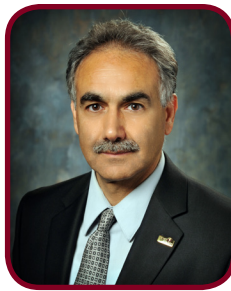


Message from the Dean

At the close of the Spring semester, we again celebrate a number of accomplishments. First, I'm very proud of our students' achievements: at May's Commencement, 496 of our majors received their Bachelor's degrees. Congratulations to our students, and a sincere thank you to our faculty and staff who have supported our students during their time within the College of Science & Mathematics!



The College has continued to progress in other substantial ways:

- Our faculty researchers have developed important research programs, leading to new collaborations with the faculty at the School of Osteopathic Medicine, as well as generated significant extramural grant funding.
- CSM launched the Environmental Sustainability Institute. The Institute will support Rowan's expertise in the field and increase collaboration among faculty in environmental research activities, interdisciplinary degree programs, and outreach programs.
- The CSM STEM Center was created

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CSM Department Listing

- Biological Sciences
- Chemistry and Biochemistry
- Computer Science
- Mathematics
- Nursing
- Physics and Astronomy
- Psychology

Psychology Celebrates 40 Years

40 years. In 1974, the Psychology department held its first Psychology Research Conference.

In just 40 years and two school-name changes later, the Psychology department grew in number of major and minor programs, to encompass over 800 students and has earned, in this year alone, over \$700,000 in grant awards.

Still, that doesn't seem a large enough ruler to measure 40 years.

"I'm going to wing this," said Associate Professor of Psychology Jim Haugh, as he stood before parents, students and faculty. "I'm going to begin this ceremony with my two favorite people.

Haugh introduced his two children.

"Why am I bringing my sons up here? To show them off primarily," he chuckled,

"but because today we're celebrating 40 years."

On April 17, students from both undergraduate and graduate Psychology programs gathered in the Student Center Eynon Ballroom to showcase their panel selected projects before their peers and families, at the 40th Annual Psychology Research Conference. The Psychology Alliance club and the Applied Behavior Analysis club were also in attendance to support their fellow researchers and club members.

"As parents we often wonder where our sons and daughters will go," Haugh said, "you have the luxury in knowing where your sons and daughters have come."

Presentations packed the itinerary, as well as an awards and recognition ceremony for student achievements in research and service in psychology.

Andrew Jarema, a second year graduate student, gave his presentation on the "Beliefs about the Causes of Depression and Treatment Preferences."

"I want to become a Professional Counselor after I graduate [this spring]," said Jarema. "This research, although it was very strenuous and time-consuming," he laughed, "gave me the information I need to



Students shared their research at the 40th Annual Psychology Conference. Posters from additional studies were also displayed in the lobby.

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Commitment to education: Dayalan Srinivasan

Being a professor in higher education isn't limited to assigning tests, creating lesson plans and mandatory office hours; for Assistant Professor of Biological Sciences Dayalan Srinivasan, being a professor is about adapting and implementing new teaching styles for the betterment of students' education.

Having been named National Academies Education Fellow in the Life Sciences by the National Research Council for the 2013-2014 academic year, Srinivasan joins a dedicated class of professors, consisting of Dr. Michael Grove, Dr. Luke Holbrook, Dr. Cristina Iftode, Dr. Alison Krufka and Dr. Courtney Richmond, who were fellows for the 2011-2012 academic year.

"When you look at higher education on a national level, you can see that we're not producing enough students from the fields of science, technology and engineering," Srinivasan said. "As NAE fellows, we try to figure out where the problem is."

Last summer, Srinivasan applied to the National Academies Summer Institutes, an organization that aims to develop teaching skills at five-day

workshops, to transform the undergraduate classroom. The Summer Institutes model the scientific teaching principles on the expertise of participants, according to the academies' website.

"We came with an idea of 'Backwards Design,' where we look at our end result, being student success, and work backwards from there," Srinivasan explained.

Over 50 members, from New England to Florida, convened with leaders in science pedagogy to discuss backwards design, which consists of lesson plans that are designed from the result rather than from the material. With student success in mind, lessons plans are designed to give students a chance to work with the material so that they have the knowledge and abilities to further themselves in their disciplines, said Srinivasan.

"For me, I'll plan a lesson with what I hope my students will take away. Then I figure out what I should teach in class so they can get some information on the material. In my labs, I'll have them practice and witness what I am teaching, so that when an exam comes, the students are well prepared not only for the grade, but to move on to the next step," Srinivasan explained.

Knowing that his class is only a fraction



of the science, technology and engineering population, Srinivasan has presented he and his fellows' findings to the Biological Sciences department.

"Our department is a very forward thinking and progressive department," Srinivasan said.

Though textbooks are important to the acquisition of course material, he wants students to know that it's not necessarily the textbook that's important, but also the experiments. While Srinivasan has helped to develop new teaching methods, he knows that this is not the end.

"I want students to come out with things they'll hold onto," Srinivasan stressed. "There's still more I can do; being a fellow doesn't end with the award, it's a continued process in developing abilities."

CSM faculty find place on Wall of Fame 2014

The Wall of Fame awards are distributed each year by Rowan University, at a recognition banquet and awards ceremony in May, held in honor of the Professors and Professional Staff members who have been nominated by graduates from the previous year for their excellence in teaching and/or advising. The College of Science and Mathematics congratulates the following professors on their commitment to education:

Awards for Teaching and Advising

Professor D.J. Angelone, *Psychology*
Professor Keiko Stoecking, *Psychology*

Awards for Advising

Professor Patrick Crumrine, *Biological Sciences*
Professor Hieu Nguyen, *Mathematics*

Awards for Teaching

Professor Larry Howe, *Mathematics*
Professor Dayalan Srinivasan, *Biological Sciences*

College is what you make of it: Jessica Healey comments on her growth from freshman, to Board of Trustees Representative

The transition from high school to college is a pivotal chapter in life that many have gone through and still do; it is a time for growth, for change and for making mistakes. For Class of 2014 graduate Jessica Healey, college can be overwhelming sometimes; but ultimately, she says that college is what you make of it.

Healey, the Board of Trustees [BOT] student representative on the Student Government Association executive board and consecutive-three-time president of her start up organization, Hope for Education, explained that when she first arrived at Rowan, she was very introverted.

“It was a challenge for me,” she said. “I was really shy and didn’t like to put myself out there.”

A commuter for all four of her years at the University, she had never been involved with anything like SGA in her high school, but decided to give it a try.

“As a commuter, I thought I’d be missing out on what it was like to be at college, but you make your own experiences,” Healey expressed. “I made an effort to get involved. I wanted to engage myself.”

Picking up a Student Freshman Officer Interest Program [SFOIP] application, Healey was hesitant, but decided to give it a try. At the time, SFOIP was an application-based program that allowed freshmen to develop their leadership and communication skills, while granting them the opportunity to become an intricate part of the University through leadership opportunities, like SGA.

In November of 2009, Healey was elected as a freshmen class senator where she voiced the concerns of her

class and voted on legislation on behalf of the freshmen population. With less than a year’s worth of experience, Healey decided to run for the Assistant Vice President of Student Affairs.

She won.

“I was really interested in the committees and the issues that students were facing on campus, and thought it fascinating that students had a chance to contribute to the solution,” Healey explained.

Described as an organic transition, she ran for the Alternate Board of Trustees student representative position her junior year.

She won again.

The SGA designates two e-board positions for the BOT student representative. The position, to which students are elected, is a two-year commitment. The first year is spent as a non-voting member on the BOT, where one learns how meetings operate, motions pass and who the board members are and their roles — a warm-up for when he or she becomes a voting member the next year.

A voting member her senior year at Rowan, Healey felt a sense of urgency to ensure that students knew they had a voice in the decisions made by the Board.

“The BOT was something that Julio [Interiano, alternate BOT student representative] wanted to address last year. Students have a voice and I worked to make sure that voice is heard,” Healey stressed.

For Healey, the quiet and unsure freshmen, becoming the BOT representative seemed like a dream.

“In SGA, you can’t be quiet and you can’t be shy. You have to assert yourself and say what you feel. It was a challenge for me,” Healey reflected. “It can be intimidating with everyone who has years of experience with the University and other fields.”

But Healey wasn’t alone in her journey to make the most out of college; she had a lot of support from her mentor, Vice President of Student Life and Dean of Students Richard Jones.

“[Dean Jones] is one of the big reasons I’ve been able to get to the places I’m at,” Healey said. “He forced me to believe in myself and be confident. He’s committed to his responsibilities and someone I’ve always looked up to.”

Dean Jones, former SGA Advisor, worked with Healey for all three years of service on the e-board.

“It was a privilege to watch Jess grow

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Jessica Healey '14 served as the Student Government Association Board of Trustees student representative. She is a biological sciences major, psychology minor with concentrations in both honors and pre-med.

Message from the Dean

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to coordinate existing outreach efforts across the faculty among our departments, as well as develop additional innovative activities for the future. The Associate Dean of the College will serve as the CSM STEM Center's liaison to the university-wide center.

- Our strategic plan has continued to advance as we generate new opportunities to support our students' academic programs, faculty development for teaching and research and increased infrastructure within the college.

- We saw greater growth of the Hollybush Institute, which will welcome a teaching and research Fellow in the fall.

- Our College continued its emphasis on undergraduate student research experiences, as demonstrated by a record number of presentations at the annual STEM Symposium

- We recently received approval for programs such as a Bachelor of Science in Biophysics, an undergraduate specialization in Cyber Security, as well as Certificates of Graduate Studies in Computational Data Analytics, Cyber Security, and Health Data Management. The University Board of Trustees also approved a Master's program in Data Analytics.

- CSM recruited 6 new research and 3 new full-time teaching faculty, who will join us in the Fall. These new faculty come to us with doctoral degrees and postdoctoral

research experiences from institutions such as the University of Arizona, City University of New York, Brown University, the National Institutes of Health, and the University of Pennsylvania. We are excited to have such talented researchers and educators join our College.

I am happy to report that our College has experienced its highest level of performance yet. As I close my message, I also close my chapter serving the College of Science & Mathematics and Rowan University. This summer I will be joining Southern Illinois University Edwardsville, as their Provost and Vice Chancellor for Academic Affairs. Although I am excited to begin my new endeavor,

I will miss serving the College's students, faculty, and staff. I wish all the best and look forward to learning about the continued progress of the College.

Parviz Ansari, Ph.D.
Dean, College of Science and Mathematics

CSM STEM Center looks to increase opportunities in education and research

The College of Science & Mathematics is pleased to announce the creation of the CSM STEM Center. The college-wide center will coordinate communication and collaboration among all CSM faculty, who engage in STEM-related educational, research, and grant opportunities for students from grades K-12. The Associate Dean of the college will serve as the CSM STEM Center's liaison to the university-wide center, which facilitates outreach efforts. This summer, CSM faculty will work with the Associate Dean to develop activities for the upcoming academic year.

Dean's Distinguished Speaker Series: Spring 2014 Edition



Dr. David Botstein

Entering its fourth season, the Dean's Distinguished Speaker Series featured presentations about the theory of everything and yeast's involvement with the treatment of cancer.

Opening the series in March, Anthony B. Evnin Professor of Genomics at Princeton University Dr. David Botstein, provided evidence for the continued experimentation with cancer, rather than the application of very brief research into DNA.

Having 34 years' experience within the field of genomics, Botstein made the case that cancer is an evolutionary process in which a cell replicates when it's not supposed to — an instance of evolution that scientists have adopted as fact not theory.

The findings of his studies show that cells mutate all the time; eukaryotic cells have inherent mutation correction processes that repair the mutated DNA, sometimes missing

College of
Science and
Mathematics

From clouds to numbers: General Dynamics and six computer science students draw the sky in three dimensions

While contemplating the sky creates scenes of a bright blue canvas with



(from left) Ryan Kroon, Shawn Murray, Daniel Wegmann, Scott Howard, Salvatore DeSapio, Brian Rosenblum and Professor Adrian Rusu explore the General Dynamics aviation facility to learn how the electronics work.

fluffy white clouds, it also creates another image, one in which the sky is no longer merely a scene of color, but of numbers.

For six Computer Science majors, seeing the world above them as coded data was a transition that both broadened their perspectives and blew them towards new horizons of opportunity.

“It was one of the coolest experiences so far in college,” said senior Computer Science major Scott Howard. “We had never thought of the weather as numbers, but we were given the chance to see things differently.”

Leading the 3D Weather Data Analysis project, Howard and six fellow students including seniors Daniel Wegmann, Shawn Murray, Brian Rosenblum, Ryan Kroon and junior Salvatore DeSapio, worked alongside General Dynamics, an American aerospace and defense company, to create an application that filtered aggregate data collected by the Federal Aviation Administration, according to Director of Rowan University’s Federal Aviation Administration and Rowan Air Transportation research lab and professor, Dr. Adrian Rusu.

“Basically, we had this huge amount of data sent to us by General Dynamics, and our job was to

clean it up for just the weather points, in order to allow other software to generate a 3D model of the weather for aviation,” Howard said.

The six students were tasked with taking network Common Data Format [netCDF] files gathered by a Multi-radar multi-sensor source [MRMS] and running them through their own constructed application for each latitude, longitude and time.

“The process was that easy and that difficult,” said senior Shawn Murray, a member of the project team.

General Dynamics’ Program Manager for Civil Aviation Systems Phil Holmer had worked with the group of students and stressed the importance of the project.

“We don’t know where clouds are and that’s dangerous to pilots,” Holmer said. “We have the ability to collect this weather data but our sensors are ahead of our visual understanding of the data.”

After witnessing the application in action, Holmer expressed his support for providing future projects to the research lab.

“We recognize that students have a framework of skills that are very strong,” said Holmer, “and we would like projects that have a benefit for us and also balances with the academic learning.”

Chair of the Computer Science department Dr. Stephen Hartley said that the research conducted in the lab is important to students because of the excellent experience and opportunities it provides them.

“You don’t learn this type of thing in school,” said senior Ryan Kroon. “You really have to step outside of your comfort zone and learn on the fly.”

certain sequences. Botstein also explained that over time, cells will eventually all mutate, a principle of evolution. Those who carry the genes for a specific cancer are at more risk because the code is already in the DNA, meaning that it would take less time for it to evolve within those individuals than for those who do not carry the Gene.

Concluding the series in April, Professor Emeritus of Mathematics at Drexel University Chris Rorres spoke on the mysteries and misconceptions regarding the ancient Sicilian physicist, Archimedes. He spoke about how many of Archimedes’ inventions are in use today and have been well expanded upon, including: the Archimedes Screw, the Archimedes Claw and the measurements of a parabola.

As for what comes next, the theory of everything, which was once sought after by many physicists, has been realized to not exist. Rorres said that with each new discovery, many more discoveries come forward, and that our only limit is our consciousness.



Dr. Chris Rorres

Rowan alum gives back student opportunities for exploration

A wide-eyed freshman when she first stepped onto Rowan University soil in 2005, Heather Whitaker was a bright young mind, looking to explore the vast possibilities and uncharted territories in chemistry. She had no idea that in nine years she'd be leaving her mark on future Rowan students and potentially, the region.

Heather Whitaker is the co-founder of Lanix Exploration, a company specializing in developing rare earth, element and mineral prospects in North America. The company is focused on the exploration and identification of potential high-end minerals deposits, as well as research in the processing technologies.

"When I saw that [the company] would need assistance in identifying rare earth elements and minerals," exclaimed Whitaker, "I could think of no better place – dedicated to research – than Rowan University."

In November of 2013, Whitaker approached the Chemistry Department for the three phase, multi-year partnership and an initial grant of \$100,000 for the first year. She had just the right professors in mind to run the project.

A freshman for little over a month at Rowan, Whitaker was first offered a research opportunity in the lab of Professor Dr. Kandalam Ramanujachary [Chary] and later, Professor Dr. Amos Mugweru, who just so happened to be the co-Principal Investigator and Principal Investigator of the partnership.

"We were thrilled to have Heather come back to us and are very happy to be assisting her in her company's endeavors," said Dr. Chary.

The project involves the discovery, identification, quantification, isolation and purification of rare earth elements and minerals left behind in mine tailings from

across the country.

Due to many geo-political factors in the harvesting of these rare earth metals, according to Dr. Chary, the United States is dependent upon other nations to supply such materials, which are essential in the fabrication of computers, mobile phones, fuel cells and Magnetic Resonance Imaging [MRI] scanners.

"What other countries are starting to do is halt the supplying of these raw materials to the U.S.," explained Dr. Mugweru. "They have decided to keep the materials, make the end products themselves, and then export these to us at a higher price."

The technological revolutions occurring in third world countries aren't aiding in the supply and demand of these materials in the global market place.

According to Dr. Chary, in 2010, Europium was valued at \$475 per kilo; in 2013, the price is now \$3,800 per kilo. In 2010 Terbium was valued at \$605 per kilo; it is now \$2,794 per kilo – over a 100% increase in both prices

"What we can learn from this trend is that relying on outside resources for these materials is neither sustainable in price nor in jobs," said Dr. Chary.

Enter the Analytical Chemistry expertise of Dr. Mugweru, the Inorganic Chemistry expertise of Dr. Chary and the opportunity provided by Heather and Lanix.

"This is a team effort to produce cheaply and safely the raw materials that we need in all sectors of our economy," explained Dr. Chary.

While Whitaker cited the expertise of both Dr. Mugweru and Dr. Chary, she said that she also came back to Rowan for the students.

"Working in these labs brought science to life for me," said Whitaker. "It was something that made me want to come to Rowan."

Whitaker reflected on her internships out of state, and how companies were pleased with her versatility in lab equipment and understanding of chemistry.



"At Rowan, you can work with six or seven different pieces of equipment, when at other schools, most students are excited to work with just one piece," Whitaker said.

Opportunity was what drew Whitaker to Rowan, and it is what has propelled her towards her own company; she felt that she should give the opportunity back to Rowan students.

"Research provides invaluable skills and knowledge," said Whitaker. "It teaches students to look outside the test tube at how they can better society."

The College of Science and Mathematics made its mission to bring in more research opportunities to undergraduates as part of college advancement; something Dean Dr. Parviz Ansari says is what makes the college unique.

"The College values its industry partnerships such as the one between Lanix Exploration and the Department of Chemistry & Biochemistry," said Dean Ansari. "Our industry partners improve the value of our students' education by sponsoring research projects, providing career training and opportunity, providing curriculum advice and contributing in other ways to the mission of the College."

Heather Whitaker, nine years after being a freshman at her alma mater, feels no different walking the campus from when she was a student.

"I'm excited to be back. Rowan is more than just a university to me, it's a family."

Office of Health Professions Medical Speaker Series

In its inaugural year, the Medical Speaker Series kicked off the semester with three speakers who shared their views on the ever-changing healthcare landscape.

- **Controversies in Medical Ethics** *Dr. John McGeehan*
- **Diabetes in the Elderly** *Dr. Kevin Overbeck*
- **Evolution and Cancer** *Dr. David Botstein*

Sponsored by the Office of Health Professions and the Pre-Health and Pre-Allied Health Societies, the series introduces the Rowan community to current health issues and the challenges these issues may present, while also providing guidance to aspiring pre-health students to pursue their healthcare professions of interest.

Study Madness gives students one last final session

After two years, four semesters and a count of over 200 participants, Study Madness returned to close out the spring semester with one last session to propel students into finals week.

On May 2nd at Science Hall, over 170 students went “mad” with group study sessions, final project preparations and professor review sessions. From 12 p.m. to 6 p.m., all science majors, and those who wished to be part of a studious environment, enjoyed refreshments as they prepared for their exams.

Held on a Friday, a week before finals this year, the event hoped to be able to increase attendance from all students, including commuters.

Co-sponsored by the Office of Health Professions, Pre-Health Club, Pre-Allied Health Club, the Biology Club and the American Chemical Society, Study Madness hopes to establish a culture in which students understand the values of studying in a community atmosphere.



Students took a break from studying to participate in stress relieving activities.

Faculty Achievement

Anthony Angelow, coordinator of Nurse Practitioner Programs, was very busy this past semester having presented at two conferences on three topics.

In February, Angelow delivered two presentations at the New Jersey Student Nurses Association, in Atlantic City, NJ. The first was called “Riding the Waves of Cardiac Rhythm Interpretation,” and explained to students how cardiac medications affect the cardiovascular system and how to effectively administer such medications.

The second, called “In the Tub and Down the Drain, the Ins and Outs of Cardiovascular Pharmacology,” examined the many facets of a cardiac rhythm strip.

In March, Angelow also attended the Cooper University Health Care Critical Care Symposium in Cherry Hill, NJ, where he gave a presentation entitled, “Advanced Pharmacology Made Easy.” The presentation examined how pharmacology affects patient care and impacts outcomes.



Psychology Conference

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become certified and assist those experiencing depression.”

As part of the psychology graduate curriculum, Jarema had to develop and research his own thesis, while those still working towards their undergraduate degrees, like senior Kaitlin Schwartz, assisted their lab professors in their research projects.

“I came into college with no idea that I wanted to do research,” explained Schwartz, “but everyone kept telling me ‘to do research and to get involved,’ and now I love it so much that I want to work in Geriatric Clinical Psychology.”

While the conference is geared towards psychological research, the projects sometimes become multidisciplinary as the poster portion of the conference featured several biopsychology research studies.

“I think it’s a good idea to get involved in research,” Jarema said. “It allows you to develop a specialty or gives you the opportunity to find one with the guidance of your professor(s).”

Haugh, advisor to both students, believes that advising is more than just assigning and assisting in research.

“I believe, on the whole, that we professors become mentors in the lab,” Haugh said. “We talk to students, we watch them mature and grow and help them plan their careers.”

A majority of the projects are completed during the academic year, in each of the professors’ research specialties. Haugh said that

this year saw a higher volume of applicants to the conference, creating the best abstracts he’s seen in his 13 years with Rowan University.

“As we continue to grow, let’s say in another 13 years, we might have twice the applicants,” Haugh said, “but that just means the level of research being done will rise with the numbers.”

Concluding the conference were the Psi Chi inductions, in which students who make the study of psychology one of their major commitments, were able to join the life-long honor society.

Angara Beaubrun, winner of the Okorodudu Outstanding Contribution to Service in Psychology award, has been dedicated to her major as well as to the Rowan community. Beaubrun will graduate this spring having been a Resident Assistant, a member of the Help Hotline, which assists students in their times of stress, an Admissions Ambassador and an intern with Healthy Campus Initiatives.

“It’s nice helping others and I find it satisfying when people can come to me for advice or just to talk,” Beaubrun said. “It makes me happy.”

40 years.

40 years of professors, mentors, students and parents, creating a university of futures.

“You all brought yourselves here,” Haugh said. “All these students show that we have many more years to come.”

Checking in with Recent Alum

- Michael Fackler

Biological Sciences ‘13:

Works as a technical support engineer at Siemens Healthcare in Newark, Delaware

- Samantha Musumeci

Biological Sciences ‘13:

Works as histology technician at Medical Diagnostics LLC in Hamilton, NJ

- Stephen Frasco

Biological Sciences ‘14:

Will be attending Rowan Graduate School for Biomedical Sciences

Gaetano Celentano takes talents to Stockton

Gaetano, better known by professors as “Guy,” Celentano is taking big strides towards achieving his goals, just one year since commencement in 2013. Celentano was recently accepted in to the Doctor of Physical Therapy program at Richard Stockton College.

Celentano played an active role in the College of Science and Mathematics as a biological sciences major, participating in a research programs under the guidance of Dr. Alison Krufka and Dr. Matthew Travis. The focus of his research examined variations in the lateral line system across the populations of the Three-spined Stickleback fish.

“Guy” was also an active member outside the lab, as a member of the Biology Club on Rowan’s campus, where he served as the club’s senator his senior year.

The DPT is a three-year program, giving Celentano the opportunity to practice physical therapy in a clinical setting, conduct research and teach at the university level. His plans for the future focus towards the rehabilitation process of athletes.

Bringing it Home

With \$5 million towards a venture capital fund for expansive research projects, several business partnerships, a masters program in chemistry beginning this fall and a perceived growth of 125 percent over the next five years, the College of Science and Mathematics has been establishing itself not only within the University, but to outside organizations as well.

“There is a lot of great science going on here,” said Chair of the Chemistry and Biochemistry department Dr. Gregory Caputo. “We have dedicated faculty whose mentorship leads our students into



Dr. Greg Caputo converses with students at the American Chemical Society Dinner. Several Chemistry professors and Rowan students were at the gathering.

a world where it is desperately needed today.”

Hosting its first ever Mid-Atlantic Regional Ceremony, the South Jersey section of the American Chemical Society came to Glassboro on April 26 to celebrate research efforts, students’ achievements and member awards. At a dinner reception at the Marriot Courtyard, located on Rowan Boulevard, students and CSM faculty discussed research projects, Rowan’s growth and the future of chemistry in the global market place. “We’re doing great things here, and we want to grow, and want all of you to grow with us,” Dr. Caputo said.

In his Keynote Address entitled, “Innovation and the Entrepreneur,” Dr. Pat Confalone, a member of the ACS Board of Directors, as well the Council for Chemical Research and the United States National Committee for the International Union of Pure and Applied Chemistry, spoke of chemistry’s importance in future global markets.

“The United States has the best research universities in the world, yet new graduates are seeing hardships when they enter the work place,” Confalone said.

Confalone cited the steady decline of entrepreneurship in the turn of the century as a cause for the loss of approximately 300,000 chemistry jobs, but offered hope, explaining that chemistry-intensive jobs are part of a growing trend.

“We’re looking for renewable energy, we’re looking recyclable materials, we’re looking to create network resources,” Confalone encouraged. “Chemistry is an innovative science and we need chemists to take risks to better our world.”

Several awards were distributed to Claudia Angle, a high school chemistry teacher at Bridgeton High School, Georgetown’s Dr. V’ajay Mallia, Byram High School’s Steven Borneman and St. John’s University’s David Brown.

Preceding the awards ceremony was the fifth annual South Jersey ACS Research Symposium in Science Hall, in which students from both Richard Stockton College and Rowan presented posters of ongoing projects to members of both the SJACS and fellow students.

Presenters relished the opportunity to participate in the symposium, like senior biological sciences major Philip Bonanno, whose partners worked on developing a patch to alleviate peanut allergy symptoms.

“I am honored at the opportunity to share my research with members of the ACS and my classmates,” said Bonanno. “It’s great practice for my career in chemical research.”

*The research project discussed is entitled, “Purification and Modification of Ara H2: Creating a Novel Allergoid.” The project was conducted by Ryan Barnes, Savan Patel, Leslie Lafferty, Michael Koverchick, Sana Fasihuddin, Rahul Tripathi.

High school goes to college at Science Day

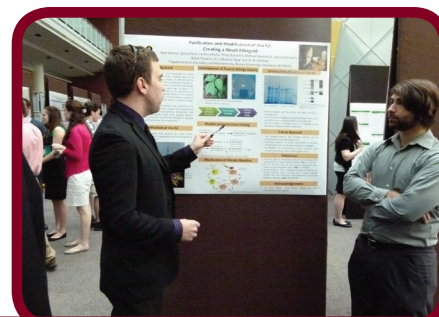
While experimenting in a chemical lab or observing biology in action is not part of the itinerary for most high school students’ schedules, for several high schools and their students, working in the labs sufficed over classwork.

The College of Science and Mathematics’ eighth annual Science Day invited students from local area high schools such as Clearview Regional High School, Millville Senior High School, Deptford Township High School, Kingsway High School, Woodbury High School and Buena Regional High School to partake in 22 lessons designed by the college’s own professors.

“The program is also designed to get students out into a college campus setting and give them a bit of freedom,” said Assistant Professor of chemistry and biology and the event co-chair Dr. Timothy Vaden.

From 9 a.m. to 1:30 p.m., the 121 high school students chose their lectures for the day, visiting some of the labs of Associate Professor Gregory Caputo, Assistant Professor Matthew Bealor and Assistant Professor Mike Miller.

“People like to think that science is all conceptual,” Bealor said. “We wanted to show them that something as simple as a pet can become a lifelong subject of study.”



Students presented posters to members of the South Jersey American Chemical Society at the research symposium.

The 'Star Doc' prescribes a healthy dose of astronomy

In a corner office, overlooking the campus quad, John Herrmann often feels like the captain of the Star Trek Enterprise; with a perfect view of the budding spring campus, Herrmann sees the whole world as an observatory.

Professor Herrmann has been with the College of Science and Mathematics for nine years, teaching courses in astronomy as well as math and science seminars for education majors; but says his real home is in a planetarium.

"I love showing people, especially the students, the stars," exclaimed Herrmann. "My specialty is debunking the popular myths about space in humorous ways."

For over 20 years, Herrmann, known by his audiences as Star Doc, has traveled from Pennsylvania, New York, Delaware and New Jersey to give grade school students the chance to look at the stars. With his portable planetarium by Starlab, he set a personal record last year, presenting 28 shows in two days to schools in New Hampshire – a total of 550 students.

Trying to keep the pace this year, Herrmann has done 11 portable shows, along with a show for his own students at the John Stone School in Vineland.

"I offer my [portable planetarium show] to anyone in my seminar courses that may be student-teaching," explained Herrmann. "I like to assist my students."

While Herrmann is known to most for his performances in the Edelman Planetarium as well as his portable shows, he made the news in the Atlantic City Press for breaking the South Jersey record for having 1,400 visitors at the Ocean City High School Observatory.

"For 40 years I've brought physics and astronomy courses to Ocean City and Delsea [high schools]," explained Herrmann. "Astronomy is fun and interesting, and I like to show everyone how it can be used in daily life."

Though Herrmann's love for astronomy dates back to his days as a lecturer and show presenter at Fels Planetarium at the Franklin Institute, the Star Doc believes mathematics is just as important to the topic as a telescope.

"I teach all my students applied trigonometry because it's necessary in identifying astronomical heights as well as navigation," said Herrmann.

Star Doc's office is always open to students, who will find him looking at



John Herrmann brings his portable planetarium to local elementary schools to teach students about astronomy.

constellations with his phone, researching, planning and taking in the view of the campus, before he exposes them to the stars.

Opportunities of Diversity: CSM and Passaic County Community College team up

As part of a grant-funded partnership between the College of Science & Mathematics at Rowan University and Passaic County Community College (PCCC), PCCC students made several visits to Rowan University during the spring 2014 semester.

The students stopped by campus twice in the beginning of the semester, where they were exposed to educational opportunities at Science Hall, taking with them applicable skills for modern chemistry and biochemistry research.

The third visit provided an opportunity for students to learn about the full spectrum of research occurring at all three campuses of Rowan University, by attending the STEM Symposium, which had 117 participants.



Concluding PCCC students' exposure to the University was a focused tour of the School of Osteopathic Medicine, at the Stratford campus. As a result of the College's outreach program, two of these students have applied for admission as transfers to Rowan University in the fall 2014.

PCCC is a designated Hispanic-serving institution, that with the help of CSM, is promoting diversity in the high-tech workforce.

CSM Student Achievements

Oustanding Poster Award for American Society of Microbiology

Juniors John Gregg and Leanna Panepinto were honored at the American Society for Microbiology's 114th General Meeting in Boston, Massachusetts this past May. Under the guidance of Associate Professor Gregory Hecht and Assistant Professor Mark Hick-

man, Panepinto and Gregg received an award for their outstanding poster, "Ethanol Resistance of Escherichia coli Is Promoted by Alteration of Genes Associated with Solute Transport and Membrane Structure." Using whole genome sequencing data to document the

mutations that occurred in the ethanol resistant strains, both students compared them to wild parental E. coli strains. The next step of the research will require them to draw connections between the mutated genes and how the mutations contribute to ethanol tolerance.

Other Achievements:

Rachel Kuhar '14: Will be attending the University of Glasgow in Scotland for Veterinary Medicine

Rebecca Crowther '16: Will spend the summer at the University of Alabama at its Biomedical Science program

Jessica Healey: *continued from page 3*

as a student and leader. She has used her leadership role to develop confidence in and outside of the classroom," Jones said. "I know that she will be a compassionate medical provider and serve her patients well. I am proud to call her my friend."

One of her biggest accomplishments is the creation of her organization, the Hope For Education program, created through the Office of Service Learning, Volunteerism and Community Engagement. The program provides the opportunity for students to visit Cooper Hospital and interact with its pediatric patients.

"While I was growing up, my cousin had cancer and we were close in age," Healey explained. "I watched her go

through treatment and it sparked my interest."

Her involvement with Cooper is not only for her Hope for Education program, but it will be where Healey attends graduate school, at the Cooper Medical School of Rowan University.

An undergraduate biological sciences major, psychology minor with a concentration in both Honors and pre-medical studies, Healey is keeping her options open, but is dedicated to helping others.

"I'm interested in Primary Care, Family or Internal Medicine," Healey listed, "but I'm keeping my options open as I'm going through grad school."

She says that one thing she wish she

knew when she first stepped onto Rowan's campus was to have fun.

"I would have told myself to not be afraid to ask questions and to not doubt yourself. I focused a lot on trying to get into med school, so I'd also tell myself to relax a little bit," she said.

For Healey, high school to college was a transition that required tremendous growth and the reaching of heights previously seen as too high. A true product of what can happen when individuals put their minds to something, Healey will take with her what she has always believed in: It's what you make of it.

STEM Symposium features largest participation

Culminating a year of growth and success for the College of Science and Mathematics, the Science, Technology, Engineering and Mathematics Student Research Symposium closed the year by setting new records.

With a historical high of 117 posters and a higher attendance at any given time, the April 25th symposium demonstrated research ranging from the biomedical sciences, computer games

and applications and pharmaceutical sciences, to name a few.

Symposium Organizer and Associate Professor of Biological Sciences Gregory Hecht explained that the increasing attendance is due in part to the increasing number of poster abstracts being accepted, as well as growing support and participation among students in research. Attendance also grew due to successful outreach on behalf the organizing committee to Glassboro High School, in order to involve the community in the University's endeavors.

"More people are coming to the symposium because it's a good time for both students and faculty," Hecht explained. "Friends of presenters come to show their support, creating a positive experience for everyone."

This year's program differed from previous symposia due to the increase of tenure-track faculty as well as newly

established STEM Ph.D. programs.

"I think it's really cool as a sophomore to be applying what I learn in class to actually making things happen in the lab," said sophomore Andrew Rocco.

Hecht also attributed the success of the STEM Symposium, in large part, to the student organizers.

"The success of the symposium comes from the students who prepare, organize and execute all the decisions in order to make the day run smoothly," Hecht said.

As for next year's plans, Hecht said that the submission process will be able to accommodate research from Rowan University research, as well as reaching out to the new biomedical art program to create a dialogue among the arts and sciences.



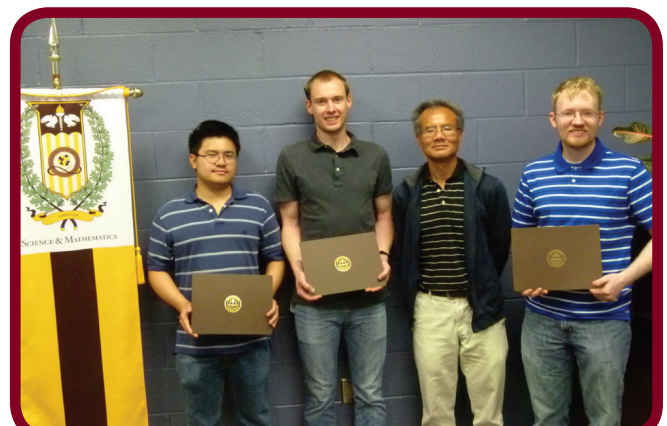
STEM Symposium student organizers: (from left) Pallavi Chary '15, Justen Dowling '15, Michael Bacani '14, Tyler Gale '13 M'16, Syed Hussain Haider '14, Luke Nichols-O'Neill '15, and Sneha Kolla '15.

STEM Award Winners

The STEM Excellence in Research Award is an annual award, sponsored by the College of Science and Mathematics and the Pre-Health Society, that honors students who have produced quality research and have demonstrated a true understanding of the value that research brings to the academic community.

This year's award winners are Daniel Bittner, Long Cheong and Dante Gates for their participation in Converging on the Area of the Mandelbrot Set, finding new upper bounds for the area by discovering new patterns and implementing more efficient algorithms in their C++ code.

Mathematics Professor Dr. Hieu Nguyen was the Faculty Sponsor for the project.



STEM Symposium winners: (from left) Long Cheong, Dante Gates, Dr. Hieu Nguyen and Daniel Bittner.

Nursing faculty's compassion comes with a Price:

Assistant Professor of Nursing Patricia Price presents on Compassion Fatigue

Caregivers are responsible for the welfare and emotional morale of those they assist but, over time, can succumb to what is known as Compassion Fatigue.

Defined as the emotional side effect of prolonged exposure to those dealing with traumatic experiences, compassion fatigue symptoms can be seen in clinical nurses, psychologists and nursing students, to name a few.

But what of the mentors to future caregivers?

Patricia Price, Assistant Professor of Nursing, addressed such a question at the New Jersey League of Nursing in Atlantic City this past March.

“We know that compassion fatigue affects those in clinical caregiving, but what of nursing faculty,” Price questioned.

Administration, paying attention to student needs, clinical practice and lesson plans are only a few of the duties that nursing faculty must perform, said Price, yet not much attention is being drawn towards compassion fatigue among these faculty.

“It’s a multi-faceted problem that has many negative consequences not only for the individual, but for the organization,” explained Price. “Compassion fatigue affects an individual physically and emotionally. It can also cause them



Patricia Price, Assistant Professor of Nursing.

to leave an organization or affect other members negatively.”

During her presentation, Price revealed that though there is very little research in regard to nursing faculty and compassion fatigue, three institutions she examined showed that 20 percent of nursing faculty experiences compassion fatigue, or one in five.

“That number is from three institutions, where there isn’t much research to show the exact amount,” said Price. “We need more research.”

Price explained she is very passionate about nursing, and has been with CSM for two years.

The NJ League of Nursing aims to promote excellence in nursing education in order to establish a strong and diverse nursing workforce to advance the nation’s health at the constituent level.

CSM builds a home on the Philadelphia Parkway

As the warm weather urged students and faculty to take to the outdoors, the College of Science and Mathematics made its way to the streets of Philadelphia.

In its inaugural appearance, CSM participated in the Philadelphia Science Festival, a nine day, community-wide celebration of science. Beginning in spring of 2011, the science festival offers hands-on activities, lectures and a variety of other informal educational experiences to people of all ages.P



Danny Cahall, a freshman from one of professor Kay’s computer science classes, volunteered to teach the youth patrons how to program the robots.

The College co-represented Rowan University with the College of Engineering and the College of Education, partaking in three events: Science Carnival After Dark, Astronomy Night and Science Carnival on the Parkway.

Outside the Franklin Institute on April 25, Science After Dark kicked off the event with an adult program, filled with refreshments and hands-on activities. The Edelman Planetarium at Rowan also held Astronomy night, hosted by Keith Johnson and Lloyd Black.

On May 3rd, Science on the Parkway featured free events with over 150 exhibitors hosting family-friendly games such as constructing an egg parachute and Rowan’s Lego NXT Robot programming.

Hard work and determination pay off at Dean's Senior Recognition Awards Ceremony

In the spirit of achievements and commencements, the Dean of the College of Science and Mathematics recognized nine seniors, each for their outstanding academic and professional performances. Faculty mentors of the students, from their respective departments, introduced the awardees to a proud audience of parents, alumni, department chairs and university guests.



From left: Allison M. Belli, Rebecca Lee, Christopher Rotella, Sherman Szeto, Barbara Jo Ratte, Associate Dean Tricia Yurak, Nicholas Houghton, Joseph Capilato, Timothy Dimond & Juliana D'Onofrio.

Student majors respectively [from left]: Biological Sciences, Liberal Studies: Math/Science, Physics and Astronomy, Computer Science, Nursing, Mathematics, Biochemistry, Chemistry & Psychology

Women in STEM fields ask, Why So Slow?

The projector screen slid down the wall and computer fans whirled, as students prepared for just another presentation – their shoulders hunched and eyes closing; in just two minutes however, spines rose upright and eyes brightened from drooping to entranced, as students learned the power of nonverbal communication.

In an effort to encourage a larger female presence in the science, technology, engineering and mathematics [STEM] disciplines, the “Why So Slow” Learning Community, represented by Professor of Physics and Astronomy Assistant Tabbetha Dobbins, and the College of Communications, represented by Assistant Professor of Communications Harriet Benavidez, came together to explore the quiet side of conversation. The Society of Women Engineers, a worldwide organization

with a chapter at Rowan, was also a sponsor of the program.

The topic of discussion was nonverbal communication — “how your actions play in to people’s opinions of you, and your opinions of yourself –” as Benavidez explained it. Students were shown a TED [Technology, Entertainment and Design] Talk, entitled, “Fake it ‘til you become it: Power Poses Visualized.” TED is an international organization that encourages interdisciplinary talks across the globe with persons of all race, gender, socioeconomic status and ideas; this TED talk featured Social Psychologist Amy Cuddy.

The 20-minute talk left students nodding their heads in agreement with Cuddy’s arguments about confidence and the ways in which women can compete in a male-dominated workplace.

“There tends to be a discrepancy between males and females in the STEM fields,” Dobbins addressed the multi-gendered audience, “and what we hope both women and men take from

this, is to empower [yourselves] to become what you wish to become and to be understanding of others.”

Students shared their personal stories of empowerment and struggles in the classroom when it came to confidence, to which Benavidez encouraged students to not shy away from challenges, and to become the best they can be, as both males and females.

“Your generation is going to be at the helm very soon, and each one of you has an idea about how to change our world,” Benavidez said. “Whether you’re a woman or a man, each of you needs to feel empowered to express yourself, as well as witness the expression of others.”

“Why So Slow” is an interdisciplinary community on all of Rowan’s campuses, with the aim to develop strategies which address the specific challenges of women in STEM at Rowan University. The learning community looks to define the barriers that many women face when entering such fields and how to remove them.

Computer Science and Physics alumni partake in alumni day: *A Day in Their Lives*

As a college student, it can, at times, be challenging to practice forward thinking about the realm of possibilities once he or she graduates. This year, both the computer science and physics departments invited alumni from their respective programs to discuss life after graduation.

On April 9, Professor Jennifer Kay invited the Class of 2006's Andrew Tasso and class of 2005's Ali Daneshmand and Michael Gribbon to visit one of her classes to talk about their careers and experiences.

Together, the three answered questions about specialization choices and careers afterwards, research and the importance of living in the moment while in college.

"College is a time for you to grow as an individual," said Tasso. "Enjoy the freedom you have in college to experience different things."

On May 2nd, The Physics club organized Physics Alumni Day to engage current and graduating physics students about directions to take after college.

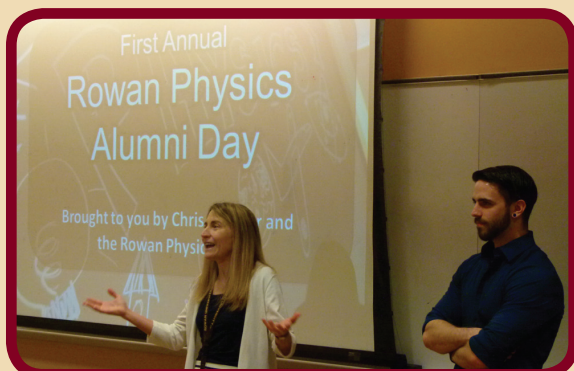
"[The Physics club] thought it would be a good idea to reach out to the alumni and see what opportunities are out there. A lot of Physics undergraduates that decide against graduate school are faced with the dilemma of choosing a different route," said Christopher Kassner, class of 2014 graduate and co-president of the club. "We thought that this would allow students to network as well as open their minds to other



Andrew Tasso '06 shares his experiences in college and his career.

post-graduation possibilities."

While it may be difficult to identify them while absorbed in classes, there are many opportunities for students to seize after they graduate from CSM.



Dr. Magee-Sauer and President of the Physics Club Christopher Kassner present physics alumni to current students.

Interested in Med-School?

Pre-Medical Learning Community finds home in the fall

Entering it's first year this fall, the Pre-Medical Learning Community will be open to accept all those who are interested in attending medical school, post graduation.

The learning community aims to create an environment in which students with medical aspirations can build relationships and networks that will assist them in their journeys. By providing developmental activities, academic assistance and leadership skills, the pre-medical learning community hopes to give students all they need to excel in their chosen programs. Those in the program will receive:

1. a set number of courses per semester, granted to only PMLC students
2. participation in the Rowan iLead Leadership Program
3. designated community service projects with other community members
4. residence hall with PMLC students



College of Science and Mathematics
201 Mullica Hill Road, Glassboro, NJ 08028

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The Environmental Sustainability Institute

The College announces the creation of its new Institute and Director

In order to ensure and facilitate the development of an environmentally conscious population, the College of Science and Mathematics established the Rowan Environmental Sustainability Institute, this past spring.

With a commitment to be recognized as a national leader in interdisciplinary environmental education, the College has established Associate Professor of Chemistry and Biochemistry Dr. Michael Tolocka as the Institute's director.

Through the promotion of collaborative relationships among faculty, the Institute recognizes that environmental problems are not solely rooted in the sciences, but require attention from all majors and programs, in order to be successful.

With plans to advance sustainability in operations across all university campuses, the Institute will provide rich and transformational educational experiences through both interdisciplinary academic and campus programs.

The Scope

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Parviz Ansari	Dean
Tricia Yurak	Associate Dean
Ethan Stoetzer	Editor/Writer
Amanda Stout	Designer
Joshua Darpino	Photographer

Contact:

(856) 256-4850 | (856) 256-4921 (fax)
www.rowan.edu/csm

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Send suggestions and comments to:
College of Science and Mathematics
c/o Editor – The Scope
Rowan University
201 Mullica Hill Rd.
Glassboro, NJ 08028-1701



or email csm@rowan.edu
www.facebook.com/rowanCSM

Special thanks to Abigayle Stoetzer for her photos at the South Jersey American Chemical Society Dinner.