

DEAN'S END OF THE ACADEMIC YEAR BULLETIN

June, 2011

This is a follow up to the Mid-Academic Year Bulletin that was distributed in the beginning of January. The purpose of these bulletins is to inform our faculty and staff and to give an update on the status of this year's initiatives, agenda items, and on our progress towards meeting the goals and objectives of our College. Below is an outline of our accomplishments and work in progress.

**A. CELEBRATING OUR SUCCESSES**

Congratulations to all our faculty, staff, and students for their accomplishments, successes, and contributions to our college and institute. We are making news on a weekly basis. For details and news releases, please check: [http://www.rit.edu/cos/newsandevents\\_releases.php](http://www.rit.edu/cos/newsandevents_releases.php)

**B. ACADEMIC EXCELLENCE AND STUDENT SUCCESS**

**Undergraduate Research:** *Weekly Undergraduate Research Seminar* took place on Wednesdays at 1:00 over pizza and soda to promote interdisciplinary collaboration. Faculty and students participated to listen to presentations given by students from our science and math programs.

**Recipient of 2 NSF REU Programs:** Our College has received two 3-year NSF REU (Research Experience for Undergraduates) awards:

- *Imaging in the Physical Sciences.* The PI is Dr. Stefi Baum, Director and Professor, Chester F. Carlson Center for Imaging Science.
- *Extremal Graph Theory and Dynamical Systems.* The PI is Dr. Darren Narayan, Professor in the School of Mathematical Science and Director of Undergraduate Research. This is the second REU for the School of Mathematical Sciences and it will build upon successful practices that have resulted from the first REU that was completed last summer.

Undergraduate research is central to the mission of our college and our institute as it combines faculty mentoring with student achievement that leads to increased scholarship for both groups. We are very excited about these awards!

**Summer Undergraduate Research Fellowships:** Through fundraising funds 14 students were awarded undergraduate research fellowships. In addition to these 14 fellowships, 11 students were awarded undergraduate research fellowships through the Honors Program.

**Students Explore the World of Color:** Dr. Mark Fairchild has developed a Color Science website which offers a color curiosity shop that answers questions such as: What is color? What does the world look like to the colorblind? And, why are rainbows formed? This is an educational website for students and answers more than 200 common questions about color by providing short answers, vibrant photos and video. The National Science Foundation, Apple Inc. and RIT sponsored the project.

**AST Program:** RIT conferred the first two PhD's in Astrophysical Sciences and Technology (AST). Congratulations to Rudolfo Montez Jr. and to Grant Tremblay; they both attended the Convocation and Commencement.

**MS Imaging Science Student won a Prestigious Award:** Mr. Frank Padula *is the recipient of the 2011 John I. Davidson President's Award* given by the ASPRS Imaging and Geospatial Information Society. This is to recognize Frank for his journal article entitled "*Historic Calibration for the Thermal Infrared Band of LANDSAT-5 TM*". This article is based on his MS thesis work and has won not only the ASPRS most practical paper of the year but their best scientific paper as well; his advisor is Dr. John Schott. This is quite an accomplishment! We are all very proud of Frank.

**Doctoral Students won National Awards:** Kelly Canham and Nima Pahlevan, students in the Digital Imaging and Remote Sensing Laboratory in the Chester F. Carlson Center for Imaging Science, won temporary use of spectralradiometers. These instruments measure the amount of light reflected from a material at each wavelength along the electromagnetic spectrum. The awards were made through the Alexander Goetz Instrument Program, co-sponsored by Analytical Space Devices Inc. and the Institute of Electrical and Electronics Engineers Geoscience and Remote Sensing Society. A total of seven 2011 award winners were named.

**Student Involvement:** I met monthly with the College of Science Student Advisory Board (COSSAB) to give them an update on the COS activities, initiatives, challenges and opportunities and to hear their concerns and suggestions. I also met with the new leader of the College of Science African American, Latino American, Native American (COSAALANA) Student Board to discuss their goal to create a COS community of scholars and mentors to support AALANA students through social, research, academic, and community outreach activities.

**COSAALANA (College of Science African American Latin American Native American Association):** COSAALANA was established as an academic-based organization whose primary objective is to assist College of Science AALANA students in excelling beyond their potential, to inform its members about any research opportunities that are available, to connect students with other AALANA students, faculty, staff, and COS alumni and recent graduates, and to increase the success and retention rate of the AALANA students in the College of Science.

**Women in Science (WiSe) Internal Advisory Board:** We have formed a WiSe Internal Advisory Board that will help us build and grow our WiSe program. (<http://www.rit.edu/cos/WiSe/index.html>) which seeks to engage women in the sciences and mathematics by offering information, equity, and collaboration opportunities that will break down barriers and will enhance their education and career(s) throughout their journey.

### **C. RESEARCH AND SCHOLARSHIP**

**Spitzer Science Center:** A team, lead by David Axon, including Andy Robinson and Mike Richmond, professors of Physics, won a very large proposal on the Spitzer Space Telescope. There were 1000 hours of observing available of which 196 hours were assigned to this team!

**DIRS Help Map Tsunami and Earthquake Damage in Japan:** The Center for Imaging Science Digital Imaging and Remote Sensing Laboratory researchers processed satellite imagery of regions in Japan affected by the 9.0 magnitude earthquake and tsunami that devastated sections of the country's east coast. The U.S. Geological Survey, a member of the International Charter "Space and Major Disasters," organized the volunteer effort involving about 10 organizations, including Harvard University, George Mason University, Penn State and the Jet Propulsion Laboratory. It is gratifying to see that we are making a difference in such a devastating situation!

**CACM on the Spotlight:** The Society for Industrial and Applied Mathematics (SIAM) and the International Congress on Industrial and Applied Mathematics (ICIAM) have contacted "websedge" (<http://www.websedge.com/>) to produce ICIAM TV. ICIAM is the biggest international event in applied and industrial mathematics and is held once every 4 years; this year will be held in Vancouver in July. ICIAM has selected 12 applied and computational math groups from around the world that they would like to profile in a one-hour film to be shown at ICIAM; they are: Cornell, RPI, NC State, Waterloo, Simon Fraser, McGill, Wilfrid Laurier, 4 European universities, and RIT. SIAM/ICIAM has selected our Center for Applied and Computational Mathematics (CACM) because they were impressed with the breadth of research projects they saw on our website. The primary goal of the film is to give applied math groups, like our CACM, exposure to potential industrial and governmental research partners who will be attending ICIAM.

**Part of the National Effort to Track Ecological Change:** RIT is among a growing list of research universities committed to tracking the impact of environmental changes in the United States during the next 30 years through the proposed National Ecological Observatory Network Inc., also known as NEON which was included in the Obama Administration's fiscal year 2011 budget proposal. Construction on the project began in the fall with NSF funding. Scientists will gather data annually from 20 regional eco-climate zones to forecast ecological change over three decades. Raw data measuring hundreds of ecological variables, from ground-based sensors and

remote sensing (airborne data collection) capabilities, will be processed into “information products” and made freely available for scientific analysis. Our colleagues, Dr. Van Aardt and Dr. John Schott are sharing some of RIT’s expertise with the observatory to test and help refine environmental research for improved system understanding.

**The Green Machine - Algae Clean Wastewater, Convert to Biodiesel:** Dr. Jeff Lodge, Associate Professor of Biological Sciences, Eric Lannan, Mechanical Engineering graduate student, and chemistry major Emily Young are working in Lodge’s biology lab developing biodiesel from microalgae grown in wastewater. The project is doubly “green” because algae consume nitrates and phosphates and reduce bacteria and toxins in the water. The end result: clean wastewater and stock for a promising biofuel. The purified wastewater can be channeled back into receiving bodies of water at treatment plants, while the biodiesel can fuel buses, construction vehicles and farm equipment. Algae could replace diesel’s telltale black puffs of exhaust with cleaner emissions low in the sulfur and particulates that accompany fossil fuels. Assemblyman Joseph Morelle applauded this initiative. There have been articles published about this project in the D&C, Canadaigua Daily Messenger, Henrietta Post, and Jeff was interviewed by Biodiesel magazine which came out in February and there will be an article in Conservation Magazine soon.

**Publications:** There were 86 publications submitted to the RIT Faculty Scholarship Submissions. The total RIT faculty publications submitted by all colleges are 309; our college had the highest number of publications.

**Sponsored Research:** The sponsored research activity, from July 1<sup>st</sup>, 2010 to May 30th, 2011 for our college is as follows:

- Proposal submitted = 171
- PIs on submitted proposals = 69
- Co-PIs on submitted proposals = 34
- Awards received value = \$7,716,199

**FEAD Grants:** Twelve FEAD proposals were awarded this year. Congratulations to the recipients:

- Ephraim Agyingi, School of Mathematical Sciences  
Title of Proposal: *Mathematical Modeling of Biological Phenomenons*
  
- Sandra Connelly (joint with Loraine Tan), School of Biological Sciences and Medical Sciences  
Title of Proposal: *An assessment of vitamin D metabolite conversion and uptake by microcrustaceans (Daphnia, spp) as ultraviolet (UV) protection in freshwater systems*

- Andre Hudson, School of Biological Sciences and Medical Sciences  
Title of Proposal: *Characterization of meso-diaminopimelate decarboxylase from Arabidopsis thaliana: a target for herbicide development*
- Irene Evans, School of Biological Sciences and Medical Sciences  
Title of Proposal: *How does a prion protein affect the cell that harbors it? What do the transcriptional differences in retrotransposon and other mRNAs tell us?*
- Thomas Kim, Chemistry  
Title of Proposal: *A cross-sectional analysis of student understanding of acid-base chemistry.*
- Suzanne O'Handley, Chemistry  
Title of Proposal: *Nudix Hydrolases and HAD Superfamily Members*
- Susan Smith, School of Biological Sciences and Medical Sciences  
Title of Proposal: *An Assessment of Wild Fruit Nutritional Quality and Consumption by Migrating Songbirds*
- Mike Savka, School of Biological Sciences and Medical Sciences  
Title of Proposal: *Identification of luxI gene from a xenobiotic-degrading Sphingomonas sp. EPA505 bacterial strain*
- Loraine Tan (joint with Sandra Connelly), Chemistry  
Title of Proposal: *An assessment of vitamin D metabolite conversion and uptake by microcrustaceans (Daphnia, spp) as ultraviolet (UV) protection in freshwater systems*
- Bolaji Thomas, School of Biological Sciences and Medical Sciences  
Title of Proposal: *Genomic diversity of decay accelerating factor polymorphisms within and between populations*
- Tamas Wiandt, School of Mathematical Sciences  
Title of Proposal: *Investigations of pulsations in the Lang-Kobayashi System with the Homotopy Analysis Method.*
- Scott Williams, Chemistry  
Title of Proposal: *Resolving Complexation Reaction Mechanisms between Drug and Pro-drug Fragments that Suppress Hemazoin Formation from Hematin.*
- Jan van Aardt, Imaging Science

Title of Proposal: *Development of geometric registration and object extraction tools for laser point clouds derived from multiple ground-based LiDAR scans.*

**Distinguished Lecture Series:** We sponsored the following talks:

- In September, Rebecca Skloot was invited to campus (this was a co-sponsored event with other colleges; the effort was cross-institutional, inter-collegial, and multidisciplinary) to give a talk based on her book *“The Immortal Life of Henrietta Lacks”*. We estimated that Ingle Auditorium's five hundred seats were nearly all filled. In addition to attracting students, faculty, and staff from RIT, this event brought in groups from Nazareth and other area colleges, individuals from the community, and people traveling from Buffalo. Rebecca spent over an hour signing 150+ books, taking photos with students, and answering more questions after her talk.
- In October, Dr. Wouter van Hoven, Director Center for Wildlife Management, University of Pretoria, gave a talk on *“Some Challenges to Wildlife in Africa Today.”*
- In March, Dr. Gregory Beroza, deputy director of the Southern California Earthquake Center since 2007 and chair of the Stanford Geophysics Department and a fellow of the American Geophysical Union, presented *“Off-Main-Sequence Earthquakes”* as part of the College of Science Distinguished Speaker series.
- In May, we co-hosted the Women's Career Achievement Dinner keynote speaker, Dr. Meg Lowman

#### **D. FACULTY AND STAFF SUCCESS**

**Mentoring of Pre-tenure Faculty:** I held monthly breakfast meetings with our pre-tenure faculty members. The purpose of these meetings was to identify any issues or concerns, to provide support, and to keep the communication open. Some of the invited guests and speakers were faculty who got tenure recently, Darren Narayan who talked to them about undergraduate research and shared his experiences on how to win NSF REU and CCLI grants, and Paul Craig who talked about outreach, networking, and interdisciplinary collaborations.

**Teaching Advisory Committee:** A College of Science Teaching Advisory Committee (COSAC) has been introduced to develop and implement procedures that accommodate individual styles of teaching by mentoring faculty as they consider how they present information, how they evaluate students' learning, how to prepare formative self-evaluations of their own teaching and use those self-evaluation in an iterative process to improve their teaching, and how to develop an evaluation of their teaching based on the elements they identified in their plan of work.

**Staff Professional Development and Career Advancement:** The COS Administrative Council had a number of discussions on this topic. We also had discussions with the Human Resources office. We have written a proposal on Staff Professional Development and Career Advancement that we plan to implement during the upcoming academic year.

**Staff Awards:** Congratulations to Catherine Mahrt-Washington, Assistant Dean for Student Affairs, for receiving the following recognitions:

- Student Government Extra Mile award - For Outstanding and Attentive Service to Students
- The Multicultural Center for Academic Success (MCAS) Community Partner Award
- Alpha Sigma Lambda Honor Society certificates from two students for having a positive influence on them.

**Tenure and Promotions:** Congratulations to our colleagues who were awarded tenure and promotion:

Tenure:

Dr. Chris Collison, Department of Chemistry  
Dr. James Ferwerda, Center for Imaging  
Dr. Dawn Hollenbeck, Department of Physics  
Dr. Manuel Lopez, School of Mathematical Sciences

Rank of Senior Lecturer:

Dr. Alla Bailey, Department of Chemistry  
Dr. Joseph Lanzafame, Department of Chemistry

Rank of Associate Professor:

Dr. Chris Collison, Department of Chemistry  
Dr. Dawn Hollenbeck, Department of Physics  
Dr. Manuel Lopez, School of Mathematical Sciences

Rank of Professor:

Dr. Bill Basener, School of Mathematical Sciences  
Dr. Manuela Campanelli, School of Mathematical Sciences  
Dr. Scott Franklin, Department of Physics  
Dr. Naval Rao, Center for Imaging Science  
Dr. Carl Salvaggio, Center for Imaging Science  
Dr. Mike Savka, School of Biological and Medical Sciences

**Eisenhart Teaching Award for Outstanding Teaching:** Congratulations to our colleagues:

Dr. Sandra Connelly, Assistant Professor in the School of Biological and Medical Sciences who is the recipient of *The 2010 – 2011 Richard and Virginia Eisenhart Provost's Award for Excellence in Teaching*.

Dr. Cara Calvelli, Associate Professor of Medical Sciences, is one of the recipients of *The 2010 Eisenhart Award for Outstanding Teaching*.

**Trustees Scholarship Award:** Congratulations to our colleague

Dr. Roy A Berns, Richard S. Hunt Professor and director of the Munsell Color Science Laboratory in the Chester F. Carlson Center for Imaging Science for being awarded the 2010-2011 Trustees Scholarship Award.

**Raymond C. Bowman Award:** Dr. Scott Williams, Professor of Chemistry, is the recipient of 2011 Raymond C. Bowman Award for his dedication to a teaching philosophy that inspires students to become critical thinkers and effective communicators. This award is given by the Society of the Imaging Science and Technology.

**Radcliffe Institute for Advanced Study Fellowship:** Congratulations to Dr. Stefi Baum for winning a fellowship at the Radcliffe Institute for Advanced Study at Harvard University for the 2011–2012 Academic Year. The Radcliffe Institute in Cambridge, Mass., is a scholarly community where fellows pursue advanced work across a wide range of academic disciplines, professions and creative arts. Stefi is among the 50 fellows chosen from more than 800 applicants. Her appointment will extend from September through May.

**Sabbaticals:** Best wishes to our colleagues who were awarded Leaves of Absence for Professional Development for the Academic Year 2011-12:

Dr. Stefi Baum, Professor and Director, Center for Imaging Science  
3 quarters for the project: “Astrophysics, Biomedical Imaging and Sciences and Public Policy”

Dr. Linda Barton, Associate Professor, Physics  
1 quarter for the project: “Transport Measurements in Magnetic Heusler Alloys”

Dr. Raluca Felea, Associate Professor, School of Mathematical Sciences  
2 quarters for the project: “Inverse Problems and Applications”

Dr. Elizabeth Hane, Associate Professor, School of Biological and Medical Sciences  
2 quarters for the project: “Globalized Education and Scholarship”

Dr. John Kerekes, Associate Professor, Center for Imaging Science

1 quarter for the project: "Remote Sensing System Modeling Research"

Dr. Massoud Miri, Associate Professor, Chemistry

3 quarters for the project: "Synthesis of Sustainable Polymers"

Dr. Christopher O'Dea, Professor, Physics

3 quarters for the project: "Heating and Cooling in the Intracluster Medium"

Dr. Robert Rothman, Professor, School of Biological and Medical Sciences

2 quarters for the project: "Understanding Galapagos: Science and Natural History in Darwin's Laboratory of Evolution"

**Professor Emeritus:** We thank our colleagues for their years of service, for their contributions to our college, and for their dedication to our students and to their profession:

Dr. Marvin Gruber, professor in the School of Mathematical Sciences, who has completed 44 years of service

Dr. Ann Young, Professor of Physics, who has completed 30 years of service

Dr. Ron Jodoin, Professor of Physics, who has completed 37 years of service

## **E. ACADEMIC OPERATIONS**

**COS Strategic Planning:** We held a college wide retreat, (115 attended). Faculty and staff participation and engagement made this process the most inclusive to date. The material gathered from this retreat served as a foundational element to inform the creation of our strategic plan. The COS Strategic Plan Core Committee (SPCC) has worked hard during the academic year to gather and interpret the data from our summer retreat, to brainstorm, and to identify main focus areas and directions that will be the main components of our strategic plan. Focused Group Discussions were held that addressed:

- The development and support of academic programs that meet the challenge of declining US competitiveness in STEM education while preparing graduates for careers in a rapidly changing global marketplace.
- The development and support of active, cross-disciplinary research clusters that attract excellent scientists to RIT, provide rich learning environments for our students and are supported by grants, foundations and industrial sponsorship.
- The development and support of infrastructure, policies and a collegiate culture that facilitates career advancement and job satisfaction for all members of the College.

The SPCC tried very hard to involve everyone and to engage them in spirited discussions and in planning the future of our college. The next step of our strategic planning process is to use the

feedback received by our faculty and staff to draft the blueprint of our plan that can be used to guide us over the next five years as we try to meet our evolving targets for excellence. It is important to emphasize that whatever strategic plan we draft it will not change our core mission of teaching, scholarship and service. Our strategic planning process will refresh the vision and mission of our College, develop strategic goals, recommend priorities and areas where we plan to make a difference, establish key measures and action plans, align with the overall institute plan, and will integrate with our daily responsibilities and functions. Our strategic plan will be used to provide a focused direction, identify our collective opportunities and possibilities for the next five years, inform our budget and decision making process, co-create the next chapter in the COS story, and to hopefully answer questions such as: What kind of college do we want to be? What should distinguish the College of Science from the rest of the colleges at RIT and from other educational institutions?

**Calendar Conversion:** The curriculum of all our programs, foundation and general education courses has been converted and the converted programs have been approved by the Institute Curriculum Committee and the Graduate Council. We are all very grateful to the COS Curriculum Committee members (Laura Tubbs, Chair; Mark Fairchild, Kristin Waterstram-Rich, John Waud, Elizabeth Hane, Tina Collison, Dick Orr, Roger Easton, Jan Van Aardt, Dawn Hollenbeck, and Ann Gottorff) for their diligent work and for the time and effort they put into this important and time consuming task.

**Transfer of Programs:** The Institute of Health Sciences and Technology (IHST) has been launched. Three COS programs (Physician Assistant, Ultrasound, and Biomedical Sciences), two certificate programs (Exercise Science and Ultrasound), CBET (Center for Bioscience Education and Technology), and Premed Advising are transferred to the new college CHST (College of Health Sciences and Technology) that will be part of IHST. The following faculty and staff are going to transfer to this new college:

- Bill Brewer, Director of the Exercise Science Certificate Program
- Cara Calvelli, Associate Professor, Physician Assistant Program
- Jodie Crowley, Clinical Coordinator, Ultrasound Program
- Modeste Faye, Assistant to the CBET Director
- Hamad Ghazle, Director, Ultrasound Program
- Nancy Herbert, Clinical Coordinator, Physician Assistant Program
- Michele Lennox, Lecturer, Biomedical Sciences
- Doug Merrill, Director of CBET
- Heidi Miller, Director of the Physician Assistant Program
- Joyce Murphy, Staff Assistant, Medical Sciences
- John Oliphant, Physician Assistant Program
- Robert Osgood, Assistant Professor, Medical Sciences
- Elizabeth Perry, Lecturer, Biomedical Sciences
- Bolaji Thomas, Assistant Professor, Biomedical Sciences
- Nancy Valentage, Associate Director, Physician Assistant Program
- Kristen Waterstram-Rich, Director of Premed Advising and Biomedical Sciences

Lisa Whitley, Staff Assistant, Physician Assistant Program

Kelly Youngblood, Staff Assistant, Biomedical Sciences and Premed Advising

**Change of Program Title:** The State has approved our request for a title change, effective May 16, 2011, for our BS in Biotechnology program; its new title is *Molecular Bioscience & Biotechnology*.

**Nanoweek:** The Rochester Museum & Science Center in collaboration with RIT organized this year's for Nanoweek which featured nanoscience and technology. Several hundreds of visitors went past the demos prepared by RIT Materials Science students and Nanopower labs.

**Faculty and Administrative Position Searches:** The Physics Department, the School of Mathematical Sciences, the Center for Imaging Science, and the School of Biological and Medical Sciences conducted searches on the following strategic areas:

- Optical Physics
- Nanoscale Materials Physics
- Soft-matter Biological Physics
- Biomathematics/Mathematical Biology
- Computational Mathematics
- Discrete Mathematics
- Biomedical Imaging
- Head of the School of Biological and Medical Sciences

Most of these searches are close to completion.

**COS Webpage:** We have made a good progress in revamping the COS Webpage. We will soon unveil a revised COS webpage which will be used as a model to redesign and revamp the COS websites and the webpages of all the COS academic units.

## **F. ALUMNI**

**COS Distinguished Alum:** This year's Distinguished Alum is Dr. Robert Loce who received his Ph.D. in imaging science in 1993, the first doctoral degree awarded by RIT. Dr. Loce is a principal scientist at Xerox.

**COS Alumni Speaker Series:** We have formed a COS Alumni Speaker Series. We had two speakers this year who gave very good talks to our students: Deb Koch, Chemistry alumna and Ted Dziuba, Computational Mathematics Alum, who created the Milo Company that was just bought by EBay.

**Commencement Speaker:** We started a new tradition to be inviting each year one of our distinguished alumni to give the COS Commencement Address. Last year our distinguished

alumnus, Dr. Bob Loce, gave a very inspirational address to our graduating class. This year, we chose Dr. Rand Henke, Entrepreneur-in-Residence at High Tech Rochester, to be the 2010-11 College of Science commencement speaker; his address to our graduates was very well received.

**G. FUNDRAISING**

Fundraising attainment for the COS in Fiscal Year 2011 is \$1,415,092. Our alumni donors participation has increased from 8.10% in Fiscal Year 2010 to 8.70% in Fiscal Year 2011.