College of Charleston a Major Producer of STEM Graduates in South Carolina

There has been much recent media attention on whether or not the United States faces an impending shortage of college graduates in so-called STEM fields (Science-Technology-Engineering-Mathematics). While the College does not have an engineering program, the sciences and mathematics have been an integral part of the College since its inception.

So are the sciences or mathematics a common major at the College? And is the College a major producer of STEM graduates within South Carolina?

I’m happy to say the answer to both questions is an emphatic YES. During the Spring 2013 semester about 18.5% of the students at the College had a declared major in one of the six departments that comprise the School of Sciences and Mathematics (SSM). This percentage has been fairly constant for over a decade. Indeed, SSM is the second largest of the six schools that comprise the College.

The 2012-2013 academic year produced over 350 graduates of SSM. The table below shows the number of graduates in the sciences and mathematics at the College, Clemson, and USC during 2010-2011, the last year for which comparative data are available. As you can see, the College rivals or exceeds these much larger, research institutions in the production of STEM graduates. As several of our programs, particularly computer science, continue to expand rapidly, we expect to assume an even more dominant role in producing scientists and mathematicians for the state, the region, and the country.

CONSTRUCTION UPDATE:
The second floor buildout of the School of Sciences and Mathematics building continues to progress on schedule. We look forward to officially opening the additional 19,000 square feet of classrooms, laboratories, and faculty offices later this year.
Austin Harnett

Recent advances in wave computing

School of Sciences and Mathematics

STUDENTS RECEIVE TOP AWARD IN NATIONAL ASTRONOMY COMPETITION

A team of undergraduates from the College of Charleston recently won the “Best Science Observation” award at the Third National Student Solar Spectrograph Competition held at Montana State University.

Held in conjunction with a NASA solar mission scheduled to launch June 26, 2013, the competition called for students to design and build optical instruments to answer questions about the sun or other scientific topics.

Physics and Astronomy students Derek Tuck, Steve Gorman, Ryan Sullivan and Luther Meyer designed, built, and operated a spectrograph to investigate temperature differences in and near sunspots. Professors Jeff Wragg and Jim Neff were the “Team Charleston” advisers during competition.

Each member of the winning teams won a $3,000 scholarship from NASA and the opportunity to watch a launch from the Kennedy Space Center in Florida.

Students are pictured above showing their solar spectrograph to Montana Senator Jon Tester.

GEOLOGY STUDENTS SWEEP U.S. HYDRO SOCIETY AWARDS

Recently, four College of Charleston undergraduate and graduate geology students, who use cutting-edge ocean floor mapping technology, swept the research competition at the 2013 U.S. Hydro Conference, winning the top three awards. The students presented professional-quality seafloor research during the U.S. Hydrographic Society’s annual meeting with findings abstracted in poster format. The winners collected $2,000 in scholarships and will have their work published in CARIS Coastlines marine GIS mapping newsletter.

Leslie Sautter, associate professor of geology, prepared and advised the students. “Throughout the conference, numerous vendors and consultant firm representatives approached me about developing partnerships with the College’s BEAMS program, and wanted to meet and interview our students.”

All the winners are enrolled in the Introduction to Seafloor Mapping course, which is the foundation course for the BEAMS Program (BEnthic Acoustic Mapping and Survey Program.) The benthic zone is the habitat area on the seafloor, and includes the sediment and sub-surface layers. To map the seafloor, students used multibeam sonar seafloor bathymetry (underwater topography) software called CARIS HIPS which integrates hardware, software, and data to capture, analyze, display and interpret geographic information. Watch a video from a research cruise students participated in.

“This course is very popular, because students are using an innovative technology,” Sautter explains. “Knowing this particular software is a tremendous spring-board into the world of seafloor mapping and marine geophysics, as well as the world of ‘hydrography’ — mapping and charting navigable waters. Every BEAMS Team student who has graduated and who has wished to pursue a career as a marine surveyor has been successful in finding an internship, job or graduate program.”

Sixty percent of participants over the past five years continue to map the seafloor through jobs, internships, and research opportunities at graduate schools.
PROFESSIONAL HEALTH UPDATE

Record Acceptance to Professional Health Programs

This spring 141 students were accepted to professional schools, including clinical programs in the following areas: medicine, dental, veterinary, pharmacy, allied health, and nursing. A record 61, of the 141 were accepted to medical schools including; Medical University of South Carolina, USC Greenville, USC Columbia, University of North Carolina Chapel Hill, East Carolina, Tufts, University of Louisville, Wake Forest, Tulane, University of Mississippi, Virginia Commonwealth, Temple, University of New England, University of Tennessee, Mercer, Georgia Health Sciences, University of Maryland, Boston University, University of Central Florida, Florida Health Sciences. Osteopathic schools acceptances included Edward via Virginia, Philadelphia College of Osteopathic Medicine, Campbell University and West Virginia School of Osteopathic Medicine.

There are approximately 700 students in the pre-health loop at the College of Charleston.

FACULTY ACHIEVEMENTS

Left to right: Ana and Sorinel Oprisan, Physics & Astronomy; Alex Kasman, Mathematics; Wendy Cory, Chemistry & Biochemistry; Pamela Riggs Gelasco, Chemistry & Biochemistry.

The School of Sciences and Mathematics is comprised of 142 roster faculty members who serve the College in many capacities. As top notch teachers, researchers, mentors, and STEM outreach advocates the efforts of our faculty are constantly recognized in the form of awards and grants both by the College and beyond.

• Ana Oprisan, winner of the College’s Distinguished Teaching Award which honors those who typify high standards and commitment to teaching excellence imparted throughout their careers.
• Sorinel Oprisan, winner of the College’s William V. Moore Distinguished Teacher-Scholar Award for exemplary scholarship and exemplary teaching that have enriched the intellectual lives of students.
• Alex Kasman, winner of the Norine Noonan Award, made to an SSM faculty or staff member in recognition of efforts that directly benefitted the School or for contributions outside that enhance the reputation of the School.
• Wendy Cory, winner of the Gordon E. Jones Distinguished Achievement Award, made to an SSM faculty member in recognition of a particularly outstanding achievement in the area of teaching, research, or service, or an extraordinary combination in these areas.
• Pamela Riggs-Gelasco, named South Carolina Chemist of the Year by the South Carolina section of the American Chemical Society.

THERE’S AN APP FOR THAT!

When Computer Science major Will Jamieson was trying to upload a selfie one night he decided he was going to make an app that emulated a flash with the front camera. He had no idea he would be on track to have a million users within two months of launching Front Flash Android app.
In Memory of Dr. W. Frank Kinard, Professor, Chemistry and Biochemistry

The School of Sciences and Mathematics is sad to announce that our friend and colleague, Dr. Frank Kinard, passed away after a brief battle with cancer. Frank received his BS from Duke University and his PhD from University of South Carolina. Frank’s area of expertise was nuclear chemistry and he has served as secretary of the American Chemical Society Nuclear Chemistry and Technology Division for 17 years. He served as principal instructor for the Summer School in Nuclear and Radiochemistry, run at San Jose State through the Department of Energy. Frank was recently awarded a grant by the Nuclear Regulatory Commission in support of his tireless efforts to keep our lab courses current and relevant. Frank served as Chair of the Department of Chemistry and Biochemistry from 1982-1989. Frank loved to mentor students in the lab and has inspired many generations of students in the Chemistry Department during his 40 year career at the College. We will miss his sage advice, his unending knowledge of all things chemical, his funny stories, and his unending devotion to the chemistry department and its students. His family has asked that, in lieu of flowers, donations be made to the College of Charleston Foundation for the Dr. W. Frank Kinard Annual Chemistry Scholarship.

To make an online gift visit giving.cofc.edu, choose “other” and write in Dr. W. Frank Kinard Scholarship under designation.

OUTREACH

On Monday, February 4, 2013 faculty, staff, and students from the School of Sciences and Mathematics partnered with the College’s Athletics Department to present STEM Education Day at TD Arena. More than 2200 local school children attended a morning session filled with science and math related activities followed by a Women’s Basketball game against UNC-Greensboro.

Clay McCauley demonstrated a 3D printer built by students from the Department of Computer Science.

Students handled live specimens from touch tanks provided by Grice Marine Lab.

Dr. Chris Korey introduced students to neuroscience and the anatomy of the brain.

Dr. Brooke Van Horne, performed a few chemistry experiments with students.

Telescopes provided by the Department of Physics and Astronomy.

On April 9, molecular biology major Alix Generous and astronomy majors Thea Kozakis and Laura Stevens were invited to share their personal stories for the College of Charleston community. Watch their presentations on the College’s YouTube channel.