

College of Science and Technology Annual Report for 2012 -2013

The College of Science and Technology (CSAT) at Radford University (RU) was formed on July 1, 2007 by combining the Departments of Biology, Chemistry and Physics, Geology, and Mathematics and Statistics from the former College of Arts and Sciences and the Department of Information Technology from the former College of Information Science and Technology. On July 1, 2009, the Anthropology and Geography programs from the College of Humanities and Behavioral Science joined the Physics and Geology programs of the CSAT to form the School of Environmental and Physical Science (SEPS) in the CSAT. The Anthropology program was approved by SCHEV to become the Anthropological Sciences program on May 10, 2010. The Geography program was approved by SCHEV to become the Geospatial Science program on May 17, 2011. The faculty within the SEPS passed a motion to dissolve the SEPS with a director and to create departments with chairs on September 9, 2011. In a SEPS faculty meeting on November 11, 2011, Provost Minner announced that he had approved the proposal of the SEPS faculty members to form independent departments of Anthropological Sciences, Geology, Geospatial Science and Physics with individual department chairs as well as a laboratory coordinator position to serve the needs of the Anthropological Sciences, Geology, Geospatial Science and Physics Departments.

MISSION

The College of Science and Technology prepares students with skills and expertise essential to the Commonwealth and the nation. The College emphasizes the theory and applications of science, mathematics, and technology. The College develops students' creative and critical thinking skills and teaches students to analyze problems and implement solutions to a vast array of challenges in our local, national and global communities. Students will be prepared to bring creative and socially responsible innovations to the workplace and to society.

UNDERGRADUATE DEGREES AND CONCENTRATIONS IN 2012-13

- Anthropological Sciences - concentration in Forensic Anthropology
- Biology with concentrations in General Biology, Molecular Biology, Environmental Biology, Pre-health and Biology Medical Laboratory Sciences
- Chemistry with concentrations in Professional Chemist, Pre-health Professional, Biochemistry and Forensics as well as an Environmental Science option
- Computer Science and Technology with concentrations in Computer Science, Database, Software Engineering and Networks
- Geology with concentrations in General Geology, Engineering and Environmental Geosciences and Earth Sciences
- Geospatial Science with concentrations in Environmental and Geoinformatics
- Information Science and Systems with concentrations in Information Systems and Web Development
- Mathematics with concentrations in Applied Math, Statistics and Secondary Education
- Physics with concentrations in Physics Education and Earth and Space Science

GOALS AND ACCOMPLISHMENTS FOR 2012-2013

These goals are based on the roles and responsibilities of deans as described in section 4.1.3.1 on page 62 of the Radford University Teaching and Research Faculty Handbook.

- to lead the faculty and staff of the college in developing and delivering educational opportunities of the highest quality possible for students, consistent with the mission of the College,

Goal: In consultation with the faculty and staff of the CSAT, develop strategies to enhance student retention and support the transition of students into professional careers and post-baccalaureate academic opportunities

Status: In response to my Dean's observations on the Department of Geology 2011-12 Annual Program Review Report, Dr. Jon Tso, Chair of the Department of Geology conducted an analysis in February of 2013 to understand retention of majors in the Department of Geology.

Dr. Tso researched all the students who became Geology majors from summer 2011 to spring 2012 by consulting his advising records, lists from the CSAT Advising Center and Banner databases. Dr. Tso reported that these students ranged from new freshmen and transfer students to students who switched from another major into Geology. He determined that during 2011-12, 29 students became Geology majors, and his analysis revealed a very informative trend. According to Dr. Tso, "About half are transfer students, and the overwhelming numbers of them are still with us as Geology majors in good academic standing. This is our largest population of good students." Dr. Tso further concluded that the remaining new majors in 2011-12 are native RU students. Slightly less than half of this group switched from another major, including Premajors, and may have been recruited from GEOL 100 and GEOL 105. He determined that the RU native students who switch to Geology as their major after enrolling at Radford are also academically successful students.

Dr. Tso concludes that, "attracting transfers is good for us, and we need to cultivate our relationships with community colleges." I consider this study to be an interesting assessment of the Geology Program retention results for the 2011-12 academic year that informs their recruiting strategy and could lead to improvements in the retention of geology majors. Dr. Tso's analysis of new Geology majors who are retained as majors implies that focused efforts should be made to recruit transfer students. Articulation agreements with VCCS partners could enhance the advising and admissions processes as well as time to degree completion for transfer students who are interested in earning a degree in Geology and in other CSAT majors.

I worked with Dr. Joe Chase, Professor of Information Technology, to organize a meeting of Virginia Community College System (VCCS) administrators and faculty from twelve VCCS institutions on Friday, October 19, 2012. This meeting also included Provost Minner and industry representatives Mr. Derick Maggard of the Roanoke Blacksburg Technology Council and Ms. Amanda Clark of Rackspace. The purpose of the luncheon meeting was for Dr. Joe Chase to present his proposal for a Fast Track IT Program where students could earn a B.S. degree in Information Technology with an emphasis in Information Security for an estimated \$13,192 based on completing a General Education Certificate in high school in two years, an

A.S. or A.A.S. in the community college in an IT specialty area in one year, and a B.S. degree at Radford University in one year. This program generated lively discussion among our VCCS and industry colleagues, and Dr. Chase's proposal is an opportunity to maximize an inexpensive degree program to result in a career in a growing field with high salaries and increasing demand.

Goal: Support the development of online and hybrid instructional delivery methods of CSAT courses

Status: Two departments in the CSAT currently deliver online courses routinely. The Department of Information Technology has a successful distance education degree completion program that provides online delivery of courses for students to complete the Computer Science degree with concentrations in Database and Software Engineering. The Department of Information Technology also contributed two courses to the Wintermester 2012-13, i.e. ITEC 281 Data Management and Analysis with Spreadsheets and ITEC 304 Database from the Manager's Perspective. These courses as well as ANSC 101 Anthropology of the Human Past are proposed for Wintermester 2012-13. The Department of Mathematics and Statistics teaches the graduate level content courses for the M.S. in Education with a concentration in Mathematics Education degree program as online courses. Many faculty member completed online course professional development workshops and designed their graduate courses to maximize opportunities for online learning. There are currently informal proposals from faculty members in ANSC and GEOS for developing online courses, and I have pledged to support them with stipends of \$2,500 each from CSAT funds to develop courses for online delivery in 2013-14.

Goal: Support the development of graduate degree program proposals

Status: The Department of Information Technology has proposed a very innovative M.S. degree in Data and Information Management that has passed all levels of approval in the CSAT and will be proposed in 2013-14 for approval at the levels of the RU Board of Visitors and the State Council of Higher Education for Virginia. This degree program would be the first graduate degree program in the College of Science and Technology.

A M.S. in Education with a concentration in Content Studies in Earth and Environmental Science degree program is also being proposed. The Planning Committee for this graduate degree consists of Ms. Mythianne Shelton, Special Purpose faculty member in Physics, Dr. Jonathan Tso, Chair of the Department of Geology, Dr. Richard Roth, Chair of the Department of Geospatial Science, and Dr. Patricia Shoemaker, Dean of the College of Education and Human Development. This proposed degree program would provide hybrid courses with online lectures and face-to-face summer institutes where field trips and laboratory exercises would enhance content knowledge and development of scientific pedagogical and technical skills. The three areas being proposed within this degree program are endorsement in Earth and Space Science, a concentration in Geology and a concentration in Environmental Science.

These two graduate degree programs were presented to prospective students at the Southwest Virginia Higher Education Center in Abingdon, Virginia on Tuesday, March 26, 2013 by Ms. Mythianne Shelton, Dr. Art Carter, Chair of the Department of Information Technology, and Dr. Jeff Pittges, Associate Professor of Information Technology, and me. Needs analysis surveys were completed by the prospective students in attendance as well as their input on the plans.

- to lead the College in procuring and managing fiscal, human, and physical resources necessary to accomplish these goals,

Goal: Pursue new relationships with corporate partners and continue to pursue gifts to the CSAT

Status: A new relationship with a corporate partner is being pursued with the submission of a proposal to Wells Fargo for the support of Summer Bridge Program. Donations during 2012-13 to the Summer Bridge Program RU Foundation account thus far for summer 2013 total \$44,105 from three corporations, three foundations, and one individual. A total of \$62,000 in Summer Bridge Program 2013 donations is pending from one foundation and two government entities.

Goal: Support the efforts of faculty members to achieve a goal of 26 external grant submissions and 13 external grant awards

Status: From July 1, 2012 through March 28, 2013, 17 external grant proposals have been submitted by CSAT faculty and staff based on information provided by the Office of Sponsored Programs and Grants Management and grant proposals signed in the Office of the Dean. Four external grants have been awarded from July 1, 2012 through March 28, 2013.

- to represent the college, its goals and needs to other external as well as internal constituencies, and

Goal: Continue to communicate with all constituents of the CSAT through the CSAT newsletter and alumni newsletter and by meeting with departments and faculty members

Status: The CSAT newsletter *From the Dean's Desk* that is written and designed by Ms. Ann Brown, Assistant to the Dean, continues to be successful in communicating news to CSAT faculty, staff and students. There have been 12 editions of *From the Dean's Desk* distributed from April 12, 2012 to March 21, 2013, and the faculty, staff and students of the CSAT make this newsletter possible by reporting their successes to Ann for inclusion in the newsletter. CSAT holiday greeting cards were mailed to donors who had made contributions to the CSAT in 2012.

- to promote the overall excellence and welfare of the University

Goal: Support positive morale among faculty and staff across the CSAT by listening to faculty concerns and soliciting faculty input in decisions affecting the CSAT

Status: I continue to meet with CSAT faculty ranging from individuals with specific requests to concerns from departments. The meeting agendas ranged from requests for resources, to concerns raised by students and parents. I write letters of support for many faculty members to assist in their applications for grant proposals, awards and an appointment to a national commission.

Goal: Support efforts to engage alumni in the work of the CSAT

Status: The College of Science and Technology planned two Advancement events during the 2012-13 academic year. On Friday, October 5, 2012 the annual meeting of the CSAT Alumni

Advisory Council was conducted from 10:00 a.m. until 2:00 p.m. in 248/249 Heth Hall. An update was provided from the dean and the CSAT Building Committee on the Center for the Sciences as well as updates from the department chairs on events and activities within their departments. The keynote speaker for the CSAT Alumni Advisory Council meeting was Dr. Deborah Robinson, Vice President for University Advancement.

On Thursday, November 15, 2012, the CSAT sponsored an alumni event for the New River Valley and Roanoke Valley alumni in 119 Reed Hall around the NASA exhibit “Here. There. Everywhere.” that came to campus through the efforts of Dr. Rhett Herman, Professor of Physics. This event was coordinated with the Office of Alumni Relations, and Ms. Sandra Bond attended the event to represent the RU Office of Alumni Relations. The event plans included an update on the Center for the Sciences and the RU Planetarium show *2012: Mayan Prophecies*.

Another major alumni project undertaken this year has been the development of a Case Statement for the Center for the Sciences. This project has involved close collaboration with the Office of University Advancement, the Office of University Relations and the CSAT faculty. The result of these efforts is a draft of the case statement in the form of a booklet that has been printed and distributed to approximately 42 resource people who represent current members of the RU Board of Visitors, RU Foundation Board of Directors members, CSAT private donors, CSAT Advisory Council members, community members, emeritus faculty and CSAT corporate donors. A team of CSAT and Office of Advancement personnel will be contacting the individuals identified to solicit their reaction to the draft of the Case Statement by May 15, 2013. Their recommendations for revisions will be used to write a final draft of the Case Statement that will be presented to President Kyle for review and approval.

Professional Development for 2012-13

I attended the American Association of Colleges and Universities Annual Meeting in Atlanta, Georgia during January 23-26, 2013. The theme of this meeting was “The Quality of U.S. Degrees: Innovations, Efficiencies, and Disruptions – To What Ends?” I attended sessions that included, “Collaborative Space: Is It Worth It?”, “Developing a Culture of E-Portfolio Use at a Large University”, “Students on the Move: A STEM Migration Analysis”, “Designing Summer Bridge Programs” and “New Directions in Professional Development for STEM Faculty.” These sessions and the resulting discussions were informative and enlightening.