Research News

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OFFICE *of* RESEARCH *and* SPONSORED PROGRAMS April 2014

SEEDING SUCCESS IN A WARMER FEDERAL CLIMATE

S. Bruce King
Associate Provost for Research and Professor of Chemistry

Moving to the Provost's Office last year gave me the opportunity to meet and interact with faculty from all departments and schools, and I'm continually impressed with the quality and dedication of the teacher/scholars assembled here at Wake Forest. This spring, I participated in many interviews for new faculty candidates, and from my perspective, departments had to make some hard choices. I'm confident we will be adding some exciting new people next year, and my office will work with them to make sure their scholarly plans are realized.

A genuine "thank you" to all of the faculty/staff who work so hard in raising external funds for their projects and research. Through the first 8 months of FY14, WFU faculty have received $7.5 million in funding from external sponsors and submitted 99 proposals requesting more than $26 million. Winning external support is difficult and probably one of the best measures of the excellence of your scholarship.

I want to continue to increase faculty proposal submissions and dollars requested. A number of internal grant programs fund pilot studies to cultivate external applications. Pilot Research Grants (PRGs) award up to $10,000, and faculty can apply for another immediately after submitting an external proposal. Collaborative Pilot Grants (CPGs) are similar but support partnerships that may include faculty at the Medical School. We just received 9 PRG and 4 CPG proposals that are now under review and will hopefully turn into several external applications.

Funding was renewed for our Bioethics, Health, and Society Center and Translational Science Center, which gather faculty from across departments and schools to focus on health-related ethical, social, and policy questions and ways to improve functional health with aging, respectively. I'm looking forward to working further with them. Note that many of our campus Centers provide pilot funding mechanisms.

I was also very excited to partner with the Medical School's Translational Science Institute to revive the Cross-Campus award. We were extremely pleased to receive 12 letters of intent, and 6 groups were asked to submit full proposals. In addition, Wake Forest Innovations offers Spark grants to seed research leading to commercialization. Getting pilot data now is crucial for being competitive at the national level next year. Congress has approved the 2014 fiscal year budget, which increases the budgets of NSF (4.2%), DOE (5.2%), NIH (3.5%), DOD (5.9%), and USDA (9.8%). Some relief in the availability of federal funding appears in sight.

We celebrate faculty success in many ways. On March 27, I will attend the annual reception to honor authors, editors, and artists whose works were published or produced in 2013 at the ZSR Library, and on March 28, Graduate School Research Day showcases students' work with faculty mentors.

Finally, new, updated Research and ORSP websites will be rolled-out shortly.

As you can tell, much is going on. Please feel free to contact me or ORSP with your research needs.

INSIDE

WAKE FOREST UNIVERSITY

NSF UPDATES PROPOSAL SUBMISSION POLICIES AND PROCEDURES

Stephen L. Williams

One of the responsibilities of the Office of Research and Sponsored Programs is to assist faculty in submitting proposals. We enjoy seeing their hard work earn an award from an agency and try to make working with any agency as easy as possible. In 2014, the National Science Foundation (NSF) made some changes to its submission process (see http://www.nsf.gov/pubs/policydocs/pappguide/nsf14001/gpg_sigchanges.jsp), and we are here to help you navigate them.

The revised **Grant Proposal Guide (GPG)** is effective for proposals due on or submitted after **February 24** and includes the following key changes:

- The **Biographical Sketch** instructions now clearly state that including information beyond that specified may result in **return without review.**
    - In FastLane, if **biographical sketches** for all senior personnel are uploaded in a single PDF file associated with the PI, the proposer should insert text or upload a document that states *Not Applicable* for any co-PI or Senior Person.
    - Note that if only publications are listed in the *Products* section, it may be headed ***Publications***.
- Any substantial collaboration that is not included in the budget should be described under ***Facilities and Resources*** and documented in a letter of commitment from each collaborator.
- A ***Project Summary*** containing special characters and submitted as a PDF file in the Supplementary Documentation section must be formatted with separate headings for the overview and the statements on intellectual merit and broader impacts.
- When **preparing a proposal in Fastlane**, the PI must select whether it is a collaborative submission and the type of activity proposed (e.g., research, RAPID, equipment, conference). These selections will determine which documents are required.
    - When the proposal submission instructions do not require a component, but Fastlane does, applicants should insert text or upload a document that states ***Not Applicable*** in that section of the proposal.
    - The instructions for preparing **special proposals** (e.g., RAPID, collaborative, conference proposals) in Fastlane have been updated.
- Two changes to ***Results from Prior NSF Support***:
    - In cases where the PI or co-PI has received more than one award (excluding amendments), only the award most closely related to the proposal should be reported.
    - In the ***summary of results of completed work***, those related to Intellectual Merit and Broader Impact activities must be separately described under distinct headings.

NIH ANNOUNCES FY14 FISCAL POLICIES

Amy Comer

NIH has announced policies for this year's fiscal operations, implementing the 2014 Consolidated Appropriations Act signed by President Obama on January 17. NIH has a budget of $30.15 billion, an increase of $1 billion over fiscal year 2013. The agency was also able to recover a significant portion of the funds lost due to sequestration, which should bring their budget back on track, not only for this year, but hopefully into the future.

Below are some of the key points covered in NIH Notice NOT-OD-14-055:

- Noncompeting continuation awards for FY2014 will likely be funded in the range between the commitment level indicated on the Notice of Award and 3% less. Those that were funded at reduced levels earlier this year - usually at the 90% level - may be fully or partially recompensed.
- Due to the budget increase over last year and the cycle of out-year commitments, NIH should be making more competing awards in FY2014. This good news should reverse the annual downward slide of success rates for R01 research grants.
- NIH will continue to support new investigators on R01 equivalent awards at success rates comparable to those for established investigators submitting new (Type 1) R01 equivalent applications. Achievement of comparable success rates should permit the NIH to support new investigators in accordance with the policies it established in FY2009 and subsequent years.
- Salaries received from an NIH grant are still restricted to Executive Level II of the Federal Executive pay scale. However, as of January 12, it was increased to $181,500.

OUTSTANDING LONG-TERM PROGRAMS

Wake Forest is proud of its long-standing sponsored research programs. In Biology, Professor Dave Anderson's study of Galápagos seabirds began in 1984 and has been supported by the National Science Foundation's Long-Term Research in Environmental Biology (LTREB) program since 1992. LTREB supports decadal projects, and continuation requires a new preliminary proposal that articulates a new ten-year research plan addressing questions that cannot be answered by the data already collected. The full proposal must be invited, and Dr. Anderson's was accepted this year.

LTREB: Evolutionary ecology of seabird reproductive life histories has gained fresh insights into the evolution of clutch size and sibling competition, the sex ratio and mating system, and the role of hormones in expressions of social behavior. Seventeen Wake Forest and 11 Ecuadoran graduate students, six WFU undergrads, and over 100 field technicians from a number of countries have participated in fieldwork. In addition, the study has generated large samples of banded, thus recognizable, adults of known age, enabling the new initiative's focus on aging. Since foraging performance seems to determine reproductive success, electronic trackers and loggers will be used to measure it in young and old adults. Aging will also be investigated using new quantitative genetic techniques based on the comprehensive individual histories in the project's databases and the developing pedigree.

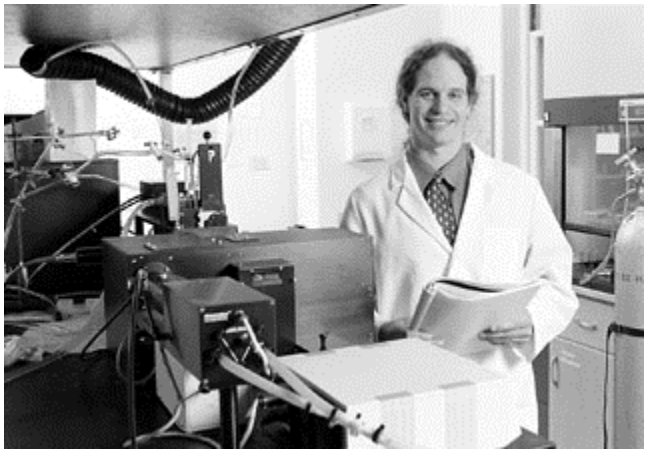
Dr. Anderson's work has also been supported by the National Geographic Society and the Galapagos Conservancy.

Physics Professor, Harbert Family Distinguished Chair for Excellence in Teaching and Scholarship, and Director of the Translational Science Center Daniel Kim-Shapiro has held a National Institutes of Health (NIH) Method to Extend Research in Time (MERIT, or R37) award since 2007, based on a research project grant (R01) first funded in 2002, which was a competitive renewal of a NIH R29 FIRST grant initially awarded in 1998. MERIT awards were initiated in 1986 "to provide long-term stable support to investigators whose research competence and productivity are distinctly superior and who are likely to continue to perform in an outstanding manner." To relieve the applicant – and NIH review panels and administrators – from the burden of frequent renewal applications, up to 10 years of support are granted in two parts: an initial 5 years and a 3-5-year extension based on expedited review of first period accomplishments. Investigators do not apply but must be selected from R01 awardees.

Effects of nitric oxide in sickle cell blood explores the link between the primary cause of the disease and clinical outcomes, especially interactions with the important signaling molecule nitric oxide, and to develop nitrite therapy to increase NO bioavailability. The participating laboratories have shown that, contrary to the existing paradigm, nitrite acts as a vasodilator in human circulation, preferentially released under low oxygen conditions. Accreting results are elucidating mechanistic pathways in the pathology of sickle cell disease and NO biology and, since NO is important in many diseases, will have wide application.

Dr. Kim-Shapiro's work has also been supported by the American Heart Association, collaborative NIH proposals with Loma Linda Adventist Health and Science Center and the University of Pittsburgh, the Army Research Office, and Cardioxyl Pharmaceuticals, Inc.

Both projects have used their longevity to amass data, enable new methods, substantiate new theories, and attract collaborators, but as of June 2011, the NHLBI suspended its MERIT Award program, happily maintaining its commitment to existing awardees, and beginning in January 2014, the NSF Division of Integrative Organismal Systems (IOS) will no longer accept LTREB proposals. Shortsighted?



RECIPE FOR SUCCESS: NEW FACULTY LUNCHEON

Julie Edelson

ORSP holds its annual new faculty orientation in January, during winter break, when university obligations aren't quite so new and daunting. Associate Provost for Research Bruce King explained the virtues of the meeting – getting to know mentors, colleagues in other departments, and ORSP staff, who can lead researchers to such resources as time, money, and collaborators, while protecting their rights and welfare and those of the university and human participants.

Director Lori Messer facilitates contracts, subcontracts, proposals, policies, and professional development initiatives. Associate Director for Faculty Research Compliance & Support Pam Moser focuses on humans, coordinating the Institutional Review Board to assure Wake Forest research is ethical, humane, and complies with all applicable regulations. Associate Director Amy Comer negotiates contracts and subcontracts and assists the Computer Science and Health and Exercise Science departments with pre-award activities. Assistant Director Stephen Williams helps to develop budgets and proposals for all other departments. Julie Edelson wields words and keywords to edit proposals, disseminate information, and search for sponsors. Susan Edwards handles awards - account set-up and reconciliation and internal awards.

ORSP invites two faculty members who have recently achieved tenure to advise aspirants. Associate Professor of Mathematics Jennifer Erway won this year's Reid-Doyle Prize for Excellence in Teaching. Since 2010, she has secured two National Science Foundation awards and a prestigious Ralph E. Powe Junior Faculty Enhancement Award from Oak Ridge Associated Universities.

Jennifer came to the faculty not knowing how to build a research program. She drew an analogy with learning to cook. She began by identifying the ingredients. First, research publications: "squeeze" the dissertation for starters but keep a rich stock bubbling on the back burner. Specialize – you want to be known for good work and to attract collaborators who can advance it. Second, grants: writing proposals organizes your thinking, although if you plan to spend n hours, it will take 4 x n. As early as possible, let your advisors taste it, so the final product can be perfected.

Now, methods. First, network: go to conferences, become a reviewer, use social media to connect with senior colleagues, and find good mentors outside your department and Wake Forest to broaden and challenge your perspective. Second, time management: schedule other tasks around the work that is most important to you and try for momentum, rather than idling through a slow week and tearing through the next.

Associate Professor of Politics and International Affairs Will Walldorf is the author of Just Politics: Human Rights and the Foreign Policy of Great Powers (Cornell UP, 2008), winner of the 2008-2009 International Studies Association ISSS Award as best book on international security. His work has been supported by the Earhart Foundation and the University of Virginia Institute for Advanced Studies in Culture.

Will noted that research funding in the social sciences is limited. However, keeping an open mind and using a creative approach, he has secured funding from a sociology source, and since his major need is release time, research centers and institutes have been primary targets. Foundations want to see more of the work done before they'll invest, which makes ORSP internal funds critical to launching projects.

Try to establish a relationship with program officers. For example, after rejecting a submission, the Harry Frank Guggenheim Foundation asked him to re-apply, and the PO has offered to help him craft the proposal by reading drafts.

You have to develop a thick skin; applying for funding is like going on the academic job market, but believe in your research and stick your neck out. The unexpected benefits of writing a proposal include honing your argument, invited talks, and gaining exposure to senior scholars.

Nothing ventured, nothing gained.

DO YOU BELIEVE IN MAGIC?

Julie Edelson

Quite often, people hand me a document to edit and ask me to do my magic. Here's my magic: hobble from sentence to sentence, paragraph to paragraph, listening for repetition, garrulity, agreement, contradiction.

If you blur out the content, a typical scholarly paragraph sounds as follows: Assertion, however - back and forth - Yes, but; Yes, yet; While, yes; Although, yes. It rocks this baby to sleep.

I once edited a 3-page grant proposal in which every other sentence had the word *fraught*. The overall impression? *Fraught*, but not with meaning.

The culprit is haste. On a computer, your word-trail disappears behind you. Paragraph 1 is nowhere in sight by paragraph 6, and if you're charging toward an imminent deadline, you don't look back. You forget what you said, and to make sure you said it, you say it.

The magic is taking time to listen to what you're writing. Yes, read it outloud. Revising *is* writing.

RESPONSIBLE CONDUCT OF RESEARCH

S. Bruce King

"The only thing that doesn't change is the fact that things are always changing" is a phrase I always try to keep in mind. The changes I'm talking about here address compliance with federal and state legislation relevant to grants and contracts. In 2007, the America COMPETES act mandated training in responsible conduct of research (RCR) for workers/students supported by federal funds, and in 2010, the National Science Foundation (NSF) began requiring an RCR plan and outline for training individuals paid by NSF grants. Other federal agencies have different requirements.

Both undergraduate and graduate students, postdoctoral fellows, and other research personnel paid by NSF awards must complete RCR training. It generally consists of an on-line exercise and one classroom meeting. Information about this training is directly available on the ORSP web page.

The addition of RCR training has changed how I manage grants as a faculty researcher; it didn't exist when I was a student or new faculty member. I think it is a valuable resource, exposing students and postdocs to this important area so they can make informed decisions and preparing our next generation of future scientists for a workplace that includes RCR training.

Regardless of what I think, RCR training is mandated by federal law, and to accept NSF funding, we must comply with this requirement. My office, ORSP, the Graduate School, URECA, and principal investigators all have important roles to make the process relatively easy. PIs' responsibilities are to inform their laboratories about the requirement, to ensure each member completes it, and to lead by example in conducting research responsibly.

Compliance policies change with changes in federal/state legislation, and I expect further changes in the future. I'll reserve effort-reporting for another day. I just finished reviewing drafts of individual development plans, a new NIH requirement for graduate students and postdocs that will be implemented later this year! Stay tuned.

RENEWED FUNDING FOR THE BIOETHICS, HEALTH, AND SOCIETY AND TRANSLATIONAL SCIENCE CENTERS

The Provost's Office announces that both the Center for Bioethics, Health, and Society (BHS) and the Translational Science Center (TSC) have been awarded renewal grants of $500,000 to continue their work over the next five years. Applications were reviewed by two independent external experts and internally by the Research Advisory Committee (RAC).

Both applications were extremely strong, detailing their work over the past funding period and their plans for the next. Under the leadership of Ana Iltis (Philosophy, BHS) and Nancy King (Public Health, BHS) and Dany Kim-Shapiro (Physics, TSC), these groups accomplished many of the initial goals of the Center program: engaging faculty from a variety of departments and schools; producing high-quality, interdisciplinary scholarship; and fostering and maintaining strong teaching and training programs.

Specifically, BHS has developed a successful Master of Arts in Bioethics program and joint degrees with the Schools of Medicine, Divinity, and Law; hosted national conferences; and facilitated pathbreaking research. The TSC's interdisciplinary research program focuses on improving the functional health of the elderly and includes many clinicians and Medical School faculty. It commercialized a new beet-based drink with potential to improve brain function and initiated a successful FYS in translational science.

The reviewers noted that both programs are unique in being housed at a liberal arts university, rather than a medical school, where bioethics and translational science programs are often found. "Both of these groups basically started from scratch five years ago and have developed into recognized leaders in their fields," said Associate Provost of Research Bruce King, whose research on nitric oxide contributed to the beet-juice project . "That's a great accomplishment, and I'm really excited to work with them over the next five years."

We would like to thank the RAC for reviewing and providing feedback for the Center renewal applications.

FUNDED FACULTY RESEARCH

October 2013 — February 2014

ANTHROPOLOGY

Kyle Bryner, *Museum of Anthropology at WFU storage*, National Endowment for the Humanities (NEH), $5,022

Stephen Whittington, *Creating: Quilts and Crafts of the Lakota, exhibits and speakers*, North Carolina Arts Council, $2,500

BIOLOGY

David J. Anderson, *Evolutionary ecology of seabird reproductive life histories*, National Science Foundation (NSF), $450,000

William K. Smith, *The impact of saltwater incursion on bald cypress* (Taxodium distichum) *in a coastal freshwater wetland*, US Department of Commerce/North Carolina State University (NCSU), $5,000

CENTER FOR BIOETHICS, HEALTH, AND SOCIETY

Ana Iltis, **PHILOSOPHY**, *Center for Bioethics, Health, and Society Visiting Scholar*, Center for Ethics, Culture and the Environment, $2,000

CENTER FOR ENERGY, ENVIRONMENT, AND SUSTAINABILITY

Miles Silman, **BIOLOGY**

- *Ecosystem effects and carbon content of Amazonian bamboo-dominated forests*, National Aeronautics and Space Administration (NASA), $30,000

- *Lidar and radar interferometry combined model to quantify variations of forest structure and biomass along altitudinal gradients in the tropical montane forests,* NASA/ California Institute of Technology Jet Propulsion Lab, $47,298

- *Biochar production for tropical agriculture and carbon sequestration*, Blue Moon Foundation, $235,000

CENTER FOR NANOTECHNOLOGY & MOLECULAR MATERIALS

David Carroll, **PHYSICS**

- *Organic thermoelectrics: The matrix composite approach*, Air Force Office of Scientific Research (AFOSR)/Texas A & M Engineering Experiment Station, $90,000

- *Nanosystems Engineering Research Center for advanced self-powered systems of integrated sensors and technologies*, NSF/NCSU, $186,025

- *DragonSkin development,* International Thermo-Dyne, LLC, $250,000

COMPUTER SCIENCE

Robert J. Plemmons, **MATHEMATICS**, *Comprehensive space-object characterization using spectrally compressive polarimetric imaging*, AFOSR/University of New Mexico, $70,000

DIVINITY SCHOOL

Gail O'Day

- *Financial well-being for pastoral leaders*, Lilly Foundation, $249,964

- *Clergy making a place: Early career pastors as generative community leaders*, Lilly Foundation, $499,997

HEALTH AND EXERCISE SCIENCE

Jeffrey Katula, *HELP PD II*, National Institutes of Health (NIH)/Wake Forest Baptist Health (WFBH), $27,789

Anthony P. Marsh

- *Demo II: Loss of adipose tissue and physical function responses to exercises*, NIH/WFBH, $15,000

- *Pepper Center Clinical Research Core*, NIH/WFBH, $9,913

Gary Miller, *Parents & Children Together Preventing Diabetes (PACT PD)*, NIH/WFBH, $19,438

FUNDED FACULTY RESEARCH

April 2013—February 2014

Patricia A. Nixon, *Prenatal events, postnatal consequences II*, NIH/WFBH, $58,099

Walter J. Rejeski

- *Using systems science methodologies to protect and improve population health*, NIH/WFBH, $4,308
- *Pepper Center Clinical Research Core*, NIH/WFBH, $16,195
- with Gary Miller, *LookAhead Extension,* NIH/WFBH, $29,922

MATHEMATICS

Robert J. Plemmons, **COMPUTER SCIENCE**, *Comprehensive space-object characterization using spectrally compressive polarimetric imaging*, AFOSR/University of New Mexico, $70,000

PHILOSOPHY

Christian B. Miller named to the John Templeton Foundation Board of Advisers

PHYSICS

Daniel B. Kim-Shapiro

- *Role of nitrite reduction to NO by hemoglobin in control of fetal vascular tone*, NIH/Loma Linda University Adventist Health Sciences Center, $34,976
- *Storage lesions in banked blood due to disruption of nitric oxide homeostasis*, NIH/University of Pittsburgh, $136,207

Freddie Salsbury

- *Computational bioscience from the Cancer Center support grant*, NIH/WFBH, $5,138
- *Targeted approach of overcoming treatment resistance in advanced prostate cancer*, US Department of Defense (DoD)/Georgia Southern University, $28,663

Richard T. Williams, *Quantifying recombination dynamics in Srl2:Eu2+ with material variations: Mechanisms and scintillator optimization,* US Department of Energy (DoE)/Fisk University, $150,000

POLITICS AND INTERNATIONAL AFFAIRS

Katy J. Harriger, with Christy Buchanan, **PSYCHOLOGY**, *Follow-up study on the impact of the Democracy Fellows program on alumni*, Kettering Foundation, $15,000

TRANSLATIONAL SCIENCE CENTER

Daniel B. Kim-Shapiro, **PHYSICS**, *Dietary nitrate effects on muscle function*, WFBH/Pepper Center, $20,350

Z. SMITH REYNOLDS LIBRARY

Megan Mulder, *Religion in North Carolina Digital Collection*, Institute of Museum & Library Services (IMLS)/Duke University, $3,000

FALL 2013 PILOT RESEARCH GRANT

T. Michael Anderson, Biology
Herbivore effects on grassland forage nutritive quality: A global test from the Nutrient Network (NutNet)

Lindsay Comstock, Chemistry
Probing biological phosphorylation through co-factor mimicry

Sandy Dickson, Communication, Center for Bioethics, Health, and Safety
Regeneration: *A pilot film on the implications of regenerative medicine for the human condition*

Jeff Katula, Health and Exercise Science
Community-based therapy for fibromyalgia: A feasibility study

Kathy Kron, Biology
Evolution of structural changes in the chloroplast genome in the flowering plant group Ericales

Gregory Parks, School of Law
Race and jury selection in North Carolina felony trials

Luis Roniger, Politics and International Affairs
Latin America in transnational and comparative perspective

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We would like to thank the faculty who reviewed the PRG applications for their time and expertise.

COMPLIANCE HOTLINE

Call 1-877-880-7888 or email www.tnwinc.com/Reportline/International/ to report suspected violations of laws, regulations, rules, policies, procedures, ethics, or other information anonymously. The operator, who is not a university employee, will report your concerns to the University Compliance Office.

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Research *News*

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