Radford University
Institutional Mission Statement

As a mid-sized, comprehensive public institution dedicated to the creation and dissemination of knowledge, **Radford University empowers students from diverse backgrounds by providing transformative educational experiences, from the baccalaureate to the doctoral level, within and beyond the classroom.** As an inclusive university community, we specialize in cultivating relationships among students, faculty, staff, alumni and other partners, and in providing a culture of service, support and engagement. We embrace innovation and tradition and instill students with purpose and the ability to think creatively and critically. We provide an educational environment and the tools to address the social, economic and environmental issues confronting our region, nation, and the world.
Summary of Accomplishments

Dr. Jeremy Wojdak (pronounced “whoa-jack”), Professor of Biology at Radford University, demonstrates how inspirational teaching, outstanding disciplinary research, knowledge integration, and student-focused institutional and community service can be forged to support the mission of a university. The coherent theme running through all of his professional activities is identifying effective strategies that help students learn, and then scaling those strategies to affect as many students as possible - within his class, university, or community, or across the country.

As Dr. Orion Rogers, Dean of Radford’s Artis College of Science and Technology describes, “He has positively impacted the lives of hundreds of students directly who have had the privilege of learning from him in courses and in ecological research experiences. In the fifteen years that he has been a faculty member here at Radford, Dr. Jeremy Wojdak has achieved extraordinary success in teaching, research and service, and he embodies the ideals of scholarly endeavors described in Boyer’s Scholarship Reconsidered.” In recognition, Dr. Wojdak was selected as a Finalist in the 2017, 2018, and 2019 State Council of Higher Education for Virginia’s Outstanding Faculty Award programs. Since last year, he was chosen as a Radford University Dalton Eminent Scholar - a university-level award for creative scholarship - and awarded his ninth National Science Foundation grant. Examples of how Dr. Wojdak’s passion for student success translates to action are described below.

Teaching

In an era when every student has the equivalent of a 1990’s supercomputer and the Library of Alexandria in their pocket, the role of instructor can’t just be to serve up information. Instead, Dr. Wojdak sees that his role is to guide students to determine what questions are worth asking and what problems are worth solving, and to teach skills most relevant for careers that will span almost inconceivable changes in technology.

Instruction: Given these realities, and Radford University’s mission to “instill students with purpose and the ability to think creatively and critically”, Dr. Wojdak continually challenges his students with interdisciplinary, open-ended, relevant problems. He then provides the tools and support students need to succeed in solving those problems. The result is a positive feedback loop, where students believe they can succeed, work hard to solve tough problems, and become even more motivated to seek out the next challenge. As former student Dan Metz describes, “Jeremy is a perennial favorite among students for his teaching style. Rather than force rote memorization and regurgitation, he emphasizes understanding and synthesis. A trademark of his style is guided discussion, where he allows students to work through difficult concepts in class using information learned earlier in the course. The lab sections of his courses are also well-managed, favoring student engagement and critical thinking over color-by-numbers handout instruction. As I prepare to lead my own courses, I am consciously emulating Jeremy and his student-centric teaching philosophy.”

In recognition of his effective instruction, Dr. Wojdak was nominated for the Radford University Distinguished Teaching Award, and five times for the Radford University Creative Scholar Award that recognizes integration of research and teaching. Fred Singer, Professor Emeritus in Biology at Radford University, captured his contributions with these words, “Dr. Wojdak has been a superb educator and scholar, who has set high standards in scholarship for his student and faculty colleagues.”

Student development and learning - department-level: The world is now inundated with data - yet even as a big box hardware chain can evaluate a sale display in real-time using customer cell phone location data, and a medical researchers can screen a patient’s entire genome to develop an individualized treatment plan, undergraduate students are often taught content and by methods that their grandparents would recognize. Few students will be programmers or data scientists, but Dr. Wojdak believes that everyone will need the ability to
derive understanding from data. However, internal assessment revealed Radford Biology students were learning content well, but lagging behind their peers at other institutions in quantitative reasoning. In response, Dr. Wojdak co-led an effort to increase the rigor and relevance of the quantitative skills taught to biology students at Radford University (funded by the National Science Foundation, ~$200,000). With several colleagues in Biology and Math & Statistics, Dr. Wojdak helped design Math4Biology and Stats4Biology courses required of all biology majors, which set the important skills and concepts in realistic disciplinary contexts. Thereafter, quantitative skills were also integrated in biology courses across the entire curriculum.

**College-level:** Radford University constructed a stormwater remediation wetland as an engineering solution to the pollution running off student parking lots and into the New River. Dr. Wojdak saw this as a compelling opportunity for learning. Along with several colleagues, he involved students in Biology, Chemistry, Geology, and Geography in the study of the wetland’s efficacy (funded by the National Science Foundation, ~$140,000). Students’ personal contribution to the problem provided all the motivation needed; they eagerly launched into original research in their courses, studying hydrogeology, the movement and fate of chemical contaminants, and the responses of the biota to the hydrochemical regimes. Students shared data across courses and semesters via a web repository, and presented their work at annual interdisciplinary Wetland Research Forums. Student research projects mirrored those performed by state agencies and environmental consulting firms, and even provided formative feedback for the project engineers to improve maintenance of the wetland. The student projects required critical thinking, deep analysis of rich multidisciplinary datasets, and realistic project management skills, preparing them for careers in government or industry. Both this project and the quantitative biology curriculum reform project are examples where Dr. Wojdak scaled his effective classroom strategies to benefit every biology major at Radford University, and many students in other disciplines as well.

**University-level:** Radford University aspires to be “an inclusive university community...providing a culture of service, support and engagement.” Aligned with that mission, Dr. Wojdak and several colleagues launched the truly audacious Realising Inclusive Science Excellence program (REALISE) in 2017. The goal is no less than transforming Radford University into a student-centered campus that reduces barriers for all students, and one that graduates many more students from diverse backgrounds. Specifically, REALISE is working to better train faculty in evidenced-based pedagogies, reform first and second year “gatekeeper” courses where many students are lost from the science pipeline, and establish a student peer-mentoring program. In sum, REALISE is meant to provide any student willing to work hard a plausible route to success through the rigorous curriculum. These students include those from under-resourced school districts, first-generation students, underrepresented minority students, veterans, community-college transfer students, and socioeconomically disadvantaged students. Imagined visually, the plan is to need several more rows of seats at commencement each semester, not because of growing enrollment or lowered standards but because of greater student persistence and success. REALISE was funded by an extraordinarily competitive Inclusive Excellence grant of $1,000,000 from the Howard Hughes Medical Institute; Radford University was one of only 24 institutions awarded this five year grant out of >500 that applied nationally in 2017.

**Discovery**

In his scientific disciplinary research, Dr. Wojdak studies the interactions among species in the ponds, lakes, streams, and rivers that dot the Virginia landscape, and beyond. More specifically, he works to understand the impacts predators can have on their prey, and parasites can have on their hosts. What makes this particularly challenging is that ecosystems of interacting
species share a feature with many other complex systems – they have “emergent properties”. That is, some properties of an ecosystem, automobile, or corporate project team only emerge after the parts are assembled and begin interacting. A selection of great components can sometimes make a terrible car, and a group of talented employees can sometimes make a terrible project team. Human interactions with natural ecosystems add and delete species from particular habitats all the time, and the central question is whether the services that ecosystems provide to us (e.g., game and wildlife, forestry products, clean air and water, erosion control) will be maintained. By analogy, Dr. Wojdak works to understand whether our ecological “cars” will remain functional if some parts fall off! Evidence of Dr. Wojdak’s superior achievements in discovery research that further Radford University’s mission to “provide an educational environment and the tools to address the social, economic and environmental issues confronting our region, nation and the world” is below.

**Scholarly activities:** Dr. Wojdak partnered with researchers from Boston University, Virginia Commonwealth University, and the Smithsonian Tropical Research Institute in Panama, in a project funded by the National Science Foundation to study interactions between the charismatic red-eyed treefrog (see pictures below) and its predators. These treefrogs have the remarkable ability to sense and respond to dangerous predators while still in their eggs, and will spontaneously hatch up to 33% early to avoid being eaten. After they arrive in the aquatic environment, essentially as “preemies”, they face other predators to which they are now more susceptible because of their incomplete development. Such life-history trade-offs that balance current versus future survival, growth, and reproduction, are fundamental tipping points for every species, and as such, critically important to understand. A Radford University undergraduate (Beth Meyer) traveled with Dr. Wojdak to work in Panama for five months. Living in another culture, in a tropical rainforest, collaborating with experts from around the world, and taking research from field to publication was a life-transforming experience for student and faculty alike!

As Beth described, “Jeremy gave me the opportunity of a lifetime.”

One predator species can make another more or less deadly – imagine a smallmouth bass chasing minnows into the shallows of a river, where a hungry heron waits. With dozens of predator species and such interdependent emergent interactions, predicting the outcome for prey populations is a real challenge. Dr. Wojdak launched a new collaboration in 2016 with faculty at Virginia Commonwealth University, East Carolina University, and McMaster University (funded by the National Science Foundation for ~$950,000) to use field surveys, experiments, and mathematical models to study how variation in which predator species are present in an area affects their shared prey populations. Undergraduate and graduate students are involved in all aspects of the work, including field studies focused on rock pools along the James River in Richmond, VA. The urban setting of the field sites also permits the team to integrate many students from city high schools, broadening participation in real discovery research.

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**Left to right:** The red-eyed treefrog. A snake attacking treefrog eggs, with an egg spontaneously hatching to escape (arrow). The research team trying to better identify with their study organism at a lab picnic!
Scholarly works: Overall, Dr. Wojdak has published 28 articles in a wide variety of international peer-reviewed journals, is widely cited (>650 other publications point to his work), and his research has been recognized for its novelty and utility. In fact, he publishes nearly four times the national rate among natural sciences faculty at primarily undergraduate institutions (~2 papers per year, vs. national average of ~0.5 papers per year, Academic Excellence: The Sourcebook, 2001). Dr. Wojdak has presented or co-authored 42 presentations at national and regional scientific conferences over just the last five years. In recognition of the breadth and impact of his scholarship, Dr. Wojdak received the Radford University Dalton Eminent Scholar award this year, including its $10,000 research grant and $5000 monetary award.

Dr. Wojdak's research program is outsized for a primarily undergraduate, teaching-focused institution like Radford University. One clear metric of value, whether you are a professor, artist, or entrepreneur, is the ability to convince others that your work is worth investing in. Dr. Wojdak’s ability to recruit funding (~$6,700,000 in co-authored external grants) is truly exceptional for his institution type. To put his funding success into perspective, Dr. Wojdak has been a principal investigator on eight out of the 14 National Science Foundation research grant awards to his college since he started in 2004. He received two out of the four major disciplinary research (i.e. non-education focused) awards. Given that there are ~100 full-time faculty members in the college, having one faculty member garner a majority of an institution’s national science research funding is truly remarkable. Fred Singer, Professor Emeritus in Biology at Radford University, captured it this way, “In fact, most RU science faculty members are never funded by NSF at any time in their entire scientific career. Dr. Wojdak’s accomplishments are simply extraordinary.”

Grant dollars are easy to quantify, but less obvious are the opportunities that grants represent for real people. Dr. Wojdak has offered dozens of paid summer research opportunities for students that would otherwise be working minimum wage jobs to save for next semester’s tuition. He has funded student lab technicians, graduate students and postdoctoral researchers, and K-12 science outreach events that bring teachers, students, community members, and the university together to show young students a path towards college. Providing accessible opportunities for students has always been a priority for Dr. Wojdak, and his project choices always reflect that commitment to training the next generation of scientists.

Accordingly, Dr. Wojdak has mentored many Radford University students (>30) and undergraduate and graduate students (>25) at other universities (e.g., Virginia Tech, the College of William and Mary, U. of North Carolina, U. of Maine, Eckerd College) in research partnerships. All of these students gained experience in field and lab research, scientific communication, and learned how to collaborate across institutions and disciplines. As Daniel Metz, a Radford Biology graduate said, “His outstanding mentorship was directly responsible for the trajectory of my budding career as a scientist. Had it not been for his guidance in molding several dimensions of my education—from experimental design, to mathematical applications, to the importance of collaboration—I would never have been prepared for a graduate education in oceanography.” Moreover, student authorship of original research and inclusive research teams are emphases for Dr. Wojdak. He has published 10 papers that include 16 undergraduate co-authors, four of whom were underrepresented minorities and 14 were women. Dr. Wojdak’s student researchers present at national scientific conferences and most move on to graduate or professional school.

Integration of Knowledge

Dr. Wojdak is pushing the leading edge of national science education by reforming how faculty teach and how they learn to teach. Historically, university faculty teach in relative isolation,
divorced from the collective wisdom of their peers, whether those peers are down the hall or across the country. By leveraging technology, Dr. Wojdak is helping to melt these divides, so instructors can approach their teaching as a science, where alternatives are evaluated, data informs instructional decisions, and best practices are reached through iterative reform and collaboration with peers. By improving the classroom instruction of hundreds of faculty members across the country, Dr. Wojdak is impacting exponentially more students than he could ever directly teach himself, and supporting Radford University’s vision as a "public institution dedicated to the creation and dissemination of knowledge”.

**Curriculum development in interdisciplinary contexts:** Biology is increasingly a data-driven field because of the emergence of genomics and the inherent complexity of pressing environmental problems like species invasion, disease emergence, and changing human land use. Unfortunately, the biology curricula at most universities have not kept pace, and students are often poorly prepared for the quantitative reasoning required post-graduation. Dr. Wojdak and collaborators created a project called *Quantitative Undergraduate Biology Education and Synthesis* (QUBES) in response, to change the national landscape of undergraduate biology education by better preparing faculty to teach quantitative skills to their students (funded by the National Science Foundation: >$3,300,000). QUBES is now a virtual center ([https://qubeshub.org/](https://qubeshub.org/)) that brings together educators and students from across the country (>9100 registered members) around best practices in science and math education. More than 1200 open educational resources are currently being shared. Moreover, Dr. Wojdak conceived of a novel, geographically-distributed, "faculty mentoring network" development model in which faculty work on specific topics of common interest in semester-long collaborations. More than 50 networks have engaged with >550 faculty around the country (see map), some partnering with prestigious scientific professional societies (e.g., Ecological Society of America), and leaders in science education (e.g., Howard Hughes Medical Institute). Dr. Wojdak also leads yearly “bridge” programs that prepare emerging faculty leaders to run their own mentoring networks, on topics ranging from math modeling in K-12, to data science, to computational genomics, and many more. All told, Dr. Wojdak’s integration of teaching acumen and scholarly research around teaching is influencing the education of many thousands of students from high schools to community colleges to research universities.

Besides the online interactions that Dr. Wojdak facilitates through QUBES, he has organized a wide variety of national in-person faculty development workshops to help faculty improve their own instruction. For example, for the last four years QUBES has partnered with leaders like the National Academies, the BioQUEST Curriculum Consortium (a national non-profit) and the Howard Hughes Medical Institute to host five-day workshops for >100 attendees at a time. National leaders in science/math education presented plenary talks, faculty learned new approaches to instruction via active workshops, and new QUBES faculty mentoring networks launched from the workshops. Similarly, Dr. Wojdak teamed with national leaders and the Council for Undergraduate Research to host a workshop in 2016 to promote embedding authentic undergraduate research in courses at a meeting hosted by the National Science Foundation and American Association for the Advancement of Science.

**Meaningful connections between discovery and teaching:** Dr. Wojdak’s research and teaching are again integrated in his *Analyzing Images to learn Mathematics and Statistics (AIMS)* project, funded by the National Science Foundation (~$140,000). AIMS uses the stories of real biological researchers to engage students, then presents sets of fascinating images and videos...
from which students can collect their own, novel data using computer image analysis. The goal is to help students learn the math they need to succeed during and after college, by connecting the quantitative skills to relevant, interesting biological problems they care about. The four learning modules, including one stemming from Dr. Wojdak’s ecological research in Panama, and one that builds digital 3D reconstructions of breast cancer tissue to discern malignant tumors, are being shared nationally. Lisa Belden, Professor of Biology at Virginia Tech, described how Dr. Wojdak’s research and teaching benefit each other: “The opportunity to complete research in Panama and live at that world-renowned research station for several months provided Jeremy with new perspectives and insights for the teaching of his Tropical Field Biology course. So, this NSF-funded activity strengthened both his research and his teaching. In addition, he used his research experience in Panama as a launch pad for furthering another pedagogical project (AIMS).”

Even more recently, Dr. Wojdak was funded by the National Science Foundation (~$300,000) to launch the Biology undergraduate Math Anxiety and Attitudes Program (BIOMAAP). BIOMAAP provides faculty with activities that help students who fear math, think of themselves as “not good at math”, or don’t yet appreciate how important math is for their careers. The intent is to take the best ideas from the literature on student success, growth mindset, anxiety reduction, and metacognition and make them actionable for busy faculty, and helpful for students across the country. And just this fall Dr. Wojdak was funded again by the NSF (~$75,000) to convene a national research coordination network focusing on promoting open educational practices and lowering barriers to equitable access to high quality learning materials.

Service

Dr. Wojdak has a record of providing exceptional service dedicated to Radford University’s mission to “provide an educational environment and the tools to address the social, economic and environmental issues confronting our region, nation and the world”. The distinctions between service and other aspects of Boyer’s scholarship are often blurry, and much of what Dr. Wojdak has contributed to his university, community, and profession has been described above. Several more examples of his service are described below.

Service to the Institution: Dr. Wojdak spearheaded an initiative among Biology, Chemistry, Physics, Marketing, Management, Design and other disciplines to provide rich, real-world experiences for students to foster a passion for problem-solving, innovation, and entrepreneurship. In action this initiative can take the form of students 3D printing custom scientific equipment for research projects, collaborating to build a “tiny house” that meets sustainability goals, or using technology to create artwork. In service of that initiative, Dr. Wojdak led the push for Radford University’s first interdisciplinary “makerspace”, designed for prototyping digital and physical products. Dr. Wojdak mentored the work-study student staff for several years, and supported undergraduate research, courses, and a residential learning community focused on making and innovation. In that learning community, new freshmen from diverse majors live together, participate in a series of hands-on workshops, take common coursework, and tackle collaborative projects. Dr. Wojdak has also served on countless committees, including those making recommendations on undergraduate education reform across the university.

Service to Community & Society: Dr. Wojdak has led numerous outreach events for school children, including several robotics competitions explicitly meant to encourage children that don’t think of themselves as good at science, math, or technology (yet!). Jennifer Eller, middle and high school teacher, commented on the impact of just the first event: “You may have initially thought that you were bringing one event to Radford City Schools, but that has blossomed into a huge spectrum of opportunities for our students.”

Service to the profession: Beyond his home institution, Dr. Wojdak regularly serves as a panelist and proposal reviewer for the National Science Foundation, has reviewed dozens of manuscripts for >20 international scientific journals, and serves as an editor for the journal Letters in Biomathematics and on graduate student committees.
Personal Statement

Kurt Vonnegut wrote a short story called "Slice of Life", in which the protagonist stumbles into a university lecture hall, finding a professor giving an animated lecture to an empty room. She comments "...there isn't anybody else here to listen." He responds with assurance, "The important thing is that the lecture is here. The spring is flowing. The thirsty may drink."

I think many professors might sheepishly recognize a bit of themselves in that story, and I certainly do. I look back over my early time at Radford University with equal parts regret and pride. The regret is for the stubborn approach to teaching I started with, an approach Vonnegut would recognize, where I would bring the knowledge and expect students to bring the interest, motivation, and discipline. The pride stems from how I have changed my perspective on where the responsibility for learning lies, and changed my practice to match. It may seem strange to start a personal statement for a faculty award by admitting a rocky beginning, but I suspect many readers will understand. Faculty almost all begin ill-prepared to teach, having been instead trained as specialists in their disciplines. The idea that one is either born a great teacher or not, rather than learning effective teaching through trial, effort, and iteration, is particularly paradoxical given a job that is all about helping other people learn through effort.

My approach to teaching evolved most rapidly because of two sets of experiences: organizing outreach events for K-12 students, and mentoring undergraduates in independent research. Those interactions, with younger children before they get to college, and with college students in informal learning environments, transformed my understanding of the role of the learner and the teacher.

Young children are almost universally curious, investigative, willing to take risks and naturally act as scientists - trying, testing, and observing. For example, when we organized robotics events for middle schoolers, our biggest problem was slowing them down - keeping them from short circuiting batteries, burning out motors, or (literally) hot gluing their technology teacher to electrical components. They didn’t hesitate to jump in, try things, experiment, create, and they were willing to fail. This is not news to young parents, or elementary and middle school teachers, but the disconnect between the love of learning in young children and the recalcitrant stone-faced audience facing me in the university lecture hall was puzzling, at first. I soon realized my students didn’t lack that same intellectual curiosity, it had been driven from them!

I noticed the same phenomenon when I worked with undergraduates on independent research projects. The same students that were lifeless in lecture would be overflowing with enthusiasm, questions, and action when challenged with an interesting scientific problem. We all like to tackle tasks that we find relevant, and when we have some realistic opportunity to succeed. Given these revelations, I quickly changed my classroom instruction from top to bottom. As much as possible, I started embedding meaningful research projects into courses. I frame course content around particular problems or case studies. I leave the inquiry as open as possible, so students had opportunities to discover concepts, make their own hypotheses, derive novel analyses, all themselves. That transformation in teaching practice has made me a much more effective teacher, and has allowed me to enjoy teaching even more.
Two specific examples might help illustrate my transformation. First, to bring genuine scientific research into a course, I developed a study abroad program to the U.S. Virgin Islands National Park on St. John. Besides the obvious pleasantries of being in the Caribbean in March, this is where I see my philosophy of instruction verified time and again. At first, the vision of a tropical paradise melts away as students struggle up steep, rocky trails under the intense sun, get torn apart by thorny vegetation, or exhaust themselves with hours of snorkeling in the ocean. One student described the early part of the week as "Jeremy's biology boot camp" – it certainly isn’t boot camp, but it can be a wakeup call to the rigors of fieldwork. After several days of exploration, students are then challenged to identify a meaningful research project they can complete in the last four days of our trip. The limitations are stark - we have very little equipment and time, and are restricted on what we can do in a protected park. Yet the quality and scope of the research accomplished by students over just a single week in the Caribbean has been stunning; two course projects have been published in peer-reviewed scientific journals. Put another way, students still working their way through their undergraduate degrees added significant new knowledge to our collective understanding of how the world works - that is a win-win proposition! Moreover, the research that these students conduct often transforms their outlook on science and their careers. As Beth Meyer, a study abroad student said, "Jeremy’s willingness to teach critical thinking, foundational elements of Biology, and provide opportunities for success has played an instrumental role in where my career is to this day."

It was in fact these results that led me to try to find ways to bring some of that "tropical experience" to the vast majority of students who will not have the opportunity to study abroad or to engage in undergraduate research outside of their courses. For example, in my introductory biology courses I now present students with background information and a set of images and videos of leaf-cutter ants foraging in the rainforests of Panama. I took these images during my own research there, and use narrative videos to help students imagine being in the rainforest themselves. We talk about how the ants forage for leaves and bring them back to the nest to fuel their fungus farms. Then, students are challenged to identify hypotheses they could test by measuring aspects of the ants’ bodies and movements and the leaves they are carrying, using computer image analysis. Students can literally discover something that no one on earth knows yet - it might be something small, about how one species finds its food in the jungles of Central America, but it is true knowledge discovery. Students know the difference between rote memorization and investigation. By setting our lesson in a real context, by providing students some freedom and creativity of thought, our lesson changes from a mundane, follow-the-recipe lab to real scientific exploration. I’ve been amazed to see how much of a difference an open-inquiry approach to instruction can make, and it has been rewarding to share these materials and approaches with other faculty locally and nationally (i.e. via the AIMS project, described above in the integration of knowledge section).

High quality undergraduate education is the primary mission of my institution. But it honestly wasn’t until I wrote this statement that I realized how directly the other arms of Boyer’s scholarship, service (e.g., K-12 outreach events) and knowledge discovery (e.g., research with undergraduates) have shaped my classroom teaching. Real lines don’t exist between my discovery research in science education and ecology, integrating that knowledge into teaching, and my service bringing interdisciplinary learning projects to life on campus and beyond. It really is just one job - trying to find ways to help more students get to and succeed in college, where success is more than just retention or graduation, but leaving college with the skills and ambition to act in the world, and to think as scientists.
Abbreviated Curriculum Vitae

Academic positions:
Radford University, Department of Biology
Professor (2015-present), Associate Professor (2010-15), Assistant Professor (2004-10).

Education:
BS  1997  Bowling Green State University  Biology.

Teaching and Mentoring:
Courses Taught  Analysis of Biological Data, Environmental Toxicology, Parasitology, Tropical Field Biology (study abroad course), Ecology, Environmental Biology, Principles of Biology, Ecology and Adaptation, Freshman Seminar, Senior Seminar, Scientific Illustration.

Graduate Committees
- Skylar Hopkins, PhD, Biological Sciences, Virginia Tech (2012-2017).
- Chenhua Li, MS, Biology, University of Manitoba (2016-2017).

Selected Publications (* indicates undergraduate student, total = 28):

Wojdak JM. 2005. Top-down, bottom-up, and consumer species richness effects on ecosystems: context dependency and relative effect strengths. *Ecological Monographs* 75:489-504. *(chosen as a "Must Read" by the prestigious "Faculty of 1000" post-publication review - the findings were judged "remarkable", put into question commonly held beliefs regarding the consequences of species extinctions for ecosystems, and the approach was judged to be critical for future studies to emulate.)*

**Selected Presentation Venues:**
- National Association of Biology Teachers.
- Virginia Academy of Science.
- Society for Mathematical Biology.
- Ecological Society of America.
- Society for Integrative and Comparative Biology.
- American Society of Parasitologists.
- Envisioning the Future of Undergraduate STEM Education, AAAS/ NSF Meeting.

**Grants, Fellowships, and Awards (~$6,700,000 in co-authored external funding):**
*Howard Hughes Medical Institute Inclusive Excellence Program*
- REALISE - Realising Inclusive Science Excellence, 2017-2022 ($1,000,000).

**National Science Foundation**
- Network for an open and accessible biology education: The promise of equity and the challenge of sustainability, 2019-20 ($74,290).
- Biology undergraduate Mathematics Attitude and Anxiety Program, 2016-9 ($298,846).
- Community composition and disease outcomes in a multihost-parasite system, 2009-13 ($569,530).
- Teaching by Example: Integrating a Service-Learning Application into University Biology, Chemistry, Geology, and Geography Curricula, 2005-8 ($140,000).

- SCHEV Outstanding Faculty Award Finalist, 2017, 2018, 2019.
- Radford University Dalton Eminent Scholar award, 2019.
- Radford University Faculty Research Fellowship, 2015.
- Fourteen internal grants, supporting undergraduate research in host-parasite biology, scanning electron microscopy, and science education research ($159,000).
- Nominated for Radford University Distinguished Teaching Professor Award, 2014.

**Leadership and Service Beyond Radford University:**
- National Science Foundation grant review panelist for six different programs.
Letters of Support (excerpted)

Dr. Brian O. Hemphill, President, Radford University: "On behalf of the entire Radford University community of learners, I am honored to endorse Dr. Jeremy Wojdak, Professor in the Department of Biology, for the 2020 State Council of Higher Education for Virginia Outstanding Faculty Award… Since joining Radford University in 2004, Dr. Wojdak has exemplified the University’s mission of being dedicated to the creation and dissemination of knowledge that empowers students from diverse backgrounds and that cultivates relationships between students and faculty, while embracing innovation and tradition. He not only has an impressive record of accomplishments in teaching, research, external grant funding, professional development, and service, but also a record of integrating these in all his work…Dr. Wojdak was selected as a finalist in the 2017, 2018, and 2019 SCHEV Outstanding Faculty Award competitions. Since that time, he has added significant new accomplishments to his record. For example, he was selected as a Radford University 2018-2019 Dalton Eminent Scholar, one of only five faculty at the institution receiving this honor. Scholars were nominated by their colleagues based on their research accomplishments and selected through a rigorous review process...Additionally, he has just received funding from the National Science Foundation to bring together leaders of national educational reform projects to identify general principles that would allow them to reach more diverse student populations. Specifically, the discussions will focus on how projects can sustain their outreach beyond grant funding and how more inclusive and student-centered pedagogies can be woven into reforms from the outset rather than as addenda…I make this recommendation of Dr. Wojdak to you with the highest praise."

Kelly Armentrout, Radford University graduate, medical student: "Dr. Jeremy Wojdak changed my life in a most unexpected way. My final semester as an undergrad, I took Dr. Wojdak's Tropical Field Biology class that included a study abroad trip to St. John, USVI. The class focused on wildlife identification, published research analysis, and student-initiated research projects. I spent my undergraduate career focused on biochemical science in preparation for medical school, so this class was a bit out of my comfort zone. I loved every second of my ecological research, and I discovered that I always want to make research a part of my career. This was not, however, the most important discovery I made while in Dr. Wojdak’s class. I ended up next to Dr. Wojdak on the taxi to our research station, and he made sure to point out the homes of native islanders so that I could compare them to the resorts. He took the time to explain the educational system in place for the children of St. John, and most importantly, he explained how they get their medical care. At that moment, Dr. Wojdak made me a globally-minded person. Now that I am about to begin medical school, I fully understand what Dr. Wojdak did for me. He made me realize what kind of physician I want to be. Dr. Wojdak is trained as a community ecologist, but he has had a bigger impact on my future medical career than any molecular biology or chemistry professor I ever had."

Dr. Sam Donovan, Department of Biological Sciences, University of Pittsburgh: "As a co-director of the BioQUEST Curriculum Consortium over the last 18 years, I have built my professional identity through academic collaborations on national biology curriculum reform, faculty development, and education research projects. Over this time, I have had the privilege of contributing to some of the national efforts like Vision and Change in Undergraduate Biology Education: A Call to Action and the National Science Digital Library that inform policy and funding..."
decisions in undergraduate biology education. It is not an exaggeration to say that the collaboration Dr. Wojdak and I initiated in March of 2014 may be the most significant for me to date. It was clear from our earliest conversations that Jeremy has a profound awareness of the undergraduate biology education landscape and furthermore that he is an advocate for the professional advancement of both faculty and students. Within a month of first meeting, we worked together to outline and launch a national consortium of quantitative biology educators. Now, with a funded multimillion dollar, multi-institution, five-year project in place we are set to carry out the vision we sketched during that first week.

One of the unexpected pleasures of collaborating with Jeremy has been learning more about the breadth of his educational scholarship. First and foremost, his work reflects a true commitment to engaging undergraduates in learning science by doing science. Both the SUMS4BIO and AIMS projects emphasize curricula that focus on using modern methods and tools to address real biological problems. The National Science Foundation has called for educational innovations that integrate research and teaching and few have had the background and commitment to answer the call like Jeremy has. His extensive record of publishing with undergraduates is further evidence of his scholarly approach to undergraduate teaching and learning. On a more personal level, I have found myself seeking out Jeremy's counsel on a wide range of issues as we launch the QUBES project. He is insightful about identifying strategies to engage and empower the QUBES community. For example, his notion of Faculty Mentoring Networks building layered mentoring relationships is proving to be essential to the design of our professional development efforts. He also has the interpersonal communication skills to facilitate productive collaborations across diverse constituencies. Jeremy has repeatedly been instrumental in helping the QUBES Leadership Team address the challenges of the institutional, disciplinary, and student diversity we are charged to serve.

Dr. Jeanne Mekolichick, Assistant Provost for Academic Programs, Radford University: "Dr. Jeremy Wojdak is a teacher-scholar-leader. Beyond his significant contributions in disciplinary and pedagogical work, Jeremy has had a profound impact on our campus and community as the spark that ignited the Maker movement at Radford University and in our community. For more than four years it has been my privilege and sincere pleasure to work with Jeremy to champion his vision of transforming education and people through Making. Jeremy brought together a diverse group of faculty and ignited their interest in working with one another alongside students to realize the objects of their imagination, solve problems in their environment, and have fun exploring their disciplines. He led the charge to create an interdisciplinary campus Makerspace, develop a freshman living-learning Maker community, create opportunities and structures for faculty to collaborate on Making, and spends numerous hours mentoring Maker students from elementary through graduate education. His impact is deep, wide, and continues to unfold: I watched Jeremy fill a room with faculty from across the colleges to advance the Maker movement; I watched Jeremy inspire a disengaged seventh grader to design and create; and most profoundly, I watched Jeremy mentor a freshman struggling to transition from high school in Puerto Rico to college in rural Virginia to find her place, her voice, and her strength through Making. Students are persisting and thriving because of the work Jeremy does. We are only beginning to see the impact that Jeremy has had on the lives of all of these students. Dr. Wojdak is an outstanding faculty member and most deserving of this award."
Jennifer Eller, Technology and Computer Science teacher, Radford City Public Schools: "With your help, guidance, and organization of a used toy/electronics drive, arranging for students in the teacher education program at Radford University to be on site to help, you getting tools, tape and batteries purchased definitely made the Battlebot event run smoothly.... The results and participation were epic...Your vision and the partnership between Radford City Schools and Radford University is growing into multiple areas of making. The video productions class is now involved with the video challenges created by the Center for Innovative Teaching and Learning. We have also brought on board our elementary schools in hopes to start instilling the love of STEM in these younger students."

Dr. Orion Rogers, Dean, Artis College of Science and Technology, Radford University: "Dr. Jeremy Wojdak is an extraordinarily dedicated and extremely productive faculty member in the Artis College of Science and Technology at Radford University. He is an inspirational instructor and scholar as well as an exemplary role model for his students and faculty peers. He has earned my highest recommendation for this prestigious honor."

Dr. Christine Small, past-Chair, Department of Biology, Radford University: "Dr. Wojdak has established a truly impressive record of research productivity and scholarship, as well as dedication to undergraduate education and development. He teaches a broad range of undergraduate courses in ecology, environmental biology, parasitology, toxicology, and health sciences, and developed a very successful Tropical Biology study abroad course to the U.S. Virgin Islands. The research achievements of students in his study abroad course are particularly noteworthy. Outside of classes, Dr. Wojdak has mentored dozens of undergraduate or graduate research students and serves as an outstanding professional role model."

Dr. Arietta Fleming-Davies, past postdoctoral researcher for the QUBES project, Assistant Professor, University of San Diego: "As a postdoc advisor, Dr. Wojdak has been extremely supportive of my academic and career development. Through my work with him I have gained support in many areas of academia in which I had received no prior mentoring, including how to teach effectively and the process of writing successful NSF grants. When writing an NSF grant together, he was very supportive in guiding me through the intricacies of the process, which are particularly complex at a small school where the logistics are all the responsibility of the PI. At the same time, he was also very respectful of my ideas and throughout the intellectual development of the grant I felt like a true collaborator. Dr. Wojdak has been quick to point out opportunities aligned with my interests, and he is always thoughtful of whether something is truly in the best interests of my personal career goals, rather than just in the best interests of the lab overall. This level of selflessness in prioritizing the student or mentee is an extremely valuable trait in an advisor that I have rarely observed in academia. This thoughtful desire to help others is also consistently present in Dr. Wojdak’s QUBES faculty development work, in which he takes the time to connect with individual faculty participants."

Lindsey Boyle, College of William and Mary graduate, NSF-funded undergraduate researcher: "From day one Dr. Wojdak was an incredible mentor. He introduced me to his research and explained things clearly and with infective enthusiasm. But what I appreciated even more than his ability to teach and guide me was his understanding of when to step back and let me take the reins... Under Dr. Wojdak’s guidance I pursued two summers of independent research on host-ectosymbiont interactions, presented at conferences, and had my findings published in a scientific journal. Because of the experience and knowledge gained through working with Dr. Wojdak, I was able to acquire a position with the VA Department of Environmental Quality after graduation. I am forever grateful to him for introducing me to the field of ecology and setting me up perfectly for a career in a field I am so passionate about."
Additional documentation

Additional excerpted comments from colleagues, students, and administrators:

Dr. Joel Hagen, Professor, past-chair, Department of Biology, Radford University: "I have worked closely with Dr. Wojdak on a number of research projects since he joined the RU Biology Department in 2004, and I supervised his work for seven years while I was department chair from 2007 – 2014. Dr. Wojdak has distinguished himself as a highly productive ecologist, he has expanded his scholarly interests in a number of interdisciplinary projects, and he does an excellent job of combining his professional research with undergraduate education. Several of his achievements are truly exemplary, and taken together set Dr. Wojdak apart from the many other outstanding faculty members at RU. Dr. Wojdak has been remarkably successful at sustaining a high level of research in community ecology during the twelve years that he has been at RU. I was pleased to work with Dr. Wojdak and several colleagues from the Departments of Biology and Mathematics and Statistics on an NSF supported project to develop new approaches to improving the quantitative skills of RU biology majors. Dr. Wojdak was the intellectual leader of this project and I found the collaboration to be extremely stimulating. Significantly, Dr. Wojdak expanded this project to become part of a larger national program involving several other colleges and universities. His leadership in mathematical biology has had important impacts on student learning and interdisciplinary cooperation among faculty members at RU. It is another impressive example of how Dr. Wojdak combines creative scholarship with innovative educational approaches that benefit students at Radford University."

Dr. Kristin Jenkins, Executive Director, BioQUEST Curriculum Consortium, a national non-profit: “Jeremy is a thoughtful colleague who has shown a great dedication to improving student outcomes in his own classroom, at Radford, and across the United States. For example, QUBES grew from a small group of concerned faculty to a national project funded by the National Science Foundation which reaches thousands of faculty across the country. Jeremy has led the development of this project with innovative and practical solutions to address core educational problems. In particular, he is the driving force behind a new model of faculty development that is designed to reduce barriers to participation in professional development and increase adoption of effective teaching methods and resources.

In addition to his national efforts, Jeremy has led programming at Radford focused on inclusivity. College classrooms are becoming more diverse as first-generation students, returning veterans, students of different racial and ethnic backgrounds and other traditionally underrepresented students pursue higher education degrees. This diversity requires thoughtful adoption of pedagogies that support greater success for all students. The Realising Inclusive Science Excellence (REALISE) project at Radford is an ambitious program that draws from evidence based pedagogical methods and effective professional development programs. Institutional change is a challenging undertaking, but Jeremy has been able to integrate national themes into local practice by designing practical approaches and offering relevant resources. Jeremy’s leadership of the REALISE grant at Radford has brought best practices in teaching to the local community through professional development and supported faculty driven efforts through mini-grants and communities of practice."

Dr. Justin Anderson, Associate Professor & Chair, Department of Biology, Radford University: “As a leader of both the REALISE Inclusive Excellence project and the QUBES national collaboration platform, Jeremy plays a significant role as a pedagogical mentor to faculty at Radford University and across the country. I can think of no one more deserving of an Outstanding Faculty Award than Dr. Jeremy Wojdak.”
Annie Rudasill, Radford University graduate: "Working with Dr. Wojdak has helped me to become a better scientist and a more well-informed member of society, and I would certainly recommend any of my peers to take his courses in the future if given the opportunity. His ability to challenge students to approach problems from multiple angles inspires creativity and leads them to use the knowledge they’ve gained to overcome hurdles. Dr. Wojdak also places emphasis on understanding the interplay between the scientific community and society as a whole, which is an important focus that is largely absent from most ecology-based classes. Overall, Dr. Wojdak is an intelligent and dedicated professor and researcher."

Dr. James Vonesh, Associate Professor, Virginia Commonwealth University: "Jeremy’s research has earned him an international reputation in the field of aquatic community ecology. Given the global biodiversity crisis, his research addresses some of the fundamental questions of our time: How much biodiversity do we need for natural systems to function normally? What is the relationship between biodiversity and disease? These are highly integrative questions which require linking of fields such as parasitology, epidemiology, ecology, spatial analysis, chemistry, toxicology, and hydrology (to name a few).

I know from first hand observation he is an excellent mentor. I spent several months in the field in Panama with him as part of our collaborative project. Jeremy was an enthusiastic and patient mentor for his student from Radford, Beth Meyer, but also my graduate student and a number of other students associated with our main project. Jeremy has a laid-back sort of enthusiasm which does not dominate the conversation but allows space for the students to think and speak. It makes him very approachable and, I think, very effective as a mentor. Jeremy’s experience with open-ended problem solving based learning, developed in his innovative approach to classroom education, translated naturally to the more informal setting of the field station."

Dr. Skylar Hopkins, past undergraduate researcher from U. of Maine, graduate student at Virginia Tech, Postdoctoral Research at the National Center for Ecological Analysis and Synthesis: "As a mentor, Jeremy challenges students to be independent and to tackle the biggest goals that they can, while simultaneously being constantly available as a safety net when students get stuck. Students rise to his challenges by performing top-notch research, presenting at regional and national conferences, and publishing their work in major journals. Jeremy encourages students to ask questions, to think critically, and to volunteer their ideas, and he has a knack for always making those ideas seem like valuable parts of the discussion at hand.

Any discussion of Jeremy’s creative contributions to ecological research must include his ingenious and occasionally bizarre inventions of scientific tools. The most memorable was perhaps the “Suckmaster General,” which used a peristaltic pump and some advanced wizardry to suck up and filter free-living parasites out of pond water. Jeremy’s creativity is infectious, and it has been a joy to watch his students puzzle out brilliant solutions to methodological challenges in their independent research. With innovations like these, we have answered interesting ecological questions that were previously difficult or impossible to ask, and students have really embraced the creative spirit that Jeremy brings to our collaborations. I have also seen students who have never used a hammer gain confidence and practical skills under Jeremy’s patient
mentorship, and seeing their pride in their accomplishments has been a highlight of every summer that I have spent collaborating with Jeremy."

Dr. Lisa Belden, Professor, Department of Biological Sciences, Virginia Tech: "Jeremy's dissertation research was published in some of the top journals in ecology, and he has maintained that level of discovery-based scholarship since arriving at Radford University. He has broad interests and excellent quantitative skills that he has continued to hone through numerous workshops and collaborations. Each summer we ran a large summer research group together, often with more than ten undergraduates that Jeremy and I worked together to mentor, and he has served on two of my graduate students' committees. The undergraduates we have co-mentored have been outstanding, in large part because Jeremy takes considerable time to work his students and to teach them how to think about science; he treats the students as collaborators, which establishes strong mutual respect.

Finally, I just want to comment on one aspect of Jeremy that isn't spelled out so clearly on his CV, and that I think contributes immensely to his success: his passion for learning. This is reflected in all of Jeremy's ventures, but I think one clear example is the fact that before participating in a Radford study abroad course in China, he actually took Chinese language courses, and did a lot of reading on Chinese culture that was far above and beyond what was required for him to "get by" during the course. Jeremy is easily engaged by new ideas and challenges, and I think that truly sets him apart and is fundamental to a lot of his success in academia."

A study abroad trip to China led Dr. Wojdak to take up watercolor painting (above left), which led to his course in Scientific Illustration. Student Tia Thompson brought the connections between his research and teaching full-circle: Tia happened to choose the red-eyed tree frog for her illustration project (above right), not knowing Dr. Wojdak had studied them in Panama! After meeting Dr. Wojdak in that course, she then earned a summer research internship in his lab!

Summary of quantitative/objective student evaluations of Dr. Wojdak's instruction: 4.5 / 5 (averaged from 2010-present, with 5 being the highest possible score)

Student comments from anonymous evaluations of Dr. Wojdak's courses:

Theme: Dr. Wojdak challenges students with rigorous expectations and requires higher-level cognitive skills.

"At first this course work load blew my mind. I have never put so much effort into analyzing like I did for the papers we had to read. I'm so glad that I took it though. It was AMAZING to learn the things that I learned."
"I would like to complain about something, but honestly I cannot. You push us to do our best and although you make us spend mass amounts of time studying everything under the sun because you won't give us a test outline, I'm sure it makes us all better students."

"Really enjoyed Dr. Wojdak. Probably one of my favorite professors so far. Very fair, expects a lot of effort and self-learning. Preparing us for the next level and challenges us to really think. Will take more of his classes if possible for sure!"

"Hardest class ever, but loved it.... labs were tons of fun. Overall really, really enjoyed the class. Would recommend to every bio major."

"[Dr. Wojdak] did a great job presenting information and making himself available. Gave us assignments that really promoted thinking outside the box and working as a team."

"Great instructor. Encourages me to think in-depth about course material, what we are doing, and how to observe the natural world."

**Theme: Dr. Wojdak meets students where they are, interacts as a peer rather than as an authority figure, and recognizes individual students as people.**

"Dr. Wojdak is by far one of the best professors I have had at Radford thus far. He is very interactive with his students and answers questions enthusiastically. I had a great experience with him and I will be signing up for his other courses."

"Wonderfully personable and smart instructor. Dr. Wojdak strikes a fantastic medium between instructor and friend that really helps me connect with the subject on a person[able] level."

"Dr. Wojdak is an amazing professor. He cares a great deal about his students and wants to make sure that they have a full understanding of what is going on. He took care of all the students that got sick and made our trip so much fun. I learned a lot from him and the class. I wish he taught all of our classes."

**Theme: Dr. Wojdak provides life-changing educational experiences that challenge students to work creatively, independently, and do their best!**

"Best experience of my whole entire life! (not sarcasm)."

"Dr. Wojdak is the greatest professor here. I love him. He tells you like it is, but in the meantime, he makes sure you know the material and really helps you."

"Jeremy is an amazing instructor and shows clear concern for the success of his students. He was helpful in the classroom as well as on the trip, and helped with statistical analysis. His expectations were high, which may have been a challenge for some students, but he encouraged us to think independently, and pushed us to use knowledge from other courses to be successful in this course. I would recommend him to any student at Radford University."

"Jeremy was one of the best professors that I have had at RU. He is incredibly smart, knowledgeable, and relatable to his students. He was so very helpful to me as I made decisions concerning my future and my career. I absolutely loved this course, and it was great in large part due to Jeremy."