JAY S. GOLDEN, PhD

CURRICULUM VITAE

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Carrboro, NC 27510
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ACADEMIC PREPARATION – AFTER INDUSTRY PREPARATION

Ph.D. (Cantab) Engineering
Division D – Geotechnical, Petroleum and Sustainable Engineering
Supervisor, Professor Peter Guthrie, Royal Academy of Engineering, Order of British Empire
University of Cambridge-2005

MPhil. (Cantab) Environmental Engineering and Sustainable Development
University of Cambridge & Massachusetts Institute of Technology: A Joint Program (CMI) 2004

B.A. Management
Arizona State University / University of Phoenix 1992

Organizational Mastery of Project Management-Professional Certification
Department of Management Science and Engineering
Stanford University-2002

Management & Leadership in Higher Education-Professional Certification
Graduate School of Education
Harvard University-2015

Inducted Phi Kappa Phi Honors Society
Aspen Faculty Pioneer Award – Sustainable Research & Education

APPOINTMENTS

Wichita State University (2019-2021)
President & CEO /retained consultant in 2021

East Carolina University (2017-2019)
Professor (tenured) Department of Engineering
Vice Chancellor of the University: Research, Economic Development & Engagement

Duke University (2010-2017)
Faculty Chair, Business & Environment Program
Associate Vice Provost for Research & Corporate Relations
Director, Duke Center for Sustainability & Commerce

University of California-Santa Barbara
Visiting Assistant Professor (while at ASU and Duke) 2010 & 2011 Academic Years

Arizona State University (2006-2010)
Assistant Professor School of Sustainability
Department of Supply Chain Management W. P. Carey School of Business (secondary)
Founder & PI / Co Director, the Sustainability Consortium 2008-2010: *Obtained*
Founder, PI and Co-Director, National Center of Excellence on SMART Innovations

ENGAGED AREAS OF INTEREST - NEXUS OF SUSTAINABILITY & ENTREPRENEURSHIP

Sustainable Systems

- Innovation & Entrepreneurship for Sustainable Technologies
- Production Consumption Systems
- Industrial Ecology
- Renewable Energy (off-shore wind, PV, biobased)
- Corporate Environmental Sustainability

Methodological Tools

- Data Mining and Visualization
- Environmental Life Cycle Modeling (Attributional & Consequential)
- Economic Input-Output Modeling + Risks Analyses and Modeling
- Physical Designs and Testing

BOARDS AND APPOINTMENTS – ABRIDGED

- U.S. EPA Board of Scientific Counselors - 2017-present
- Urban Environment - AMS
- Sustainability Consortium
- United Nations Life Cycle Assessment Committee
- State of North Carolina Coastal Studies Institute October
- North Carolina Biotechnology Center – Board of Directors

Academic Teaching Programs

Duke University: *Faculty Chair: Business & Environment Program*: A 2-year graduate degree program. The program provides students with knowledge about 1) global business structures and sustainable technologies which influence resource utilization and ecosystems, 2) modeling production-consumption systems, 3) institutional drivers and policies that influence sustainable engineering, 4) methods and tools for undertaking quantitative analysis for institutional and policies including finance, life cycle modeling, systems modeling, decision analysis and applied client projects.

Duke University: *Faculty Director: Interdisciplinary Graduate Certificate on Sustainable Systems*
Analysis: 2-year pan-university graduate certificate program focused on nexus of Natural Resources and Sustainability. Cohorts from the Pratt School of Engineering & Nicholas School of the Environment.

Arizona State University: *Faculty Director: Graduate Interdisciplinary Certificate in Sustainable Technology and Management* – Fulton School of Engineering, W. P. Carey School of Business and School of Sustainability-Arizona State University. A 5 course 15-credit program over a 2-year period offered as either a stand-alone certification or as part of the W. P. Carey School of Business MBA. Delivered in person and via video for domestic/international students.

Industry & Government Sustainable Engineering Consulting-*partial list*

- Deloitte
- DuPont
- REI
- Lockheed Martin
- Under Armour
- Nike
- Belk
- Walmart
- Maersk
- General Services Administration
- Stoneyfield Farm
- Adidas
- Retail Industry Leaders Association (RILA)
- Caterpillar
- John Deere
- Jet Blue
- Cree
- Duke Energy
- Deloitte
- BASF
- Lexmark
- Phelps Dodge
- Lenovo
- Walmart
- Ford
- CSX
- Deloitte
- Syngenta
- Coca Cola
- Motorola
- Mayor of London
- Mayor of Chicago
- City of Phoenix
- County of Durham
- Dept. of Commerce
- Dept of Energy
- Dept of Agriculture
- US EPA

RESEARCH

PUBLICATIONS

Have authored over 140 publications including peer-review articles, government reports, book chapters, research proceedings, and general interest science articles. In addition, have authored numerous technical environmental industry reports for multi-national corporations, agencies and the courts.

Note: **Underline** indicates author is a supervised student or Post-Doc of Dr. Golden.

Published – Business & Environment / Sustainable Systems Thematics

1. Doran, E. M. B., Golden, J.S. & B. Turner, II. (2018). From Basic Research to Applied Solutions: Are Two Approaches to Sustainability Science Emerging? *Current Opinion in Environmental Sustainability.*

2. Seto, K.C., Golden, J.S., Alberti, M. and, B. Turner II (2017). Sustainability in an Urbanizing Planet. ***Proceedings of the National Academy of Sciences***. Vol. 114. No. 34 pp: 8935-8938 doi: 10.1073/pnas.1606037114

3. Abbati de Assis, C., Gonzalez, R.W., Kelley, S.S., Jameel, H., Bilek, T., Daystar, J., Handfield, R., Golden, J.S., Prestemon, J. and, D. Singh. (2017). Risk Management Consideration in the Bioeconomy. *Biofuels, Bioproducts and Biorefining.* Accepted February 6, 2017

4. Golden, J.S., Virdin, J., Nowacek, D., Halpin, P.,Bennear, L., and P. Patil (2017). A Watershed Moment for the Industrialization of Oceans: Making sure the Blue Economy is "Green." ***Nature*** *Ecology & Evolution.* Vol. 1 No. 2 January 24, 2017

5. Subramanian, V., Golden, J.S. and F. Meier (2016). Sensitivity of Product-evolution in Life Cycle Assessment: Laundry Detergents. *Journal of Industrial Ecology.* Accepted October 2016

6. Morrison, B., & Golden, J. S. (2016), Southeastern United States Wood Pellets as a Global Energy Resource: A Cradle-to-Gate Life Cycle Assessment Derived from Empirical Data. *International Journal of Sustainable Energy. http://dx.doi.org/10.1080/14786451.2016.1188816*

7. Boyd, G. and J.S. Golden (2016). Enhancing Firm GHG Reporting: Using Index Numbers to Report Corporate Level Measures of Sustainability. *Int. Journal of Green Technology.* 2, 39-47

8. Subramanian, V., & J.S. Golden (2015). Patching LCI Data Gaps through Expert Elicitation: Case Study of Laundry Detergents. *Journal of Cleaner Production.* 115 pp: 354-361

9. Handfield R. B. and J.S. Golden (2015). The Biobased Products Industry: Reflections and Insights From a Multi-Year Empirical and Modeling Evaluation for the Congress of the United States. *Industrial Biotechnology* Vol. 11 No. 4 pp: 183-187

10. Golden, J.S., Handfield, R. B., Daystar, J and T. McConnell (2015). Industry Report. An Economic Impact Analysis of the US Biobased Products Industry: A Report to the Congress of the United States. *Industrial Biotechnology.* Vol. 11 No. 4 pp: 201-209

11. Ugarte, M., Golden, J.S. and K. Dooley (2015). Lean versus Green: The Impact of Lean Logistics on Greenhouse Gas Emissions in Consumer Goods Supply Chains. *Journal of Purchasing and Supply Management.* Volume 22, Issue 2, June 2016, Pages 98–109

12. Morrison, B., and J.S. Golden (2015). An Empirical Analysis of the Industrial Bioeconomy: Implications for Renewable Resources & the Environment. *BioResources* Vol. 10. No. 3 4411-4440

13. Nowacek, D. P., Clark, C.W., Mann, C.W., Miller, Rosenbaum, P., Golden, J.S., and B. Southall (2015). Marine Seismic Surveys and Noise: Time for coordinated and prudent planning. *Frontiers in Ecology and the Environment.* Accepted February 6, 2015

14. Golden, J.S., Handfield, R., Morrison, B., and K. Spall (2014). An Empirically Derived Model of Innovation Adoption for the Biobased Supply Chain Economy. *Sustainable Business-International Journal.* Accepted Nov. 16, 2014

15. Golden, J.S. and R. Handfield (2014). The Emergent Industrial Bioeconomy. *Journal of Industrial Biotechnology.* December 2014. 10(6): 371-375. doi:10.1089/ind.2014.1539

16. O'Shea T.O., Golden, J.S. & L. Olander. (2012) Sustainability & Earth Resources: Life Cycle Assessment Modeling. *Business Strategy and the Environment.* Vol. 22 No. 7. Pp: 429-441

17. Golden, J. S; Subramanian, V.; Zimmerman, J. B. (2011). Sustainability and Commerce Trends, Industry Consortia as the Drivers for Green Product Design. *Journal of Industrial Ecology*, Vol. 15 No. 6 pp. 821-824.

18. Jo, Jin H. and J.S. Golden (2010). Development of a Hierarchical Approach to Optimize Building Integrated Sustainable and Renewable Technologies. *International Journal of Sustainable Building Technology and Urban Development*. Vol. 1(2). pp. 121-127.

19. Golden, J.S., Dooley, Anderies, J.M., Thompson, B.H., Gereffi, G. and L. Pratson (2011). Capturing the full environmental and social impacts of products. European Commission's *Science for Environment Policy* reprint of *Ecology & Society* article.

20. Jo. J., Carlson, J., J.S. Golden and H. Bryan (2010). Sustainable Urban Energy: Development of a Mesoscale Assessment Tool for Solar Reflective Roof Technologies. *Energy Policy.* **Vol. 38**, Issue 12 pp: 7951-7959

21. Golden, J.S., Dooley, Anderies, J.M., Thompson, B.H., Gereffi, G. and L. Pratson (2010). Sustainable Product Indexing: Navigating the Challenge of Eco-labeling. *Ecology and Society* **15**(3): 8.

22. White, P., Golden, J. S Biligiri, K and K. Kaloush (2010). Modeling climate change impacts of pavement production and construction. *Resource, Conservation and Recycling.* **Vol.53**. #11 pp: 776-782

23. Jin, J., Carlson, J., Golden, J.S. and H. Bryan (2010). An Integrated Empirical and Modeling Methodology for Analyzing Solar Reflective Roof Technologies on Commercial Buildings. *Building and Environment.* **45**, pp. 453-460. DOI information: 10.1016/j.buildenv.2009.07.001

24. Golden, J. S., Subramanian, V., Irizarri, G., White, P. and F. Meier (2010). Energy and carbon impact from residential laundry in the United States. *Journal of Integrative Environmental Sciences.* **Volume 7**, Issue 1 March 2010, pp. 53 – 73. DOI: 10.1080/19438150903541873

25. Otanicar, T. and J. S. Golden (2009). A Comparative Environmental and Economic Analysis of Conventional and Nanofluid Solar Technologies. *Environmental Science and Technology.* **43** (15), pp 6082–6087 DOI: 10.1021/es900031j

26. O'Neill, G., Hershauer, J. and J.S. Golden (2009). Making Sustainable Entrepreneurship Culturally Compatible. *Indian Management Research Journal.* Reprinted with permission of publisher.

27. Otanicar, T. P., Golden, J.S., Phelan, P. E. and H. Tyagi (2008). Optical properties of liquids for direct absorption solar thermal energy systems. *Solar Energy.* **Vol. 83**, Issue 7, July 2009, Pages 969-977.

28. O'Neill, G., Hershauer, J. and J.S. Golden (2008). Making Sustainable Entrepreneurship Culturally Compatible. *Greener Management International.* **Vol. 55**, Feb. 2009. pp. 33-46

29. Golden, J.S., Carlson, J., Kaloush, K and P. Phelan (2007). A Comparative Study of the Thermal and Radiative Impacts of Photovoltaic Canopies on Pavement Surface Temperatures. *Solar Energy* **Vol. 81**, Issue 7, July 2007, Pages 872-883.

30. Golden, J.S., (2006). Photovoltaic Canopies: Thermodynamics to achieve a sustainable systems approach to mitigate the urban heat island hysteresis lag effect. *International Journal of Sustainable Energy.* **Vol. 25**, March 2006, No. 1, 1-21.

Selected Technical Reports, Books and Book Chapters

Golden, J.S., Handfield, R.B., Daystar, J. Morrison, B. and, T.E. McConnell (2016). An Economic Impact Analysis of the U.S. Biobased Products Industry: 2016 update. A Joint Publication of the Duke Center for Sustainability & Commerce and the Supply Chain Resource Cooperative at North Carolina State University. https://www.biopreferred.gov/BPResources/files/BiobasedProductsEconomicAnalysis2016.pdf

McDonald, J., Poirrier, A. and J. Golden (2015). The US Biofuels Market: Current Production and Policy Drivers. A chapter in the Book: Second-generation biofuel markets: state of play, trade and developing country perspectives. United Nations Trade, Environment, Climate Change and Sustainable Development Branch (UNCTAD). Onguglo, Pacini and Lleander Eds.

Golden, J.S., Handfield, R.B., Daystar, J. and, T.E. McConnell (2015). *An Economic Impact Analysis of the U.S. Biobased Products Industry: A Report to the Congress of the United States of America.* A Joint Publication of the Duke Center for Sustainability & Commerce and the Supply Chain Resource Cooperative at North Carolina State University.

Note: Within one week after publishing, the report had 165 MILLION impressions and had been downloaded 104,323 times (13,941 in the first 15 minutes of availability) per USDA.

Zimmerman, J., Golden, J.S., and M. Eckelman (2015). Workshop on Standards-based Cloud Services for Manufacturing Sustainability Assessment. National Institute for Standards and Technology. May 5, 2015 Workshop. Gaithersburg, MD

Golden, J.S. and R. Handfield (2014). Why Biobased? Opportunities in the Emerging Bioeconomy. Submitted and published by the U.S. Department of Agriculture. Report was published and focus of the Secretary of Agriculture talk and USDA Press Release on October 7, 2014.
http://www.usda.gov/wps/portal/usda/usdahome?contentid=2014/10/0224.xml&contentidonly=true

Golden, J.S. and P. White (Co-Eds) (2008). Life Cycle Assessment A product-oriented method for sustainability analysis. UN Life Cycle Training Kit. United Nations Environment Program.
http://www.lifecycleinitiative.org/resources/training/lca-life-cycle-assessment-training-kit-material/

Golden, J.S. (2004, 2006 Revised) "Life Cycle Management to Achieve Sustainability in Rapidly Urbanizing Regions-The Role of the Built Environment." United Nations Environment Programme Guide to Life Cycle Management – A Bridge to Sustainable Products. Eds. Jensen and Remmen.
http://www.uneptie.org/pc/sustain/reports/lcini/UNEP_Background_document_LCM_2006_Febr.pdf

Saur, K and J.S. Golden (2004). "Social Aspects in Life Cycle Management." United Nations Environment Programme Guide to Life Cycle Management – A Bridge to Sustainable Products. Eds. Jensen and Remmen.
http://www.uneptie.org/pc/sustain/reports/lcini/UNEP_Background_document_LCM_2006_Febr.pdf

Published – Climate, Energy and Thermodynamics Thematics

1. Doran, E.M.B. and J.S. Golden (2016). Climate & Sustainability Implications of Land Use Alterations in an Urbanizing Region: Raleigh-Durham, North Carolina. *Journal of Environmental Protection.* 2016, 7, 1072-1088

2. Phelan, P, Kaloush, K., Miner, M., Golden, J.S., Phelan, B., Silva H., and R. Taylor (2015). Urban Heat Island: Mechanisms, Implications and Possible Remedies. *Annual Review of Environment and Resources* Vol. 40: 285-307

3. Chuang, Wen-Ching, Gober, P., Chow, W. And J.S. Golden (2013). Sensitivity to heat: A comparative study of Phoenix, Arizona and Chicago, Illinois (2003-2006). *Urban Climate.* Vol. 4 October 2013. Pp: 1-18 doi: http://dx.doi.org/10.1016/j.uclim

4. Silva, H. and J.S. Golden (2012). Spatial Superposition Method via Model Coupling for Urban Heat Island Albedo Mitigation Strategies. *Journal of Applied Meteorology and Climatology.* Vol. **51**, 1971-1979. doi: http://dx.doi.org/10.1175/JAMC-D-11-064.1

5. Hartz, D., Brazel, A. and J.S. Golden (2012). A Comparison Study of Heat Related Emergency 911 Calls: Phoenix, Arizona and Chicago, Illinois; 2003-2006. International Journal of Biometeorology. 57:669-678 DOI 10.1007/s00484-012-0593-z

6. Uejio, C., Wilhelmi, O., Golden, J.S., Mills, D., Gulino, S. and J.Samenow (2011). Intra-urban societal vulnerability to extreme heat: The role of heat exposure and the built environment. *Health and Place.* **Vol. 17** No. 2. pp. 498-507

7. Hartz, D., Brazel, A., Golden, J.S., Cheng, W. and C. Sister (2011). Climate and Heat-Related Emergencies in Chicago, Illinois (2003-2006). *International Journal of Biometeorology.* **Vol. 56** No. 1 pp. 71-83

8. Song, K., Cole, R., Golden, J.S., Rovers, R. and S. Shin (2011). Drivers for Advancing Sustainable Building Curriculum in Higher Education. *International Journal of Sustainable Building Technology and Urban Development.* Vol. 1 No. 2 pp. 86-89: DOI:10.5390/SUSB.2010.1.2.086

9. Silva, H., Phelan, P. and J. S. Golden (2009). Modelling effects of Urban Heat Island mitigation strategies on Heat Related Morbidity: A Case Study of Phoenix, Arizona. *International Journal of Biometeorology.* **54**, no. 1. Pp: 13-22

10. Golden, J.S., Chuang, W. and W. Stefanov (2009). Enhanced Classifications of Engineered Paved Surfaces for Urban Systems Modelling. *Earth Interactions.* **Vol. 13**, Issue 5. pp:1-18

11. Xiaoyong, W., Hanseung, L., SungWoo, S., and J.S. Golden (2010). Simulation of a temperature rise in concrete incorporating silica fume. *Concrete Research*. **Vol 43**, No. 6. Pp. 737-754 July, 2010 http://www.icevirtuallibrary.com/content/article/10.1680/macr.9.00035

12. Carlson, J., Kaloush, K., Golden, J., Arab, M. and C. Zapata. (2009). Evaluation of in situ temperature, water infiltration and regional feasibility of pervious concrete pavements. *International Journal of Pavements*. **Vol. 7**. No. 1-2-3. Pp:96-108. ISSN 1676-2797

13. Jo, J., J.S. Golden and S.W. Shin (2008). Incorporating Built Environment Factors into Climate Change Mitigation Strategies for Seoul, South Korea: A Sustainable Urban Systems Framework. Special Issue- Climate Change and Human Settlements: The Mitigation/Adaptation Conundrum. *Habitat International*. Vol. 33 #3 July 2009 pp: 267-275

14. Silva, H., Phelan, P., Golden, J S. and S. Grossman-Clarke (2008). Development of a Zero-Dimensional Mesoscale Thermal Model for Urban Climate. *Journal of Applied Meteorology and Climatology,* **Vol. 48**, No. 3. 657–668.

15. Otanicar, T., Carlson, J., Golden, J.S., Kaloush, K. and P. Phelan (2008). Impact of the Urban Heat Island on Light Duty Vehicle Emissions for the Phoenix, AZ Area. *International Journal of Sustainable Transportation.* **4**:1-13 ISSN: 1556-8318

16. Calson, J., Bhardwaj, R., Phelan, P., Kaloush and J.S. Golden (2007). Determining Thermal Conductivity of Paving Materials Using Cylindrical Sample Geometry. - *ASCE Journal of Materials in Civil Engineering*. **Vol. 22**, No. 2, February 2010, pp. 186-195

17. Golden, J. S., D. Hartz, G. Luber, and P. Phelan (2008). A biometeorology study of human climate and heat related morbidity in Phoenix from 2001-2006. *International Journal of Biometeorology*. **Vol. 52**. No. 6. pp. 471-480

18. Gui, J., Carlson, J., Phelan, P., Kaloush, K. and J.S. Golden (2007). Impact of Pavement Thickness on Surface Diurnal Temperatures. *Journal of Green Building*. **Vol. 2**, No.2, pp. 121-130.

19. Gui, J., Phelan, P., Kaloush, K., and J. Golden (2007). Impact of Pavement Thermo-Physical Properties on Surface Temperatures. *ASCE Journal of Materials in Civil Engineering*. Vol. 19, No. 8, pp. 683-690.

20. Belshe, M., Kaloush, K., Golden, J., Phelan, P. (2007). "AR-ACFC Overlays as a Pavement Preservation Strategy for PCCP". Journal of the Transportation Research Board, CD-ROM, Washington, D.C., January 2007 – *National Academies Press*

21. Xiao-Yong Wang, X., Lee, H., Bong Park, K., Jun Kim, J. and J. S. Golden (2010). A multi-phase kinetic model to simulate hydration of slag–cement blends. *Cement and Concrete Composites*. **32**. pp. 468-477

22. Golden, J., Brazel, A., Salmond, J., and D. Laws (2006). Energy and Water Sustainability – The Role of Urban Climate Change from Metropolitan Infrastructure. *Engineering for* Su*stainable Development* **Vol.1** No. 1. pp. 55-70.

23. Golden, J., Brazel, A., Salmond, J., and D. Laws (2006). Energy and Water Sustainability – The Role of Urban Climate Change from Metropolitan Infrastructure. *Journal of Green Building*. **Vol. 1** No. 3, Summer 2006 pp. 124-138 ****(note. Publisher requested article be printed in both Journals).*

24. Golden, J.S. and K. Kaloush (2006). Meso-Scale and Micro-Scale Evaluations of Surface Pavement Impacts to the Urban Heat Island Effects. *The International Journal of Pavement Engineering,* **Vol. 7**, No. 1, March 2006, 37-52

25. D.A. Hartz, L. Prashad, B.C. Hedquist, J. Golden, A.J. Brazel (2006). Linking Satellite images and hand-held infrared thermography to observed neighborhood climate conditions. *Remote Sensing of Environment*. **104**:190-2000

26. Golden, J.S, Guthrie, P., Kaloush, K., and Britter, R (2005). The Summertime Urban Heat Island Hysteresis Lag Complexity: Applying Thermodynamics, Urban Engineering and Sustainability Research. *Sustainable Engineering – A Journal of the Royal Institute of Civil Engineers*. **Vol. 158**. No. ES4, pp. 197-210.

27. Golden, J.S. (2004). The Built Environment Induced Urban Heat Island Effect in Rapidly Urbanizing Arid Regions – A Sustainable Urban Engineering Complexity. *Environmental Sciences*. **Vol. 1**. No. 4, pp. 321-349.

Selected Books / Book Chapters for Urban Sustainability

London's Urban Heat Island: A Summary for Decision Makers (2006). A Technical Report for the Mayor of London and the Greater London Authority. McGregor, G., Golden, J.S., Salmond, J., http://www.london.gov.uk/mayor/environment/climate-change/docs/UHI_summary_report.pdf

EPA (2006) Ferguson, B., Fisher, K.., Golden, J.S., Hair, L., Haselbach, L., Hitchcock, D., Kaloush, K., Pomerantz, M., Tran, N. And D. Waye. Reducing Urban Heat Islands Compendium of Strategies: Cool Pavements. E. Wong Editor. http://www.epa.gov/heatisland/resources/compendium.htm

Golden, J.S. and J. Carlson (2008). Climate, Energy and Urbanization: A Guide on Strategies, Materials and Technologies for Sustainable Development in the Desert.

US EPA (2005). Heat Island Mitigation Guidebook. Contributing author and reviewer of this guidebook for local and state governments.

Brazel, A.J., & Golden, J.S. 2006. Airsheds. Planning and Urban Design Standards. American Planning Association. John Wiley and Sons: Hoboken: 0-471-47581-5

Golden, J.S., & Brazel, A.J. 2006. Urban Systems and Air Quality. Planning and Urban Design Standards. American Planning Association. John Wiley and Sons: Hoboken: 0-471-47581-5

Selected Technical Reports

Golden, J. S. (2014). Business Modeling of Supercritical Water Oxidation Treatment Technologies. The Bill & Melinda Gates Foundation, Reinvent the Toilet Challenge Grant, Round 3. March, 2014

Rajagopalan, N. And J. S. Golden (2014). State of Sanitation in India. Field Report from Chennai, India and New Delhi, India. The Bill & Melinda Gates Foundation, Reinvent the Toilet Challenge Grant, Round 3. March, 2014

Golden, J.S. and N. Rajagopalan (2014). Public Sanitation in Ghana. Neighborhood scale treatment of fecal sludge by SCWO. The Bill and Melinda Gates Foundation. April, 2014

Golden J.S. (editor). Proceeding of the Urban Sustainable Systems Research Workshop. US EPA 2012.

Golden J.S. (editor). Geyer, R., Patel, M., Venditti, R., Vogtlander, J., Weitz, K., Manda, K. and N. Rajagopalan (2012). Technical Review: The Nike Material Sustainability Index: Interim Report Provided to the Sustainable Apparel Coalition. Duke University August 2012

Golden, J.S., and K. Sater (2011). Product Life Cycle & Enterprise Systems Survey Analysis: The Sustainable Apparel Coalition. A Technical Report for the Sustainable Apparel Coalition-Stockholm, Sweden June 2011.

Golden, J.S. (2011). Examining Consumer and Post Consumer Life Cycle Impacts & Policies in the United States and United Kingdom. Duke University

Golden, J.S. (2010). An Overview of Ecolabels and Sustainability Certifications in the Global Marketplace. Duke University

Golden, J.S. (2009) Report to Support Sustainability Efforts for the City of Chandler Focused on Energy & Climate.

Golden J.S. and J. Carlson (2007). Life Cycle Management Guidebook. A Technical Report for the City of Phoenix.

Golden, J.S. and K. Kaloush (2007). Technical Report: Review of Empirical and Modeled Prior Works of Pavement Engineering in Relation to the Urban Heat Island Effect. Provided to the Arizona Transportation Research Center of the Arizona Department of Transportation. SPR636: Urban Heat Island Effect.

Golden, J.S., Carlson, J., and C. Sister (2008). An Interdisciplinary Study of Heat Wave Vulnerability for the City of Chicago. National Center of Excellence on Sustainable Material and Renewable Technology (SMART) Innovations, Global Institute of Sustainability

Carlson, J. & Golden, J. (2008). Climate, Energy, and Urbanization. A Guide on Strategies, Materials and Technologies for Sustainable Development in the Desert. Prepared for the City of Phoenix by the National Center of Excellence on Sustainable Material and Renewable Technology (SMART) Innovations, Global Institute of Sustainability. 379pp.

Sustainable Decommissioning Report (2006). A report to Sky Harbor International Airport.

Report of Findings: Environmental Evaluations Due to Terrorist Actions of September 11, 2001 at One World Financial – World Trade Center (2002).

Over 40 Attorney-Client Reports on Facility Audits of Resource Conservation and Recovery Act (RCRA).

Over 20 Indoor Air Quality Investigations.

GENERAL INTEREST PUBLICATIONS

1. Kaloush, K., Biligiri, K., White, P. and J.S. Golden (2009). Fixing air holes. Latest research presents methodology to prevent climate change. Concrete Progress. S11-S14. November 2009. Golden, J. S. (2008). ASU Team Shines in Sustainability Challenge. The Arizona Republic May 31, 2008
2. Golden J.S. and K. Kaloush (2007) ASU's Cool Pavements. The Arizona Republic
3. Golden, J.S. and Kaloush K. 2005. Addressing the Complexities of the Urban Heat Island Effect Through a Local Government Systems Approach. Public Works. December 2005.
4. Golden, J.S. 2003. Sustainable Design & Construction – Life Cycle Design. Environmental Design and Construction. October 2003.
5. Golden, J.S. (1991). Environmental audits make sense. Arizona Business and Development. Summer edition.

RESEARCH

PROCEEDINGS

1. Brian, Jacey, Carr, Z., Hillard, T., Myers, C., Zahra, W. Morrison, B., Pasqual, J., and, J.S. Golden (2018). Analyzing the Economic Impact of Biobased Ethanol Production in the United States. North Carolina Energy Conference.

2. Daystar, J. Treasure, T., Venditti, R., and J. S. Golden (2015). Dynamic GHG accounting for cellulosic biofuels: implications of analysis methodology decisions. The International Symposium on Sustainable Systems and Technology (ISSST) Conference. Track 3. Tools for Decision Support. May 19, 2015 Michigan

3. Nowacek, D. P., Clark, C.W., Mann, C.W., Miller, Rosenbaum, P., Golden, J.S., and B. Southall Development recommendation for unified approach in legislation, methods of monitoring and mitigation of marine mammals under impact of industrial noise in the Global ocean. 21st Conference of the Society for Marine Mammalogy. 13-18 December 2015 San Francisco, CA.

4. Lewis, E., Werner, A., Hester, C., Chu, Golden, J.S., Daystar, J., Handfield, R., McConnell, E., Buckhalt, R. And M. Wheat (2015). The Economic Impact of the Biobased Products Industry. Extended Abstract #488. Air and Waste Management 108th Annual Conference. Raleigh, NC June 22-25, 2015.

5. Morrison, B. and J.S. Golden (2014). An Empirical Analysis of the Emergent Industrial Bioeconomy. Pacific Rim Summit on Industrial Biotechnology and Bioenergy. San Diego, CA December 8-11, 2014

6. Doran, E., Golden, J.S. and D. Nowacek (2013). Sustainable Systems Analysis of Production and Transportation Scenarios for Conventional and Bio-based Energy Commodities. AGU Fall Conference December, 2013 San Francisco, CA.

7. Subramanian, V., Williams, E., Carlson, J., and J.S. Golden (2010). Uncertainty associated with process inventory substitution: Selection criteria for proxies and estimation of uncertainty and impacts for missing chemicals. American Center for Life Cycle Assessment – Bridging Science, Policy and the Public. Portland, OR November 2-4, 2010.

8. Subramanian, V., Williams, E., Carlson, J., and J.S. Golden (2010). Analyzing the sensitivity and impact of the different variations in product vs. product comparison of home care products. American Center for Life Cycle Assessment – Bridging Science, Policy and the Public. Portland, OR November 2-4, 2010.

9. Ganesh, T., Thieken, J. Baker, D., Krause, S., Roberts, C., Elser, M., Taylor, W., Golden, J.S., Middleton, J. and S. Kurpius (2010). *Learning through engineering design and practice: Implementation and impact of a middles school engineering-education program. American Society for Engineering Education.* AC2010-2280

10. Golden, J.S. (2010). Sustainability Education for the Built Environment. SB10 Seoul. February, 2010

11. Phelan, P., Kaloush, K., Golden, J.S., Phelan, B. and H. Lee (2010). Urban Heat Island: Mitigation Strategies and Related Impacts. SB10 Seoul, Korea. Pp. 173 TS 1-7

12. Kaloush, K., Biligiri, K., White, P., Golden, J.S., Phelan, P., and H. Lee (2010). Assessment Tool to Estimate Co2 Emissions of Pavement Production and Construction. SB 10 Seoul, Korea. Pp. 273 TS5-1-9

13. Jo, J., Carlson, J., Golden, J.S., and H. Bryan (2010). Feasibility Analysis of Building Integrated Renewable Energy Systems. SB10 Seoul, Korea. Pp. 437. TS7-1

14. Wang, X., Lee, H. and J.S. Golden (2010). An Integrated System to Predict Early-Age Properties and Durability Performance of Concrete Structures. SB 10, Seoul, Korea. Pp. 371 TS5-3-9

15. Golden, J.S. (2009). Sustainable Product Indexing – A Global Imperative with Implications for Sustainable Technologies. *International Distinguished Scholars Symposia on Seven Future Technologies*. Hanyang Institute of Technology. 7 May, 2009.

16. Jo, J., H. Bryan, and J. Golden (2009). Evaluating the Environmental and Financial Benefits of a 'Cool' Roof System in Hot Arid Climate Zones. Energy and Environment Conference – February 2009

17. Ganesh, T., Thieken, J., Elser, M., Baker, D., Krause, S. Roberts, C., Robinson, S., Middleton, J. and J.S. Golden (2009). Eliciting Underserved Middle-School Youths' Notions of Engineers: Draw and Engineer. American Society for Engineering Education. AC 2009-2335.

18. Chuang, W., Myint, S. and J.S. Golden (2009). Modeling and predicting heat-health vulnerability using data derived from remote sensing: A case study of Chandler, Arizona. American Association of Geographers 2009 Annual Meeting Las Vegas, NV March 25, 2009.

19. Hartz, D., Brazel, A., Golden, J.S., Chuang, W. and C. Sister (2009). A Comparison of Extreme Climate Linkages To Heat Related Emergency (911) Calls in Chicago, Illinois and Phoenix, Arizona 2003 – 2006. American Association of Geographers 2009 Annual Meeting Las Vegas, NV March 25, 2009.

20. Jo, J. and J.S. Golden (2008). Evaluating Regional Application Potential of Sustainable Building Technologies: Building Integrated Photovoltaic (BIPV) and 'Cool Roof' System as Intervention Strategies for Energy Related Vulnerabilities in the Phoenix Metropolitan Area. 2009 US-EU-China Thermophysics Conference – Renewable Energy

21. Phelan, P., Sherbeck,J. Witt, M. Otanicar, T., Taylor, R., Chiriac, F. and J.S. Golden (2009). Prospects for Solar Cooling. ASME 3rd Conference on Energy Sustainability.

22. Hershauer, J., O'Neill, G. and J.S. Golden (2008). The Sustainability Entrepreneurship Process. 2nd International Conference on Business and Sustainability. Portland State University October 2008

23. Chuang, W., Sister, C., Hartz, D., Golden, J. S. (2009) The Relationship between Urban Morphology and Heat Vulnerability in the City of Chicago. In (Ed.), *Fourth Symposium on Policy and Socio-Economic Research and the 21st Conference on Climate Variability and Change*. American Meteorological Society. Submitted. Refereed.

24. Silva, H., Phelan, P. and J.S. Golden, (2009). Development of a Mesoscale Thermal Model for Urban Climate. *Fourth Symposium on Policy and Socio-Economic Research and the 21st Conference on Climate Variability and Change*. American Meteorological Society

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26. Carlson, J., Jo, J., Kaloush, K. E., Golden, J. S. (2009). Evaluating the Surface Energy Balance of Alternative Parking Lot Materials in Hot Dry Climates. In (Ed.), *Fourth Symposium on Policy and Socio-Economic Research and the 21st Conference on Climate Variability and Change*. American Meteorological Society. Submitted. Refereed.

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29. Biligiri, K., Kaloush, K. E., Golden, J. S. (2008). Paving Material Properties and Tire/Pavement Noise. In (Ed.), *Paving Material Properties and Tire/Pavement Noise.* Refereed.

30. Wilhelmi, O., Uejio, C., Golden, J. S., Mills, D. and J. Samenow (2008). Intra-Urban Spatial Patterns of Societal Risk and Vulnerability to Urban Heat Waves. *Geophysical Research Abstracts*. Vol. 10. EGU2008-A-05813. European Union-EGU General Assembly –Vienna, Austria: August 2008

31. Roberts, S.M., J.A. Voogt, T.R. Oke, J. Carlson, J. Golden, and A. Brazel. A physical scale model to study urban surface temperatures and radiation. Kelowna Congress 2008, Canadian Meteorological and Oceanographic Society, Kelowna, B.C., May 2008.

32. Belshe, M., Kaloush, K., Golden, J. and M. Malmouk (2008). The Urban Heat Island Effect and Impact of Asphalt Rubber Friction Course Overlays on Portland Cement Concrete Pavements in the Phoenix Area. ASCE GeoCongress 2008: The Challenge of Sustainability in the Geoenvironment. New Orleans March 9–12, 2008.

33. Biligiri, K., Kaloush, K and J.S. Golden (2008). Paving Material Properties and Tire/Pavement Noise. 4th Eurasphalt & Eurobitume Congress; 21st – 23rd May 2008 - Copenhagen, Denmark.

34. Phelan, P., Golden, J.S., Silva, H., Hartz, D., Sister, C., Pacheco, R., Phelan, B and G. Luber (2008). Implications of elevated temperatures in health surveillance. Environment Section of the 136th American Public Health Association APHA Annual Meeting & Exposition (October 25-29, 2008) San Diego. Paper #182084

35. Golden, J.S. (2007). A Decision Support System for Human Health Vulnerability to Urban Climate Change. American Meteorological Society-Seventh Symposium on the Urban Environment. San Diego, CA.

36. Hartz, D., Brazel, A. and J.S. Golden (2007). Climate Conditions Associated with Heat Related Emergency Dispatches. American Meteorological Society-Seventh Symposium on the Urban Environment. San Diego, CA * Lead Author is Supervised Student

37. Roberts, S., Voogt, J., Oke, T., Carlson, J., Golden, J. and A. Brazel (2007). A Physical Scale Model to Study Urban Surface Temperatures and Radiation. American Meteorological Society-Seventh Symposium on the Urban Environment. San Diego, CA

38. Bryan, H., Golden, J.S. and D. Shepard (2007). SA35 Mitigating the Urban Heat Island: Designing with Cool Urban Materials. American Institute of Architecture 2007 National Convention.

39. Golden, J.S. (2007). Innovations for the Urban Heat Island Effect During Rapid Urbanization. American Association for the Advancement of Science (AAAS) SWARM Conference Houston, Texas.

40. Todd Otanicar, T., Carlson, J., Golden, J. and P. Phelan (2007). Impact of the Urban Heat Island Effect on Light Duty Vehicle Emissions for the Phoenix, AZ Area. 17th CRC on road vehicle emissions workshop. San Diego, California March 26-28, 2007**Lead Author is my student.

41. Hartz, D., Brazel, A., Prashad, L., Hedquist, B., and J. Golden (2007). Estimating Urban Microclimate Variability at a Neighbourhood Scale. Urban Climates II session of the 2007 Annual meeting of the Association of American Geographers.

42. Phelan, P., Golden, J., Bhardwaj, R., Rimsza, M. and B. Phelan (2007). "Measures of public health vulnerability caused by urban heat island" 2007 Annual Meeting of the American Public Health Association-Washington D.C.

43. Golden, J.S. (2006). The Urban Heat Island Effect and Engineered Materials (2006). Proceedings of the Joint Workshop on Urban Sustainability-Chinese Academy of Sciences.

44. Belshie, M., Kaloush, K., and J.S. Golden (2006). The Urban Heat Island Effect and Impact of AR-ACFC Overlays on PCC Pavements. Asphalt Rubber 2006 International Conference. Palm Springs, CA

45. Krishna, P., Sotil, A., Kaloush, K., and J.S. Golden (2006). Tire/Road Noise Relationship with Viscoelastic Properties of Asphalt Mixtures. Asphalt Rubber 2006 International Conference. Palm Springs, CA

46. Andres Sotil, Krishna Billigiri, Kamil Kaloush and Jay Golden. "The Dynamic Complex Modulus (E*) Test as a Potential Indicator for an Asphalt Mixture's Tire-Road Noise Characteristics". Journal of the Transportation Research Board, Washington, D.C., January 2006.
http://pubsindex.trb.org/document/view/default.asp?lbid=777835

47. Biligiri, K. P., Sotil, A., Kaloush, K and J.S. Golden (2006). Tire Road Noise Relationship with Viscoelastic Properties of Asphalt Mixtures. Asphalt Rubber 2006 Conference.

48. Bhardwaj, R., Phelan, P., Golden, J., and K. Kaloush (2006). An Urban Energy Balance for the Phoenix, Arizona Metropolitan Area. American Society of the Mechanical Engineers - IMECE, Session HT-15 B. Heat and Mass Transfer in the Environment Paper IMEC2006-15308. **Lead author is supervised student

49. Golden, J.S., Brazel, A. & J. Salmond (2006). Energy and Water Sustainability in the Desert – The Role of Regional and Urban Climate Impacts in Phoenix, Arizona, USA. 6th International Conference on Urban Climate Göteborg, Sweden, June 12th - 16th 2006

50. Kaloush, K., Mobasher, B. Zareh, A. Way, G., and Golden J., "Evaluation of Thin Whitetopping PCC Test Sections in Arizona". Third Gulf Conference on Roads (TGCR06), March 6-8, 2006, Muscat, Oman.

51. Golden, J.S. (2005). Rapid Urbanization and the Role of Urban Materials In Achieving Sustainable Development. Proceedings of the American Association for the Advancement of Science (AAAS). 80th Annual Meeting-April 2005. "Progress and Sustainability in the 21st Century."

52. Golden, J.S., Brazel, A. (2005). Geographic Aspects of Heat Island Mitigation in Phoenix, Arizona. Association of Pacific Coast Geographers Annual Meeting 2005.

53. Golden, J., Peterson, G., and Pijawka D. (2005). Establishing a Cross -Campus Course on Sustainable Cities: Learning from a Successful Model. Greening of the Campus VI:
Extending Connections September 15 - 17, 2005. Ball State University. Muncie, Indiana

54. Golden, J.S.(2005). Utilization of Photovoltaics to Mitigate the Urban Heat Island Hysteresis Lag Complexity. 8th Electric Utilities Environmental Conference. Tucson, Arizona.

55. Golden, J.S. (2004). A Sustainable Systems Approach to the Hysteresis Lag Effect of Surface Materials & Urban Heat Islands. Fifth Conference on Urban Environment. Vancouver, Canada.

56. Golden, J.S. (2004). Sustainable Systems Program for Urban Materials and Climate. United States Environmental Protection Agency Air Innovations Conference. Chicago, Illinois.

57. Golden, J.S. (2003) Balancing Sustainable Development with National Security Concerns: How Technology has Complicated the Definition of Community and Raised the Question of National Security. 7th International Conference on Technology Policy, Monterey, Mexico.

58. Golden, J.S. (2001) Decommissioning of Structures. Case history of mills, concentrators and ancillary industrial facilities. Nevada Conference of the Environment.

59. Golden, J.S., Sister, C., and W.C. Chuang (2008). Report to the City of Chicago. An Interdisciplinary Study of Heat Wave Vulnerability.

60. Kaloush, K., Carlson, J., Golden, J.S., and P. Phelan (2008). The Thermal and Radiative Characteristics of Concrete Pavements in Mitigating Urban Heat Island Effects. SN2969. Portland Cement Association. 136 pages.

61. Golden, J.S. (2007). What Factors Influence Elevated Pavement Temperature Most During Day and Night? National Center of Excellence-EPA Case Study. Vol. 1 No. 1 October 2007

62. Golden, J.S. and K. Kaloush (2007). Surface Pavement Impacts on the Urban Heat Island Effect. National Center of Excellence-EPA Case Study. Vol. 1 No. 2 October 2007

63. Golden, J.S. and K. Kaloush (2007). Alternative Pavement – Recycling Crumb Rubber. National Center of Excellence-EPA Case Study. Vol. 1 No. 3 October 2007

INVITED PRESENTATIONS & LECTURES

1. 2018 Sustainability Symposium. Greenville, NC. October 1, 2018
2. Association to Advance Collegiate Schools of Business (AACSB). 2017 Assessment and Impact Conference: Sustainability Measures. Phoenix, Arizona March, 2017
3. Research at the Next National University. Campus-wide talk. East Carolina University. Hosted by the Provost. February 2, 2017
4. Business & Environment. Duke Board of Visitors. November 18, 2016.
5. USDA Agriculture Outlook Forum: BioProducts: Generating Economic Transformation. Washington DC February 25-26, 2016
6. XVIII Conferencia Internactional Sobre Palma de Aceite. Cartagena, Columbia September 25, 2015. Estimated audience of 3,000. *Global Supply Chain Innovations for Bioproducts and Climate.*
7. The Marine Science Conservation Summer Institute *Sustainable Systems and Off Shore Renewable Energy Logistics.* July 22-23, 2015
8. USDA Headquarters. *Economic & Environmental Implications of the US Biobased Products Sector.* Washington DC May 21, 2015.
9. Cotton Incorporated. *Emerging life cycle assessment and supply chain methodologies.* Cary, NC May 18, 2015
10. National Institute of Standards and Technology-US Department of Commerce, MD. Workshop on Standards-based Cloud Services for Manufacturing Sustainability Assessment. *Drivers for LCA and Standards.* May 5, 2015
11. Earth Share North Carolina. Industry, Government and NGOs on *Impact of Natural Resource Health on Business Competitiveness.* Belk Corporate HQ Charlotte, NC February 19, 2015
12. Changjiang Institute of Survey, Planning, Design and Research (China). Life Cycle and Systems Modeling. Durham, NC December 15, 2014
13. Pacific Rim Summit on Industrial Biotechnology and Bioenergy. An Empirical Analysis of the Emergent Industrial Bioeconomy. San Diego, CA December 10, 2014
14. National Academy of Engineering Summit. – Convergence Science & the Grand Challenges. November 1, 2014
15. WPP – Trends in Corporate Sustainability. New York City. September 26, 2013
16. National Academies, Washington DC. Keynote Dinner Talk on Energy, Carbon and Ethics. September 12, 2013
17. National Academies. Incorporating Climate Change into Education March 2013, Washington DC
18. Executive Sustainability Forum. Scottsdale, AZ January 31, 2013. Panel Presenter hosted by Green Biz.
19. 3M World Headquarters. Globally broadcast keynote on Sustainable Systems and Commerce. Minneapolis, MN December 6, 2012
20. U.S. EPA. Urban Sustainable Systems Research Workshop. US EPA Research Triangle. October 25, 2012. Keynote: Urban Sustainable Systems
21. Poole College of Management at N.C. State University. Supply Chain Sustainability and Risks. MBA Program. October 8, 2012
22. National Science Foundation. Keynote: NSF Workshop Univ. Texas: Changing the Climate: Innovation in the Built Environment for Climate Change Mitigation and Adaptation (September 28-29)
23. North Carolina State University, Supply Chain MBA September 24, 2012
24. Duke Nicholas School Alumni September 14, 2012
25. National Academy of Engineering. Keynote Lunch Talk. June 11, 2012 Washington D.C.
26. Sustainable Apparel Coalition-Global Meeting. June 13, 2012. Hamburg, Germany

27. State of North Carolina: Board of Science & Technology. Sustainable Manufacturing May 4, 2012
28. University of North Carolina – Chapel Hill. Systems Analysis of Food-Energy Competition. Shared Tables a Triangle Symposium. February 28, 2012. Presenter and Panel Member
29. UNOLS Greening the Research Fleet sponsored by NSF and Naval ORD. Duke University January 11, 2012. Title: Emerging Life Cycle & Sustainability Initiatives and their Implications for fleets and ports.
30. Council for Sustainable Development / International Sustainable Technologies Alliance Round Table. Institute for Defence Studies and Analysis. New Delhi, India Speaker in Absentia December 9, 2011.
31. 2011 Environmental Health Summit. Incorporating Public and Environmental Health into Sustainable Solutions. Research Triangle. November 7-8, 2011-Plenary Speaker
32. Supply Chain Implications and the Life Cycle Drivers for Engineered Consumer Products. WWD Global Sourcing Forum. New York City, NY September 23, 2011.
33. Regulatory and Industrial Drivers for Product Sustainability. U.S. Council on Competitiveness CEO Meeting. Duke University, September 20-21, 2011.
34. Sustainable System Implications and the Emerging Transition to a Bio-Based Engineered Economy. 12th U.S. – Brazil Innovation Learning Lab. Brazilian Ministry of Industrial Development. Duke University, September 19, 2011.
35. Duke Endowment Sustainability Summit. Duke University September 14, 2011
36. Product Life Cycle & Enterprise Systems Survey Analysis. Presented to the Sustainable Apparel Coalition. June 26-29 Stockholm, Sweden (in absentia due to illness).
37. National Academy of Engineering. *Engineered Systems and Climate Change*. Presented at the Workshop on Climate Change, Engineered Systems and Society. June 6-8, 2011 Beckman Center of the National Academies.
38. Moderator. Duke Conference on Sustainable Business and Social Impact. February 9, 2011
39. Firm and Product Sustainability Conference. Key Note Address. January 26, 2011 Duke University.
40. Faculty Seminar: University of California at Santa Barbara, Bren School for Environmental Science and Management. January 3, 2011
41. Seminar: Earth and Ocean Sciences Division-Nicholas School of the Environment. Duke University. November 19, 2010
42. Keynote: Distinguished Visiting Professor Program. Tecnologico de Monterrey – Guadalajara Campus. Corporate Sustainability. September 7-10, 2010
43. Keynote: Sustainable Systems Theory. Bren School- UC Santa Barbara, April 28, 2010
44. Keynote: Pew Center on Global Climate Change. International Conference. Chicago, April 2010. Role of Sustainable Indexing to address climate change.
45. European Sustainable Products Roundtable: Blackfrier, London. March 12, 2010 Keynote.
46. Keynote: SB10 Korea -Sustainability Education. February 24, 2010 Hanyang University, Ansan, Korea
47. Keynote: Focus on the Future: Scottsdale, AZ February 17, 2009
48. Keynote: Stanford University: School of Engineering. Sustainable Systems: January 12, 2010
49. National webinar. Greenbiz.com Sustainable Indexing December 2, 2009
50. Keynote: Fuqua Business School Duke University Transition from Firm to Product Sustainability 2009
51. Sustainable Product Roundtable, Ludwigshaffen, Germany (BASF WW HW) October 2009
52. US EPA Sustainable Product Indexing. National Webinar August 20, 2009 National Audience of 400
53. Sustainability Milestone Meeting, Walmart. Bentonville, AR July 16, 2009 ~1,500 attendees audience and web c
54. Key Note Speaker- The Distinguished Scholars Symposium on Sustainable Technologies May, 2009. Hanyang University, Korea with Jeffery Sachs (Columbia) & P. Guthrie (Cambridge)
55. United Nations Environment Program: How to enhance communication of environmental product information between retailers and their suppliers as well as their consumers? Wuppertal, Germany. April 2009.

56. Pew Center on Global Climate Change: Keynote Speaker Business Environmental Leadership Council: 2009
57. US EPA March 2009: Product Sustainability Steering Council. EPA HQ Washington DC
58. Sustainability Consortium Inaugural Conference. Tempe, AZ Keynote Speaker. March 2009
59. City of Phoenix Environmental Quality Commission: April, 2009
60. National Academies of Science: Washington DC – Scientific Needs and the Research Agenda for the Health Risks of Climate Change. Institute of Medicine: January 15-16, 2009
61. NASA Applied Earth Systems Division-NASA Ames-January 2009
62. Duke University-Nicholas School of the Environment-October 2008
63. Waste Management Inc.– October 2008
64. United States Centers for Disease Control-Atlanta September 15, 2008
65. United States Congress: The Select Committee on Energy Independence and Global Warming. July 10, 2008
66. County Manager and Executive Management Team: Maricopa County. February 29, 2008
67. Mayor and Council Executive Session City of Phoenix. Feb. 26, 2008
68. Congressman Harry Mitchell Town Hall on Sustainability. Sept. 2007
69. Arizona Corporation Commission Stakeholder Meeting. August 2007
70. Build It Greener: Pervious 2007 Sponsored by CEMEX. August 2007
71. American Association for the Advancement of Science (AAAS). 2007 Annual SWARM Conference-Houston, TX. Session Chair on Urban Climate April 2007
72. University of Michigan Erb Colloquium March 2007
73. University of Michigan – School of Public Health March 2007
74. Thought Leader Panel "Innovation Through Sustainable Technologies" – A National Conference by PDMA, Henkel and Dial Corporations. March 2007
75. NSF Engineering Directorate in DC*: Business, Engineering & Sustainability* February 2007
76. US EPA HQ – Adaptation to Heat Waves February 2007
77. US EPA Research & Development, NC February 2007
78. US Centers for Disease Control February 2007
79. US EPA National Conference Call on UHI January 2007
80. President's Community Enrichment Programs January 2007
81. Hosted CEO & Executives of Wal-Mart at the NCE December 2006
82. Chinese Academy of Sciences December 2006
83. Chinese Institute of Urban Meteorology December 2006
84. Chinese Academy of Atmospheric Meteorology December 2006
85. CH2M Hill National Sustainability Conference October 2006
86. Mayor of London October 2006
87. Hosted CEO of Siemens Corporation at NCE July 2006
88. American Concrete Pavement Association National Meeting July 2006
89. National Cool Pavements Conference April 2006
90. Society of Women Engineers March 2006
91. City of Scottsdale Green Building Program March 2006
92. University of Bath (School of Management) February 2006

93. University of Cambridge February 2006

94. National Academies. TRB January 2006

95. National Asphalt Pavement Association Annual Conference. January 2006

96. American Concrete Paving Association Annual Conference. December 2005

97. Arizona Planning Association. December 2005

98. Peoples Republic of China (Ministries of Land and Natural Resources) 2004 & 2005

99. Government of India - Ministry of Environment Nov. 2005

100. HM Government – United Kingdom - Urban Climate Network July 2005

101. US EPA – Washington DC Headquarters June 2005

102. American Academy for Advancement of Science (SW Conference) April 2005

103. University of Cambridge 2004 & 2005

104. University of Birmingham, UK. January 2005

105. US-China Secretariat for Sustainability. Sept. 2004

106. Discovery Tour January 25, 2005

107. US EPA Air Innovations Conference June 2004

108. All Scientists Meeting @ ASU. March 2004

109. US Dept. of Agriculture December 2004

110. Land Economics PUB 642-ASU. October 2004

111. 7TH International Conference of Technology Policy Monterrey, Mexico June 2003

112. University of San Francisco, MBA Program June 2002

113. State Bar of Arizona. May 2000

114. Nevada Conference on Industry and the Environment / Co-Chair July 2001

115. Western States Conference on Mining and the Environment Chair. 1998 and 2000

RESEARCH

AWARDED GRANTS

****PI, CO-PI, INVESTIGATOR ON OVER $30M OF AWARDED PROJECTS

2020	PI	USDA and Dept. of Energy Bioindicators $75,000 **(awarded)**
2019	PI	USDA and Dept. of Energy Bioindicators $60,000 **(awarded)**
2018	PI	USDA and Dept. of Energy Bioindicators $60,000 **(awarded)**
2017	PI	USDA and Dept. of Energy Bioindicators $60,000 **(awarded)**
2016	PI	Bridgestone $150,000 Environmental Analyses **(awarded)**
2016	PI	Cotton Incorporated $10,000 BioIndustry **(awarded)**
2016	PI	Under Armour $20,000 LCA Modeling **(awarded)**
2016	PI	USDA Office of Chief Economist $60,000 Bioindicators **(awarded)**
2016	PI	USDA BioNODE: A Sustainable Systems Analysis Tool to Improve Socio-Economic & Environmental Decisions for the BioEnergy & BioProducts Industries. $500,000 (pending)
2016	CO-PI	NSF NSF Coupled Dynamics of Natural-Human Systems. $1,800,000 (not awarded)
2016	PI	USDA/AMEC BioProducts Economic & Env. Research $125,000 **(awarded)**
2015	PI	The Duke Endowment – Sustainability & Climate Change Fellowship $225,000 (pending)
2015	PI	Duke Energy. IMPLAN Modeling $50,000 **(awarded)**
2014	PI	NSF Coupled Dynamics of Natural-Human Systems. $1,800,000 (not awarded)
2014	CO-PI	Bass Connections: Feasibility Study for Anaerobic Digestion for climate change **(awarded)**
2014	CO-PI	Bass Connections: Future & Risks of Ocean Energy for climate change (**awarded)**
2014	PI	Supply Chain Redesign: Support on the Industrial Bioeconomy. $30,000 **(awarded)**
2014	PI	NSF Sustainability Research Network: Evidence driven innovation: environmental dynamics & urban form $12,000,000 not awarded
2013	CO-PI	NSF SEES Collaborative: Coastal Assessment & Sustainability Transformation. $3,000,000 not awarded
2013	PI	Resource Conservation & Recovery Technologies for GHG. WM $80,000 (**awarded)**
2012	CO-PI	NSF #1243433 PIRE: Technologies to enable environmental sustainability in global markets **$4,750,443 (awarded)**
2013	CO-PI	Bill & Melinda Gates Foundation. Neighborhood Scale Super Critical Thermal Oxidation Treatment for Human Health. $1,500,000 Phase I **(awarded)**
2012	PI	NSF Sustainability Research Network (Bio:START) Finalist <u>not</u> awarded, $12,000,000
2012	PI	Duke Energy. Support of Sustainable Systems & Life Cycle Education $100,000 **(awarded)**
2012	PI	EPA Urban Climate Workshop $2,000 **(awarded)**
2012	PI	Sustainable Apparel Coalition / LCA $25,000 **(awarded)**
2012	PI	Deloitte: Sustainable Systems for Corporations and the Supply Chain $150,000 **(awarded)**
2011	PI	Sustainable Logistics. CSX $200,000 **(awarded)**
2011-2013	PI	Numerous grants / paid memberships to support the Duke Center for Sustainability & Commerce

PRIOR TO DUKE

Jay Golden PI / Co-PI Awards

2005	AT&T Fellow	$25,000.00	Fellow Industrial Ecology	ASUF	PI	
2005	Raytheon	$30,000.00	NCE	ASUF	PI	
2005	SRP	$25,000.00	NCE	ASUF	PI	
2005	City of Phoenix	$150,000.00	UHI Airport Study	ORSPA	PI	
					Sub-total	**$230,000.00**
2006	APS	$50,000.00	UHI	ASUF	PI	
2006	ADOT	$40,000.00	Whitetopping	ORSPA	Co-PI	
2006	NCIIA	$20,000.00	Curriculum Development	ORSPA	Co-PI	
2006	Kings College	$30,000.00	UHI	ORSPA	PI	
2006	AZ Cement	$50,000.00	NCE	ASUF	PI	
2006	CEMEX	$50,000.00	UHI NCE	ASUF	PI	
2006	ACPA	$145,000.00	Thermal Testing	ORSPA	PI	
2006	ACE Asphalt	$10,000.00	NCE	ASUF	PI	
2006	US EPA	$100,000.00	UHI Study	ORSPA	PI	
					Sub-total	**$495,000.00**
2007	CEMEX	$50,000.00	NCE	ASUF	PI	
2007	Asphalt Institute	$50,000.00	NCE	ASUF	PI	
2007	AZ Cement Assoc	$50,000.00	NCE	ASUF	PI	
2007	ADOT	$50,000.00	UHI Study	ORSPA	Co-PI	
2007	US CDC	$150,000.00	Heat Wave Studies	ORSPA	PI	
2007	Asphalt Institute	$50,000.00	NCE	ASUF	PI	
2007	City of Chicago	$25,000.00	UHI Study	ORSPA	PI	
2007	US CDC	$200,000.00	UHI an Human Health	ORSPA	PI	
2007	SRP	$40,000.00	Energy Fellowship	ASUF	PI	
2007	AZ Transp. Center	$150,000.00	Warm Mix Technologies	ORSPA	Co-PI	
2007	Dial Corporation	$25,000.00	Sustainable Products	ASUF	PI	
					Sub-total	**$840,000.00**
2008	Shell Corporation	$50,000.00	Energy Fellowship	ASUF	PI	
2008	Ford Motor Corp.	$25,000.00	Energy Fellowship	ASUF	PI	
2008	Holcim	$10,000.00	NCE	ASUF	PI	
2008	Dial Corporation	$300,000.00	Life Cycle Research	ORSPA	PI	
2008	AZ Cement Assoc.	$100,000.00	NCE	ASUF	Co-PI	
2008	City of Chandler	$20,000.00	UHI	ORSPA	PI	
2008	APS	$18,000.00	Cool Roof	ORSPA	Co-PI	
					Sub-total	**$523,000.00**
2009	Multiple	$15,000,000.00	Sustainability Consortium	ASUF	PI	
					Sub-total	**$15,000,000.00**
Team Member						
2007	NSF-#0737616	$1,079,985.00	Engineering Education	ORSPA		
2008	NSF-0812121	$32,490,000.00	Engineering Research Center	ORSPA		
					Sub-total	**$33,569,985.00**

Partial Listing of Impactful Projects

2009 Sustainability Consortium (Golden, PI). Exceeded $20M. Organizations include but is not limited to: US EPA, DEFRA, Unilever, P&G, KPMG, Dial, Best Buy, Wal-Mart, Safeway, Royal Ahold, Dell, HP, Intel, Toshiba, General Mills, Pepsico, SC Johnson, BASF, Cargill, Monsanto, SC Johnson and Son, Walt Disney, Waste Management, Forest Products, Georgia Pacific, Clorox, Seventh Generation, Sun Products, etc.

2008 National Science Foundation (Team member)– Engineering Research Center for Future Renewable Electric Energy Delivery and Management (Freedm) Systems. North Carolina State University (prime), Arizona State University, University of Missouri and Florida State University. $32.49M #0812121

2008 2007 National Science Foundation (team member) No. 0737616. *"Learning through Engineering Design and Practice: Using our Human Capital for Equitable Future."* $1,079,985

2007 Golden (PI). U.S. Centers for Disease Control. *Linkages of the Urban Environment and Human Heat Health Vulnerability.* $200,000

2007 Golden (PI). U.S. Centers for Disease Control. *Developing a Modular Web-Based Preparedness Modeling Tool for Heat Waves.* $150,000

2006 Golden (Co-PI). American Concrete Pavement Association *Thermal storage and Radiative Characteristics Testing of Pavements.* $145,000

2005 Golden (PI). City of Phoenix. *Thermal storage and radiative characterization of paved surfaces and buildings at Sky Harbor Airport - Development of sustainable metrics for infrastructure.* $150,000

2005 Golden (PI). AT&T Industrial Fellow

TEACHING

Ratings available on "www.ratemyprofessors.com"

East Carolina University

- Global Sustainability: Global Chains and Institutional Drivers & Risks

Duke University

- Innovation, Sustainability and Supply Chains Undergraduate ENV 393.12
- Innovation for Earth Resources, Climate Risks & the Supply Chain Undergraduate Study ENV 393-13
- Ocean Industrialization and Climate Change - ENV 395/795
- Environmental Life Cycle Assessment Modeling & Lab ENV638 (Process, Attributional and Consequential Modeling) annual class
- Seminar: Corporate Sustainability & Climate Change ENV 590.87
- Sustainable Systems Theory and Drivers ENV 811 annual class
- Sustainable Systems Capstones ENV 593-154
- Master's Project Independent Study ENV 899
- Innovation Systems Capstone Course / Independent Study Env 299-154
- Innovation Master's Project Env 399

University of California, Santa Barbara

- Sustainable Systems ESM 296 - Winter 2011

Arizona State University

- Introduction to Sustainability Sciences (graduate) ENG, MBA, SOS
- Sustainability and Organizational Strategies (graduate) SOS, ENG, MBA
- Sustainable Cities & Climate Change (457 students) campus-wide
- Business Capstones in Energy & Climate Change (graduate) MBA & Engineering
- Innovation for Energy and Climate Technologies Capstone (Engineering and MBAs)
- Energy & Climate (upper division UG and graduate) MAE, CEE, SOS
- Climate Change Adaptation Workshop (graduate) SOS, MAE, CEE
- Honors Thesis (undergraduate) Honors College

<u>Additional Interdisciplinary Teaching Activities: Faculty Director and Founder</u>

Faculty Director and Founder:

Duke: Graduate Certificate on Sustainable Systems Analysis: 2-year pan-university graduate interdisciplinary certificate program focused on nexus of Supply Chain and Sustainability. Cohorts from the Nicholas School of the Environment, Fuqua School of Business, Kenan Flagler School of Business (UNC) and Pratt School of Engineering. Launched Fall 2011

ASU: Graduate Certificate in Sustainable Technology and Management - W. P. Carey School of Business, School of Engineering and School of Sustainability. A 5 course 15 credit program offered as either a stand alone certification or as part of the W. P. Carey School of Business MBA.

ASU: Sustainable Energy Fellowship
Developed and directed for 5 years with partners at Duke University, University of Michigan, MIT and Cornell University the Sustainable Energy Fellowship. Examined policies, business, climate change, sustainability and energy.

TEACHING

PhD & Masters Level
Dissertation Chair / Co-Chair

1. Elizabeth Bloomhardt, PhD Candidate, Division of Earth and Ocean Sciences, Nicholas School of the Environment. Duke University (2011-2016). Chair - *Theory and Practice in Sustainability Science: Influence of Urban Form on Urban Heat Island Dynamics and Implications for Urban Systems*
2. Brandon Morrison, PhD Candidate, Division of Earth & Ocean Science, Duke University (2012-2016). Chair - *Dynamic Life Cycle Assessment Modeling Approaches for Transboundary Energy Feedstocks*
3. Vairavan Subramanian, Ph.D. Candidate School of Sustainability: A Life Cycle Framework to Address Climate Change Mitigation Strategies at the Local Scale – graduated 2016 (Chair) *Advancing Robustness of Attributional Life Cycle Assessment Affected by Uncertainty*
4. Gustavo M. Ugarte, PhD, Supply Chain & School of Sustainability. Energy and Carbon Dioxide impacts from lean logistics and retailing systems: A discrete-event simulation approach for the consumer goods industry (Graduated 2011). Chair
5. Jin Jo, PhD, School of Sustainability. An Empirical and Optimization Modeling Approach to Achieve Urban Energy Sustainability: Cool Roof and Building Integrated Photovoltaic Systems (2010) Chair **1st PhD Graduate in the School of Sustainability** Appointed Assistant Professor ISU (2010). Chair
6. Todd Otanicar, Ph.D. Mechanical, Aerospace, Chemical and Materials Engineering. Radiative and Optical Properties of Nanoparticle Enhanced Fluids for Direct Solar Absorption: Appointed Assistant Professor of Engineering at Loyola Marymount University and leading their Sustainable Energy Program then hired by Tulsa University. (2009) Co-Chair.
7. Humberto Silva, Ph.D. Mechanical, Aerospace, Chemical and Materials Engineering. Mesoscale Thermal Modeling for Urban Climate and Biocomplexity Applications: (2009) Co-Chair – Now at Sandia National Laboratories & University of New Mexico
8. Joby Carlson, M.S. Civil and Environmental Engineering. Urban Climate + Civil Engineering. Quantifying the Diurnal Thermal Variability of Urban Surface Pavements. (2005) Co-Chair
9. Jooseng "Gavin" Gui, M.S. Mechanical, Aerospace, Chemical and Materials Engineering: *Materials for Urban Climate. (*2006). Co-Chair
10. Wen-Ching Chuang, PhD Candidate School of Sustainability: An Object Based Approach for Land Cover Classification of Engineered Surfaces expected 2011 (Co-Chair)

Post Doctoral Researchers

1. Jesse Daystar, PhD Engineering (2014-present)
2. Neethi Rajagopalan, PhD Engineering (2011-2014)
3. Carole Mars, PhD Engineering (2009-2010)

Graduate Committee Member

1. Maria Carolina Rodezno, Ph.D. Candidate Civil and Environmental Engineering 2010
2. Brent Hedquist, Geography 2006 PhD Candidate *Spatial and Temporal Dimensions of the Urban Heat Island in Phoenix, Arizona.* Passed March 29, 2010. Teaching at BYU
3. Sophia Beym, MS 2005 - now an Environmental Specialist with the Bishop Paiute Tribe
4. Mohammad Islam, M.S. Civil and Environmental Engineering 2005 - Material Diffusivity
5. Mark Belshe, M.S. Civil and Environmental Engineering 2006
6. Rahul Bhardwaj, Mechanical, Aerospace, Chemical and Materials Engineering 2007 MS Candidate, Urban Heat Island
7. Vasudha Lathey, Environmental Planning: Completed and Successfully defended PhD (2008). Environmental Design and Health
8. Michael Tierney, 2005 M.S. Mechanical, Aerospace, Chemical and Materials Engineering

9. Daniel Hruska, 2006 M.S. Civil & Environmental Engineering: Air Quality Modeling
10. Shreshth Nagpal, 2005 CAED Energy Program, MS *Integration of Photovoltaics into Building Envelope- Effect on whole building energy performance*
11. David Carroll, 2006 Masters of Science in Building Design, Energy Performance and Climate Responsive Architecture
12. Saravanan Balasubramanian, 2007 M.S. Building Technology and Energy Performance.
13. Siwat Sriphirom, Ph.D. Candidate Industrial Engineering: Sustainable Supply Chain for the Health Sector.
14. Krishna Biligiri, Ph.D. Candidate Civil and Environmental Engineering. Development of a Laboratory Test Protocol to Evaluate Tire / Pavement Noise. Completed November 2008
15. Lionel Metchop, MS Mechanical, Aerospace, Chemical and Materials Engineering. 1-D Analysis of Desorption Phenomenon & Performance Analysis of a Desiccant Air Conditioning System. February 2007
16. Tianhua Duan, PhD Mechanical, Aerospace, Chemical and Materials Engineering. Transport and Reaction of Photocatalytic Oxidation of VOC's. February 2007
17. Himanshu Tyagi, PhD Mechanical and Aerospace Engineering. Radiative and Combustion Properties of Nanoparticle-Laden Liquids. Completed November 2008
18. Yeshpal Gupta, PhD Mechanical, Aerospace, Chemical and Materials Engineering. Research and Development of a Small - Scale Adsorption Cooling System. 2006
19. Juan E. Tibaquira, Ph.D. Candidate Mechanical, Aerospace, Chemical and Materials Engineering-Reclaiming Water from Energy Generation Technologies, 2009

External Examiner

Jose Maria Abelleira Pereira. Universidad de Cadiz (Spain). PhD Dissertation. Alternative High Pressure Processes for Sewage Sludge Treatment. 2013

Jiselle Joseph, MSc Implications of Introducing a New Ethylene Facility at the Point Lisas Industrial Estate. The University of West Indies. 2007

Reena Rampersad, MSc The Design, Construction and Performance Evaluation of a Solar Disinfection Unit for the SODIS Treatment of Rain Water and River Water. The University of West Indies 2007.

Honors Undergraduate Thesis / Distinction Committee Supervisor

1. Schuyler Debree, Duke University. Trinity College. Graduated with Distinction. 2018
2. Imani Dorsey, Duke University. Trinity College. Graduated with Distinction. 2018
3. Ashley Wolitzer, Duke University. Trinity College. Graduated with Distinction. 2016
4. Molly Rosenstein. Duke Univesity. Trinity College. Graduated with Distinction. In progress 2016
5. Jennifer Ross, BS Economics. Duke University. Trinity College. Graduate with Distinction. Corporate Transparency and Sustainability. 2013-2014 Academic Year.
6. Karottu, Arun Joseph. Duke University. Trinity College. E-Scrap Recycling. Started / Founded Smart Metals Recycling. 2013-2014 Academic Year.
7. Jessica Katz, BS Civil & Environmental Engineering. Thesis Chair 2008-2009 Summa Cum Laude Barretts Honors College
8. Tyler Perry, BS Finance. Barretts Honors College. Photovoltaic Saturation Strategy. Thesis Chair 2007-2008 Magna Cum Laude
9. Uven Chong, BS Mechanical & Aerospace Engineering. Barretts Honors College. Guarded Hot Plate. Thesis Chair 2007-2008 – Now a PhD student at Cambridge University.
10. Steve Terry, BS Mechanical & Aerospace Engineering. Thesis Committee Member 2007-2008

Awards Obtained by <u>Students</u> Under My Supervision

The Thomas V. Laska Memorial Award. Given annually by Duke University's Division of Earth and Ocean Sciences to a graduating senior in recognition of outstanding achievement and promise for future success in earth and ocean sciences. Molly Rosenstein, (2016) Thesis Supervisor.

Duke University Data Visualization Contest 2016. First Place: Brandon Morrison PhD Candidate. 2016 Faculty Advisor/Chair

NASA Graduate Student Researchers Program, Liz Bloomhardt (2011) Faculty Advisor/Chair.

El Consejo Nacional de Ciencia y Tecnología (CONACYT) Graduate Fellow. Gustavo Marco Antonio Ugarte Irizarri (2007-2009).

Hispanic Scholarship Fund. Humberto Silva (2009).

National Science Foundation (EAPSI). East Asia and Pacific Summer Institutes for Graduate Students. Todd Otanicar (2008). Carried out his researched on Nanoparticles Solar at the University of New South Wales.

Science Foundation Arizona Graduate Research Fellowship. Robert Horner (2008)

The National Consortium for Graduate Degrees for Minorities in Engineering and Science Fellowship. Humberto Silva (2008) assigned to DOE's Pacific Northwest National Laboratory as a computational fluid dynamicist.

Chair: Master Projects at Duke University

1. *Climate Risks to Facilities and Supply Chains. Lockheed Martin Company. Amy Havens, Marisa Hobbs, Johannah Ramer, Saruabh Aneja 2015-2016.Moll*
2. *REI Tatyana Brown MEM-MBA*
3. *A Proposed Framework of Inter-Firm Collaboration: Addressing Sustainability in the Global Apparel and Footwear Sectors. Allison Murphy. Duke Environmental Leadership Program. 2014-2015*
4. *An Economic & Environmental Analysis of the JetBlue Airways Ground Support Vehicles: A Proposed Implementation of a Cleaner-Burning Fleet. Sara Lindenfeld and Michelle Tran. Duke University 2014-2015*
5. *Sustainable Materials and Technologies in the Built Environment. Duke Athletics as a Case Study. Drew Nitschke MEM (EEP). 2013-2014*
6. *Rethinking the Value Chain: Creating Value with a Zero Waste-to-Landfill Initative at Wallace Wade Stadium. Elizabeth Schillo. MEM & MBA (EEP). 2013-2014*
7. *Creation of a National Rating Criteria for Waste Management – Liza Schillo 2013-2014. Duke University*
8. *Local and Sustainable: Venture Farming's Competitive Advantage. Damon Cory-Watson 2013. Duke University*
9. *Benchmarking of Corporate Sustainability Structures. Heidi Winner. 2012-2013. Duke University*
10. *Zero Waste to Landfill. Esi Waters and Britta Victor 2012-2013. Duke University*
11. *Decision-Making Framework for Evaluating Financial, Operational and Environmental Objectives on Inbound Logistics of an American Apparel Brand. Koji Kitazume 2010-2012. Duke University.*
12. *Maximum Entropy Modeling for Photovoltaic Optimization. Samuel Schrager 2011-2012. Duke University*
13. *California Photovoltaics: Predictive Analysis of Global Renewable Energy & Infrastructure Growth in Developed, Developing and Emerging Markets. Patrick Reaves (MEM/MBA, Jackson Naftel (MEM/MBA) and Michael Nolan (MEM/MBA). 2010-2011. Duke University*

Chair: Capstone & Practicum Projects at Duke University and Arizona State University

<u>Duke University</u>

1. Xander Kent, Tatyana Brown and Britsy Neale, Corporate Sustainability – Belk.
2. Melissa Bauer. Logistics for Supercritical Oxidation in Africa.

3. Xiaochen Sun, Yuejiao Ha, Wenting Ye and Wenjia Zhu. Biogenic Carbon and Dynamic LCA Approaches for the Domtar Corporation.
4. Zhenzhen Chen bamboo
5. Analyzing the Environmental & Economic Benefits of Replacing Aluminum Alloy Based Airframes with Carbon nanotube Reinforced Polymers. Linchen He Duke University 2014-2015
6. Curbing Energy Consumption. Fuqua Business School. Sustainable Duke Project. Danielle Bars, Lane Wallace, Ashley Hartman. AY 2013
7. Supercritical Water Oxidation Treatment Applications in Ghana, Africa. Regina Willensky. Academic Year 2013-2014. Client: The Bill and Melinda Gates Foundation.
8. Water Optimization for the Expanding Ethanol Production System in Brazil. Bianca Conde. Academic Year 2013-2014. Client. Veolia.
9. Energy Conservation Energy Modeling using Building Logiz. Alice Kodama. Academic Year 2013-2014. Client. County of Durham, NC.
10. Energy Analysis of Built Infrastructure Aided by Infrared Thermography. Ashley Hartman and Lane Wallace. Academic Year 2013-2014. Client Fuqua
11. Reuse of Corrugated Cardboard Boxes Life Cycle Assessment Modeling. Emily Conner and Maria Ramirez Millan. 2013-2014 AY Corporate Client: Rebox and Conversion R.
12. Sustainable Technology Environments Program Rating System Pilot. Gary Gao and Drew Nitchke. Academic Year 2013-2014. Client: IVCi and STEP Foundation
13. Supply Chain Sustainability Strategies for the Retail Sector. Corey Barnes, Jeffrey Fish and Kevin Kurkul. AY 2013-2014. Client: Belk
14. Energy Modeling and Carbon Reduction Strategies. John Culver and Wenyi Xi. AY 2013-2014. Client: Belk
15. Technological and Social Strategies for Zero Waste to Landfill. Liza Schillo. Academic Year 2013-2014 Client sponsor Waste Management Inc
16. Biopolymer Systems Analysis. Meaghan Burke, Anna Flam, Kevin Fritze, Drew Nitschke, Zhan Wang. 2012-2013. Duke: Corporate Sponsor Quicksilver
17. Evaluation of Sustainable End-of-Life Options for Reverse Osmosis (RO) Elements. Ashley Hartman, Kevin Kurkul, Evan Poirson and Jianming Qin. 2012-2013. Duke: Corporate Sponsor Dow (US and EU).
18. Evaluation and Implications of Emerging Sustainability Rating Tools. Apple Loveless, Ashley Neal, John Shepherd and Regina Willensky. 2012-2013. Duke: Corporate Sponsor Cotton Inc.
19. Tracking and Tracing the Movement of Hard Red Winter Wheat Throughout the Supply Chain: Methods and Risks. John Culver, Tianyang Hu, Katie Swails and Britta Victor. 2012-2013 Duke: Corporate Sponsor BASF
20. National Rooftop Solar PV Analysis for Lowes. Emily Conner, Jeff Fish, Maria Milan and Jingxian Tao. 2012-2013 Duke: Corporate Sponsor Lowes (USA).
21. Apparel End of Life: A Take-Back Program. Seunghee Chin, Gary Gao, Kara Jones, Alice Kodman and Lane Wallace. 2012-2013. Duke: Corporate Sponsor: REI
22. Sustainable Packaging and Delivery Strategy. Clayton Avent, Ying Hou, Holly Kuestner, Yang Liu and Guangyangzi Shu. 2012-2013. Duke: Corporate Sponsor Stonyfield
23. A Greener Footprint: Offering Sustainable Solutions for the Classics Line. Eric Chappell, Jagrup Sidhu and Wenyi Xi. 2012-2013 Duke: Corporate Sponsor: Vans and VF
24. Swine Wastes to Energy. Veolia Environmental Services. Jessica Lab 2012
25. DIRTT Walls: Exploring Options for End-of-Life Management. Cidney Christie and David Smedick. 2012 Duke: Corporate Sponsor DIRTT Walls (Canada).

    Arizona State University

26. Edson Student Entrepreneur Initiative Award. Vairavan Subramanian (2007)
27. Sergio Blanco (2007-2008). Sustainable Business Plan / A Sustainable Business Plan Development for a SME

28. Insua, Ivan (2007-2008). Application of carbon capture technology on an existing coal-fired power plant. 2nd reader
29. Eric Kingsbury (2007-2008). Organizational Strategies for Sustainability and the Global Cocoa Value Chain. Chai
30. Dimitrios Laloudakis (2006-2007). Strategic Plan for Use of Hybrids in Government Fleets. Chair
31. Derek Skousen (2006-2007). Implementing Lean and LEED In the Residential Construction Industry.
32. Jan Kowal (2006-2007). Biodiesel from Waste Vegetable Oil. Chair
33. Michael Scott (2006-2007). Biodiesel from Waste Vegetable Oil. Chair
34. Joey Kellner (2006-2007). GreenDriver: Aftermarket Automobile Gasoline Management System. Chair
35. Raj Buch (2006-2007). Distributed Energy Development Project. Ingersol Rand Corporation. Chair
36. John Williams (2006-2007). Distributed Energy Development Project. Ingersol Rand Corporation. Chair
37. Benjamin Young. (2006-2007). Sustainable Residential Construction. Shea Homes. Chair
38. Lionel Metchop (2006-2007). Development of a new product to draw humidified air for potable water. **Prize Winner of the Intel / UC Berkeley Technology Competition**. Formed Watel Inc. Chair

SERVICE

PROFESSIONAL SERVICE - INTERNATIONAL AND NATIONAL

US EPA Board of Scientific Counsellors. Appointed November 2017.

ASTM task group, WK35705 - Sustainability Characterization of Manufacturing Processes April 2015 to present

Sustainable Apparel Coalition - Task Force for New Sustainability Website. May 2015 to present

National Science Foundation Research Coordination Network, the Integrated Network for Social Sustainability (INSS). November 2013

Search Committee – Appointed by the Chancellor of the University of North Carolina Central search committee for a Director of their BRITE Institute. September 2013

System Dynamics Society – 2012 to present

Judge and Panelist – 2011 Inaugural Supply Chain - Climate Leadership Awards. U.S. EPA, The Climate Registry, the Pew Center on Global Climate Change and the Association of Climate Change Officers.

General Services Administration (US) – Advisor to the Administrator on Section 13 Implementation. Requiring 600,00+ suppliers to the government to report on carbon emissions & to green the federal government. Appointed November 2010.

World Economic Forum (2009-2011)

AAAS Symposium on Sustainability Science. Roadmap for the 21st Century
17-21 February 2011, in Washington DC. Planning and Serving on a session called: Education and Innovation in Meeting Societal Challenges of the 21st Century – Starting April 2010

Joint Project Advisory Committee for the Cool Communities and Advanced Building Envelope Surface Materials projects of the Heat Island Group at Lawrence Berkeley National Laboratory and/or the Building Envelopes Program at Oak Ridge National Laboratory (ORNL) (2010-2011)

California EPA – Air Resources Board. Technical and Policy Review of the indirect albedo effects for climate change mitigation strategies. September 2009

American Meteorological Society: Eighth Symposium on the Urban Environment. Urban Heat Island Mitigation Studies. Session Chair. 2009

Pew Center on Global Climate Change: Expert Advisory Council on Corporate Energy Efficiency Project 2008-2010.

Wal-Mart: Sustainable Scorecard & Labeling Steering Committee (only academic) starting February 2008

United Nations: UNEP Life Cycle Assessment Toolkit (2007-2008)

National Science Foundation: CyberEnabled Discovery Panel Member (2008)

AAAS: American Association for the Advancement of Science Board of Directors (2007-2010) - Southwest and Rocky Mountain Division

American Meteorological Society – Board on the Urban Environment. Appointed September 2007-2009

National Academies-National Research Council: Founding Committee Member on Paving Materials and the Urban Climate Subcommittee of the Transportation Research Board. Appointed Fall 2007 - 2009

American Council on Renewable Energy: Appointed to the Higher Education Steering Committee: 2006-2008.

United Nations: Appointed to the United Nations Task Force to create a UNEP Life Cycle Management Guidance Book for Rapidly Urbanizing Regions (2004-2006)

Product Development and Management Association (PDMA) 4th Annual Conference Innovate Through Sustainability. Conference Planning Committee (2007 & 2008).

Thermal Materials, Technologies and Strategies for the Urban Climate National Conference Co-Chair joint DOE-EPA (April 2006) hosted by Arizona State University

ISTA. Director and Founder. International Sustainable Technologies Alliance (ISTA) - ASU, MIT, Cambridge University, IIT-Delhi, University of Cape Town and Tec de Monterrey

National Co-Chair: EPA Sponsored Sustainable Materials + Urban Climate Conference 2006

External Advisor: United Kingdom Applied Urban Climatology Program (Engineered Materials)

External Advisor: Greater London Authority on Innovating for Sustainable Technologies

US EPA: Appointed to the US EPA Materials and Urban Climate Task Force to develop a management section for a federal guidance document. EPA State and Local Capacity Building Branch – Air and Radiation Division

IEEE: Appointed to the Climate Change Working Group of the Institute of Electrical & Electronic Engineers (2003-2005)

Ford Motor Company: External Sustainable Committee Member

US DOT: J. Stannard Baker Medal Recipient from the U.S. Department of Transportation – National Highway Traffic Safety Administration for Outstanding Work on Highway Safety

Fifth Conference on Urban Environment: American Meteorological Society (AMS). Chair – UHI Session Vancouver, Canada – August 2004

Seventh Conference on Urban Environment: American Meteorological Society (AMS). Chair – Human Dimensions, Urban Climate and Biometeorology I and II – San Diego September 2007

1st Conference on Climate Change: Confronting Climate Change, Vulnerability and Urbanization by Improving Heat Health Services, Mitigation Strategies and Communications. Co-Chair. US CDC, US EPA, NOAA and ASU sponsors. Tempe, AZ November 14-16 2007.

EDITORIAL BOARD APPOINTMENTS

Editorial Board: Logistics 2016 to present

Editorial Board: Sustainable Materials in Urban Infrastructure - *Journal of Engineering for Sustainable Development through 2007.*

Editorial Member: Journal of Green Building. March 2009 appointment

Editorial Board: International Journal of Sustainable Building Technology & Urban Development (2010 appointment)

GUEST EDITOR

- Proceedings of the National Academy of Sciences PNAS: article-*Future urban expansion and implications for global croplands* Fall 2016
- Proceedings of the National Academy of Sciences PNAS: article-Global scenarios of urban form and its impacts on building energy use through 2050. Summer and Fall 2016
- Proceedings of the National Academy of Sciences PNAS: article -Urban Signatures of Phenotypic Change: Emerging Patterns, Mechanisms, and Novel Hypotheses

REVIEWER

- Proceedings of the National Academy of Sciences PNAS July 2016
- International Journal of Biometeorology, May 2015, August 2015
- Urban Forestry & Urban Greening, May 2015
- Environmental Science & Technology, February 2015
- Environmental Science & Technology, January 2015
- Journal of Green Building, February 2015
- Environmental Science & Technology, December 2014

- Management Science, November 2014
- Journal of Cleaner Production, October 2014
- Sustainability, June 2014
- Science. April 2014
- Environmental Science & Technology November 2013
- Sustainability: Science, Practice and Policy November 2013
- Environmental Science & Technology January 2013
- Environmental Science & Technology February 2013
- Journal of Applied Meteorology and Climatology (2012)
- Journal of Green Building (2011)
- Weather, Climate & Society – American Meteorological Society (2011)
- IEEE (2006, 2007)
- Environmental Sciences (2006)
- Sustainability Science (2006)
- International Journal of Climatology (2006, 2007)
- Journal of Environmental Management (2006, 2007)
- International Journal of Environment and Waste Management (2006, 2007)
- Environmental Science & Technology (2007, 2009, 2010)
- Sustainability: Science, Practice and Policy (2007)
- Journal of Applied Meteorology and Climatology (2007)
- ATMOSFERA (2007)
- Cambridge University Press (2007) Book on Sustainable Strategic Management
- W.W. Norton & Company (2008) Book on Environmental Studies
- Landscape and Urban Planning (2008)
- International Journal of Biometeorology (2008)
- Journal of Environmental Research (2008)
- International Journal of Sustainable Engineering (2009)

PROFESSIONAL MEMBERSHIPS

System Dynamics Society
Association of Environmental Engineering & Science Professionals
American Meteorological Society
International Association for Urban Climate

SERVICE UNIVERSITY

ACADEMIC SERVICE

Steering Committee: Duke World Food Policy Center: June 15, 2016 to present

Wake Forest University: External Reviewer for the Renewal: The Center for Environment, Energy and Sustainability (CEES). 2016

Duke University: Founded the Leadership Fellowship with partners at UNC, NC State, Elon, Wake Forest, and North Carolina A&T State University 2014

North Carolina State University-School of Natural Resources: External Reviewer of Internal Grant Program June 2014

Duke University: Research Development Working Group: Steering Committee 2013-July 2014

Duke University: Research Administration Policy Working Group 2012 to July 2014

Founded: Research Convergence Accelerator. A joint effort of research leadership from Duke University, UNC-Chapel Hill, NC State, Wake Forest University, NC A&T State and RTI. 2013-2014.

Duke Brazil Initiative – Faculty Steering Committee, effective 2013

Duke University Emergency Management Steering Committee, effective Spring 2013 to July 2014

Sustainable Business Competition Mentor 2010 (team includes my PhD Student and won ASU and Western Regional's)

President Barack Obama Scholar Mentor 2009-2010

University Senator Academic Year 2009-2010

Co-Director Sustainable Energy Fellowship with MIT, Duke University and the University of Michigan. 2007 held at Arizona State University. 2008 held at Duke University

Coordinator. Wal-Mart Sustainable Business Plan Competition (2008, 2009)

Graduate Committee – School of Sustainability 2006-2008

Academic Committee - Future School of Sustainability 2006

Engineers Without Borders: Founded and Advisor for the Arizona State University Chapter of Engineers Without Borders (2004 to present)

SERVICE

COMMUNITY SERVICE

Executive Director. Post Hurricane Florence Recovery Operations Center. September 2018

City of Phoenix, Arizona: Appointed Special Advisor to the Mayor on Sustainable Technologies 2005

City of Scottsdale, Arizona: Appointed by the Mayor and Council to serve on the 2005 Environmental Quality Advisory Board 2005-2006

Kyrene School District – Waggoner School material designs for outdoor activities 2006-2007

Prior Community Service-Tempe Police Department and Federal Law Enforcement Training Academy for US EPA (1985-1991). Law Enforcement Commendation Medal, Life Saving Medal, Meritorious Service Medal, Distinguished Service Medal.

CONFERENCES & WORKSHOPS ORGANIZED

BioProducts Industry Workshop. Research Triangle Park, NC Nov. 18, 2015: Chair

U.S. Department of Commerce-National Institute for Standards and Technology, (MD). May 5, 2015. Workshop on Standards-based Cloud Services for Manufacturing Sustainability Assessment, Co-Chair

National Academy of Engineering-Summit Manufacturing for the Grand Challenges. Cary, NC October 31, and November 1, 2013-Chair

Bio-Economy Workshop. American Chemical Society, Washington DC. Jointly hosted by Duke, Yale and Bio. Washington DC November 28-30, 2012 Co-Chair

Urban Sustainable Systems Workshop. US EPA Research Triangle. Sponsored by Duke University and UNC-Chapel Hill. October 25-26.

Life Cycle Reporting: A joint conference of government agencies, industry, NGO's and academia. June 15, 2011: Washington DC

RECONGITION

HONORS & CERTIFICATIONS

Phi Kappa Phi (Honors Society) Initiated 2018

Sigma Xi (Scientific Research Honors Society) Initiated 2019

Sustainia – 100 Top Sustainability Solutions awarded to the Duke Center for Sustainability and Commerce. October 2013

Faculty Pioneer Award: Aspen Institute 2009

100 Most Influential People in Business Ethics #23 (Ethisphere)

AT&T Fellow: Industrial Ecology Fellow (2004)

J. Stanndard Baker Award-US DOT / National Highway Traffic Safety Administration & Northwestern University. 1990 Outstanding Achievements in Highway Safety for work on hazardous materials transportation.

State of California—Environmental Protection Agency: Registered Environmental Assessor

National Registry of Environmental Professionals: Registered Environmental Professional 5017

MEDIA INTERVIEWS

National & International

1. Chronicle of Higher Education. September 12, 2018. For Coastal Colleges, Evacuation Means Far More Than Just Moving People.
2. Philadelphia Inquirer, Business Section. Renmatix turns biowaste into Plastic. November 26, 2016 by Aswin Mannepalli. http://www.philly.com/philly/business/20161126_Renmatix_turns_biowaste_into_plastic__Can_the_King_of_Prussia_firm_help_save_the_planet_.html
3. TVAgro (Colombia and South America) September 25, 2015
4. The Guardian (UK) Environmental Life Cycle Modeling Research by Golden December 12, 2014
5. Pittsburgh Post Gazette, October 9, 2012-FTC Tightens Green Guidelines
6. National Public Radio September 20, 2011 (WUNC)
7. GIST published April 2011
8. CNN Money April 15, 2010. Fortune 100 companies and the Sustainability Consortium.
9. New York Stock Exchange Magazine. The Sustainability Consortium. February 2010
10. Arizona Republic, Green Rating on Electronics Sought. February 12, 2010
11. KCBS San Francisco, Sustainability Jobs Across America, December 31, 2009
12. Solve Climate, Greening Wal-Mart's Supply Chains December 2009
13. Fast Company Magazine November 2009
14. National Public Radio (KUAF) August 13, 2009
15. ABC News on Campus August 6, 2009

16. Wall Street Journal July 15, 2009 http://online.wsj.com/article/SB124766892562645475.html
17. New York Times July 15, 2009 http://www.nytimes.com/2009/07/16/business/energy-environment/16walmart.html
18. National Public Radio July 17, 2009 (national broadcast)
19. Over 50 national media outlets on July 16, 2009 via AP, Reuters
20. Fox News Phoenix-Urban Heat Island: August 3, 2008
21. Arizona Republic – ASU Team shines in sustainability challenge: May 31, 2008
22. ASU Insight-5 Students make most of chance to explore sustainable energy: may 30, 2008
23. Continental Airlines Magazine. *The Green Standard*. December 2008
24. Associated Press & GRIST Environmental News: Hope for a Desert Delinquent. What Phoenix, the poster child for environmental ills, is doing right: May 13, 2008
25. NBC National Nightly News with Brian Williams: March 24, 2008
26. East Valley Tribune-*In-state Sustainable*- Sunday Business: March 2, 2008
27. State Press-Do bars of soap dirty the environment? February 29, 2008
28. East Valley Tribune- *Dial teams with ASU on climate impact of products*: February 20, 2008
29. East Valley Tribune- *Experts study what to do when heat turns deadly*: November 15, 2007
30. East Valley Tribune-*Experts gather in Tempe to discuss heat disaster*: November 14, 2007
31. East Valley Tribune-*Summer-friendly sidewalks, streets are less hot*: February 23, 2007
32. East Valley Tribune-*ASU and utilities try to ease urban heat buildup*: June 5, 2005
33. Arizona Republic-*Dial, ASU will study goods' enviro-impact*: February 20, 2008
34. Arizona Republic-*Materials company hopes to make niche*: August 11, 2007
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Collaborators

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Interests

Lacrosse - played for Arizona State University and the University of Cambridge.

Volleyball Coach – Aspire Girls Club Team

Sailing (ASA 101 and 103 certified)

Gardening –Hiking