

**NOMINATION COVER SHEET**  
**2012 Virginia Outstanding Faculty Awards**

<b>1. <u>NAME</u></b> Full (Legal): James Randall Kahn Preferred First Name: Jim	
<b>2. <u>INSTITUTIONAL INFORMATION</u></b>  Institution: Washington and Lee University  Rank/Position Title: John F. Hendon Professor of Economics, Director, Environmental Studies Program Year Rank/Title Attained: 2000/ Professor Years at Institution: 11  Campus Email Address: <a href="mailto:kahnj@wlu.edu">kahnj@wlu.edu</a>  Campus Phone: 540-458-8036  Campus Mailing Address: Holekamp Hall Washington and Lee University Campus Communications Contact:  -Name: Jeff Hanna  -E-mail: <a href="mailto:jhanna@wlu.edu">jhanna@wlu.edu</a>	<b>3. <u>PROFESSIONAL INFORMATION</u></b>  Academic Discipline: Economics/ Environmental Studies  Specialization/Field: Environmental Economics/ Environmental Policy  Type of Terminal Degree: Ph. D.  Year Awarded: 1981  Awarding Institution: University of Maryland
<b>4. <u>PERSONAL INFORMATION</u></b>  Home Phone:  Cell Phone Number:  Home Mailing Address:	

***Please check only one box:***

- RESEARCH/DOCTORAL INSTITUTION NOMINEE:
- MASTERS/COMPREHENSIVE INSTITUTION NOMINEE:
- BACCALAUREATE INSTITUTION NOMINEE:
- TWO-YEAR INSTITUTION NOMINEE:
- TEACHING WITH TECHNOLOGY NOMINEE:
- RISING STAR NOMINEE:

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Signature (President or Chief Academic Officer)  \_\_\_\_\_

Printed Name: Kenneth P. Ruscio, President, Washington and Lee University

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## **ii. Mission Statement**

Washington and Lee University provides a liberal arts education that develops students' capacity to think freely, critically, and humanely and to conduct themselves with honor, integrity, and civility. Graduates will be prepared for life-long learning, personal achievement, responsible leadership, service to others, and engaged citizenship in a global and diverse society.

### **iii. Summary of Accomplishments**

Professor Kahn has accomplished much in his nineteen years at Ph.D. institutions and his eleven years at Washington and Lee University. He is internationally known as an environmental economist, innovative teacher, and leader in both interdisciplinary research and integrative curricular development. He is a strong provider of service at the campus, community, national and international levels.

#### ***Teaching, curricular development and knowledge integration:***

Kahn's career is characterized by significant impacts on the teaching of environmental economics, ecological economics and environmental studies. He has been a member of panels on the teaching of these subjects at meetings of the Southern Economic Association, the U.S. Society of Ecological Economics and the environmental meetings of the Associated Colleges of the South. He has reviewed many articles on the teaching of environmental economics and environmental studies, and done external reviews of environmental studies programs. However, the most important contribution to the broader learning community has been his textbook, which has been strongly received, especially among interdisciplinary environmental economists and among ecological economists. The textbook is widely used on all continents, and many young professors have come up to Kahn at conferences and told him that the book has changed the way they think about the environment and economics.

The contributions of the book are primarily related to its integrative nature. First, Kahn believes that you cannot understand environmental economics unless you understand the environmental systems that interact with economic activities. Consequently, for each topic (such as global climate change, tropical forestry, or fisheries) the underlying ecology and environmental science are presented in a basic fashion. Another important aspect of the book is the integration of environmental economics and natural resource economics. For example, the primary focus in most natural resource economics books is whether the market adequately allocates the resource between the present and the future. In other words, is society consuming its petroleum too fast? Although this is important, it is necessary to simultaneously examine the environmental issues associated with energy production and consumption such as the relationship between fossil fuels and global climate change, the environmental degradation associated with mining, and the ecosystem effects of commercial fishing. It makes little sense to draw an artificial distinction between environmental issues and natural resources issues; it is more appropriate to handle them in an integrated fashion. Another integrating theme which is given particular prominence in the third edition is the importance of ecological services for economic processes and how the preservation of environmental resources that generate ecological services is a key to sustainability.

Kahn is an excellent teacher as well. When on the faculty at research universities, he divided his time between graduate students and undergraduate students, with a heavy emphasis on directing dissertations. Many of his former students have gone on to distinguished careers in academia and industry, and are still authoring articles with Kahn. While at SUNY-Binghamton, Kahn received an award as one of the best undergraduate teachers in the SUNY system. One aspect of his teaching singled out in the narrative for the award was his involvement of undergraduate students in funded research, an emphasis that continues today at Washington and Lee University. Kahn also received nominations for teaching awards while at the University of Tennessee, and was a finalist for the SCHEV award in 2009.

Kahn's primary teaching is in environmental studies, with one course per year in the economics department. Kahn typically teaches the introductory and capstone course in environmental studies, and in the spring term either an environment and economic development

course in Amazonas, Brazil, or an advanced course on the environment and economy in developing countries.

The introduction to environmental studies is designed to start students thinking in an interdisciplinary fashion about the causes, consequences and solutions to environmental problems. This is accomplished through a set of readings and discussions focusing on questions such as alternative perspectives toward the human-environment relationship, ecological complexity, ecological services, the functioning of markets, and the importance of policy instruments. These concepts are then reinforced through case studies, including global climate change, the collapse of the oceans and fisheries, tropical forests, energy, and more. Students are required to write two short papers (executive-summary writing skills are a learning objective) and make a group presentation. After taking this course, environmental studies students have an interdisciplinary perspective into which they can integrate environmental courses from other disciplines such as environmental economics, environmental ethics, ecology and geology. In their senior year, they write a capstone research paper that provides a final integrative interdisciplinary experience. In this course, Kahn stresses the importance of an interdisciplinary approach in developing a research question, assembling evidence, examining the evidence, testing for results, using disciplinary tools in an interdisciplinary context and developing policy recommendations based on the results. More discussion on the teaching of these courses is in the "Personal Statement" section.

In addition to the Brazil program and the Chesapeake program (further discussed in the personal statement), Kahn has developed the Environmental Studies Program in many other ways. When he arrived, the program existed as an eight-course concentration. He led an effort to develop a new major, which was approved in May 2007 and is currently graduating ten to twelve majors per year. The major stresses both an interdisciplinary approach and the development of disciplinary tools, emphasizing how to integrate these tools (economic analysis, statistics, ecology, geographic information systems, environmental ethics, etc.) into an interdisciplinary approach. The major was enthusiastically endorsed by all the participating departments. Kahn mentors independent studies every semester, and he often teaches special topics courses (bio-fuels and global climate change, environmental valuation, cost-benefit analysis) as demand arises.

One aspect of his influence on students for which Kahn is particularly proud is his impact on students' academic and career paths. Many students arrive at W&L with the idea of going into investment banking, simply because of the potential money. However, after participating in environmental studies, they begin to think more broadly of the impact they could have on society and move in other directions. Typically environmental studies students seek a career in the environmental area. Some of those who were thinking of investment banking go into the environmental management area of corporations. Less than twenty-five percent of Environmental Studies students go straight into graduate school, with the majority taking two or three years to gain experience and think about their future directions. These students tend to head in one of four directions. The most common choice is to go to Washington and work with a consulting firm before applying to graduate school. The second most common is to work for an environmental NGO, followed by the Peace Corps and government. Almost all of the students go on to graduate school, in environmental economics, environmental policy, MBA with environmental concentration, ecology, geology, or environmental law. Right now, Professor Kahn has students in PhD programs at UC-Davis, Michigan, Arizona and Cornell, with Master's students at Duke, Yale, Maryland and George Mason.

***Discovery and knowledge integration:***

Kahn's research impact began with his dissertation, which dealt with the economic impact of the environmental decline of the Chesapeake Bay. He was part of a huge interdisciplinary research team based at the University of Maryland's Horn Point Environmental Laboratory. This project

looked at the impact of pollution on submerged aquatic vegetation, a critical component of the Chesapeake Ecosystem. Kahn developed an integrated ecosystem-fishery economic model that traced how pollution influenced the level of submerged aquatic vegetation which in turn affected fish populations. The model showed how changes in fish populations affected fishing activity and changes in fishing activity affected fish populations. Changes in the outcomes in commercial and recreational fishing were incorporated into a model capable of measuring the change in social welfare. The model was empirically estimated and a damage function that related changes in pollution to losses in social welfare was derived from the empirical estimation of the bioeconomic model. This dissertation research was innovative in many ways. Kahn was the first person to integrate environmental variables into the equilibrium catch function and was among the first to estimate a marginal damage function.<sup>1</sup>

Throughout his career, Kahn has pioneered research that integrates economic and ecological concepts. He has partnered with several colleagues, including the noted ecologist Robert O'Neill. Kahn's primary orientation in this line of work is that conventional economic thinking both under-values the importance of the environment and treats the environment too simplistically. Kahn has important publications in both areas and in the intersection between the two. Of particular importance is the work on ecological complexity. In a series of articles Kahn and his co-authors show that ecological complexities can imply that small changes in one component can lead to massive impacts on the system as a whole, creating irreversibility from an economic perspective. The importance of irreversibility is that the precautionary principle should govern public policy rather than the more traditionally employed maximization principle. This is a new contribution to the economic literature which had looked only at direct sources of irreversibility such as the damming of a river. Kahn's work shows that relatively small changes in environmental variables could generate relatively large changes in social welfare because of the complex interactions within the ecosystem and between the ecosystem and the economic system. Kahn was invited to join a panel led by noted economists Steve Farber and Robert Costanza to develop a paradigm for approaching ecosystem management in a new way. Instead of focusing on setting goals for characteristics of an ecosystem, the idea was to develop a methodology for managing the flow of ecological services arising from the ecosystem. This project was funded by the National Center for Ecological Analysis and Synthesis, a National Science Foundation-funded research center at UC-Santa Barbara. The panel included prominent researchers from environmental/ecological economics, policy science, ecology, chemistry, and forestry.<sup>2</sup>

### ***Accomplishments and Impacts Related to the Amazon***

For the last 20 years, the Amazon has been a major part of Professor Kahn's professional life, taking classes of W&L students there for spring term, organizing and directing the exchange program with the Federal University of Amazonas, research, advising policy makers, teaching Brazilian graduate students during the northern hemisphere summer, and

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<sup>1</sup> "Economic Losses Associated With the Degradation of an Ecosystem: The Case of Submerged Aquatic Vegetation in the Chesapeake Bay", (with W.M. Kemp) *Journal of Environmental Economics and Management*, 12:246-263, September, 1985, plus three more.

<sup>2</sup> Rethinking the Optimal Level of Environmental Quality: Justifications for Strict Environmental Policy (with Farmer, McDonald, O'Neill), *Ecol. Econ.*, 36:461-473, 2001. On the scarcity value ecosystem services (with Batabyal and O'Neill) *J. of Env. Econ. and Management* 46:334-352, 2003; *Homo Oeconomicus* as a Keystone Species (with R. O'Neill). *Bioscience*, 50:333-336, 2000; Ecological Interaction as a Source of Economic Irreversibility (Robert O'Neill), *Southern Econ. J.* 66(2), 381-402, 1999. Linking Ecology and Economics for Ecosystem Management: A Services- Based Approach with Illustrations from LTER Sites, (w/ Farber, Costanza, et al) *Bioscience*, 56:121-133, (February 2006). "Third World Debt and Tropical Deforestation" (with McDonald) *Ecol. Econ.* 12:107-23, 1995, plus 3 more works.

trying to be a force in preserving one of the world's ecological treasures. His provides a good illustration of how Kahn simultaneously pursues Boyer's four areas of scholarly endeavor.

Professor Kahn's work with the Amazon had its antecedents in the mid 1980s, when he was teaching at SUNY-Binghamton. He was exercising at the health club, and the Donahue Show was on TV. Donahue's guest was the rock musician Sting, who was there with two members of the Yanomami tribe, and he was pounding on the table and saying the external debt was responsible for tropical deforestation. Although Kahn was sympathetic to this hypothesis, at this point it was just a hypothesis. Motivated by what he saw, Kahn wrote a grant proposal (which was funded by the US Environmental Protection Agency) to do a cross-sectional (67 tropical countries) statistical analysis of the causes of deforestation. The paper, published in *Ecological Economics* and reprinted in several anthologies about tropical deforestation, turned out to be a rather famous and highly referenced work on macro-economic drivers of deforestation.

As this study was being finished, Professor Kahn switched jobs to a joint appointment at the University of Tennessee and the Oak Ridge National Laboratory. The University of Tennessee already had a history of collaboration with the Federal University of Amazonas, since Knoxville and Manaus are sister cities. In his first year, UT received a grant from the US State Department for faculty exchange, and Professor Kahn was the first professor to make the exchange, thirty days in the summer of 1992 not speaking a word of Portuguese. However, things went extremely well and Kahn was appointed a professor in the Environmental Sciences Center (interdisciplinary master's degree program at the time, now granting a PhD).

Perhaps the most important contribution that Professor Kahn has made in this arena is the mentoring of Professor Alexandre Rivas. Kahn met Rivas in his first trip to Brazil, and he became Professor Kahn's PhD student at the University of Tennessee. In the dozen or so years since receiving his PhD, Rivas has become the most well-known environmental economist in Brazil. Kahn and Rivas, along with several Brazilian colleagues, have been able to change the nature of the conversation in Amazonas. In years past, the conversation, particularly at the political level, was very dichotomous. Either you were for development of the Amazon with the great economic benefits for Brazil or you were for the preservation of the forest, leaving many Brazilians in poverty. In numerous articles, but more importantly in conversations with politicians, business leaders and environmental NGOs, Kahn and Rivas were able to show that this is a false dichotomy and that the wealth and income potential of the forest resided in the intact forest and not in its removal. The key is to choose a mix of activities that improves quality of life for the region's inhabitants, but that leaves the forest and the flow of ecological services intact.

A good example of this work started in Rivas's dissertation, which showed how the economic subsidies to manufacturing in Manaus (the capital of Amazonas) have reduced deforestation (the 1.5 million sq. km of the state are still 98% in original forest). In 2010, the legislation that created these subsidies was due to expire, so Rivas organized a group of researchers (in which Kahn played a prominent role) in a project funded by the federal government. This study repeated the Rivas dissertation with more recent data and with a robust set of statistical tests. The study, which has been published in both Portuguese and English, showed that the subsidies to manufacturing were actually one of the strongest environmental policies ever enacted, reducing deforestation by 80% of what one would expect given the socio-economic characteristics of the state. The study was influential in the renewal of the subsidies and was presented by the governor at the Copenhagen round of negotiations on climate change as an example of how promoting non-forest economic activities can preserve the forest.

Several other studies by Kahn have influenced policy in Amazonas. For example, in the late 1990s, Dr. Vicente Nogueira, the head of the environmental protection agency of the State of Amazonas contacted Kahn while he was in Manaus, to discuss a severe problem facing the state. The government relied on firm-specific environmental management plans to protect the

environment. These worked fairly well with factories and industrial mines, as these types of firms had valuable fixed-assets that could be seized in the event of unaddressed violations. However, these types of direct controls do not work as well in forestry, where the capital (trucks and machinery) is highly mobile. In this context, the government was fearful that Asian timber companies that were beginning to operate in Amazonas would repeat the pattern of devastation of their Asian operations (Indonesia, Philippines, Papua New Guinea, etc.). The fear was that the firms would submit well-constructed environmental management plans, but once in the forest, would not follow the plans. They felt that illegal clear-cutting would take place rapidly and then the firm would simply disappear in a corporate shuffle, re-emerging as a new entity to begin the process again. The idea of performance bonds immediately came to mind for Kahn, as these bonds have been used to ensure restoration of strip-mined areas of the United States (the bond that is paid up-front is forfeited if restoration does not meet legal standards). However, there are two problems associated with performance bonds which prevent their application to the harvesting of rainforests. First, and foremost, they are designed to restore damage after degradation, not prevent damages. It is not possible to restore an area of tropical forest that has been deforested. Second, the bond is a discrete instrument; either the standard is met and the bond is returned, or not. In the area of forestry, this would not work well, as a firm that was headed toward missing the standard by a small amount might as well cut as much as possible; the penalty for missing by an inch is the same as the penalty for missing by a mile.

Kahn designed a performance-bond system with a mathematical relationship that defined the proportion of the bond that was to be returned. The proportion was based on performance relative to ecological criteria that are important in terms of the rapid recovery of the forest and its continued provision of ecological services. Kahn's research formed the basis of a new provision in the environmental law of the State of Amazonas. In addition to the change in the law, this research was critically important for two reasons. First it transformed the performance bond from a reactive instrument (restoring a damaged environment) into a proactive instrument (preventing damages). It also was the first time that an economic incentive was linked to ecosystem characteristics rather than levels of pollution or levels of extraction. Kahn further developed incentives for sustainable forestry by developing systems for leasing public forest that create economic incentives for a sustainable forestry system that leaves the forest relatively undisturbed while providing a sustainable flow of income. This plan included goals based on ecological properties of forests, income incentives, performance bonds and an innovative monitoring and enforcement system. This work became the basis of Kahn's testimony to the Economics of Biodiversity Task Force of the Organization for Economic Cooperation and Development.

Kahn has created numerous benefits for Washington and Lee University through his work in Amazonas. Professor Kahn has taken 5 spring terms classes (about 70 students) to Amazonas, where they study the relationship between the environment and economic development. Thirty W&L students have had even more intense transformational experiences by participating in the half-year exchange to the Federal University of Amazonas or the State University of North Fluminense, and 35 Brazilian students have made a half year exchange to W&L. Twelve W&L professors have visited Brazil to interact with colleagues there, and ten Brazilian professors have come to W&L, including 3 who taught courses as visitors. Six Brazilian PhD students have come to W&L to work with W&L professors. In addition to Kahn, three other W&L professors have developed research topics related to the Amazon (Hurd-Biology, Cooper-Philosophy/Ethics and Blunch-Economics). The student consulting group is now doing a project in Amazonas every year. In addition, our exchange program with the Federal University of Amazonas has become a model for international studies at Washington and Lee University.

In summary, Professor Kahn has contributed significantly to the preservation of the Amazonian rainforest. His research has tackled important issues and informed policy makers.

His presence in the discussion has lead helped to resolve important conflicts in the policy debate. His work with both W&L and Brazilian students has helped them to clarify their thinking about both the rainforest and the more general issue of how to reconcile economic development and environmental preservation.

***Knowledge Integration:***

The sections on *Teaching, Curricular Development, and Knowledge Integration, Discovery and Knowledge Integration, Amazonian impacts* illustrate how Kahn's career embraces knowledge integration. In his research he has integrated economics and ecology, theory and policy, and real world outcomes with research outcomes. In teaching, he has developed an interdisciplinary approach to environmental studies that is an example to others, integrated his own research into the classroom, developed place-based learning opportunities, and created many unique opportunities for students to be involved in knowledge integration.

***Service:***

Kahn has been active in service to the community, university, profession and broader society. Only a fraction of his actual service is listed here. At the community level, Kahn's service has been active in youth soccer and public education on environmental issues. Kahn also gives numerous talks in the community (retirement center, high school, middle school and churches), helping both children and adults to understand the environmental issues that will shape our future. He also regularly works with the Rockbridge Area Conservation Council to help them think about the issues confronting the community. Kahn has performed numerous services for universities. In previous positions at graduate programs he served as director of graduate studies, ran an interdisciplinary research center and served on many committees. At Washington and Lee he directs the Environmental Studies Program and serves or has served on the advisory board of academic programs (international education, global stewardship, Latin American studies, and the Transnational Law Center), the academic task force of the university strategic planning committee, the hiring committees for the Department of Economics and the Environmental Planning and Management Committee and more.

Kahn is a founding member of the U.S. Society for Ecological Economics, and was elected to the board of directors. He has also been active in the Southern Economic Association, serving as an associate editor and co-organizing environmental economics sessions at the annual meetings in the last 12 years. Kahn reviews for a wide variety of refereed journals. He reviews proposals for the National Science Foundation, U.S. Environmental Protection Agency, National Oceanic and Atmospheric Administration, and U.S. Department of Education. He has engaged in many reviews of academic programs, and regularly advises government agencies, as described in the additional documentation section. He averages three invited talks per year at other universities.

**iv. Personal Statement:** I like to begin the first lecture of my introduction to environmental studies class with the following caution, “If you tell me you don’t believe in global climate change because you are a conservative, you fail the course. If you tell me that you believe it is an important problem because you are a liberal, you fail the course.” My point is, of course, that the existence of anthropogenic global climate change is not a question of ideology, but of evidence. Not a question of belief, but of developing an understanding of cause and effect relationships. This is an example of my primary goal in teaching, to provide transformative experiences for students that have a life-long effect on the way they view the geo-biosphere and the interaction between the geo-biosphere and human activity. My focus on transformation has four main components: (1) Transformation from a recipient of knowledge to a generator of knowledge; (2) Transformation from a search for facts to a search for understanding of cause and effect relationships; (3) Transformation from an enquiry confined to a limited geographic, cultural, ecological, economic and political context to a broader more global context; (4) Helping students to remove disciplinary blinders and look at important problems within an interdisciplinary context, but still utilizing important disciplinary analytical tools.

I began my quest to transform students from viewing themselves as a recipient of, to a generator of knowledge as a professor at Carnegie I schools, starting in 1980 at SUNY-Binghamton and continuing through the 1990s with my appointment at the University of Tennessee and Oak Ridge National Laboratory. During this period, my time was divided between undergraduate and graduate students, but given the nature of these schools, there was a greater emphasis on graduate students. In addition to trying to stimulate undergraduates to begin research as early in their career as possible, I would hire young graduate students on my funded research projects and try to jump-start them into research. As one of the early leaders in integrating economic and ecological modeling and empirical research, I also worked to develop a more interdisciplinary perspective among both my students. I do the same thing with the graduate students with whom I work in Brazil, but from a different starting point. The Brazilian graduate students tend to have science and engineering orientations, and I try to help them understand the value of humanities and social science approaches and how to use an interdisciplinary approach in their research.

When I arrived at W&L, my alma mater, in 2000 to lead the new environmental studies (ES) program, I continued the same philosophy of focus on transformational experiences, but reoriented to an undergraduate focus. In the ES senior capstone class, I use my experience as a researcher to help them learn to think like an experienced researcher. Throughout my teaching, there is an emphasis on the use of disciplinary tools in an interdisciplinary context, and an emphasis on how differences in geography, environment, culture, political system, economic circumstances and other factors influence the relationship between people and the environment in which they live.

Fortune smiled on me as the governments of Brazil and the US entered into an agreement to support the development of a set of consortia between their universities. We (WLU and the Federal University of Amazonas, in cooperation with Fairfield University and the State University of North Fluminense) applied for the first round of funding in 2001 and we have had our consortium funded since then. The relationship with UFAM has remained constant, but in the last round of funding our partners were the University of Florida and the Federal University of Rio de Janeiro. This consortium funded the half year exchanges of W&L and Brazilian students, with about 35 already having made the exchange in each direction. These exchanges have been truly transformational for the students and have had a lasting impact on the academic culture at W&L and the other participating universities.

As the Brazil program developed, I began looking for the same type of transformational experiences in a domestic program. When the opportunity arose, Professor Hurd (Biology Department) and I wrote a proposal to the Andrew Mellon Foundation for a place-based learning program focused on the upper Chesapeake watershed in the Lexington area (Maury and James

Rivers and local streams). We hired Professor Humston to lead this program and it has had remarkable success, adding new courses to the curriculum and funding up to ten students each summer to do research or internships in the region.

Interdisciplinarity has been a constant theme since graduate school. I was very fortunate to have Dr. John Cumberland as my dissertation advisor and mentor. He was a leader in the formation of the disciplines of environmental economics and ecological economics, and taught me how much more power economics had in explaining behavior when it was coupled with an understanding of other disciplines. My dissertation focused on environmental change in the Chesapeake Bay and has served as a model for many subsequent studies. Professor Cumberland also taught me that it was possible to be passionate about the environment, yet still be an objective and careful researcher. Both of these lessons are front and center in what I try to pass on to my students and are central to my focus on the development of an understanding of cause and effect relationships.

In short, I would summarize my educational philosophy as pursuing an interdisciplinary understanding of cause and effect relationships, providing transformation experiences for students, helping students make the transition to independent researchers and developing both a global and place-based learning focus. I have strived to achieve these objectives not only in my own work, but also in my leadership of the ES program, our Brazil exchange program, and our Chesapeake program.

The more I think about the Boyer categories of scholarly endeavor, the more I believe that both the success and happiness of a professor depend on the ability to link these categories together. There are simply not enough hours in the day to pursue these objectives independently, and the integration of these endeavors produces important synergies. I believe that if I were to prepare a Venn diagram of my pursuit of these four areas of scholarly endeavor, the biggest shape on the diagram would be the intersection of the four areas, and would hope that there would be very little space that was not contained in at least two categories.

That is not to say that there are not some areas of activity where these intersections are not very strong, particularly in some areas of service. For example, as one of the senior economists at W&L, I have participated in all of the hiring activity since my arrival. However in my other areas of service, I try to orient my contributions to make best use of my comparative advantages and synergies across these categories. For this reason, I focus my service in areas such as strategic planning for the University and the Williams School, participation in the International Studies Committee, the Latin American and Caribbean Studies program, curricular development of the ES program, working with the Student Consulting group and similar activities. My interaction with the community is primarily through giving talks about environmental policy at churches and other community forums and visiting K-12 classes to talk about the environment and rainforest issues. For the profession, I review articles and grant proposals in my areas of expertise, but also evaluate environmental studies programs and Brazil exchange programs at other schools. I work extensively with colleagues in the International Office of the US Department of Education in their planning processes, and in assisting new consortia. In terms of tenure evaluations at other schools, I tend to be approached to evaluate those professors with interdisciplinary orientations, given the nature of my own work and my understanding of the importance of an interdisciplinary approach.

Everything else, teaching, curriculum development, students collaboration, my research, my policy advice, the Brazil program, the Chesapeake Bay program, is all interwoven. I find it hard to distinguish between research, knowledge integration and teaching because I involve my students in teaching, use my research to inform my teaching, and develop research projects based on questions and issues that arise while I am teaching. I am a very strong advocate of the philosophy at W&L that a successful professor is a Scholar/Mentor where research and teaching are not compartmentalized but integrated to provide better experiences for students and a research agenda that can thrive at a liberal arts institution.

## v. Abbreviated Curriculum Vitae

### Education:

Washington and Lee University B.A. (Economics) 1975  
University of Maryland, College Park M.A. (Economics) 1978  
University of Maryland, College Park Ph.D. (Economics) 1981

### Appointments:

Washington and Lee University:

2000 – present, Director, Environmental Studies Program  
2003 – present, -John F. Hendon Professor of Economics-  
2000 - 2003; Professor of Economics and DuPont Professor of Environmental  
Citizenship-2000-03),

Universidade Federal do Amazonas, Brazil

1992-present (Collaborating and/or Visiting Professor)

University of Tennessee

1991 - 2000 (Associate Professor of Economics-1991-2000,  
1999 – 2000; Director Graduate Program,  
1991-1999 Joint appointment as Collaborating Scientist, with Oak Ridge National  
Laboratory 1980-1991

State University of New York- Binghamton (now Binghamton University)

1988 - 1991 Associate Prof of Economics  
1989 - 1990 Director, Center for Education and Social  
1980 – 1988 Assistant Professor of Economics

University of Maryland,

1978-1990 Faculty Research Assistant, Center for Environmental and Estuarine Studies  
and Bureau of Business and Econ. Research

### Publication summary (110 publications in total):

Authored Books (1 with 3 editions, 1 co-authored) edited books (5), refereed publications (44),  
book chapters (34), proceedings and other non-refereed publications (23)

### Selected Publications:

Caviglia-Harris, Jill and Kahn, James Randall, 2009. Taking the "U" out of Kuznets: A  
Comprehensive Analysis of the EKC and Environmental Degradation, *Ecological  
Economics*, 68: 1149-1159

Kahn, James R. and A.A.F. Rivas 2008 The Sustainable Economic Development of the  
Indigenous and Traditional Peoples 2008 (with Alexander Rivas) in *Post Keynesian  
Economics and the Environment*, R. Holt, M. Forstater and B Mitchell, eds, Edward  
ElgarPublishing, Aldershot, U.K,

Casey, James, James Randall Kahn and A.A.F. Rivas. 2008, Willingness to accept  
compensation for the environmental risks of oil transport on the Amazon: A choice  
modeling experiment. *Ecological Economics*,

Farber, Stephen, Costanza, Robert, Childers Daniel L., Erickson, Jon, Gross, Katherine, Grove,  
Morgan, Hopkinson, Charles S., Kahn, James, Pincetl, Stephanie, Troy, Austin, Warren,  
Paige Wilson, Matthew, 2006, Linking Ecology and Economics for Ecosystem  
Management: A Services- Based Approach with Illustrations from LTER Sites,  
*Bioscience*, Volume 56, Issue 2 pp. 121–133

Kahn, James R. and Dina Franceschi, 2006. Beyond Kyoto: A Tax-Based System for the Global  
Reduction of Greenhouse Gases, *Ecological Economics* Volume 58, Issue 4, 1 July  
2006, 778-787.

Alberini, Anna and James R. Kahn, 2006 *A Handbook on Contingent Valuation*, (co-edited with  
Anna Alberini, Edward Elgar Publishers,.

Kahn, James R., *The Economic Approach to Environmental and Natural Resources*, 3rd edition, Thompson Learning/Southwestern Press, 2005.

Carlos E. Freitas, James R. Kahn and Alexandre A.F. Rivas 2004. Indigenous people and sustainable development in Amazonas, *The International Journal of Sustainable Development and World Ecology*, 11:3, pp 312-325.

Amit Batabyal, James R. Kahn and R.E. O'Neill, On the scarcity value ecosystem services *Journal of Environmental Economics and Management* 46:334-352, 2003

O'Neil, Robert, and Kahn, James R 2002. . *Homo Economus* as a Keystone Species *Bioscience*, 50(4), pp 333-336.

Casey, James, Jill Caviglia, James R. Kahn and Alexandre A.F. Rivas 2002. Information and the Subsistence Farmer's Decision to Deforest *International Journal of Sustainable Development*, 4:392-414.

David Bjornsted and James R. Kahn 1996. *The Contingent Valuation of Environmental Resources: Methodological Issues and Research Needs* E. Elgar Publishing, London

**Selected Grant Awards (total external grant funding while at WLU = \$1.240.000):**

Sustainability Post-Doctorate Fellow Grant, Andrew Mellon Foundation, July 1 2009-June 30, 2011. \$129,000

Enhancing Place-Based Learning at Washington and Lee University, the Andrew Mellon Foundation, July 1 2008-June 30, 2012, \$600,000.

Energy, Environment and Sustainable Development: The Central Role of the United States and Brazil, Fund for the Improvement of Post-Secondary Education (USDOE), September 2007 to September 2011, \$205,000.

The Environment, Economic Development and Quality of Life Nexus: An Interdisciplinary Approach to Undergraduate Education, Fund for the Improvement of Post-Secondary Education (USDOE), Sept, 2004 to Sept. 2006, complimentary activities \$75,000

The Environment, Economic Development and Quality of Life Nexus: An Interdisciplinary Approach to Undergraduate Education, Fund for the Improvement of Post-Secondary Education (USDOE), September 2001 to September 2005, \$208,000.

A Trade-off Weighted Index Approach to Integrating Economics and Ecological Risk Assessment USEPA-NCEA Cooperative Agreement on Research on Methods for Integrating Ecological Economics and Ecological Risk Assessment, Feb. 1999-Jan 2001, \$175,000.

**Selected Awards and Honors:**

- SUNY-Binghamton Award for Excellence in Undergraduate Teaching, 1988
- Chancellor's Award (SUNY System-wide) for Excellence in Teaching, 1988.
- University of Tennessee Faculty Development Award, 1996
- Four time nominee for Outstanding Teacher, College of Bus. Adm. UT, 1992-1998
- Scientific Adviser to the Pan American Committee on Mining, Metallurgy and Materials (COPAM) (1998-present)
- Scientific Advisor to the International Materials Assessment and Application Center of the United Nations Industrial Development Organization (IMAAC/UNIDO) (1998 to present)
- Outstanding Paper of the Year, *The Energy Journal*, 1999.
- Fulbright Fellowship, Brazil, 2001
- Visiting Professor/Fellow, Conselho Nacional de Desenvolvimento Científico e Tecnológico (CNPq-The Brazilian national science foundation), 2005-2006
- Finalist, SCHEV Outstanding Faculty Award, 2009

## **vi. Letters of Support (excerpted):**

Professor Jim Kahn's research on environmental economics has led him to create a world-class teaching laboratory in the rain forests of Brazil that integrates teaching and research on environmental problems within an exciting model of public service. With his most recent four-year grant from the Mellon Foundation to carry out collaborative student-faculty research on the Chesapeake Bay watershed, Kahn has created a second laboratory for students and faculty to study and investigate the complex ecosystem of the Chesapeake, the largest and most important estuary in the United States. Just as the program in Brazil has brought tremendous educational benefits to his students and economic benefits to the inhabitants of the rain forest in Brazil, so the Chesapeake program will benefit all of the citizens of Virginia and surrounding states who derive so much from this great environmental asset. Said differently, Kahn's model of integrating education, research and service is truly global in scope and represents a powerful educational model. **Larry C. Peppers, Dean of the Williams School, W&L**

My semester studying abroad with Professor Kahn was one of the most enriching and memorable experiences of my college career. Never have I had a more enthusiastic and approachable professor with such an infectious passion for sharing knowledge. It is apparent that Professor Kahn finds true joy in watching his students grow, both intellectually and culturally. Immediately upon arrival in the Amazonas, Professor Khan encouraged us to truly immerse ourselves in Brazilian culture. He made us think larger picture, treating the entire region as our classroom. While almost anyone can stand in front of a room and recite information, it takes a true educator like Professor Kahn to venture outside this standard environment and make those lessons come to life. Through this hands-on learning, my peers and I gained insight into the economic and environmental topics covered in the course, but more importantly, developed and understanding and appreciation for Brazilian culture. Without the guidance and enthusiasm of Professor Kahn, this incredible and transformative experience would not have been the same! **Emily Ackerman, W&L 2012**

Professor James Kahn has been my most valuable mentor and advisor until this very day. While at Washington and Lee, he encouraged me to pursue the most transformative experience of my life, which was studying abroad in the Brazilian Amazon. One semester abroad led to several internships in some of the most prestigious environmental consulting organizations. With his guidance and advise I was able to develop my transition from recipient of knowledge to generator of knowledge as I developed my own research project that later became my senior thesis. In this project, I had to go from getting the primary data myself to developing economic models to value the environmental impact of sport fishing in the Balbina dam. In other words, he was the reason for me to start on the path of becoming a scholar. I have recently translated my thesis into Portuguese so that it becomes a chapter of a book that Professor Kahn will publish soon. Therefore, Professor Kahn has helped me in every way, from challenging me intellectually to helping me publish my own work.

Professor Kahn has further enhanced my ability to work within a more interdisciplinary perspective. I graduated as an economist and yet, have worked within the field of environmental studies and with his help and support, I have been accepted into an environmental economics master's program in a renowned Brazilian institution. Therefore, he has helped me defy the boundaries of science and humanities to create a bridge that connects several disciplines that are seemingly unrelated.

Through his classes, his programs, and his advice I was able to live a global and culturally complex W&L experience, which is the reason why I enjoyed college so much. His global perspective and knowledge as well as the international program he coordinates were what made me aware of the complexities of global environmental and economic issues. In sum,

I believe that Professor James Kahn enriched my intellect and my experience throughout and after college the way no other person has. And for all the reasons explained above, he, more than anyone, deserves the teaching award. **Maria Gabriela Albuja, W&L 2011**

Prior to studying abroad and conducting in Brazil, I was simply an aspiring anthropology major, poverty and human capability studies and Latin American and Caribbean studies minor with hopes of making a positive impact on the world's people. Today, after two subsequent research expeditions to the Amazon, I now possess the skills and confidence to effectively improve the economic opportunities available to rural communities. Without Professor Kahn's encouragement or established network of colleagues in Brazil, I would have struggled to achieve such a marked academic and personal transformation over the past two years, and for this and much more, I am extremely grateful. **Danielle Breidung , W&L Class of 2013**

I came to Washington and Lee to study politics and become a lawyer – until I met Professor Kahn. He introduced me to a world much larger than the one I had previously known and gave me the opportunity to pursue the profoundest of ideas and their natural by-product – expeditions – that pushed the frontiers of my academic experience, both intellectually and geographically, and showed me the practical application of his teaching in the world outside the classroom. With his guidance, I ventured to the Amazon and to the Mozambican bush. I learned Portuguese – a vital business language in the 21st Century – but more importantly, I learned how to understand a framework for decision making that puts the economics of the environment as a central tenet in all that I do...whether, I'm working on Capitol Hill, or in a Fortune 500 company. **Zachary Manis, W&L Class of 2008**

During my senior year at Washington and Lee, Jim was contacted by a group of university students and public officials who were studying the impact of beach erosion on a tourist economy. Rather than work alone, Jim assembled a team of students to serve as consultants to this group. He coordinated a 1-week site visit, set up meetings with various members of the community, and helped us in the formation of our project goals. Although frankly I expected to play a support role to Jim, I was surprised when he encouraged our group of students to take leadership of the project. I learned as much from this brief hands-on experience as I did in entire semesters of other courses. **William Teichmen, Class of 2003**

The papers and technical reports he has published had very important impacts on important global issues. His 1995 paper in Ecological Economics about the Third World Debt and Tropical Deforestation was a very important reference for the understanding of this problem in the 70's and 80's and helped policy makers to better understand the problem from a different perspective. His book about the Economic Approach to Environmental and Natural Resources has greatly contributed to the dissemination and understanding of this important and growing field of Economics. The way the book was written made more people throughout the world have a better and simplified perspective and understanding about the environment and Economics. **Alexandre Rivas, Titular Professor, Federal University of Amazonas, Brazil**

As I read the nomination guidelines for Virginia Outstanding Faculty Awards, I can scarcely imagine a better qualified nominee. His scholarly accomplishments are first-rate and widely acknowledged. As for knowledge integration, if Jim hasn't placed his discipline in larger, multi-disciplinary contexts, then no one has, and he has certainly transmitted this integration to his students. He is a gem, and few universities have such a dynamic, innovative professor working on so important a range of environmental problems. **Daniel Simberloff, Nancy Gore Hunger Professor, University of Tennessee**

Professors like Professor Kahn are perfect examples of teachers who can explain the connections and complexities of the world today. I just spent the past half year teaching Social Studies and Earth Science in Yangon, Myanmar (Burma). When I first began teaching, I thought of all the educators I've had in my life and strove to emulate their teaching styles and techniques. Professor Kahn came to my mind first because he is a gentle yet powerful speaker who takes the time to make sure students his understand the lesson and subjects beyond the classroom. Professor Kahn is an ideal mentor; he is encouraging and ever interested. He always has his students' intellectual development at the forefront of his mind. I had no interest in pursuing graduate studies until Professor Kahn pushed me to consider it. In a few years I hope to get my Masters in Geography and, hopefully, later on a PhD. If it were not for Professor Kahn, I would not have even considered such a decision. **Hillary Strasser, W&L**

Professor Kahn's absolute love and intellectual fascination with the Brazilian culture and the environmental and economic aspects of the Amazonas region were absolutely contagious. He knew so many interesting facts and he could tell just which fact would hook each individual student. Im a math and economics double major and am very outdoorsy and adventurous. Professor Kahn knew I loved climbing and taught me about sustainable tourism by presenting ideas involving camping and outdoor adventures and presenting me with information about tree climbing in the rainforest. He was also able to tell me about possible data sets I could use and manipulate for my capstone that would also appeal to my interest in math that were directly related to the Amazon. I am very much a visual learner and professor Kahn noticed this and never failed to point things out for me to look at it in the jungle, or to show me things and describe their applications in the real world. What I loved about having him as a professor was not only learning new things but really seeing the applications of how each new thing I learn applied to every area of life. **Margaret Antonsen, W&L 2013**

Since Jim Kahn was hired as head the Environmental Studies Program, he has enlarged the opportunities for our students in a number of ways. The Brazilian exchange he set up has provided the kind of in-depth experience in a foreign language and culture that W&L encourages. Students learn Portuguese and conduct independent research projects in Brazil, and also have the opportunity to participate in research programs of faculty along with graduate students at the Federal University of the Amazon in Manaus. Jim successfully spearheaded the application for Mellon Foundation support of the more recent Chesapeake Bay program, now headed by Robert Humston, providing new opportunities for our students to explore regional environmental issues. He is now investigating linking this program with the Brazilian program, so that our students can obtain both regional and global perspectives on environmental problems and solutions. This fall he plans to visit St. Andrews University in Scotland, which has recently developed a program on environmental sustainability, in order to investigate potential student- centered interactions with our Chesapeake Bay program. It seems to me that few, if any, faculty at Washington & Lee have done more to demonstrate a strong commitment to undergraduate education beyond the classroom. **Lawrence E. Hurd, Herwick Professor of Biology, Washington & Lee University**

## **vii. Additional documentation:**

This section is designed to show some of the impacts Professor Kahn has had on students and the state of the science. This section focuses on invited talks, student impacts, and citations.

### **Keynote addresses and featured talks:**

An indication of the impact of a researcher and educator on the state of the science and pedagogy are the keynote talks and invited presentations which he or she has presented. The following section highlights a subset of these talks.

- 2011- Keynote address to the LOICZ (Land-Ocean Interface in the Coastal Zone) Open Science Conference, in Yantai, China. The title of the talk was Think Globally but Model Locally: The Use of Panel Data in Estimating Behavioral Models of the Relationships Between Human Behavior and Environmental Change.
- 2011- Invited talk at a conference sponsored by the Brazilian Ministry of Science and Technology, "International Symposium on the Transfer of Materials in the Continent Ocean Interface, Fortaleza, Brazil. I presented "Restoration of a highly degraded river: A choice modeling experiment on the lower Rio Paraiba do Sul"
- 2009- Third International Seminar on Amazonia: Challenges and Potential for the Amazon in the 21<sup>st</sup> Century, in Belem Brazil. I present a paper entitled "COP-15, Land Use and the Amazon Forest. Note: COP-15 is the "Conference of the Parties" round of negotiation on Climate Change that occurred in Copenhagen in 2009.
- 2008- FIPSE/CAPES Meeting of the Project Directors of the University Consortia funded by the Brazilian and US governments, in Rio de Janeiro. I presented a talk on "Global Climate Change, Policy and opportunities for participants in the FIPSE/CAPES Consortia"
- 2004 - Associated Colleges of the South, annual meeting of the Environmental Initiative, in Greenville, SC.. I made a presentation on incorporating student research into the environmental studies curriculum.
- 2002 - Instituto Superior de Psicologia Aplicada, Lisboa, Portugal Colloquium on "Environmental Ethics and Sustainable Development," presented Integrating Economic and Ecological Concepts in the Development of Sustainable Policies.
- 2001 - OECD International Workshop on Market Creation for Biodiversity Products and Services (Paris) presented The Development of Markets and Economic Incentives for Sustainable Forestry: Application to the Brazilian Amazon
- 1999 - The International Materials Assessment and Application Center of the United Nations Industrial Development Organization (IMAAC/UNIDO) conference on mining and the environment (Porto, Portugal) - presented "Mining, the Environment and Sustainable Development"
- 1998 - Mining, Investment and the Environment, organized by the Institute of Americas, USAID and Colorado School of Mines, Lima, Peru, presented "Mining and Protection of the Environment: Economic Issues Associated with Performance Bonding".

## Student impacts:

Here are a group of photos (taken by Professor Kahn, so he is not in the photos) which show some of the projects in which Professor Kahn has engaged students in Amazonas or other locations.



Students view production of malva fiber in a rainforest community. The work is backbreaking, dangerous (waterborne diseases, snakes, etc.) and pays very little because the communities sell the unprocessed fiber to buyers at slave wages. Several years later, Professor Kahn provided support to the WLU Student Consulting group who produced a report about the development of new products which could be produced in the villages, creating more value added in the rainforest communities.



A WLU student holds a young child in a rainforest community. The primary source of income in the community is the capture and sale of aquarium fish (principally cardinal tetras). The community receives less than a penny for each fish sold. Several W&L students who are participating in the half year exchange with the Federal University of Amazonas are conducting their research in this region. One is looking at community governance of environmental resources, another is looking at modeling the allocation of time across extractive activities, such as capture of fish, gathering of fruit to sell to juice producers, and harvesting of palm fibers and natural rubber. This is part of a large research project to be able to understand how communities will respond to extreme events associated with global climate change, how their activity will further impact ecosystems, and how a variety of policies can improve the quality of life and lessen vulnerability to global climate change. The research is jointly conducted by the Federal University of Amazonas and Washington and Lee University and is funded by the Brazilian government, with more funding being sought from the US government, the UK government and foundations. It is likely that the Student Consulting Group will conduct a project to look at how Environmental Certification of sustainably produced aquarium fish could improve the flow of income into the region.



In 2004, Professor Kahn lead a group of Washington and Lee students who went to Brazil to analyze a proposal for a huge beach re-engineering project. The project was designed to reduced beach erosion and create a wider beach for more commercial activities. The new beach area, enclosed by jetties and rock walls, would have covered a portion of the reef, interfered with the sand nourishment of other beach areas and had other socio-economic impacts in addition to the hundreds of millions dollars of cost. The interdisciplinary team of students produced a report which indicated that the project was not likely to generate economic benefits, would have large environmental impacts, and would simply transfer beach erosion from one area to another. A professor from the Federal University of Pernambuco presented this report to the state government. This testimony and testimony from other experts resulted in the pulling of funding from the project. Several of these students went to work for environmental consulting firms for several years before heading on to graduate schools.

### **Impacts of Publications:**

My research has been highly cited. An article/book title specific search on Google Scholar reveals over 1000 citations (after removing self-citations and citations by a co-author of the article. Scopus list 335 citations to my work in those journals which are contained in the Scopus system.

Most of the journals in which Kahn has published have a high impact factor For example: *Ecological Economics* (11 pubs, 2.74), *Bioscience* (2 pubs-5.51), *Journal of Environmental Economics and Management* (3-pubs2.99), *Ecological Applications* (2.74) , *Energy Journal* (1.3), *Ecological Applications* (4.27), and *Natural Resource Forum* (1.06). Most of the other publications are in journals with impact factors around between 0.5 and 1.0.

In 1999, my co-authors and I won an award as the best paper in *Energy Economics*.