Journal of Research on Crime and Delinquency, 34(2), 253-268.
- Zhang, L., Wieczorek, W.F. & Welte, J.W. (1997). The nexus between alcohol and violent crime. Alcoholism: Clinical and Experimental Research, 21(7), 1264-1271.
- Wieczorek, W.F. & Hanson, C.E. (1997). New modeling methods: Geographic information systems and spatial analysis. Alcohol Health and Research World, 21(4), 331-339.
- Wieczorek, W.F., Callahan, C.P., & Morales, M. (1997). Motivation for change among DWI offenders. In Alcohol, Drugs, and Traffic Safety - T-97, pp. 1069-1076, CERMT: Annecy, France.
- Wieczorek, W.F. & Coyle, J.J. (1998). Targeting DWI prevention. Journal of Prevention and Intervention in the Community, 17(1), 17-32.
- Welte, J.W. & Wieczorek, W.F. (1999). Alcohol, intelligence, and violent crime in young males. Journal of Substance Abuse, 10(3), 309-319.
- Nochajski, T.H. & Wieczorek, W.F. (2000). Drinking driver characteristics and number of DWI offenses. In Alcohol, Drugs and Traffic Safety - T-2000. (CD-ROM)
- Wieczorek, W.F. (2000). Using geographic information systems for small area analysis. In Wilson, R.E. & Dufour, M.C. (Eds.) The Epidemiology of Alcohol Problems in Small Geographic Areas, pp. 137-162, NIH National Institute on Alcohol Abuse and Alcoholism: Bethesda. (NIH Pub. No. 00-4357)
- Wieczorek, W.F. & Hanson, C.E. (2000). Regional patterns of alcohol-specific mortality in the United States. In Williams, R.C., Howie, M.M., Lee, C.V., & Henriques, W.D. (Eds.) Geographic Information Systems in Public Health: Proceedings of the Third National Conference, pp. 669-676, CDC: Atlanta.
- Zhang, J., Jiang, C., Jia, S., & Wieczorek, W.F. (2002). An overview of suicide research in China. Archives of Suicide Research, 6, 1-9.
- Hanson, C.E., & Wieczorek, W.F. (2002). Alcohol mortality: A comparison of spatial clustering methods. Social Science and Medicine, 55: 791-802.
- Zhang, J., Wieczorek, W.F., Chao, J., Zhou, L., Jia, S., Sun, Y., Jin, S., & Conwell, Y. (2002). Studying suicide with psychological autopsy. Suicide and Life Threatening Behavior, 32: 370-379.
- Wieczorek, W.F., & Naumov, A.Y. (2002). A geographic analysis of DWI offenders. (CD ROM). In D. Mayhew & C. Dussault (Eds.), Alcohol, Drugs and Traffic safety - T2002, Montreal, Quebec: Société de l'assurance automobile du Québec.
- Zhang, J., Conwell, Y., Wieczorek, W.F., Jiang, C., Jia, S., Zhou, L. (2003). Studying Chinese suicide with proxy-based data: Reliability and validity of the methodology and instruments in China." The Journal of Nervous and Mental Disease, 191: 450-457.

Wieczorek, W.F. & Nochajski, T.H. (2004). Multiple treatment experiences as a predictor of continued drinking-driving. In Alcohol, Drugs and Traffic Safety - T2004, Glasgow, Scotland.

Research Projects Ongoing or Completed During the Last 3 Years (Effort noted only on active or pending grants)

“Health Consequences Among DWI Offenders”

Principal Investigator: William F. Wieczorek, Ph.D. ()

Agency: NIAAA Type: Federal Grant (R01 AA12567)

Period: 07/01/01-06/30/06

This project will examine a broad range of health consequences associated with alcohol and drug use by first and repeat DWI offenders to determine factors associated with specific morbidities.

“VESID Math and Reading Initiative Technical Assistance Center”

Evaluation Coordinator: William F. Wieczorek, Ph.D.

Agency:

Period: 09/01/99-07/31/03

This project will examine program outcomes for special education students in enhanced educational programs throughout New York State.

“National Survey of Hard Core Smokers and Harm Reduction”

Principal Investigator (survey portion of study): William F. Wieczorek, Ph.D. ()

Agency:

Period: 02/10/04 – 10/31/04

This project will collect data from current and recent, former smokers using CATI methods for a national sample and two regional subsamples to study harm-reduction efforts aimed at smokers.

“Erie/Niagara County Tobacco Use Survey: One-year Follow-Up Survey”

Principal Investigator (Data Collection): William F. Wieczorek, Ph.D. ()

Agency: Type: Erie/Niagara Tobacco Free Coalition

Period: 0/20/04 – 05/31/04

The major goal of this project is to perform data collection for a one-year follow-up study on tobacco use and related behaviors and opinions of persons interviewed during the initial survey in Erie and Niagara Counties, New York.

“Integrated Approaches to Planning Substance Abuse/Chemical Dependence Prevention and Treatment Services in Erie County”

Principal Investigator: William F. Wieczorek, Ph.D. ()

Agency:

Period: 03/15/04-12/31/04

This project utilizes evidence-based planning with the ultimate goal of improving the delivery and effectiveness of treatment and prevention services in Erie County. The focus is on using risk indicators to improve prevention services and to identify barriers to treatment services.

“Development of Suicide Research in China”

Co-Principal Investigator: William F. Wieczorek, Ph.D.

Agency: NIMH Type: Federal Grant (R03 MH60828)

Period: 09/01/00 - 08/31/03

The main goal of this project is to pilot the use of psychological autopsy methods in China.

“GIS Analysis of Untaxed Tobacco in New York State”

Principal Investigator on Subcontract: William F. Wieczorek ()

Agency: NCI Type: Federal Grant subcontract (R01 CA 86225).

Period: 06/01/08/31/04

This project utilized geographic information systems to estimate the proportion of population in New York State that has easy access to untaxed tobacco products on Indian Reservations.

"Evaluation of Title IV Safe and Drug Free Schools"

Principal Investigator: William F. Wieczorek, Ph.D.

Agency: [REDACTED]

Period: 02/01/00 - 08/31/03

This project is an evaluation of substance abuse prevention in the Buffalo Public School system.

"ECHO Follow-up and Subject Recruitment Pilot Study"

Principal Investigator: William F. Wieczorek, Ph.D.

Agency: [REDACTED]

Period: 10/11/01 - 9/30/03

The major goal of this project is to provide the [REDACTED] with subject referrals from the original Assessing Prevention and Treatment Needs for Small Areas (ECHO) study. These participants will potentially serve as an alcohol dependent control sample for a [REDACTED] study on the role of alcohol in suicide.

"Erie/Niagara County Tobacco Use Survey"

Principal Investigator (Data Collection): William F. Wieczorek, Ph.D.

Agency: [REDACTED]

Type: Erie/Niagara Tobacco Free Coalition

Period: 04/01/02 - 0/31/03

The major goal of this project is to perform data collection of 1,500 interviews on tobacco use in Erie and Niagara Counties, New York.

"Anti-Violence Program Evaluation"

Principal Investigator: William F. Wieczorek, Ph.D.

Agency: [REDACTED]

Period: 10/01/02 - 09/31/03

The major goal of this project is to provide an evaluation of the results of the anti-violence programs implemented at two Buffalo public schools. The CHSR will develop and administer a survey, and provide a written report of results.

"Development of Substance Abuse Risk Indicators"

Principal Investigator: William F. Wieczorek, Ph.D.

Agency: [REDACTED]

Period: 02/01/01-12/31/03

The major goal of this project is to evaluate a risk factor indicator resource base that will permit Erie County baseline data to be retrieved in zip code or census tract form.

"Quit and Win Follow-up Telephone Surveys"

Principal Investigator (Data Collection): William F. Wieczorek, Ph.D. ([REDACTED])

Agency: [REDACTED]

Type: NYSDOH

Period: 07/31/02 - 07/01/04

The major goal of this project is to perform data collection using telephone-based surveys to assess outcomes for various efforts to reduce tobacco use, including nicotine replacement therapy.

"Co-Occurrence of Gambling and Substance Use in the U.S."

Co-Principal Investigator: William F. Wieczorek, Ph.D.

Agency: NIAAA

Type: Federal Grant (R01AA01140)

Period: 03/01/98-02/28/02

This is a national telephone survey of gambling, alcohol use, illicit drug use, and criminal offending among a representative sample age 18 and older in the U.S. The study will examine the relationship how alcohol use, substance abuse, other behaviors, and contextual factors are related to gambling and problem gambling.

Kirschstein-NRSA Individual Fellowship Application Facilities and Commitment

(To be completed by sponsor – follow PHS 416-1 instructions.)

NAME OF APPLICANT (Last, first, middle initial)

Said, Yasmin H.

32. Identify the research and research training support available to the sponsor and the applicant during period of proposed award.

The University has a wide variety of in-house support. The Center for Computational Statistics maintains a high performance computer facility including a virtual reality laboratory, supercomputing equipment and storage capability of 5.4 terabytes. The GMU Center for the Advancement of Public Health is deeply engaged in alcohol studies, especially with underage and college age drinking. The Krasnow Institute has in-depth facilities for research in neuroscience. Other outstanding groups provide teaching and research in computational social science and geographic information systems. In addition, we are closely associated with Center for Health and Social Research (alcohol studies) at Buffalo State College. Office space, computer access and standard academic supports at GMU will be made available to Dr. Said similar to previous post docs.

33. SPONSOR'S PREVIOUS FELLOWS/TRAINEES

Give total number of pre- and postdoctoral individuals and provide information on a representative five. List their present employing organizations and position titles or occupations.

Dr. Wegman has had several post docs, but none trained under NIH auspices. They include

Dr. Juergen Symanzik, Associate Professor of Mathematics and Statistics at Utah State University.

Dr. Adalbert Wilhelm, Assistant Professor of Statistics at the International University of Bremen, Germany

Dr. Don Faxon, Research Associate Professor of Information Technology at George Mason University

Dr. Giancarlo Ragozini, Lecturer in Statistics at University of Naples, Federico II

Dr. Jeffrey Solka, Senior Researcher, Naval Surface Warfare Center

FACILITIES AND COMMITMENT STATEMENT

In the space below and on continuation pages, complete the following items. Identify each item by number and title.

34. Training Plan, Environment, Research Facilities.

Describe the research training plan for the applicant. Include such items as classes, seminars, and opportunities for interaction with other groups and scientists. Describe the research environment and available research facilities and equipment. Include information that will help reviewing groups evaluate the applicant and the proposed training. Indicate the relationship of the proposed research training to the applicant's career. Describe the skills, techniques, etc., that the applicant will learn and relate these to the applicant's career goals.

35. Number of Fellows/Trainees to be Supervised During the Fellowship. Indicate Pre-or Postdoctoral.

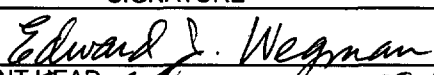


36. Applicant's Qualifications and Potential for a Research Career.

37. Human Subjects/Vertebrate Animals Use and Description.

34 Ms Said will take a series of courses to enhance her background as described in her plan developed with me and described in section 30. She will conduct research into alcohol ecology on a larger, operational scale that is well beyond the scope of her dissertation work. She will spend time with Dr. Wiczorek in Buffalo as described in her plan of study in Section 30. I expect her to have some clinical experiences in the INOVA Fairfax Hospital's Comprehensive Addiction Treatment Center.

35. Only Dr. Said.

38. **CERTIFICATION:** We, the undersigned, certify that the statements herein are true, complete, and accurate to the best of our knowledge. If this application results in an award, appropriate training, adequate facilities, and supervision will be provided, and we accept the obligation to comply with the Public Health Service terms and conditions of award. We are aware that any false, fictitious, or fraudulent statement or claim may subject us to criminal, civil, or administrative penalties.

SIGNATURE	TYPED NAME	OFFICE TELEPHONE	DATE
SPONSOR 	Edward J. Wegman	703-993-1691	8/3/2005
DEPARTMENT HEAD 	A. Richard Bolstein	703-993-1689	8/3/2005
OFFICIAL SIGNING FOR SPONSORING INSTITUTION 	Ann T. McGuigan, Ph.D.	703-993-2298	8/4/2005

**Kirschstein-NRSA Individual Fellowship Application
Continuation Page**

NAME OF APPLICANT (Last, first, middle initial)
Said, Yasmin H.

36. [REDACTED]. In her first semester at George Mason University (GMU), she took double overload, more than 18 graduate credits, and the same amount of graduate credits the subsequent semesters. In less than ten months, she was able to complete her entire doctoral course work, to take her written comprehensive exam and her oral comprehensive exam, and to complete her dissertation proposal. [REDACTED]

[REDACTED] Hence, in less than a year, she has been able to advance to candidacy and progress to her dissertation research. She completed her dissertation in and graduated with Ph.D. in the next nine months. I have had 25 Ph.D. students, and only two have been able to complete their doctorate in 1 year and 9 months. In addition to studying full time, for much of her time as a graduate student she was simultaneously working full time at a private high school in Alexandria, Virginia, where she taught high-school-level and college-level mathematics and statistics. She has published a chapter on genetic algorithms in the Handbook on Statistics: Data Mining and Data Visualization. She was also a student member of the Interface and American Statistical Association; the latter is the nation's leading professional association for statistics and statisticians. She is also a student member of the Research Society on Alcoholism. [REDACTED]

37. Only publicly available human data will be used. Exemption 4 applies. No animals will be used.

Kirschstein-NRSA Individual Fellowship Application Checklist

Applicant completes Section I. Sponsor completes Section II.

NAME OF APPLICANT (Last, first, middle initial)

Said, Yasmin H.

Section I – Applicant

A. TYPE OF APPLICATION

☐ NEW application (This application is being submitted to the PHS for the first time.)

☐ COMPETING CONTINUATION of award number _____

(This application is to extend a funded award beyond its current award period.)

☒ REVISION of application number 1 F32 AA015876-01

(This application replaces a prior unfunded version of a new or competing continuation application.)

B. ASSURANCES/CERTIFICATIONS

The following assurances/certifications are made and verified by your signature in Item 15 on the Face Page of the application. • Debarment and Suspension; • Delinquent Federal Debt; • Drug-Free Workplace (Applicable only to new or revised applications being submitted to the PHS for the first proposed project period– Type 1.) Descriptions of individual certifications are included in Section III.B, Policies, Assurances, and Certifications, of the application instructions. If unable to certify compliance, provide an explanation and place it after this page.

C. KIRSCHSTEIN-NRSA SENIOR FELLOWSHIP APPLICANTS ONLY

1. PRESENT INSTITUTIONAL BASE SALARY

Amount _____ Academic Period/number of months _____

2. STIPEND/SALARY DURING FIRST YEAR OF PROPOSED FELLOWSHIP

a. Stipend requested from PHS

Amount _____ Number of months _____

b. Supplementation from other sources

Amount _____ Number of months _____ Type (sabbatical leave, salary, etc.) _____ Source _____

D. TUITION, FEES AND HEALTH INSURANCE

Predocctoral applicants should list estimated combined costs of tuition, fees and health insurance. Postdoctoral applicants should list the estimated costs for the tuition and fees for courses planned that support the research training experience. For postdoctoral applicants, those courses should be described under Item 30, Research Training Plan. Health insurance for postdoctoral fellowships is paid as part of the institutional allowance.

Tuition and Fees: Year 1 - \$11,261; Years 2 and 3 - \$7,297

Section II – Sponsoring Institution

The following assurances/certifications are made and verified by the signature of the Official Signing for Sponsoring Institution in Item 38. Descriptions of sponsoring institution assurances/certifications are included in Section III.B, Policies, Assurances, and Certifications, of the application instructions. If unable to certify compliance, where applicable, provide an explanation and place it after this page.

•Human Subjects; •Research Using Human Embryonic Stem Cells; •Research on Transplantation of Human Fetal Tissue; •Research Misconduct; •Recombinant DNA and Human Gene Transfer Research; •Vertebrate Animals; •Debarment and Suspension; •Civil Rights (Form HHS 441 or HHS 690); •Handicapped individuals (Form HHS 641 or HHS 690); •Sex Discrimination (Form HHS 639-A or HHS 690); •Age Discrimination (Form HHS 680 or HHS 690); •Financial Conflict of Interest.

