



2013 CTI Seminars

Charlotte as a New South City: Using the Collections of the Levine Museum of the New South *Shep McKinley, History, UNC Charlotte*

This seminar will explore Charlotte's transition to a New South city during the century after 1870. Using the Levine Museum of the New South's "Cotton Fields to Skyscrapers" exhibit and working with historians Shep McKinley (UNC Charlotte) and Tom Hanchett (Levine), CTI Fellows will explore this unique time in the city's history to gain a better understanding of present-day Charlotte-Mecklenburg. How did Charlotte evolve from a cotton trading hub into one of the nation's premier banking cities while becoming increasingly segregated? What subcultures developed during this period? Was Charlotte a "typical" southern city? What are some of the lingering effects of this era in modern Charlotte? After studying and discussing some of the historical literature and the various aspects of this era – including the cotton economy and sharecropping, the rise of textile mills and mill villages, Populism and Jim Crow, music and religion, banks and transportation, and residential segregation and busing – Fellows will choose specific subtopics to create their curriculum units.

The Nature of Energy: How We Use and Store It to Power Our Everyday Lives *Susan Trammell, Physics and Optical Science, UNC Charlotte*

What does a scientist mean by energy? How does a solar panel work? How and why does a nuclear reactor generate energy? In this seminar, we will explore different ways of generating energy. For each topic we will discuss the science behind the energy generation method and then discuss the cost, benefit and problems for using these methods to generate electricity. This seminar is appropriate for all teachers in grades K-12.

First we will explore the concept of energy – a fundamental idea in physics. This will include a discussion of the forms of energy (kinetic, potential, chemical, thermal, light and nuclear) and energy conservation (energy is never destroyed but can be converted from one type to another). We'll need these ideas to talk about the other topics in the seminar. Next, we will talk about the ways we generate electricity today. We'll start with coal-fired power plants. How much coal does it take to generate electricity for a city like Charlotte every day? We will also explore the basic operation of a nuclear reactor. This will include a description of nuclear fission reactions and radioactive decay. We will examine the nuclear accident in Japan in 2011 and discuss the future of nuclear power.

Green energy – or renewable energy – is an important topic of conversation today. We will discuss five types of green energy: hydropower, solar power, wind power, geothermal power and biomass. We will discuss the science behind each of these energy sources and the challenges of introducing these energy sources as major producers of electricity.

Math and Sports

Tim Chartier, Mathematics, Davidson College

A batter stands at the plate, or two basketball teams match up in March Madness. Mathematics can indicate what may happen along with its likelihood. Sports analytics is a popular and ever growing field of study and one in which students can engage. Sports teams are often ranked by the fraction of wins over their total games. Other times, more methods are employed. For instance, the teams that play on New Year's are selected by the Bowl Championship Series. Two of their ranking methods use systems of equations. Sports also include topics beyond these avenues of study – If one looks at a plot of lap times in NASCAR, one sees that the cars tend to slow down each lap after a pit stop. Why? Their tires are wearing. If Usain Bolt were racing Jesse Owens, by how many feet would Bolt win the 100 yard dash if they both ran their gold medal times?

Charlotte offers a rich resource for exploring math in the field of professional sports. The following possible resources would need to be confirmed but are clearly possibilities for the seminar:

- * Visit the NASCAR Hall of Fame and head of education. What field trips can be conducted at the museum?
- * Visit a minor league team and learn about how sports analytics influence their game. How real is Moneyball in their training or the manager's decisions?
- * Visit the Bobcats or Panthers to learn how math influences their game. What ways can we see math in the arena — from the hash marks on the football field being 10 yards apart to other aspects? How do they mark off the field?
- * Connect with a Davidson coach about their sport. What data do they use? How do they analyze it?

Imagining Modern Bodies: Disability and Art at the Bechtler Museum of Modern Art

Ann Fox, English, Davidson College

Disability? What could disability have to do with art and literature? Isn't it only the province of those involved in medicine, therapy or special education? We're not used to thinking of disability as belonging to all of us as educators, or as a liberating, creative force; we're used to thinking of it as something to be cured or overcome, or even, sadly, vilified or hidden away. But this seminar, premised on the ideas of an academic field called *disability studies* (with which I presume no familiarity on your part), will challenge our conventional ideas that disability equals only sentiment, pity or tragedy. Our work will first be based on the following assumptions:

- Disability is a culture and a community, with a history all its own
- The study of disability is interdisciplinary, relating to literature, art, medicine, history, science and social studies
- Disability is relevant to all of us, because we all may be ourselves disabled, may know or love someone who is disabled, or at the very least, we all live in bodies that are susceptible to illness, injury or aging
- Better understanding the possibilities disability represents makes us better able to embrace a wider range of identities and embodiments in our world as a whole.

More specifically, this seminar will be about using disability to question bodily ideals in art and literature. We'll use works from the Bechtler as catalysts for our discussion, and we'll also

use literature and popular culture, embracing the idea that disability generates exciting new ideas about the body.

We will parallel our discussion of "disability aesthetics" in visual art with discussing "disability aesthetics" in literature, and how it can disrupt what we think of as traditional literary forms. So we'll look, for example, at the new disability poetry, in which disabled writers not only give voice to the disability experience, but do that through experimentation with form. We will also look at how memoirs by disabled people posit powerful retorts against set ideas about bodily "normalcy." We will read these alongside contemporary works of art by disabled artists that are similarly challenging ideas that the body has to look a set or certain way.

Who should take this seminar? Anyone who works in some capacity with students on ideas about body ideals; anyone who teaches history; anyone who teaches art; anyone who teaches about multicultural issues; anyone who teaches about a foreign language or culture; anyone who teaches literature; anyone who teaches science; anyone interested in social studies; anyone who works with disabled students; anyone who works with nondisabled students.

Grammar for the Real World

Ralf Thiede, Linguistics, UNC Charlotte

Explicit instruction in grammar has, for various historical reasons, declined in public schools, but it appears to be making a comeback via SAT, AP and common core curriculum. We will look at grammar (not necessarily only school grammar, but also paying attention to more current linguistics) with an eye on two areas of application. First, *grammar for writing* – the grammar one must know in order to discuss and do professional (non-intuitive) editing. Second, *grammar for the workplace* – the grammar one must know to prepare for studies towards a career in any of the many language-related industries.

This seminar is not exclusively intended for English/Language Arts teachers, but also for all those who think grammar (linguistics) has its rightful place among the STEM disciplines. For example, a teacher in social studies or mathematics/statistics may be interested in developing curriculum involving topics such as diagnosing linguistic deterioration in Alzheimer's patients, forensic linguistics (establishing authorship), computer applications (data mining, corpus analysis), etc. Cooperation between ELA and STEM teachers would be especially welcome and encouraged.

Human Social Groups

Lisa Slattery Walker, Sociology, UNC Charlotte

This seminar is designed to examine the current knowledge about social groups. Both intra-group relations, i.e., how small groups function within themselves, and inter-group relations, i.e., how groups interact with one another, will be covered. Potential topics may include conformity, minority influence, leadership, decision making, stereotyping, discrimination and inter-group conflict. Examples from groups such as families, work teams, political parties and voluntary associations will be used throughout the seminar. Major current theories and the history of the study of small groups will be presented. Much of the seminar will be experiential, with the Fellows participating in various group activities to demonstrate the group dynamics under discussion.

This seminar would be interdisciplinary in scope, with emphasis on social psychology, but of interest to teachers of sociology, psychology, social studies, politics, history, business,

communications or any other field where people work in groups or teams (e.g., lab sciences). Topics which Fellows might discuss include why and how humans work in social groups; how and when group-based work is, and is not, an effective tool for improving outcomes of various kinds of tasks; and various group techniques for improving student learning, inclusion and classroom climate.

Chemical Magic

Durwin R. Striplin, Chemistry, Davidson College

The use of chemical demonstrations to assist teachers in providing eye-catching visuals for their classes is a time honored teaching tool. There is no reason these methods should be just for science classes! The goal of this seminar is to help teachers feel comfortable measuring and mixing chemicals, to help them put together low-cost, quick demonstrations of sufficient quality so the teacher can reference them throughout the semester, and along the way learn a bit of chemistry.

Fellows will learn to build a unit of study using chemical demonstrations that could be used in the teaching of the timely subjects of energy, fuels, sustainability, conservation and more as identified by Fellows. As the semester progresses, we will plan and set-up for a full, one hour long, “Chemistry Magic Show,” learning the basics of preparation, measuring and mixing chemicals, appropriate safety precautions, proper waste clean-up and stage craft, as well as some basic chemistry. The goal in this context is to build a show that entertains as well as teaches!

We will also build databases that identify websites and books to mine for ideas, places to find chemicals and materials, and a network of like-minded folks who can help us brainstorm ideas for good demonstrations – ones that don’t require a lot of resources and are appropriate for students, the subject and the teacher. We want to design some demonstrations that require class participation. We plan to spend as much time as we can, playing in the lab!

Urban Encounters: Hispanic and African American Literature

Brenda Flanagan, English, Davidson College

Some 30 years ago, Sandra Cisneros’s delightful novel, *The House on Mango Street*, introduced readers to members of a Mexican-American family, the neighborhood in which they live, and, most importantly, their dreams and hopes of being fully American. Writers such as Cisneros, Judith Ortiz Cofer (Puerto Rico), Cristina Garcia (Cuba), Juno Diaz (Dominican Republic), and a host of others, have enriched American literature thematically, stylistically and certainly linguistically. As the American population changes, and as more students of Hispanic heritage enter school systems, the need for an understanding of what it means to be Hispanic/Chicano/Latina-American is imperative. That awareness can often come from a study of culturally specific literary texts, and can be enhanced through a comparison of such texts with those from another American ethnic group: African American.

This seminar, then, will introduce Fellows to the literature Hispanics – an all-consuming even if problematic term – have written, and several texts written by African Americans. The focus will be on novels set in major American cities, as this will afford an interesting basis of dialogic comparison and contrast.