

Peer-reviewed publications:

- Galster, J.C.**, 2009, Testing the linear relationship between peak annual river discharge and drainage area using long-term USGS river gauging records, *in* James, L.A., Rathburn, S.L., and Whittecar, G.R., eds., *Management and Restoration of Fluvial Systems with Broad Historical Changes and Human Impacts: Geological Society of America Special Paper 451*, p. 159-171.
- Galster, J. C.**, Pazzaglia, F. J., Germanoski, D., 2008, Measuring the impact of urbanization on two watersheds using historic aerial photographs and modern surveys: *Journal of the American Water Resources Association*, v. 44, p. 948-960.
- Galster, J.C.**, 2007, Natural and anthropogenic influences on the scaling of discharge with drainage area for large rivers: *Geosphere*, v. 3, p. 260-271.
- Galster, J. C.**, Pazzaglia, F. J., Hargreaves, B. R., Morris, D. P., Peters, S. C., and Weisman, R. N., 2007, Land use effects on watershed hydrology: The scaling of discharge with drainage area: *REPLY, Geology online forum*, p. e127.
- Galster, J. C.**, Pazzaglia, F. J., Hargreaves, B. R., Morris, D. P., Peters, S. C., and Weisman, R. N., 2006, Land use effects on watershed hydrology: The scaling of discharge with drainage area: *Geology*, v. 34, p. 713-716.

Other publications:

- Galster, J. "Global Geoscience Watch." *Global Reference on the Environment, Energy, and Natural Resources Online Collection*. Detroit: Gale, 2010. *Global Reference on the Environment, Energy, and Natural Resources*. Web.
- Galster, J.. "Geology." *Global Reference on the Environment, Energy, and Natural Resources Online Collection*. Detroit: Gale, 2010. *Global Reference on the Environment, Energy, and Natural Resources*. Web.

Funded Grants

- 2010 **National Science Foundation**, co-I, "REU Site: Multidisciplinary environmental science research on forest lakes in Northwest New Jersey" (\$390,320), 8/1/2010 – 12/31/2014
- 2009 **National Institutes for Water Resources**, PI, "Does urbanization decrease water availability during dry weather? A historical, empirical analysis of the relationship between imperviousness and stream baseflow in the Eastern United States" (\$82,489), 9/1/2009 – 8/31/2011
- 2008 **Passaic River Institute**, co-I, "System dynamic model development for phosphorus concentrations and loads in Passaic River watershed due to impact of urbanization and land use change" (\$4,922), 3/1/2008 – 12/31/2008
- 2008 **New Jersey Water Resources Research Institute**, PI, "Identifying the source of excess fine-grained sediments in New Jersey rivers using radionuclides" (\$30,000), 6/1/2008 – 7/31/2010
- 2008 **Montclair State University**, PI, "Investigating land use change using cellular automata" (\$3,000), 3/1/2008 – 12/31/2008
- 2005 **Geological Society of America Graduate Student Research**, "The impact of urbanization on the scaling of flood discharges" (\$2,000), 7/1/2005 – 6/1/2006

Teaching Experience:

Montclair State University

Water Resources Management (GEOS 509)
Fluvial Geography (GEOS 352)
Hydrology (GEOS 252)
Honors Seminar: Life in the Universe (HONP 210)
Earth and the Environment (GEOS 125)
Historical Geology (GEOS 114)
Physical Geology (GEOS 112)

Lehigh University

Sedimentology and Stratigraphy (GEOS 214)

Student Supervision (Montclair State unless specified):

Thesis advisor (Date completed, otherwise in progress):

Elizabeth Stagg, Ph.D. candidate, Environmental Management
Omoniyi Asaolu, M.S. candidate, Geoscience
Jared Lopes, M.S. candidate, Geoscience
Christina Barton, M.S. candidate, Aquatic and Coastal Sciences

Dissertation/thesis committee member (Date completed, otherwise in progress):

Rebecca Shell, Ph.D. candidate, Environmental Management
Sagarika Roy, Ph.D. candidate, Environmental Management
Lucas Diglio, Ph.D. candidate, Environmental Management
Anthony Suleski, M.S. candidate, Biology and Molecular Biology
Robert Scherr, M.S. candidate, Biology and Molecular Biology
Lisa Cummins, M.S. candidate, Biology and Molecular Biology
Brian Frank, M.S. candidate, Geoscience
Elyse Peterson, M.S., Geoscience (2011)
Charles Usiaphre, M.S., Environmental Management (2010)
Seth Xeflide, Ph.D, Environmental Management (2010)
Nicole Bujalski, M.S., Geoscience, Montclair State (2010)
Muhammad Haque, M.S., Geoscience, Montclair State (2009)

Independent study advisor (all Montclair State University students):

Elizabeth Stagg, Ph.D. candidate, ENVR 531, Spring 2011
Jared Lopes, M.S. candidate, GEOS 592, Spring 2011
Kiryl Bychkouski, B.A. candidate, EUGS 310, Spring 2011
Doug Finke, B.S. candidate, GEOS 480, Spring 2011
Diana Flores, B.S. candidate, GEOS 492, Spring 2011
Elizabeth Stagg, Ph.D. candidate, ENVR 704, Fall 2010
Omoniyi Asaolu, M.S. candidate, GEOS 594, Fall 2010
Jared Lopes, M.S. candidate, GEOS 594, Fall 2010
Anita Trajovska, B.S. candidate, CSAM Science Honors Innovation Program (SHIP),
Fall 2010
Kiryl Bychkouski, B.A. candidate, EUGS 467, Fall 2010

Diana Flores, B.S. candidate, GEOS 492, Fall 2010
Omoniyi Asaolu, M.S. candidate, GEOS 592, Spring 2010
Jared Lopes, B.S. candidate, GEOS 492, Spring 2010
Jared Lopes, B.S. candidate, GEOS 492, Spring 2009

Employer (all Montclair State University students):

Diana Flores, B.S. candidate, Earth and Environmental Studies
Lisa Cummins, M.S. candidate, Biology and Molecular Biology
Matthew Croker, B.S. candidate, Earth and Environmental Studies
Tarique Islam, B.S. candidate, Earth and Environmental Studies
Nicole Bujalski, M.S. candidate, Earth and Environmental Studies
Faith Justus, M.S. candidate, Earth and Environmental Studies
Sagarika Roy, Ph.D. candidate, Earth and Environmental Studies
Jared Lopes, B.S. candidate, Earth and Environmental Studies

Research Experience:

Montclair State University:

- ❑ Investigated the influence of humans and climate on the discharges of large rivers from gauging station records.
- ❑ Automated the process of classifying land-use from monospectral aerial photographs.
- ❑ Modeled historic land-use change using cellular automata.
- ❑ Investigated the source of excess suspended sediment in streams using in-stream samples and radiogenic nuclides.
- ❑ Measured the effects of invasive species on stream baseflow.
- ❑ Analyzed discharge records to determine the change in flood frequency and baseflow in New Jersey.
- ❑ Quantified the changes in water quality, water quantity, and sediment transport due to the removal of a pair of small dams

Lehigh University:

- ❑ Mapped glacial moraines and calculated paleo-equilibrium line altitudes (ELAs) for Peruvian glaciers using satellite imagery and digital elevation models (DEMs).
- ❑ Generated high-resolution DEMs of channel reaches from geodetic surveys in order to compare stream morphologies across various land uses.
- ❑ Installed pressure sensors in rivers and developed rating curves to determine the discharge characteristics of the urban and rural watersheds.
- ❑ Georeferenced aerial photographs to determine the changes in stream width over time using a GIS.
- ❑ Installed automated water sampling devices to characterize water quality.
- ❑ Statistically analyzed the historic discharge records of six large rivers to determine the scaling of discharge with drainage area.
- ❑ Analyzed pollen samples from a lake core to determine the paleovegetation in the watershed.

University of Vermont:

- Cored lakes and performed sedimentologic and stable isotopic analyses on samples.
- Used stable isotopes (^{13}C and ^{15}N) and radiocarbon dating to determine the rate of ecosystem establishment following deglaciation.

Awards:

- 2006 Department nominee for Lehigh U. Stout dissertation prize
- 2006 Best poster, Lehigh U. graduate student symposium
- 2005 K.N. Weaver Award, Northeastern Section GSA
- 2005 Best Oral Presentation, Lehigh U. graduate student symposium
- 2000 Outstanding Graduate Teaching Fellow, U. of Vermont
- 1999 SUGR/Fame Award, U. of Vermont
- 1996 Cum Laude, Carleton College

Invited Talks:

- 2011 Raritan Valley Community College, "Human impacts on rivers in New Jersey and Pennsylvania"
- 2010 Rowan University, "From channel banks to watersheds: using GIS in hydrologic research"
- 2009 Brooklyn College, CUNY, "Using atmospherically deposited radionuclides to fingerprint river sediment"
- 2008 Montclair State, "Are cows magnetic? Applications of GIS in the real world." GIS Day
- 2008 U. of Delaware, "Measuring the change in stream width due to historic land-use change"
- 2008 Montclair State, "The regional impacts of climate change", Focus the Nation climate change day
- 2007 Montclair State, "The fundamental connection between watersheds and their rivers"

- 2007 Earlham College, "The fundamental connection between watersheds and rivers"
- 2006 PSU Altoona, "Using hypsometry to categorize watersheds"
- 2006 SUNY New Paltz, "Measuring the impact of watershed urbanization on channel widths using aerial photographs"
- 2006 Lehigh U., "Watershed Applications of GIS"
- 2006 Lehigh U., "Remote sensing before NASA: Using historic documents to extend remote sensing's record"
- 2006 Lehigh Valley Watershed Conference, "GIS mapping for watershed planning"
- 2005 Kutztown U., "Land Use change as reflected in channel morphology"

Professional Service and Development:

- Ongoing Reviewer for: American Association of Petroleum Geologists Bulletin; Journal of American Water Resources Association; Journal of Environmental Geoscience; Journal of Environmental Management; Journal of Soil and Water Conservation; Landscape and Urban Planning; National Fish and Wildlife Foundation; National Science Foundation Hydrologic Sciences Program; Southeastern Geographer

2011	Department representative, College of Science and Mathematics Distinguished Teacher Program
2010 to 2011	Member, search committee, Earth Systems Modeler faculty position, Earth and Environmental Studies
2010 to present	Member of the Provost's Learning Management System Working Group to integrate online learning tools into the classroom
2009 to present	Department representative to Montclair State committee: Louis Stokes Alliance for Minority Participation Program (LSAMP); Science and Mathematics User Group
2009	Passaic River Institute, Summer Environmental Science Program, Instructor
2009	Member, search committee, Pre-award officer (V457), Office of Research and Sponsored Programs, Montclair State
2009	Participant, On the Cutting Edge: "Early career geoscience faculty: teaching research, and managing your career", College of William and Mary
2009	Session chair, Montclair State University Third Annual Sigma Xi Student Research Symposium
2008 to 2009	Member, Science and Math Computer Users Group, Montclair State
2008	Reviewer, GSA Quaternary and Geomorphology Division, Howard and Mackin Awards
2008	Participant, On the Cutting Edge: "Making the Case for Tenure: A Workshop for Early Career Faculty"
2008	Co-chair, Theme session on "Influence of humans on the geomorphology, hydrology, and sediment transport of fluvial systems", Northeastern GSA
2006	Participant, Council on Undergraduate Research: "Developing an Undergraduate Research Program"
2005 to 2006	Department representative to Lehigh U. Graduate Student Senate
2005	Participant, On the Cutting Edge: "Preparing for an Academic Career in the Geosciences", Pennsylvania State University
2004 to 2005	Graduate student symposium coordinator: Lehigh U.
2003 to 2004	Graduate student/faculty liaison: Lehigh U.

Professional Affiliations:

Geological Society of America
 American Geophysical Union
 American Association of Geographers
 American Water Resources Association
 Geological Association of New Jersey
 National Association of Geoscience Teachers

Collaborators:

Kirk Barrett	Passaic River Institute	Montclair State
Jonathan Cutler	Dept. of Mathematical Sciences	Montclair State
Huan Feng	Dept. of Earth & Environmental Studies	Montclair State

Nina Goodey	Dept. of Chemistry and Biochemistry	Montclair State
Frank Pazzaglia	Earth and Environmental Science Dept.	Lehigh
Joan Ramage	Earth and Environmental Science Dept.	Lehigh
Dirk Vanderklein	Dept. of Biology and Molecular Biology	Montclair State
Josh Wyrick	Dept. of Land, Air, and Water Resources	UC Davis

Conference abstracts (*student authors):

- Galster**, J.C., Wyrick, J.R., 2010, Bed sediment monitoring of multiple contiguous small dam removals: Eos Transactions American Geophysical Union, v. 91 Fall Meeting Supplement, Abstract H31E-1048.
- Galster**, J. C., *Roy, S., 2010, Using LIDAR to measure urbanization's added hydrological connectivity and its implications for flooding: Geological Society of America Abstracts with Programs, v. 42 p. 146.
- *Lopes, J., **Galster**, J. C., Barrett, K., 2010, A historical, empirical analysis of the relationship between imperviousness and stream baseflow in the eastern United States. Does urbanization impact baseflow during dry weather?: Geological Society of America Abstracts with Programs, v. 42 p. 241.
- *Scherr, R., D., **Galster**, J.C., Vanderklein, 2010, The impact of Japanese knotweed on stream basal flow, Ecological Society of America Annual Meeting, Pittsburgh August 1-6, 2010.
- *Scherr, R., D., Vanderklein, **Galster**, J.C., 2010, The impact of Japanese knotweed on stream baseflow in Bonsal Preserve, Montclair, NJ: Fourth Passaic River Symposium, Passaic River Institute, v. 4, p. 65.
- Galster**, J. C., Barrett, K., Feng, H., *Bujalski, N., *Lopes, J., 2010, Using ^{210}Pb and ^{137}Cs to identify the bank vs. soil contributions to excess fine-grained sediments in urban and rural New Jersey river channels: Fourth Passaic River Symposium, Passaic River Institute, v. 4, p. 45.
- *Lopes, J., **Galster**, J. C., 2010, Assessing stream restoration efforts in northern New Jersey: Fourth Passaic River Symposium, Passaic River Institute, v. 4, p. 64.
- Barrett, K., **Galster**, J.C., *Slaff, E., *Justus, F., 2010, Is flooding getting worse? Historical analysis of flood flow frequencies in New Jersey: World Environmental and Water Resources Congress, Environmental and Water Resources Institute.
- Woodworth, P., **Galster**, J.C., Wyrick, J., Helminiak, J., 2010, Dam removal: adaptive management and bed sediment monitoring before and after: World Environmental and Water Resources Congress, Environmental and Water Resources Institute.
- Galster**, J. C., Cutler, J., *Lopes, J., 2010, Quantifying the impacts of urbanization on river channels using historic aerial photographs and GIS: Association of American Geographers 2010 Annual Meeting Abstract Volume.
- *Lopes, J., **Galster**, J. C., 2010, Post-restoration stream evaluations in New Jersey: Northeastern Section of Geological Society of America Abstracts with Programs, v. 42 p. 133.
- Galster**, J. C., Barrett, K., Feng, H., *Lopes, J., *Bujalski, N., 2009, Using ^{210}Pb and ^{137}Cs to identify the bank vs. soil contributions to excess fine-grained sediments in urban and rural New Jersey river channels: Geological Society of America Abstracts with Programs, v. 41 p. 577.

- Barrett, K., **Galster**, J.C., *Xeflide, S., 2009, Investigations of trends in baseflow and flood flows in New Jersey and their correlation with imperviousness: World Environmental and Water Resources Congress, Environmental and Water Resources Institute.
- *Bujalski, N., *Lopes, J., **Galster**, J.C., Feng, H., Barrett, K., 2009, Using radionuclides to investigate New Jersey rivers for sources of excess fine grained sediment: Montclair State University Third Annual Student Research Symposium.
- Galster**, J. C., Barrett, K., Feng, H., *Lopes, J., *Bujalski, N., 2009, Using atmospherically-deposited radionuclides to identifying the source of excess fine-grained sediments in two New Jersey watersheds: Association of American Geographers 2009 Annual Meeting Abstract Volume.
- Galster**, J. C., Barrett, K., *Slaff, E., *Xeflide, S., *Justus, F., 2008, Is flooding getting worse in northern new Jersey? An analysis of temporal trends in flood frequency and magnitude: New Jersey Association for Floodplain Management, v. 4.
- Galster**, J. C., Barrett, K., Feng, H., *Bujalski, N., *Lopes, J., 2008, Identifying the source of fine-grained sediment using radionuclides, Geological Association of New Jersey Annual Meeting Abstract Volume, v. 25.
- Galster**, J. C., Barrett, K., *Slaff, E., *Xeflide, S., *Justus, F., 2008, Is flooding getting worse? Historical analysis of flood flow frequencies in the Passaic Basin and New Jersey: Third Passaic River Symposium, Passaic River Institute, v. 3.
- Barrett, K., **Galster**, J. C., *Xeflide, S., 2008, Baseflow trends in NJ streams and correlation with imperviousness: Third Passaic River Symposium, Passaic River Institute, v. 3.
- *Scherr, R., Vanderklein, D., **Galster**, J. C., 2008, The impact of Japanese knotweed on stream baseflow in Bonsal Preserve, Montclair, NJ: Third Passaic River Symposium, Passaic River Institute, v. 3.
- Galster**, J. C., Barrett, K., Feng, H., *Bujalski, N., *Lopes, J., 2008, Characterizing the source of fine-grained sediments in New Jersey rivers using radionuclides: Geological Society of America Abstracts with Programs, v. 40, p. 194.
- Galster**, J. C., Barrett, K., 2008, Identifying the source of excess fine-grained sediments in New Jersey rivers using radionuclides: NEGSA Abstracts with Programs, v. 40.
- Galster**, J.C., Pazzaglia, F. J., Germanoski, D., 2007, Measuring the erosion of river channel widths impacted by watershed urbanization using historic aerial photographs and modern surveys: Eos Transactions American Geophysical Union, v. 88, Fall Meeting Supplement, Abstract H41D-0768.
- Galster**, J. C., 2007, The anthropogenic and climatic effects on the scaling of discharge and drainage area for multiple watersheds from USGS discharge records: Geological Society of America Abstracts with Programs, v. 39, No. 6, p. 244.
- Galster**, J.C., *McFadden, E., Ramage, J.M., Rodbell, D.T., 2006, The Spatial Variation of Modern and LLGM Reconstructed ELAs in the Cordilleras Raura and Huayhuash, Peru: Eos Transactions American Geophysical Union, v. 87, Fall Meeting Supplement, Abstract H11B-1257.
- Galster**, J. C., Pazzaglia, F. J., Germanoski, D., 2006, Measuring the impact of urbanization on two watersheds using historic aerial photographs: implications for restoration efforts: Geological Society of America Abstracts with Programs, v. 38, No. 7, p. 187.
- Galster**, J. C. and Pazzaglia, F. J., 2005, Quantifying the effects of urbanization on two watersheds: How does discharge scale with drainage area in an urban area?: Geological Society of America Abstracts with Programs, v. 37, No. 7, p. 454.

- Galster**, J. C. and Pazzaglia, F. J., 2004, Linking increased urbanization to changes in stream morphology and pool-riffle: Geological Society of America Abstracts with Programs, v. 36, No. 2, p. 144.
- *Bosley, A.C., Bierman, P.R., Noren, A., and **Galster**, J., 2001, Identification of paleoclimatic cycles during the Holocene using grain size analysis of sediments cored from Lake Morey in Fairlee, VT: NEGSA Abstracts with Programs, v. 33, p. 85.
- Lini, A., **Galster**, J.C, Howse, R., and Lord, A., 2001, Isotopic records in post-glacial lake sediments; implications for biota and landscape evolution: NEGSA Abstracts with Programs, v. 33, p. 57.
- Noren, A.J., Bierman, P.R., and **Galster**, J.C., 2001, A 13,000-year regional record of Holocene storms from terrigenous lake sediment, northeastern USA: NEGSA Abstracts with Programs, v. 33, p. 57.
- Galster**, J.C., Lini, A., and Noren, A.J., 2000, Using stable isotopes to determine ecosystem establishment rates following Holocene deglaciation in northeastern U.S.A.: GSA Abstracts with Programs, v. 32, p. 21.
- Lini, A., Keane, P., **Galster**, J.C., and Howse, R.C., 2000, Integrated analysis of modern and sedimentary stable isotope data in lakes. ASLO Meeting 2000, Abstract Volume.
- Galster**, J.C, and Lini, A., 2000, Quantifying response rates of lake ecosystems to environmental change. ASLO Meeting 2000, Abstract Volume.
- Galster**, J.C., Lini, A., and Noren, A.J., 2000, Lake ecosystem response to Holocene environmental change: NEGSA Abstracts with Programs, v. 32, p. 19.
- Noren, A.J., Bierman, P.R., **Galster**, J.C., Lini, A., Jennings, K.L., *Janukajtis, F.A., 2000, A regional record of Holocene storms from terrigenous lake sediment, northern New England: GSA Abstracts with Programs, v. 31, p. 51.
- Noren, A.J., Jennings, K.L., Bierman, P.R., **Galster**, J.C., Lini, A., Fredriksen, G., and *Janukajtis, F.A., 1999, A regional record of Holocene hillslope erosion from lake and alluvial fan sediment, Vermont: New England Intercollegiate Geological Conference Guidebook, v. 91, p. 369-370.