

Geoscience Community College Programs of Societal Relevance and Importance in the Wind River Basin and Range

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Central Wyoming College, Fremont County, WY, is in a unique situation: being within the boundaries of the Wind River Indian Reservation (WRIR), having the National Headquarters of the National Outdoor Leadership School (NOLS) in one of our towns, surrounded by ranches and mountainous wilderness, and home to many mineral resources (oil, gas, uranium). Despite these divergent interests we are able to find common ground: in the education of our citizens. All of these populations have a deep connection to the land, whether as spiritual homeland, backcountry playground or resource/land use management. This makes CWC the perfect crossroads of American cultures.

It is not difficult to recruit the younger generation of Indians *into* our programs, especially the Environmental Technician program. Our problem is in *retaining* these students in a program that is not well tuned to their culture and who lack essential training in composition, mathematics and problem solving. On top of the education issues are the cultural issues with parents or grandparents not trusting the government institutions and not supporting their younger adults in academic pursuits. We have all of the government Trio programs, dedicated to helping this generation of students survive and thrive in American higher education, but even this does not seem to be enough. Our recent collaboration with the new University of Wyoming [EPSCoR](#) program which has created the Wyoming Center for Environmental Hydrology and Geophysics ([Wy-CEHG](#)) has given us the opportunity to bring our students into the field with local and regional experts, and get them to do science and understand why it is important – right in the field. This makes the pursuit of understanding our planet societally important and relevant to our student's lives. It has attracted several new minority students into our programs. EPSCoR is making a concerted effort in growing interest in STEM fields on the reservation and we are optimistic that our programs will benefit from this collaboration.

For over 30 years NOLS existed in Lander and CWC existed in Riverton, with no connection to each other. In 2000, someone finally saw the advantage of bringing our programs together. From an initial program, cobbled together from both catalogs, a new generation of outdoor leader has emerged. We now have two pathways for students: Outdoor Education and Leadership, and Environmental Science and Leadership. The difference between the students in the two programs is obvious – those that like to work hard with their brains as well as their bodies, and those who only want to live outside and be immersed in the culture of nature. There are the occasional crossovers or dual-major students. Adding a stand-alone course in Environmental Science (originally for the EHS program) has enhanced our recruitment efforts for both majors. The students who come through NOLS or have a NOLS course as their target already

have that sense of societal importance and relevancy with nature in their lives and they are a good fit at our college. Because they come from all over the country, and a few from foreign lands, they bring a bit of diversity to our campus life.

In response to the high cost of a NOLS course to students with a definite interest in Earth science, a transfer program in Earth and Environmental Science (EES) was initiated. Knowing the swings in the traditional geology profession, we thought it wise to combine Earth science (geology) with a field known for employing folks on a steadier basis. And seeing that we, as a country, are becoming more aware of environmental issues, and with employment opportunities in environmental science increasing during the 1990s and 2000s, it seemed a good combination. The EES degree provided a solid physical science and mathematics background and introduced students to basic earth science concepts. Over the years, our program offerings have grown, now to include Earth system science (biogeochemistry), meteorology, climatology and environmental science. Once we developed our Environment, Health and Safety (EHS) program and the University of Wyoming founded the School of Energy Resources (SER), it made sense to expand our degree to cover topics in the energy fields as well. Hot off the curriculum highway is our new Earth, Energy, Environment (E³) AS degree, which will begin educating students in energy programs in the fall of 2014.

The EHS program is the result of community focus groups and a Department of Labor workforce grant. With the help of a community advisory committee, we decided to have two tracks within the EHS program: Health & Safety and Environmental Technician. With our grant, came funding for two new faculty positions and a program director, and well as scholarships to cover tuition, fees and textbooks for our students. Both of these options require an internship with an agency or industry. Through this program, we have developed steady partnerships with our local energy industries. With the success of this program, especially in attracting the WR Indian members, CWC has committed to ongoing support of this program, beyond the life of the grant, also supported by an industry-contributed foundation endowment. After several years of prodding, we were finally able to get the administration to support adding Geographic Information Systems (GIS) to our programs. We now have certificates and credentials under the EHS-Environmental Technician Program, a transfer option in our E³ AS program, and are currently preparing the request to the Wyoming Community College Commission for an AAS in GIS. Given the mineral-rich land that Wyoming, and especially the WRIR is, these GIS-centered programs should be attractive to those looking for societally important employment that is relevant to their lives.

In addition to our above programs, CWC has a robust undergraduate research program. Three dedicated faculty currently run programs that are

focused on questions of local significance: West Nile Fever, the microbial life in Thermopolis hot springs (analogous to early life on Earth), and climate change evidence in glaciers of the Wind River Mountains. Majors of all abilities are encouraged to participate in our research projects. Indeed, several are imbedded into our freshman lab science courses. We feel it is important not to restrict access to this learning program to those with high GPAs. We see that sometimes what a student needs to take their studies seriously and improve, is a connection to why what they are learning in class is important. We have had several success stories of low-performing students pull up their studies and their lives, as the result of doing undergraduate research. Our research projects are currently supported by funding from the IDeAs Network for Biomedical Research Excellence (INBRE), Wyoming EPSCoR (Wy-CEHG), the Community College Undergraduate Research Initiative (CCURI) and Wyoming Space Grant (NASA). This financial support allows us to pay our student researchers as interns and allows us to purchase supplies that we otherwise could not afford. What is more relevant than actually collecting and interpreting data from local research questions?

We know that we have some awesome programs at CWC but we suffer from lack of enrollment in our classes. This year's focus is on getting out the word of our existence. The University's geoscience program is over-flowing but their main focus is on graduate research. Why not come to a small place like CWC where you can still get that quality education plus get intern and/or research experience opportunities that are available only to upper-class students at the University? Oh, you didn't know we had those programs? Well, now you do. And, oh yeah, even our out-of-state tuition is lower than most state universities. Come and check out what we have to offer you!