



ANDERSON SCHOOL DISTRICT FIVE

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EDUCATION NEWS

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## Clemson and District Five Collaborate on Science Curriculum

Science educators from T.L. Hanna and Westside high schools are working together with Clemson University faculty to provide high school biology students the opportunity to learn more about advanced scientific research and its effects.

“EMRGE,” which stands for Ethics in Medical Research and Genetic Engineering, is a project supported by Clemson's SC LIFE Project funded by a grant from the Howard Hughes Medical Institute and involving Clemson University faculty from The Rutland Institute for Ethics, the Center for Academic Integrity, and the SC DNA Learning Center collaborating with science educators from the two District Five high schools.

Last week over 210 District Five biology students traveled to Clemson to participate in activities such as faculty-led discussions about the impacts of advanced research, an investigation of stem cell differentiation at the South Carolina DNA Learning Center, a Bioengineering Department presentation on how tissue engineering works, as well as discussions about the Clemson experience from students in the FIRST program (first generation in their family to be in a four year degree conferring university) and career opportunities related to the field trip. Attention was paid to include opportunities for Clemson students to interface with the biology students. At lunchtime the biology students had the opportunity to speak with Clemson student volunteers in various degree programs about their experiences and ask questions. Some Clemson students in the School of Education's high school biology track volunteered in the learning center, at the information sessions, and during lunch. Later in the school year the students will conduct a genetic engineering investigation on their home campuses with their teachers.

“This project creates a curricular framework that allows students to identify and explore connections between advanced research in areas such as stem cells, genetic engineering and nuclear applications and their intended and unintended ‘ripple effects’ in our economy, medicine and society,” said Amy Hawkins, coordinator of science, health and physical education at District Five. Later in the academic year the students will complete a project/presentation to demonstrate what they have learned.

The project addresses several SC Biology learning standards. They include standards that require students to summarize the unique characteristics of embryonic and adult stem cells, often leading to discussion on the ethics of using stem cells in research. The state standards also require students to understand how genetic engineering introduces new characteristics into organisms and populations and to summarize the benefits and drawbacks of this practice.

Mrs. Hawkins said, “One of my goals for the project is to equip teachers with the skills to teach their students to think about ethical questions; not teach the teachers’ points of view on the subjects at hand.” Teachers in the

project have been trained in “Ethics Across the Curriculum,” a course developed by the Rutland Institute for Ethics and the Center for Academic Integrity.

The SC **LIFE** Project is funded by the Howard Hughes Medical Institute and housed in Clemson’s Department of Biological Sciences in the College of Agriculture, Forestry and Life Sciences. The project began in 1998, to use the natural history of South Carolina and the Southeast to illustrate basic biological concepts and to stimulate inquiry-based learning. The SC LIFE Project has since expanded to offer programs in all areas of life science, from molecular biology to ecology. SC LIFE serves college students as well as elementary, middle and high school students and teachers. Dr. Barbara Speziale, professor and associate dean of Undergraduate Studies, also serves as project director for SC LIFE.

The purpose of the South Carolina DNA Learning Center is providing modern genetics and biotechnology outreach education to students in grades 5-12, teachers, and the public. The DNA Learning Center has two state-of-the-art laboratory classrooms, a computer classroom and a lunchroom that can be used to provide one-day visits for students.

The programs and activities of the Rutland Institute for Ethics are multidisciplinary and are intended to benefit both the campus and the community. Campus activities focus on three groups: students, faculty and staff. Community programs are designed to reach as much of the community as possible, with special attention directed to the business, education and professional sectors. For more information on the Rutland Institute for Ethics, please visit its website at [www.clemson.edu/ethics](http://www.clemson.edu/ethics) The principal academic partner of the Rutland Institute is the Clemson University Department of Philosophy & Religion.

For more information on Anderson School District Five, please visit its website at [www.Anderson5.net](http://www.Anderson5.net).