

FROM THE DEAN'S DESK – February 23, 2015

THE RADFORD UNIVERSITY COLLEGE OF SCIENCE AND TECHNOLOGY NEWSLETTER



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DR. AGIDA MANIZADTE NAMED EDITOR OF VIRGINIA MATHEMATICS TEACHER JOURNAL



Dr. Agida Manizade

The Virginia Mathematics Teacher Journal (VMT), a peer-reviewed publication for educators in the Commonwealth, has a new editor. Associate Professor of Mathematics at Radford University, Dr. Agida Manizade, recently was appointed to head the production of this resource for faculty from elementary to college level mathematics.

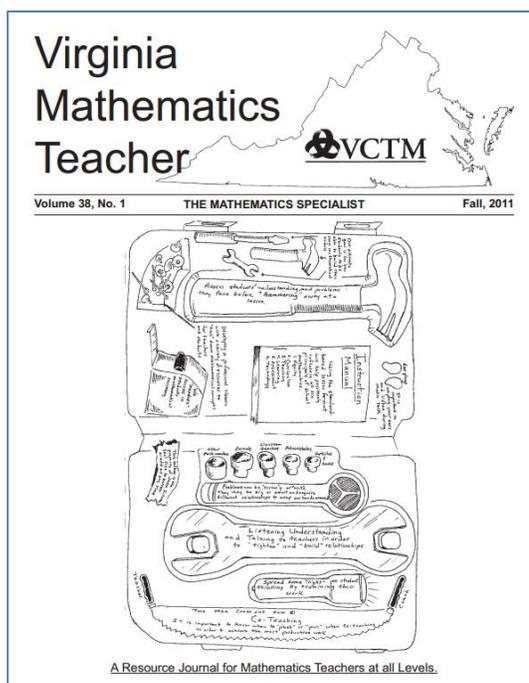
“I think that this is a great honor, but also understand that it is a lot of work” stated Dr. Manizade. “I’m looking forward to the challenge and the opportunity to help advance this publication.”

The publication recently celebrated its 40th anniversary in 2014 and is primed for new delivery methods while continuing to provide the best practices in mathematics to its readers. “The VMT is in the top three mathematics journals across the United States” said Dr. Manizade. “It is well respected across Virginia and has a national standing. I would love to pursue a way to have the publication available online as opposed to the current status of a paper-only edition that is now available.”

Educators submit their stories based on research they have undertaken, it is peer-reviewed and verified prior to publication for the readers.

The VMT is produced by the Virginia Council of Teachers of Mathematics (VCTM), a state-wide organization dedicated to stimulating an active interest in mathematics teaching and learning by promoting the improvement of mathematics education, providing leadership in the professional development of teachers, and facilitating cooperation among organizations at the local, state, and national levels. VCTM was founded March 18, 1976.

To learn more about the Virginia Council of Teachers, please visit <http://www.vctm.org/>



SCIENCE AND SOCIETY COURSE NEW TO RU BIOLOGY



Science & Society

There is a new course in Biology this semester focusing on the interaction of science and society. A collaboration between the Department of Biology and the Scholar Citizen Initiative, this special section of Biology 460 examines how science can inform contemporary issues in society such as (but not limited to) global warming, the vaccine debate, genetically modified organisms, preventative healthcare, environmental regulations, scientific literacy, etc. Dr. Sara O'Brien is teaching the course and was the originator of the idea.

“One of the great things about RU Biology's curriculum is that we have this Senior Capstone Course called BIOL 460: Advanced Seminar in Biology” stated Dr. O'Brien. “These are sections of courses that are topic specific where Junior and Senior RU Biology majors can choose from a few that seem interesting to them. She adds “I was given the opportunity to teach a section and I instantly thought the topic of "Science & Society" would be an interesting one...both for me and my students.” Dr. O'Brien is quite familiar with RU's Scholar Citizen Initiative (SCI) as the CSAT Representative and a Steering Committee member, so she was familiar with the Learning Objectives that courses must meet to receive SCI designation.

By the end of the course students should be able to critically read and understand scientific literature; effectively synthesize information from primary literature into written and oral forms; reflect upon your perception of science and society and how you view each independently and continually.

“These learning objectives are important regardless of any career path a student chooses” said Dr. O'Brien. “They should be able to communicate effectively to a wide variety of audiences, both scientific and non-scientific, and should also be able to utilize reliable sources and evaluate issues, again both scientific and non-scientific.” These skills are essential to making informed decisions in the real world. “Students should be able to develop a sense of awareness regarding what pressures have shaped the scaffolding of our local, national and global issues” she added.

This course is different from some of the more traditional biology classes in that it includes a lot of information from conventional mass media sources to help frame the issues the group is reviewing. “We are consistently reading primary scientific literature and doing a lot of writing, but we are also reflecting on a lot of popular press media (TV, Social Media, Newsprint, Political talking points, etc.) and determining what is causing the inconsistencies between scientific understanding and societal understanding of specific issues” said Dr. O'Brien.

Self-reflection is a critical component to the student understanding how these issues are both being

portrayed and ultimately engaged on a local, state, national and international stage. “Students are also asked to self-reflect on why this may be an issue and how scientists might address it” stated Dr. O’Brien. “They are also encouraged to interview members of the general public to get a view from a non-scientist and have to take that view into consideration. That's not something many of our science students do because they are often times surrounded by their scientist peers.”

It's this self-reflective method and lens-switching from the scientific perspective to the societal perspective that makes this course unique. Students in this course, and some of the other BIOL 460s utilize this tool as well, will be using the ePortfolio platform within “Desire to Learn” (D2L) to create an interactive CV/Resume with reflective elements on the utility and meaning of their educational path through RU's Biology Major curriculum, opportunities and experiences.

Dr. O’Brien shared her thoughts on why this class has been a good experience and why it is critical for the future. “These students have been exploring science and biology-based course work for 4 years and I feel that it's important for graduating seniors to be able to leave RU with the ability to see how their education as scientists has shaped their perspective of the world.” She added “They'll be graduating and joining a workforce and community of citizens from all walks of life and all sorts of education backgrounds. Thus, it is imperative for our science majors to understand how their unique training and educational back ground will impact their role in society.”

Zeb Pike, a junior biology major taking the class said “I have always viewed things from a factual basis in the context of how science influences our lives, and this course has pointed out even though I look at things in the context of science I can still be uninformed on certain topics.” He added “I think that people who view things in a scientific aspect can forget that issues that involve people aren't always as simple as a theorem. I think that society can inform themselves more on a lot of issues to gain a proper understanding of topics, but not all people want to learn things involving biology or chemistry, so I understand that is sort of a far cry from reality.”

The course is a great example of the interdisciplinary work that takes place within the College of Science and Technology. “These future scientists need to be critical consumers of information as they will be the gate keepers of scientifically sound regulation and policy, the voices for scientific funding and advancement, and the advocates for human and environmental health” stated Dr. O’Brien. She added “It's also important for our science majors to be self-reflective and identify how societal pressures shape STEM fields as well.”

While the goal of the scientific method works to remove all bias from experimental work, society certainly places many biases on STEM fields. To be able to effectively address issues they are researching, future scientists will have a need to understand how their work is portrayed and received as well as the impact that they might have.



BIOLOGY STUDENT RECEIVES SCHOLARSHIP TO ASSIST WITH HIS PURSUIT OF A MEDICAL DEGREE



Dean of the College of Science and Technology, Dr. Orion Rogers, and Chair of the Pre-Health Advisory Committee, Dr. Georgia Hammond, presented Alan with a certificate commemorating his scholarship award.

Alan Shano is the 2015 recipient of the Dr. Ann S. Ferren MCAT Preparation Scholarship. Dean of the College of Science and Technology, Dr. Orion Rogers, and the Chair of the Pre-health Advisory Committee within CSAT, Dr. Georgia Hammond, recently presented Alan with this award, named for and made possible by former RU Vice President for Academic Affairs, Dr. Ann Ferren.

Alan didn't take a traditional path to becoming a biology major here at Radford University. "I grew up in San Gabriel, CA, a suburb of Los Angeles" recalled Alan. After

service in the Army, Alan and his wife moved to the New River Valley in 2011. "I worked as a construction superintendent while she earned her master's degree in nursing and she now works for River Ridge Dermatology in Blacksburg" Alan said. "Radford was perfect for me due to the proximity and affordability.

It is not unusual for applicants to excel in the areas of patient care experience through shadowing, community service and GPAs but have average or below performance on the MCAT, a major hurdle for otherwise promising pre-medical students. Some students report that MCAT preparatory courses are effective for increasing scores, but such courses are quite expensive - some approaching \$2,000. This is cost-prohibitive for many students, placing them at a disadvantage to wealthier students.

The Dr. Ann S. Ferren scholarship is intended to offset a portion of the cost associated with an MCAT preparatory course, such as that provided by Kaplan Test Prep. The Pre-health Advisory Committee reviews portfolios to select a recipient of this scholarship based on a competitive process.

To be eligible for this award, students prepare a portfolio that is be evaluated by pre-med advisors of the Pre-Health Advisory Committee. Award of the Dr. Ann S. Ferren MCAT Preparation Scholarship is based on evidence for predicting success as a medical student as it is presented in the portfolio and includes an examination of the student' academic and standardized testing performance and an essay explaining that student's desire to pursue a medical career.

"Becoming a physician has always been a long term goal of mine, and I'm glad to finally turn it into a short term goal" stated Alan. "I feel that the branch of osteopathic medicine will be a good fit for me as I'm enamored with the whole patient philosophy."

RADFORD UNIVERSITY FORENSIC SCIENCE INSTITUTE TO BE FEATURED IN MUSEUM OF THE EARTH SCIENCE LECTURE



Dr. Donna Boyd working with students identifying bone fragments

On March 3 at 7pm in the Bonnie Hurlburt Student Center Auditorium, Dr. Donna Boyd will present “Fifteen years of the RU Forensic Science Institute” as a part of the Museum of the Earth Sciences ongoing lecture series. Dr. Boyd is the Co-Director of the Radford University Forensic Science Institute (RUFISI) and an Eminent Professor of Anthropology within the College of Science and Technology.

The RUFISI is an interdisciplinary institute whose goal is to promote and support forensic science education, research and public service. The institute faculty and affiliates are comprised of a wide range of specialists with interests in Forensic Science and include Forensic Anthropologists, Archaeologists, Biologists, Chemists, and specialists in Physics, Geology, Criminal Justice, and Information Technology.

For students, the RUFISI provides unique hands-on advanced interdisciplinary training for undergraduate students in the Forensic Sciences through the minor in Forensic Science which prepares students for professional careers (including graduate study) in a variety of forensic medico-legal settings.

For law enforcement professionals and other community members, the RUFISI provides professional consulting in medico-legal aspects of forensic science, including Forensic Anthropology and Forensic Archaeology, as well as prehistoric and historic archaeological cultural resource management projects.

WHAT THE FLIP?! DR. ANTHONY DOVE TO PRESENT HIS WORK WITH FLIPPED CLASSROOM CONCEPT

Ever wonder about the secrets of intensely engaging your students in the classroom? Dr. Anthony Dove, Assistant Professor of Mathematics has found recent success with an evidence-based method called Flipped Learning. Faculty interested in learning more can join Dr. Dove and their colleagues for an information session and discussion of potential opportunities with flipped learning at RU on Monday, February 23 from 2-3 pm or Tuesday, February 24 from 9-10 am in Heth Hall, RM 43.

This event is sponsored by the Center for Innovative Teaching and Learning, McConnell Library, and RU High Impact Practices (HIPS).



Dr. Anthony Dove working with students in a flipped classroom model

RACKSPACE ON CAMPUS – TECH TALK AND JOB SESSION



On Wednesday, February 18, representatives from Rackspace cloud computing company met with students and faculty in computer science and information technology. The goal of the session was to both impart information in a “Tech Talk” but also to encourage students to apply for positions offered by the company as they are presently hiring software developers and interns.

The group spoke to a packed house in the ARTIS Lab for both activities. In the “Tech Talk” programmers shared their techniques in using server side Javascript to write programs that help their clients accomplish their goals. Entitled NoedJS Microservices, the program discussed a particular way of designing software applications as suites of independently deployable asynchronous services that are easy to replace and are organized around capabilities, such as logistics, billing, etc.

Following the formal presentation, the “Rackers” as the team members are known, met with students to talk about internships and job opportunities within the company at their Blacksburg location and throughout the organization.



Rackspace representatives shared their experiences with RU students and faculty

MATHEMATICS STUDENTS VISIT CENTREVILLE HIGH SCHOOL



Ben Brumback, John McGee, and Hanna Mitchell

On Wednesday, February 4th, representatives of the Department of Mathematics and Statistics delivered a presentation to the Math Club of Centreville High School in Fairfax County, Virginia to an audience of at least 120 student and 3 teachers. The 45 minute program consisted of three segments.

The first was delivered by sophomore mathematics major Hanna Mitchell entitled “Why study mathematics at the university level”.

The second segment was delivered by junior computer science major Ben Brumback, who explained “Why consider studying mathematics at

Radford University”.

The third segment was an exercise in cryptography conducted by mathematics instructor John McGee. The students were trained in modular arithmetic, matrix-vector multiplication and the workings of the Hill Cypher based on these methods. They were divided into teams of three and given 8 or 10 character coded messages. Five of the teams successfully decoded their messages within 10 minutes. Many others continued to work on the challenge after the meeting officially ended.

The RU team was invited to the event by Kathy Beatty, the chair of the mathematics department at CHS. Ms. Beatty stated “Several of our students were talking about the problem that you had them do and how cool it was.”

MATH COMPETITION: STUDENT VS FACULTY

Friday the 13th of February was a lucky day for lovers of Mathematics as the RU Math Club sponsored a problem solving competition between students and faculty in Walker Hall 295. Facilitated by Hanna Mitchell and John McGee, the event pitted the two teams against each other in a series of challenging math scenarios with only a few minutes to complete each. The faculty edged out the students in total number of points, but all involved had a great experience.



Competitors in the students vs. faculty math challenge

CHEMISTRY ON THE SILVER SCREEN – FEBRUARY 24 IN WALKER HALL 279

Interested in learning about the portrayal of “Chemistry on the Silver Screen”? Do they get the chemistry right in shows like *Breaking Bad*?

Come to Walker 279 Tuesday, February 24, at 7 PM to hear why science is finding a bigger place on the silver screen and in our living rooms. What’s behind this new attraction and how is Hollywood and the scientific community making the portrayal of the scientist and science more accurate? Join us for a discussion with real life Hollywood science advisors and learn from their behind-the-scene stories. Networking starts at 6 pm with the Webinar at 7 pm.



Tuesday, Feb. 24, 2015
Walker 279



- 6:00 pm ET *Networking*
- 7:00 pm ET *Webinar*
- 7:30 pm ET *Live Q&A*

Learn More and Register:
www.acs.org/pib

GRAVITY

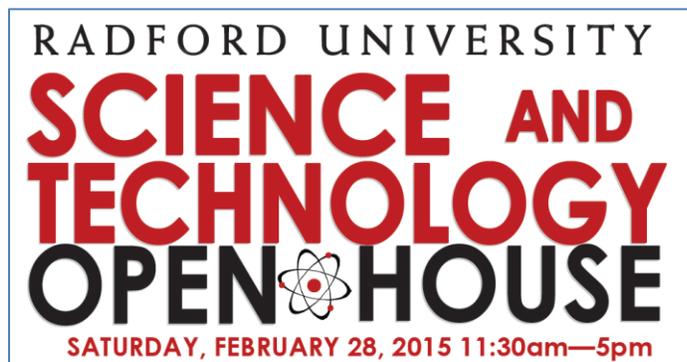
Join us to learn how chemists and chemistry have influenced movies and TV shows like *Breaking Bad*, *Gravity*, *Battlestar Galactica*, and *Eureka*.



This ACS Program-in-a-Box is sponsored by Proctor & Gamble



COLLEGE OF SCIENCE AND TECHNOLOGY TO HOST OPEN HOUSE FOR PROSPECTIVE RU STUDENTS ON FEBRUARY 28



Students who have an interest in attending Radford University to pursue a major in science or technology are invited to participate in an afternoon open house on February 28 from 11:30-5pm.

In addition to experiencing some of the outstanding outreach programs on campus such as the Greenhouse, Museum of the Earth Sciences and the Planetarium,

prospective students will have the opportunity to learn more about financial aid, career services, student leadership opportunities and more. Current faculty and students will be available to help showcase the college. For more information, please visit

<http://www.radford.edu/content/csat/home/openhouse.html>

CAMP INVENTION AT RU SCHEDULED FOR JUNE



Camp Invention is a nationally recognized, non-profit elementary enrichment program backed by the National Inventors Hall of Fame.

Over the past 40 years, and in partnership with the U.S. Patent and Trademark Office, the Camp Invention program has encouraged nearly two million children, teachers, parents, college students and independent inventors to explore science, technology and their own innate creativity, inventiveness and entrepreneurial spirit.

Kids from the first through sixth grades can participate in Camp Invention at RU this June 22 – 26. Local educators will serve as faculty to lead the week of hands-on fun at Radford University, sponsored by the College of Science and Technology.

Registration is now open. For more information, please visit:

<http://inventnow-web.ungerboeck.com/programsearch/moreinfo.aspx?event=12027>

SUMMER BRIDGE APPLICATIONS REQUESTED BY THE COLLEGE OF SCIENCE AND TECHNOLOGY

The Radford University College of Science and Technology Summer Bridge STEM program is a week-long residential experience for rising sophomore, junior, and senior high school girls interested in science, technology, and mathematics. The 2015 edition of the program will take place from Sunday, July 12 – Friday, July 17, 2015.

Applications are now being accepted for the 2015 program.

More information is available at:

<http://www.radford.edu/content/csat/home/summer-bridge.html>

