



The University of Georgia

**Graduate Portfolio in Community Engagement
COVER SHEET**

Date of Submission: 4/1/17 (due April 1 or November 1 for review cycle)

Name: James Wood

Department and Major: Ecology Degree: Ph.D.

Expected Semester/Year of Graduation: Spring 2017

Email: _____ Preferred Phone: _____

Mailing Address: _____

Portfolio Faculty Mentor Name: Seth Wenger Email: _____

Title of Community Engagement Portfolio Project: Developing a Service-Learning Urban Ecology Class

Project is: Engaged Research Engaged Teaching Engaged Service & Outreach

Workshop Attendance Dates: (if via GRSC 7870S or 7970S, indicate semester/year)

- Introduction to Community Engagement GRSC 7970S, F14
- Preparing the Graduate Portfolio in Community Engagement GRSC7970S, F14

Sample Portfolios will be available online via the Office of Service-Learning's website.

- May we include your Portfolio on the website?: Yes No

Please include all the following with your Portfolio submission, assembled as a single PDF:

- This Cover Sheet
- Community Engagement Philosophy (2 pages)
- Description and Self-Assessment of Community Engagement Project/Activity including
 - Narrative overview/description (1 page)
 - Impact/anticipated impact (1-2 pages)
 - Reflective assessment, linking to engagement philosophy and future (2 pages)
- Curriculum Vitae, including relevant engagement experiences (2-4 pages)
- Letter of support from faculty mentor (1-2 pages)
- Appendices with letter from community partner and any additional supporting information

For OSL Use:

Date received: 4/1/17

Outcome of Review: approved

v. 5.2014

Community Engagement Philosophy

When I was an undergraduate at the University of North Carolina at Asheville I became deeply involved in community organizing and engagement. The City of Asheville was pursuing plans to develop a forested city park into a baseball and soccer field complex. The residents adjacent the park, including myself, as well as citizens throughout the city, opposed the plans. As I became more knowledgeable about the situation, I realized that the plans had been in the works for some time, although public awareness of the plans was extremely low. I also realized that the time to try and form a partnership between the city and university to manage the forest in a sustainable way had passed. It seemed to me that this was a lost opportunity for the entire community but I felt there was still much that could be done to improve the situation.

I began collecting ecological data about the park, working with professors and community members and environmental groups to document wetlands and rare species in the park that would be impacted by the development. I then presented this information to the City Council, along with documentation of serious sedimentation and erosion control violations taking place in the initial stages of park development. In response to my presentation, along with additional community pressure, the original plans for development were significantly altered, resulting in a substantially smaller impact and greater land protection, especially near the vernal pool network and along the small creek that runs through the property. Today, the forested park is home to a disc golf course, a trail system for bikers and hikers, and many native plants and wildlife.

I share the above story because through this experience, my desire to become an educator who seeks opportunities to form partnerships between academia and the local community began. I see community engagement as a way to promote conservation science and sustainable development in the local community. Furthermore, my desire to educate students and the public about the important role of urban ecosystems in the context of environmental and community health has shaped my graduate course of study and PhD research. I believe that fostering lasting connections between academic institutions and the local community, including local government, is pivotal to improving the ecological health of urban ecosystems. These connections can support the implementation of sustainable development and encourage community engagement with civic institutions, which also supports the local economy.

As a teacher I believe it is important to engage students by providing opportunities for them to make personal connections with course content, because ecological processes can be abstract concepts that can be difficult for students to grasp, and personal connections with these complex concepts can make a significant difference in a student's ability to comprehend them. For example: understanding the degradation of river systems requires knowledge of physical changes in the past that have influenced (and may still influence) the river system, as well as ecological interactions within the river and between the river and surrounding landscape. Furthermore, urbanization and declining water quality can occur very slowly or extremely rapidly, and the sources of pollution can be numerous. Thus, urban streams can only be fully understood with an appreciation for how the stream is now, how the stream may have been in the past (before there was significant human impact), as well as the limitations on society's ability to

restore degraded ecosystems. Additionally, socio-economic factors and failing infrastructure contribute to water quality impairment and can limit the effectiveness of restoration. Therefore, having students sample streams with a local stream-monitoring organization can provide meaningful experiences and insights into changes in stream health overtime. The hands-on experience of sampling streams also facilitates classroom discussion and fosters personal connections between the students and the course material.

Through thoughtful engagement with organizations in the local community, long-term partnerships can develop in which student learning is enhanced and needed services are brought to the community. Student engagement is most useful to students' learning experience when mutual goals are identified between student learning objectives and the needs of local organizations, such that there is reciprocity between the students and the community. For example, the Upper Oconee Watershed Network (UOWN) monitors the condition of urban streams in Athens-Clarke County, and this organization depends on volunteers to help collect water quality data, which provides the necessary data to document changes in stream health over time. This data is also made available to the public, enhancing the benefit to the community. Structuring a class to include student participation with an organization like UOWN reinforces ecological topics discussed in class while also connecting students with community leaders who are working to improve the ecological integrity of the local environment. Service-learning courses foster a deeper understanding of ecological interactions when guided reflection activities reinforce course concepts.

When undergraduate students leave college they will embark on their own path in society. While some continue their education at the graduate level, most will not. Instead, a majority of students will find jobs and focus on the goals of their company and their family. Therefore, as they depart from their undergraduate student status and enter the workforce, I think it is of the utmost importance for them to be aware of the socio-ecological processes that structure the landscape around them. I also think it is important for students to be aware the organizations that are working to promote a healthier urban environment. I believe that universities have a responsibility to not only produce students with knowledge of academic topics, but students who understand that they are a valuable member of a community and through their actions can have a positive impact. I want to help students become aware of socio-ecological challenges around them and help them find ways to become involved in supporting a sustainable urban environment that supports the ecosystem services humanity depends upon.

Description and Self-assessment of Community Engagement Project: Developing a Service-Learning Course

Overview

I developed a service-learning course on urban ecology for the Odum School of Ecology because I believe that urban ecology is an important topic and that service-learning is a valuable teaching tool. The course was taught in the Spring semester of 2016 as a 3 hour Special Topics course entitled Urban Landscape Ecology, and was co-taught with Drs. Seth Wenger and Krista Capps. The 12 students in the course ranged from freshman to seniors, 75% of students identified as female, and 16% as African American. While developing the course, I learned that the Odum School did not have any undergraduate service-learning courses even though there was much support by faculty and a demand by undergraduate students for more engagement with their local community. The course focused on the impacts of urbanization on plants, animals, and ecosystems, and the role of community engagement in the monitoring and maintenance of the urban environment. The ecology of urban areas is extremely relevant to students because a majority of students' time is spent in the urban environment and because a majority of people in the world now live in urbanized areas. There is also a compelling need for citizen participation in community organizations working on urban socio-ecological issues.

In developing the class I spoke with and researched several organizations that depend on citizen participation to achieve their goals; these include the Cornell Ornithology lab, the Upper Oconee Watershed Network, Athens-Clarke County Weed Warriors, and Sandy Creek Nature Center. These organizations have missions to collect citizen science data, monitor local streams, remove invasive species from public lands, manage wild lands, and educate the public about the environment. Without participation by community members these organizations could not continue to achieve their goals. In addition, I was also contacted Athens Regional Medical Center, which abuts a neighborhood and manages a green space available to the public.

My ideas for the course developed by attempting to deconstruct the complex issues of urban ecology into two main topical components, terrestrial ecology and aquatic ecology, and within those, plant and animal ecology. To develop the service-learning portion of the course, I looked for community organizations whose goals were in line with the major ecological issues within these topics. Once suitable organizations were identified, I began to develop assignments that would achieve the learning goals of the course: knowledge of urban ecosystem, impacts on water quality, and species interactions, in addition to an awareness of community organizations working in the local area. I wanted students to gain practical skills such as identification of exotic and invasive plants, aquatic insect identification, native plant ID, and critical thinking and writing skills. I also sought, and received, funding to support service projects through mini-grants from local and national organizations.

Course assignments included weekly quizzes of selected topical readings and a series of low stakes "sit-spot" writings. The "sit-spot" writing assignments were a series of writings in which students critically observed and documented the environment around them, postulated cause and effect relationships, worked to describe wildlife and

associated behaviors in detail, and reflected on their role in an urbanizing environment. Mid-stakes assignments involved reflective writings about the service-learning activities. Writings were expected to inquire about the goals and merit of the service-learning activities by addressing who or what the activity benefited and how the goals were achieved (or not). The rubrics helped ensure students integrated classroom concepts into their reflective assessment of the service-learning activity. Students were also required to develop and write a mini-grant proposal for a community-based service activity and participate in a peer review process of their mini-grant in order to gain experience in how to develop and fund their own community projects.

To objectively assess the effectiveness of the course I developed pre- and post-course questions that evaluated how students perceived the impacts of urbanization on the environment, and how much they valued their participation with community organizations. These questions sought to measure changes in: students' perception of the health of the urban environment; the value they placed on community engagement; their feelings of empowerment to elicit ecological change in the environment; if they thought service-learning activities were useful in helping them understand core concepts in the class. I also sought feedback from the students about how to improve the course in the future.

Impact

According to student feedback, students in the course found substantial value in the course because of the various writing assignments, guest speakers, and service activities. There was significant variation in prior experience and academic background between students at the beginning of the course, and through writing assignments I was able to observe students' knowledge about ecological process expand throughout the semester. In addition, because students were not expected to simply memorize facts, the course provided more opportunities for students to engage in self-motivated learning. Furthermore, I believe that communication skills are especially important for young scientists, and student feedback indicated that the writing and presentation exercises provided opportunities to improve their ability to communicate and clearly articulate their thoughts and ideas.

The breadth of material covered in class allowed even the least experienced students to gain a broader perspective of what ecology is and what ecologists do. Meanwhile, the more ecologically experienced students were able to make new connections between methods and theory, and to extract commonalities between the various ecological topics examined in the class. Through reading a mixture of popular science and peer-reviewed articles, I think students were able to see how various forms of scientific communication share the goal of educating readers, but differ in their approaches. I also think that the service-learning activities had substantial impacts on how students see their ability to utilize their education to achieve their personal goals. Students were visibly proud of the effort they put into service projects and the work they did for the community. It is valuable for students to know how to apply the skills that they are learning in school to real world situations, and through community engagement activities students can be empowered to become active members of their community, if

not community leaders. Overall, the students expressed that they found the service-learning activities rewarding, especially when they were able to talk with the people who lead and ran community organizations. The reward was amplified when those community leaders expressed their sincere gratitude for the time and effort the students put into helping the organization achieve its goals.

As part of this course, I collected data from students about the value they saw in the service-learning activities, and if they thought the service-learning activities helped them learn and understand ecological concepts. There was an amplification of the importance that students saw in service-learning throughout the course. In the beginning students generally thought that service-learning was helpful to their learning about course concepts, but by the end of the course nearly all students thought that there were significant educational benefits to incorporating service-learning activities into courses. My take away from the data was many-fold. One, students want to apply what they learn in school to the world around them. Two, students think service-learning is not only fun, but has real educational benefits. Three, students want these experiences because, not only does service-learning make the course more interesting, it also allows them to build skills that are valuable in the workplace, and four, students greatly appreciate the time to bond with their classmates in a structured setting outside of the classroom, with a heightened sense of purpose.

Reflective Assessment

From my various experiences working with the community, I have developed strong feelings about the value that service-learning can have on the educational experience of students. My own service-learning experiences have helped me connect academic topics with real world applications, which have deepened my understanding of course material and increased my motivation to be a life-long learner. My experiences have shown me that trust between organizations needs to be established before difficult issues arise so that discussions between groups with disparate missions are respectful towards each other's concerns. This dialog is important so that progress can be made which benefits all groups, and so that mutual goals can be achieved. Also, my experiences have shown me that many valuable community organizations struggle to recruit enough to achieve their goals.

Designing Urban Landscape Ecology required me to reflect on what is at the core of a meaningful educational experience, and as a teacher I think a meaningful experience should transform the way we see the world, giving students a new lens through which they can view problems, and through which solutions are elucidated. Service-learning experiences can be transformative for students and have profound impacts on them as they develop into young professionals and become engaged members of their community. I think students had a more meaningful experience in the class because the course was designed to be writing intensive, where assessments were based on integrating course concepts and ecological observations, instead of one where learning is assessed with traditional testing. I also think the applied nature of the activities created longer-lasting impressions about how they see their role as environmental stewards in an increasingly

urban world. I also think that students learned tangible skills from the course that they will be able to utilize in many different situations.

This course employed many of the best practices for community engagement including addressing a community need, reciprocity between the organization and the student, and reflection writings of service activities where students internalized their experiences and explained how the activity supported concepts discussed in class. The writing assessments helped students develop their critical thinking and observation skills while asking them to express their understanding of concepts through open-ended writings. Students perceived the course very positively, I think, in part because they connected with community organizations that they were previously not even aware existed, and because their hard work was appreciated by the community. I hope the activities encourage the students to continue to participate with these organizations or similar organizations. I feel that community engagement is an important experience for students to have, both for its academic value as well as for its social benefit.

One aspect of the service project that surprised me was how much students' personalities shined and evolved during the service project. It was clear to me that some students who were not necessarily used to excelling in the classroom environment were nonetheless able to take leadership roles as the class worked together. I think students were able to see strengths of their classmates in situations outside of the classroom, and it was wonderful to see how students interacted with each other and worked together to achieve the goals of the project. Overall, the shared experience clearly brought the students closer together as a cohort, and this camaraderie carried over into the classroom and into subsequent service projects.

My goals in requiring a mini-grant proposal were to allow students to practice grant writing and public speaking skills, and to make them aware of funding opportunities for community projects. Both speaking and writing skills can empower students to become more engaged in their community by supporting the skills necessary to develop and fund projects on their own. My hope is that this activity fostered a desire in the students to become more engaged with their community. I think that there is a great need for engaged community members and for impassioned people to take substantive action to address the socio-ecological challenges present in the urban environment. Community engagement activities in my past motivated me to create this course and I hope these students continue to find ways to support the ecological and societal needs in an urban environment.

My professional goal is to teach at a liberal arts college or small university where I can focus on teaching while also conducting research with undergraduate students. Developing this course was a valuable component of my teaching portfolio and has given me an experience that graduate students rarely receive. I would like to teach a course very similar to this one at another university because it was extremely enjoyable and I think a similar course would be well received by students at other universities. Overall, the experience of designing and teaching this course has increased my desire to be an engaged educator, and increased my interest in the ecology of urban ecosystems.

The development and teaching of this course has positively impacted the way I approach teaching and course design and I believe it has also had positive impacts on students as well as the community. The benefits to myself include a unique networking opportunity, which allowed me to work with faculty in the UGA Graduate School, Office

of Service-Learning, Warnell School of Forestry, Franklin School of Arts and Sciences, and the Odum School of Ecology. The input I received helped me implement best practices in teaching and service-learning, and also made me aware of the challenges and time commitment necessary to incorporate service-learning opportunities into a course. This experience gave me an opportunity to reflect on what I think are the most important concepts I want students to learn about, and then required me to develop service activities that complemented those ideas. The experience required me to create novel course content, which I will continue to build upon in the future. The service-learning components of the course were also very valuable to me because, however difficult and challenging, it was exceedingly clear to me that the activities were valuable to the students. Ultimately, getting students engaged with their community to address real environmental issues was at the heart of this course, and I think it achieved that goal. The students overwhelmingly thought the service projects were beneficial to them, and I look forward to teaching a similar course in the future.

Curriculum Vitae

James L. Wood
Odum School of Ecology, University of Georgia

EDUCATION

Ph.D. University of Georgia (anticipated Spring 2017)

Odum School of Ecology

Academic Advisor: Dr. Mary Freeman

Dissertation Topic: *A landscape perspective of aquatic ecology in southern rivers*

Interdisciplinary Certificate in University Teaching, University of Georgia, 2016

M.S. University of Southern Illinois at Carbondale (2010)

Department of Plant Biology: Ecology

Academic Advisor: Dr. Dale Vitt

Thesis title: *Peatland Communities and Environmental Parameters in an Undisturbed Boreal Poor Fen and a Comparison with Haul Road Disturbance*

B.S. University of North Carolina at Asheville (2007)

Environmental Studies: Concentration in Aquatic Sciences

Biology: Concentration in General Biology

RESEARCH INTERESTS

- Plant ecology in terrestrial and aquatic systems
- Effects of environmental stressors on community composition and trophic interactions
- Impacts of urbanization and invasive species on ecosystem structure and function

COURSES TAUGHT

Urban Landscape Ecology (ECOL 3480), University of Georgia, Athens, GA

- A writing intensive, service-learning course for ecology majors and non-majors

Independent Research (ECOL 4960), University of Georgia, Athens, GA

- A research course focused on developing experimental design and scientific writing skills

Internship (ECOL 4940), University of Georgia, Athens, GA

- An experiential learning course focused on developing skills in field and laboratory methods

Directed Readings (ECOL 3900), University of Georgia, Athens, GA

- A guided review and discussion of topic specific literature and ecological theory

Principals of Biology II (BIOL 1108L), University of Georgia, Athens, GA

- Introduction to organismal biology for bio-majors, inquiry based & writing intensive

Ecology (ECOL 3500L, 3505L), University of Georgia, Athens, GA

- Introduction to ecology for life science majors, including honors students

Majors Biology II (BIOL 202), Olympic College, Bremerton, WA

- Organismal biology for biology majors

Plant Biology (BIOL 104), Olympic College, Poulsbo campus, WA

- Introduction to plant biology for non-biology majors

General Biology (BIOL 160), Olympic College, Bremerton & Poulsbo campus, WA

- Introduction to biology for non-biology majors

Majors Cellular Biology (BIOL 211), Lake Washington Institute of Technology, Kirkland, WA

- Introduction to cellular biology for biology majors

General Biology (PLB 115L), Southern Illinois University, Carbondale, IL

- Introduction to biology for non-biology majors

Plants and Society (PLB 117L), Southern Illinois University, Carbondale, IL

- Introduction to biology course that focused on plant human interactions

James L. Wood
Odum School of Ecology, University of Georgia

PUBLICATIONS (ACADEMIC)

- Wood, J., Pattillo, M.J. and Freeman, M. (2016) Organic matter retention and insect utilization of seasonally inundated bryophytes in a mid-order piedmont river, *Southeastern Naturalist*. 15(3) 403 – 414. doi: <http://dx.doi.org/10.1656/058.015.0303>
- Wood, J. and Freeman, M., “Ecology of the macrophyte *Podostemum ceratophyllum* Mich. (Hornleaf riverweed), a widespread foundation species of eastern North American rivers”. *Aquatic Botany (In Review)* 2016
- Wood, J., Freeman, M., and Skaggs, J., “Flow velocity regulates herbivory pressure on *Podostemum ceratophyllum*; A foundation species of eastern rivers”. Preparing for submission to *Ecology*
- Wood, J., Rosemond A., Kominoski J., and Wenger S., “Phosphorus limitation inhibits GPP but N+P availability controls autotrophic biomass”. Preparing for submission to *Hydrobiologia*
- Wood, J., Freeman, M., Loftis, K., Wenger, S., Skaggs, J., and Leasure, D., “Urbanization, elemental composition and heavy metal bioaccumulation in the widespread riverine macrophyte *Podostemum ceratophyllum*”. Preparing for submission to *Freshwater Science*
- Usher, R., Wood, J., Rosemond, A., Bumpers, P., “How do streams ‘work’ in cities: determining whether microbial metabolic rates are stimulated or suppressed by watershed urbanization”. Preparing for submission to *Hydrobiologia*

PUBLICATIONS (NON-ACADEMIC)

- *The Yellowthroat Newsletter, Voices of the Oconee Audubon Society* – Article describing the goals and objects of the creation of the bird and pollinator garden, supported by the Oconee River Audubon Society Conservation Grant (see *Teaching Grant* below), Oct. 2016
- *The Magical World of Moss Gardening* by A. Martin (Book), (Interviewed / Photo Citations), 2015
- *Mosses and Liverworts of Bloedel Reserve*, a self-guided tour (Educational Pamphlet), 2011

RESEARCH, TEACHING, AND MENTORING EXPERIENCE

- Community Outreach Coordinator**, *University of Georgia / EPA*, Athens, GA, 2016 – Present
- Currently coordinating an EPA – UGA citizen science outreach water quality program
- Undergraduate Mentor**, *University of Georgia*, Athens, GA, 2013 - Present
- Mentored five students in independent research resulting in publications and presentations
- Research Assistant**, *University of Georgia*, Athens, GA, 2012 – 2016
- Assisted with various research projects while completing PhD program
- Instructor**, *University of Georgia*, Athens, GA, Spring 2016
- Designed and co-instructed an undergraduate service-learning course on urban ecology
- Teaching Assistant**, *University of Georgia*, Athens, GA, Fall 2013 – Spring 2014
- Instructed laboratory courses in biology and ecology
- Adjunct Instructor**, *Olympic College*, Bremerton and Poulsbo Campuses, WA, 2011 – 2012
- Lectured and instructed biology labs for major and non-major students
- Adjunct Instructor**, *Lake Washington Institute of Technology*, Kirkland, WA, 2011
- Lectured and instructed labs in cell biology
- Teaching Assistant**, *Southern Illinois University*, Carbondale, IL, 2008 – 2010
- Instructed laboratory course in plant biology and general biology
- Research Consultant**, *Villanova University*, Villanova, PA, 2007
- Conducted community ecology research in boreal peatlands, Alberta, Canada

James L. Wood
Odum School of Ecology, University of Georgia

Research Technician, *University of North Carolina*, Asheville, NC, 2004 – 2005

- Collected hydrologic data on a wetland restoration project

CAMPUS AND COMMUNITY ENGAGEMENT

Volunteer, *Upper Oconee Watershed Network*, Athens, GA, 2012 – 2016

- Led water quality sampling groups in local streams with members of the community

Volunteer, *Stream Monitoring Information Exchange*, Western North Carolina, 2004 – 2016

- Led water quality sampling groups in stream in with members of the community

Coordinator for Invasive Species Removal Event, *Watershed UGA*, Athens, GA, 2015 – 2016

- Organized invasive plant species removal event as part of Dawg Day of Service for undergraduate student to participate in community service

Coordinator, *UGA Ecology Club and Athens Regional Medical Center*, Athens, GA, 2016

- Organized a community outreach event to prepare a site for a bird and pollinator garden

Undergraduate Grant Proposal Reviewer, *Society of Freshwater Science*, Athens, GA, 2016

- Reviewed grant applications for disadvantaged and underrepresented students requesting support to attend the annual Freshwater Science conference

Undergraduate Committee Graduate Student Representative, *Odum School of Ecology*, 2015

- Duties included reviewing undergraduate curriculum, certifications, and job postings for faculty positions

Principle Organizer and Coordinator, *Friends of Richmond Hill Park*, Asheville, NC, 2005 – 09

- Played a leading role in effort for the preservation of a forested city park and then formed partnership with an environmental non-profit to organize (Mountain True) conduct service days in the park with volunteers to remove invasive plants, authored a blog about the park which is now managed by Mountain True

Volunteer, *University of Washington Hyde Herbarium*, Seattle, WA, Oct. – Dec. 2010

- Collected plants from to help document biodiversity and maintain herbarium records

Coordinator, *Earth Day Celebration*, Asheville, NC, 2004

- Organized and coordinated the outreach and education activities on alternative fueled vehicles

TEACHING GRANTS AND AWARDS (AUTHORED / CO-AUTHORED)

- *Conservation Grant*: \$385 awarded by the Oconee Audubon Society to support the creation of a pollinator garden with students in the Urban Ecology course, 2016
- *Office of STEM Teaching Grant*: \$7,500 awarded by the University of Georgia for implementation of an undergraduate service-learning course called Urban Landscape Ecology, co-authors S. Wenger and K. Capps, 2015
- *Teaching Grant*: \$400 awarded by the Center for the Integration of Research, Teaching and Learning (CIRTL) for development of Watershed UGA teaching module, 2015
- *Conference Travel Grant*: \$1000 awarded by Science Education for New Civic Engagements and Responsibilities (SENCER) for support for attendance at national conference, 2015
- *Service-Learning Support Grant*: \$500 awarded by University of Georgia, Office of Service-Learning to support pedagogical training at the SENCER national conference, 2015
- *Teaching Grant*: \$400 awarded by CIRTL for support of attendance at SENCER national conference, 2015
- *Course Development Grant*: \$3,000 awarded by Watershed UGA for the development of a service-learning undergraduate course on urban ecology (as part of the Ray C. Anderson

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Foundation, Gray Notes Grant awarded to the River Basin Center to create a university-wide culture of sustainability for campus watersheds)

- *Outstanding Teaching Assistant*: awarded by the Department of Plant Biology, Southern Illinois University, 2010

RESEARCH GRANTS AND AWARDS

- *Best Student Presentation in Bryology*: \$500 awarded by the American Bryological and Lichenological Society (ABLS) at the annual Botany meeting, 2016
- *Student Travel Grant*: \$300 awarded by ABLS to support conference travel, 2016
- *Graduate Student Research Award*: \$1,152.50 awarded by New England Botanical Club, 2015
- *UGA Graduate School Travel Grant*: \$600 awarded to support conference travel, 2015
- *Odum Small Research Grant*: \$676 awarded by the Odum School of Ecology (OSE) to support dissertation research, 2015
- *Industry Grants*: Est. \$2,300 in research equipment from Liquidlogic Kayaks, Immersion Research, Werner Paddles, Snapdragon Designs, Astral Designs, 2013 – 2015
- *John Scarano Memorial Fellowship*: \$1,000 awarded by the Alliance of Hazardous Materials Professionals, Georgia Chapter, 2015
- *EPA National Aquatic Resource Survey Campus Research Challenge*: \$2,000 awarded to research heavy metal bioaccumulation in aquatic plants, 2014
- *UGA Graduate School Travel Grant*: \$400 awarded to support conference travel, 2014
- *Odum Small Research Grant*: \$900 awarded by OSE to support dissertation research, 2014
- *Boesel-Sanderson Fund Award*: \$600 awarded by the Society of Freshwater Scientists for research on natural history of aquatic organisms, 2014
- *Recruitment Grant*: \$3,000 awarded by OSE, 2012

CIVIC AWARDS

- *Environmental Activist Award*: \$1,000 awarded by *People Advocating Real Conservancy* for work at Richmond Hill Park, Asheville, NC to protect forests and wetlands, 2006
- *Thorn in the Side Award*: awarded by *Clean Water for North Carolina* for work on local water quality issues; documenting violations and engaging city council to improve enforcement, 2006
- *Eagle Scout Award*: awarded by *Boy Scouts of America*, 1999

RESEARCH PRESENTATIONS

- Wood, J., 2016. *Podostemum ceratophyllum, that weird plant that grows on rocks at the bottom of the river, what is it and what does it do?*, Upper Oconee River Policy and Science Summit, oral pres., Athens, GA.
- Wood, J., Skaggs, J. & Freeman, M., 2016. *Water velocity regulates herbivory pressure on a widespread riverine macrophyte*, oral pres., annual Botany meeting, oral pres., Savannah, GA
- Wood, J., Pattillo, M., & Freeman M., 2016. *Organic matter retention and insect utilization of seasonally inundated bryophytes in a mid-order piedmont river*, American Bryological and Lichenological Society, as part of the annual Botany meeting, oral pres., Savannah, GA
- Wood, J., Skaggs, J. & Freeman, M., 2016. *What if structure has more function than we realize? Water velocity regulates herbivory pressure on Podostemum ceratophyllum.*, Society of Freshwater Annual Conference, oral pres. Sacramento, CA
- Wood, J., 2016. *What if structure has more function than we realize?*, Odum School of Ecology, Graduate Student Symposium, oral pres., Athens, GA
- Wood, J., 2015. *Podostemum ceratophyllum: what is a torrenticolous macrophyte and what might*

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- we learn from it?* Association of Southeastern Biologists, oral pres., Chattanooga, TN
- Wood, J., 2015. *Podostemum ceratophyllum: what is a torrenticolous macrophyte and what might we learn from it?*, Odum School of Ecology, Graduate Student Symposium, oral pres., Athens, GA
 - Wood, J., Rosemond, A., & Kineck, K., 2014. *Autotrophic and heterotrophic response to nutrients and land use gradients in southeastern montane streams*, Joint Aquatic Science Meeting (Society of Freshwater Science), oral pres., Portland, OR
 - Wood, J., Rosemond, A., & Kineck, K., 2014. *Does land use affect autotrophic and heterotrophic processes in a southeastern montane landscape?*, Odum School of Ecology, Graduate Student Symposium, oral pres., Athens, GA
 - Wood, J., Rosemond, A., Sterling, J., & Wenger, S., 2013. *Macroinvertebrates in urban streams: negative relationships between impervious surface cover and macroinvertebrate biomass indicate reduced biotic function*, Georgia Water Resources Conference, oral pres., Athens, GA
 - Wood, J., & Rosemond, A., 2013. *Heterotrophic and autotrophic processes in southeastern montane streams across a gradient of dissolved inorganic nitrogen*, Odum School of Ecology, Graduate Student Symposium, oral pres., Athens, GA
 - Wood, J., Vitt, D., & Wieder, R. K., 2009. *Haul roads, Sphagnum and hydrology: how haul roads in peatlands may change community structure, hydrology and water chemistry*. Peatlands in the Global Carbon Cycle, 2nd International Symposium, poster pres., Prague, CZ
 - Educational display on peatland ecology. American Association for the Advancement of Science meeting, Chicago, IL 2009

PEDAGOGICAL PRESENTATION AND POSTERS

- Wood, J., 2016. *Urban Ecology and Student Perceptions of Ecosystem Health*, Center for the Integration of Research, Teaching and Learning (CIRTL), All-Network Teaching-as-Research Presentations, video linked presentation to all CIRTL online networks.
- Wood, J., 2016. *Examples of service-learning from an undergraduate course on urban ecology*, Ecostream Conference, biannual meeting, oral pres., Asheville, NC
- Wood, J., 2016. *Differences in Student Perceptions of Ecosystem Health*, Society of Freshwater Science, annual meeting, poster pres., Sacramento, CA
- Wood, J., 2015. *Student Perceptions of the Environment and Personal Responsibility*, University of Georgia STEM Institute on Teaching and Learning, annual meeting, poster pres., Athens, GA
- Wood, J., 2015. *Student Perceptions of Urbanization and Ecological Health*, Association of Southeastern Biologists annual meeting, poster pres., Chattanooga, TN

GUEST LECTURES

- *Guest Presentation on Peatland Ecology*, Wetland Ecology course, University of North Carolina, Asheville, NC, 2014
- *Guest Lecture on Dam Removal from US Rivers*, Aquatic Ecosystems course, University of Georgia, Athens, GA, 2014
- *Guest Lecture on Peatland Ecology*, Wetland Ecology course, University of North Carolina, Asheville, NC, 2012

INTERNATIONAL MEETINGS ATTENDANCE

- American Bryological and Lichenological Society (ABLS) in conjunction with the annual Botany meeting, Savannah, GA, 2016
- Society of Freshwater Science (SFS), annual meeting, Sacramento, CA, 2016

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- Joint Aquatic Science Meeting, in conjunction with the annual Society of Freshwater Science meeting, Portland, OR, 2014
- 2nd International Symposium on Peatland and the Global Carbon Cycle, Prague, CZ, 2009
- 4th International Meeting on the Biology of *Sphagnum*: AK, 2008

NATIONAL /REGIONAL/ STATE MEETING ATTENDANCE

- Upper Oconee River Policy and Science Summit, Athens, GA, 2016
- EcoStream Restoration, Asheville, NC, 2016
- Science Education for New Civic Engagements and Responsibilities, Southern Regional conference, Asheville, NC, 2015
- Association of Southeastern Biologists, Chattanooga, TN, 2015
- Science Education for New Civic Engagements and Responsibilities Summer Institute, 2014
- Georgia Water Resources Conference, Athens, GA, 2013

PROFESSIONAL SOCIETIES MEMBERSHIPS

- Southern Appalachian Botanical Society (SABS) 2017
- Society of Freshwater Scientists (SFS) 2013 – 2017
- American Biological and Lichenological Society (ABLS) 2011 – 2017
- Ecological Society of American (ESA) 2015

PROFESSIONAL DEVELOPMENT (WORKSHOPS AND COURSES)

- *Creating Effective Learning Communities in Teaching and Research* – Workshop sponsored by Center for the Integration of Research, Teaching and Learning (CIRTL), University of Georgia, UGA, 2016
- *Science Education for New Civic Engagements and Responsibilities Summer Institute*, – Workshop to develop active learning and civic outreach strategies, Worcester, MA, 2014
- *Approaches to Community Engagement* – a three credit graduate course about developing partnerships with community organizations to support student service-learning/outreach opportunities, UGA, 2014
- *Teaching Portfolio Development* – workshop sponsored by CIRTL, UGA, 2014
- *Incorporating Service Learning in the Large Undergraduate Classroom* – workshop sponsored by CIRTL, UGA, 2014
- *Pedagogy of Writing in the Disciplines* – a 3 credit course on the theory and practice of teaching scientific writing, UGA, 2013

RESEARCH PRESENTATIONS BY UNDERGRADUATE MENTEES

- Usher, R., Wood, J., & Rosemond, A., 2016. *How do streams 'work' in cities? Watershed urbanization increases stream water nutrients and promotes carbon loss*, Poster Presentation, Odum School of Ecology, Graduate Student Symposium (note: awarded 2nd best undergraduate presentation)
- Skaggs, J., Wood, J. & Freeman, M., 2016. *Podostemum, it's what's for dinner. Does crayfish herbivory impact standing stocks of Podostemum ceratophyllum?*, Poster Presentation (note: awarded 3rd best undergraduate presentation)
- Usher, R., Wood, J., & Rosemond, A., 2015. *How Rivers Breathe: Watershed urbanization impacts on carbon respiration*. Oral Presentation, Center for Undergraduate Research Office, Summer Fellowship Forum, Athens, GA. (note: awarded best presentation of the day)
- Patillo, M, Wood, J., & Freeman, M., 2015. *Investigating macroinvertebrate utilizations of*

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bryophytes in a mid-order piedmont river, Poster Presentation, Center for Undergraduate Research Office Symposium, Athens, GA

- Usher, R., Wood, J., & Rosemond, A., 2015. *How does land use affect water quality and benthic biofilms*, Oral Presentation, Center for Undergraduate Research Office Symposium, Athens, GA
- Usher, R., Wood, J., & Rosemond, A., 2015. *Benthic biofilm response to land use in the Oconee River basin*, Poster Presentation, Georgia Water Resource Conference, Athens, GA
- Usher, R., Wood, J., & Rosemond, A., 2015. *How does land use affect water quality and benthic biofilms in the Oconee River basin*, 2nd Annual Sustainability Science Symposium, Athens, GA
- Usher, R., Wood, J., & Rosemond, A., 2015. *Response of stream biofilms across an urbanization gradient*, Odum School of Ecology, Graduate Student Symposium, Athens, GA

Letter of Faculty Support



The University of Georgia

River Basin Center

28 March 2017

Dr. Paul Matthews
Office of Service Learning
University of Georgia

Dear Dr. Matthews:

It is my pleasure to offer my full support for James Wood's Graduate Portfolio in Community Engagement. Mr. Wood (soon to be Dr. Wood) developed the first undergraduate service learning course ever offered at the School of Ecology, with relatively minor assistance from Dr. Krista Capps and me. The course, Urban Landscape Ecology, involved three substantial service learning activities in the Athens community that simultaneously illustrated course concepts, engaged students in active learning, and built connections between the university and various facets of the Athens community.

The flagship event of the class was the establishment of a pollinator garden at the Athens Regional Medical Center (ARMC). Wood conceived the idea and proposed it to representatives of the ARMC, who embraced it enthusiastically. With Wood's guidance, students designed the garden, prepared the site, installed the plantings, and visited it periodically to observe its development. Students learned about pollination as a plant-animal mutualism, increased their understanding of the role of pollinators in developed landscapes, and gained an appreciation for the value of parks and other greenspace for human health and well-being. The service-learning activity was featured prominently on UGA's home page and was the subject of a video prepared by the university's communications office.

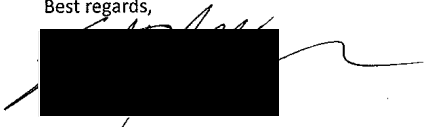
The student response to the service learning activities of the course was overwhelmingly positive. Wood captured detailed student feedback in a Qualtrics survey, which provides valuable assessment and guidance for future ecology service-learning courses. Many cited the pollinator garden activity as their favorite part of the class, and 100% of respondents said the service projects had stimulated their interest in pursuing further community volunteer opportunities. All of the students also agreed that the required reflection writings helped them to make connections between course concepts and the service learning activities, which is a sign of well-designed writing assignments. In general, the students found value in the heavy writing requirements of the course and noted that these helped them to make connections to real-world issues, as well as to improve their writing skills.

I was highly impressed with the work that Mr. Wood put into the course as a whole, and the service learning activities in particular. I especially appreciated his efforts to understand what worked and what

didn't in order to improve his effectiveness as an instructor of future service learning courses. Urban ecology is a field of study that demands community engagement if it is to be effective, but that doesn't mean it is always taught in that manner. Effective community engagement requires effort, talent and the right personality. Mr. Wood has demonstrated how it can be done well, and in the process has provided a valuable template for future courses at the Odum School of Ecology. He has also inspired me to expand my use of service learning in my own classes.

It has been my privilege to work with Mr. Woods and to play some small role in his growth as a scientist and an instructor. If I may offer any further evidence in support of his portfolio, please do not hesitate to contact me.

Best regards,

A handwritten signature in black ink is written over a solid black rectangular redaction box. The signature appears to be 'James Wood'.

Appendix A.
Letter of Support from Community Partner



LORAN SMITH CENTER FOR CANCER SUPPORT

October 24, 2016

To Whom it may Concern:


On behalf of Piedmont Athens Regional and the Loran Smith Center for Cancer Support, I wish to express support and appreciation for an outstanding service learning project led by James Wood, PhD Candidate in the Odom School of Ecology at the University of Georgia.

Mr. Wood saw an opportunity to serve our health system and neighborhood by improving our local ecosystem with the installation of a Bird and Pollinator Garden on our grounds. I serve as the Chair of our organization's Garden Planning Committee and worked closely with Mr. Wood as he developed his proposal and executed the project in the context of a class and in collaboration with Ecology Club volunteers.

The result has been resoundingly positive. The Bird and Pollinator Garden has brought a new softness, color and beauty to a relatively manicured landscape. More importantly, the project has engaged students' minds and hands for the betterment of our community. And finally, the garden's ultimate purpose is being achieved: our environment is a healthier place to support and propagate life's diversity.

We are grateful for this partnership initiated by Mr. Wood and are open to similar collaborations in the future.

Sincerely,


Manager, Cancer Support Services
Piedmont Athens Regional

Appendix B.
Course Description and Relevant Supporting Materials

Course Description

ECOL 3480: Urban Landscape Ecology: engaging communities to create sustainable ecosystems

Instructors: James Wood, Seth Wenger, and Krista Capps

Urban Landscape Ecology is designed to introduce undergraduate students to the effects of urbanization on the structure and function of terrestrial and aquatic ecosystems. This course will focus on the impacts of urbanization on ecosystems by engaging students in group discussion, directed readings, observational writings, service-learning activities, and guest lectures by experts and community leaders.

Student experiential learning is achieved through service-learning activities during which students work directly with community organizations to achieve a goal such as removing invasive-exotic species from a park, or collecting ecological data. Service-learning activities are integrated into the course through reflective writings, where students will integrate the goals of the activity with ecological concepts discussed in class and reflect on their actions to achieve the goals of the project. Service-learning activities include bird counts, water quality sampling, and invasive species removal. Reflective writing fosters deep conceptual learning by connecting theoretical concepts discussed in class with direct action and participation. Core conceptual topics will be taught in class through student-led group discussion of readings, and guest speakers.

Syllabus

Course: Urban Landscape Ecology: engaging communities to create sustainable ecosystems

Class times: Mondays and Wednesdays, 2:30pm – 3:45pm

Classroom: 117 Ecology Building

Credit Hours: 3

Course number: ECOL 3480

Instructors: James Wood, Krista Capps, Seth Wenger

Grading: A-F

Text (optional): Urban Ecology (Ecological Reviews) 2010 by Kevin J. Gaston **ISBN-13:** 978-0521743495

Course objectives:

- 1) Educate students about the ecological issues in urbanized environments
- 2) Foster deep learning and critical thinking about the complex issue of urban ecosystem health
- 3) Improve students' writing and critical observational skills
- 4) Engage students with community groups active in citizen science / community service

The course syllabus is a general plan for the course; deviations announced to the class by the instructor may be necessary

Topics to be Covered in this Class

1. Outreach in Urbanized Landscapes

- What is the role of citizen science and civic groups in monitoring, maintaining and improving urban ecosystems
- What does it mean to participate in citizen science / service-learning activities
- Community engagement and mini-grant writing

2. Aquatic and Terrestrial Ecology

- How are terrestrial and aquatic ecosystems impacted by urbanization
- What is the difference between ecosystem structure and function and what are ecosystem services
- What impact do disturbances (climate change, fragmentation, urbanization/agriculture) have on wildlife community composition and ecosystem function
- How are invasive species influencing habitat change
- Economics and ecological health
- What is habitat restoration in a changing world and does restoration work

Content Learning Objectives

1. Have knowledge of how urban environments impact plants, animals and water quality in the environment and be able to give several examples of how urbanization influences plants, animals and environmental quality.
2. Be able to define and be able to discuss what ecosystem services are and how urban areas influence the provisioning of these services.
3. Be able to discuss how community organizations play an active role in managing and monitoring the urban environment know how to design and implement small projects.

Skill Based Learning Objectives

1. Identify common invasive exotic plants such as English Ivy (*Hetera helix*), Chinese Privet (*Ligustrum sinense*), Bush Honey Suckle (*Linocera maackii*), Vine Honey Suckle (*Lonicera japonica*), Wintercreeper (*Euonymus fortunei*), Heavenly Bamboo (*Nandina domestica*), etc.
2. Identify species of birds commonly seen in Athens-Clarke County.
3. Improve writing and observational skills.
4. Be able to give a professional presentation that demonstrates an understanding of how urbanization impacts ecosystems and propose a realistic project that improves an urban ecosystem (i.e. increases native biodiversity, wildlife habitat, or water quality).

Assignments and Points

Low-stakes assignments:

Sit Spot Writings (10 pts x 10 writings, 5 in each habitat type)

Weekly Quizzes (10 pts x 12 “quizzes”, lowest 2 are dropped)

Total: 200 points

Mid-stakes assignments:

Reflective Writings of Service Learning (25 pts x 2 writings)

Presentation of Mini-Grant (25pts)

Total: 75 points

High-stakes assignments:

Mini-Grant writing and Peer Review (Draft 20 pts, Peer Review 20 pts, and
Finalized Grant Proposal 60 pts)

Total: 100 points

Participation:

Classroom attendance and participation (20 pts)

(more than 3 absences results in a failing grade for the course)

Service-Learning attendance and participation (20 pts x 3 activities)

Total: 80

Total Class Points: 455 points

Calendar and Presentation Schedule for Urban Landscape Ecology		
Spring 2016		
<i>The course syllabus is a general plan for the course; deviations announced to the class by the instructor may be necessary</i>		
Date	Presenter	Topic
Jan. 11	James Wood	Introduction to course, survey, expectations, sit-spots, discussion of scale
Jan. 13	James Wood	Finding sit-spots and sit-spot writings, register with CUB, lecture chapter 1-3 (intro to urbanization)
Jan. 18	MLK Service Day – No Class	MLK Service Day– No Class Optional (Service with Ecology Club)
Jan. 20	James Wood / NHM Staff	Urban bird workshop at museum
Jan. 25	Richard Hall (post doc Lee)	Impacts of urbanization on birds
Jan. 27	Richard Hall	Bird walk on campus
Feb. 1	Sonia Hernandez	Impacts of pets on urban wildlife
Feb. 3	Dan Becker	Habitat quality and disease in urban wildlife (possibly bats too)
Feb. 8	Sarah Bowden Paul Mathews	Socio-economics, mosquitoes and disease Service-learning and reflection writings
Feb. 10	Ania Majewska	Planning a pollinator garden
Feb. 15	James Wood	Monarch butterflies and pollinators
Feb. 17	James Wood	Invasive species
Feb. 20 Install Pollinator Garden in Athens Regional		
Feb. 22	No class	No class
Feb. 24	Cecilia Sanchez	Impacts of land use on bats
Feb. 29	Kim Andrews Lab	Beach ecosystems
Mar. 2	Kim Andrews Lab	Beach ecosystems
Mar. 7	Spring Break	Spring Break
Mar. 9	Spring Break	Spring Break

Mar. 14	Rhett Jackson	Past land use and fluvial morphology Trip to Whitehall Forest
Mar. 16	David Leigh	Past land use and fluvial morphology Trip to Lilly Branch
March 19 th Invasive Species Removal Activity Rain date: March 26 th		
Mar. 21	Krista Capps	Coupled-natural and human dynamics in urban streams in the developing world
Mar. 23	P. Bumpers, James Wood	UOWN what it is and what they do Bug ID workshop
Mar. 28	No class	No class
Mar. 30	Seth Wenger	Urban stream syndrome
April 2 nd Stream Sampling with UOWN		
Apr. 4	No class	No class
Apr. 6	No class	No class
Apr. 11	Katie Hill Kyle Mckay	Water Quality Policy, Management, and the Clean Water Act
Apr. 13	Wes Flynn Andy Davis	Amphibians in urban areas Waste water treatment
Apr. 18	JP Schmitt	Plant responses to urbanization
Apr. 20	Jeff Minuchi	Terrestrial ecosystems
Apr. 25	James Wood	Peer reviews of proposals
Apr. 27	James Wood	Visit pollinator garden to see if it is working
May 2	James Wood	Arts activity – Make educational signs for the hospital to post around the hospital
Exam Day	James Wood	Presentations of mini-grant proposals