UHC student Amy Christeson participated in an NSE exchange in Arizona this fall.  
Read her story on page 8.
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The Chronicle

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The Chronicle magazine is published by UHC and OSU students. Articles reflect views of the individual writers on the Chronicle staff, but may not officially reflect the views or policies of Oregon State University or the OSU Honors College.
As I sit down to write this, I have been on the staff of The Chronicle for slightly more than thirteen months. I began my association with this magazine in October 2002 when I signed on as a lowly freshman staff writer. I remember that first staff meeting: the upperclassmen joked and laughed with each other, sounding like one big family, while I watched wide-eyed. I was impressed by their easy camaraderie, and I hoped I'd someday share that sense of belonging.

The Chronicle has gone through many changes in the year since that meeting, not the least of which is that I have become the editor! Some of the faces I remember from last year are gone, either graduated or simply following new paths. A few of the veteran Chroniclers are still around, but (at least from my perspective) the atmosphere has shifted: I now count myself as part of the Honors College family, and I join in on the jokes and laughter as much as anyone else.

I am continually impressed by the welcoming spirit of the University Honors College. While the educational advantages of the UHC’s small size are considerable, I place equal value on the interpersonal benefits. In the past year, I have gone to a movie with faces to The Chronicle, like Eric Hill, the UHC’s writing instructor, and Jeff Burright, our invaluable Layout Guy. What’s more, we have you guys! The only way to make The Chronicle a worthwhile pursuit is if our readers contribute to its success. The UHC itself works in large part because of the efforts of its students. Just take a look at some of the thesis projects we’ve highlighted in this issue, and you’ll understand a little bit about the amazing experiences the UHC can make possible!

I see The Chronicle as an integral part of the Honors Experience: a gauge, a snapshot, an archive of our time here. From speakers to symposiums, from barbecues to those ever-present theses, it is clear that our time here is an extraordinary experience indeed. We welcome all suggestions and submissions. If you ever want to drop us a line, you can do so at uhc_chronicle@hotmail.com. Good luck with winter term!

Winter 2004 Edition
An Encounter with Chaos
Meeting UHC Professor Jon King
by Blake Clark

"Meet him at your own risk," Jane Siebler taunted, "I'm not going to tell you where his office is." Nervous, yet undaunted, I walked out of 229 Strand Hall ready for a debate with an enigmatic professor who proclaims to know chaos.

Some time before becoming officially enrolled in the Honors College, and after an extended 127 month summer vacation following a harrowing freshman year at Reed College, I was beginning to have a funny feeling that I might belong here. It's not an easy thing, leaving a successful career, selling a house, and moving to a small college town to start over at age 30. What was even harder, though, was recognizing that school was a part of my life I had never quite mastered. I've spent most of my academic career feeling like a round mind in a square world. I once filled out a standardized test with every answer marked incorrectly. My argument, of course, was that I must have actually known all of the correct answers, otherwise I might have accidentally gotten some of them right. The fear of failure, of being too old, of not remembering how to factor exponents, all plagued my first few months as an older than average sophomore at Oregon State University. I took a huge risk when I decided to return to school. Despite Jane's light-hearted and cryptic warning, I figured I could handle meeting Dr. Jonathan King.

No one has ever escaped Jon's gaze without a reading list. Dr. King is a business professor with a philosopher's heart and a scientist's mind, and if the rumors were true, more than a little intense. He is also an Honors College faculty member, and he teaches a class on understanding complex systems. I was about to have one of the most bizarre and captivating conversations of my life. I found him standing next to the door of his office, filing a large stack of papers. He looked up, and asked if he could help me.

"Are you Dr. King? The Chaos guy?"
"Well," he said, "That depends on what you mean by Chaos. Some people sleep better at night if they believe there is some kind of beautiful and benevolent pattern holding up the-"
I interrupted, "I just wanted to tell you that I'm in love."
I have never since seen Jonathan King grope for words. "I'm speechless," he finally offered. "Why don't you come in?"

To this day, I'm not sure exactly why I announced I was in love. I know I must have wanted to make a memorable first impression, even if it didn't make a whole lot of sense at the time. What I meant to say was that I had just read my first book on self-organizing chaotic systems, and was desperate to talk to someone about it! I had fallen in love with the ideas printed on its pages. We talked for the next hour. I stood surrounded by piles of books and research papers, absorbing only a tiny portion of the vast amount of information Jon King was enthusiastically sharing with me, a complete stranger.
We talked about Chaos Theory and Complexity Science. We touched on existentialism and The Lord of the Rings. Zen Buddhism. The meaning of life and the movie Zorba the Greek, and why they're the same thing. I've never understood so much and so little simultaneously. It was a thrilling experience.

The faculty and staff of the University Honors College have welcomed me and my slightly misshapen brain with open arms and open minds. I continue to make friends and share ideas in an environment that is both challenging and nurturing, if sometimes a little nuts. I am grateful for the opportunity to fully experience the joy that talented people can bring to education.
Where the Boys Are:
A Woman's Place in Engineering
by Abby Phillips

It seems logical that the number of women in engineering should progressively increase each year. As time passes, society, and thus institutions, become more open-minded to practices that were unheard of only a short while before. Oddly enough, OSU had its greatest percentage of women in engineering in 1986, when 15.3% of the bachelor’s degrees in the college belonged to women. The most recent information from 2002 shows that women comprised only 12.4% of the program’s degrees.

Current enrollment statistics in similar majors fare no better. In computer science, there are currently 38 women out of 459 total students in the program; in mechanical engineering, 23 out of 422; and in electrical engineering, 24 out of 340. We assume that educational systems such as OSU have evolved to reflect the ever-changing attitudes of the people, yet we still have to face the despairing fact that very little has changed. There is no definite explanation or excuse for the skewed representations within OSU’s engineering and computer science programs, but different theories or ideas can help

(continued on page 6)

Skirting the Iron Curtain:
A Look at Russian Activism
by UHC Professor Sarah Henderson

On a Thursday morning in December 2002, instead of teaching my political science class at OSU, I was struggling to stay warm in -30 degree weather in the streets of Novosibirsk, a large city located in the middle of Siberia, Russia. I was waiting to board a rickety, unheated, and massively overcrowded bus, which would take me to a small village in the Siberian countryside. My goal? To meet and interview a schoolteacher who had formed a photography club for his students at an orphanage. Although Russia was struggling with seemingly insurmountable economic, social, and political problems, thousands of citizens were engaging in small local activities to improve the lives of the people around them. To me, this was a very small but critical slice of Russia’s emerging democracy.

In the fall of 2002, I left my comfortable life in Corvallis to embark on a three-month research trip that would take me through five of Russia’s regions, spanning seven time zones. My research interests as a professor revolve around the development of grass- (continued on page 7)
our understanding and interpretation of the facts.

One theory claims that the fundamental difference between males and females is in our genes, that we are biologically different and our minds function in accord to these differences. Most would agree that men and women think differently, but to insist that distinctions between the sexes are due solely to biological factors is dangerously reductionistic. This assertion assumes that men’s minds are better equipped for the hard sciences, and that women should concern themselves with fields like teaching and home economics. This is limiting for both sexes and does not provide much hope or freedom for women looking to enter fields where they represent only a fragment of the whole.

In a broad sense, feminists avoid biological determinism and side with theoretical perspectives that target cultural and institutional practices. In her Gender and Science class at OSU, Ann Virtu Snyder breaks down the feminist arguments into two categories: liberal and difference feminism. Snyder primarily shows how these stances function in women studying science, but the same argument can be applied to women in engineering.

Liberal feminism asserts that it is not the institution itself but external forces such as political and social constructs that bar women from engineering. Women are taught to follow culturally influenced gender scripts that determine behavior. To take this argument further, women are influenced to believe that they are not suited for engineering. Liberal feminists seek to reform political and social practices through educational reform and egalitarian goals in hopes that more women will join fields that they have been taught to avoid. This perspective assumes that if girls were encouraged in grade school to pursue engineering, they would feel more accepted in the program by the time they reached college. Perhaps the cultural climate in 1986 was more conducive to women in engineering, or society’s attitudes changed as a result of the hard-pressed efforts of the Women’s Rights Movement.

Difference feminism takes another approach in explaining the low number of women in engineering. Rather than blaming the cultural climate, difference feminism points a finger at sexist practices within the institution. The idea is that the engineering program at OSU is biased against women in its curriculum and standards. In order to reduce and ideally eliminate the exclusion of women, the program’s framework and curriculum needs to reorient towards an egalitarian approach. Difference feminists believe that men and women function differently, but adding more women to disciplines in which they are minorities would give a more holistic approach in how we study and perceive the world. In order for this to happen, however, the framework of university engineering programs must change.

Ellen Momsen, Director of Women in Engineering at OSU, reveals that efforts for institutional reform are being made. She states that some programs have taken the difference feminist approach and tried to implement a more user-friendly attitude where the curriculum is more inclusive of other disciplines instead of raw engineering. Momsen argues that often women and minorities want to be able to help people within their discipline, and some programs have responded by educating students about the humanistic side of engineering. Companies that produce environmentally sound products often rely upon engineers for an effective design. When women are aware of the opportunities involved with engineering, they learn that this discipline is not confined to a suffocating cubicle career.

Of course, every perspective has its flaws. The biological determinism, as mentioned before, relies too heavily upon rigid sex characteristics to explain the disparity in enrollment numbers. Liberal feminism denies the benefits of institutional change and leaves
Russia: continued

roots organizations and citizen participation in post-communist Russia. I am fascinated by the question of how citizens learn democratic skills, norms, and practices in a society in which, less than two decades ago, independent organization was illegal. In my three months in Russia, I met with nearly one hundred activists who were all, in one way or another, trying to improve the lives of citizens in their communities.

I became interested in Russia when I was in high school. During my senior year, my family temporarily relocated to East Berlin, East Germany for four months. I had to cross the Berlin Wall daily to attend high school. This process of journeying from East to West, of spending my days in free West Berlin but sleeping in authoritarian, communist East Berlin got me interested in the Cold War and the Soviet Union. When I started college, I enrolled in Russian language class to better understand the nature of a conflict that had polarized the world. However, during my first year, the Berlin Wall was torn down, and authoritarian regimes collapsed like dominoes across Eastern Europe. These countries then entered the wrenching process of establishing capitalist economies as well as democratic institutions. I was drawn to this transition going on in the Soviet Union, and followed the political maneuverings of the country with bated breath. In my senior year of college, I went to Petersburg on a study abroad program, and witnessed the difficulties of political and economic transition firsthand.

When I went to graduate school, I decided to continue my study of the process of political and economic transition in formerly communist regimes. I have always been interested in looking at what I term the “power of protest” rather than the battle for control between politicians. I wanted to follow Russia’s tortured trail of democratic reform, but I wanted to do so from the ground level. Rather than talking to the elite at the top, I wanted to know the people that were forming organizations and associations from the bottom up.

At OSU, I teach classes on a wide array of topics in addition to my specific research on Russia. What links these classes is my fascination with broad issues of political breakdown and regeneration. Why do authoritarian regimes collapse and how do societies construct new regimes to replace the old? In terms of my teaching, I always try to impart to students that the political stability we often take for granted is, in truth, incredibly rare, and the majority of the world’s citizens live in countries marred by political instability and economic scarcity.

I chose to teach in the Honors College because I graduated from a small liberal arts college and I wanted to recreate that world in my own classes. I was lucky to have small classes, engaged teachers, and a diverse student body. It was also an extremely activist campus, one that encouraged students to break down the barriers between the classroom and the world around them. Every day of my college existence was a learning experience, and, over a decade later, I continue to learn from the experiences I had in those formative years.

Women in Engineering

the practices of engineering programs unchecked. Difference feminism, in an extreme sense, can further accentuate the distinction between men and women, which slants towards a deterministic point of view.

Perhaps if OSU applied liberal and difference feminist approaches, the program would be strengthened. If the program expanded its curriculum to a more multi-faceted approach, more women would feel encouraged to contribute their efforts. This, along with educational programs at a young age that try to promote women’s participation in engineering, could make a huge difference.

Despite all the theories and solutions, it’s possible that women generally aren’t interested in becoming engineers. As long as women have freedom of choice in what
National Student Exchange:
UHC Student Lives the Desert Life
by Amy Christeson

Right: Renowned Grand Canyon artist Bruce Aiken gives some pointers to a student during a painting lesson at one of the most scenic points on the South Rim.

Below: Students sit on the edge of the rim reading aloud their creative writing pieces.

Photos by Amy Christeson

Have you ever wanted to spend a few months in Alaska? Or visit a school in a completely different region, like the South or New England? Or get a chance to attend one of the colleges that was on the top of your list but was too expensive for an out-of-stater? Well, fortunately Oregon State offers an easy way to do all of this for a relatively cheap price.

This fall, I was able to raft down the Colorado River, spend three weeks camping at the rim of the Grand Canyon, take discussion-oriented courses with only ten students each, and meet with some of the nation’s most famous Grand Canyon artists, writers, geologists and historians. At the same time I earned 19 credits while paying less than OSU’s normal tuition.

I have the National Student Exchange (NSE) to thank for this incredible experience. NSE is a program offered through a huge number of state universities across the nation that gives students the opportunity to spend up to a full year at another university. Personally, I think it should be mandatory for all students to participate in the NSE because it is such a wonderful way to visit different regions with different climates, meet different people and take different classes. NSE students can opt to either pay tuition to their home institution or pay in-state tuition at the exchange school. I’m a big fan of NSE because it is such a hassle-free way to see the nation. The program coordinators helped me through the application process, though there is very little paperwork (a definite plus). One of the little known secrets about NSE is that students can use it to take advantage of specialty programs or study abroad opportunities. If you have your heart set on spending a year in a particular country, but OSU doesn’t offer a program there, you can simply enroll through NSE to a school that has the program you were hoping for.

If you have your heart set on spending a year in a particular country, but OSU doesn’t offer a program there, you can simply enroll through NSE to a school that has the program you were hoping for.
In my case, I went to Northern Arizona University for what is called the Grand Canyon Semester. This program brought about 20 students from all over the country to Flagstaff, Arizona for an intensive semester that uses experiential learning to teach the cultural and political history, geology, art, and archaeology of the Grand Canyon region. Our outdoor classroom ranged everywhere from above on the rim to below on the river. I’ve had creative writing seminars while sitting with my feet dangling over the mile-deep canyon, as well as painting lessons from a scenic ridge; what a place for inspiration! Small classes mean we get individualized attention and can schmooze with the famous guest speakers. I’ve had such a wonderful experience here in the old west mountain town of Flagstaff that I’ve even extended my exchange for the entire year!

When people come back from vacations abroad, road trips, or academic programs, they almost always comment on how the experience changed their lives forever, and how they think everyone in the world should do the same. Well, as cheesy as that is, I wholeheartedly agree. I had never been to Arizona before this year, and I feel like I now have a wonderful new perspective of the crazy world of desert living, especially from a Northwesterner’s standpoint. A full academic year at a new and exciting place will also help me. I anticipate, to make it through the four (or five!) years it takes to get a degree without getting too stir-crazy. And of course, living in a desert has certainly helped me learn to love and cherish overcast, rainy Oregon weather. That’s enough incentive for anyone from Oregon State to try out NSE!

Please feel free to contact me (amosmagee@aol.com) if you have any questions about NSE or the Grand Canyon Semester. You can also call the OSU National Student Exchange coordinator (541-737-4085) to find out about the participating universities.

www.nse.org
www.grandcanyonsemester.nau.edu

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they study, the statistical representations are not as important. Women cannot be forced into a discipline that they find unappealing just to equalize the ratio. With cultural and institutional reform, it’s possible that more women will gravitate to engineering, but again, this would only be beneficial if the choice is one of free will. With increasing reform in our perceptions, culture, and institutions, we can begin to understand the factors that exclude women from engineering and find ways to improve the system.
Yeh, it’s Carl!

by Edward Lew


The first-generation Chinese American’s life has never been easy, let alone mapped out for him. Born to Taiwanese immigrants and raised in Albany, Oregon, his ethnicity separated him from the predominantly Caucasian town.

"I grew up knowing that I was not like the other Albany residents," Carl recalls. "I had to work harder to be accepted."

Growing up as a minority, Carl faced children who made fun of the shape of his eyes, insisting he knew martial arts and calling him racial slurs. Fortunately, Carl made friends and, "learned what [he] needed to do to feel like [he] was part of the community both at school and at large."

His work paid off. Carl became valedictorian at West Albany High School, Associate Editor of the UO Daily Emerald newspaper, and a Junior Citizen nominee for Linn County. In spite of all his successes, he could never quite pinpoint a specific career for the future. Even after completing his UO undergraduate career with degrees in biology and English, he was still searching.

"[The degrees] made me doubly unemployable," Carl joked with a friendly laugh. He knew one thing though: he wanted to be involved. From high school leadership to Hall Council President, Carl emerged as a leader and role model. In fact, he got his start as a Resident Director in his three years at UO School of Law, where he believed more opportunities would open to him.

He didn’t pursue law. "It’s icky. It’s law," Carl grimaces. It didn’t matter. Carl had already found his calling. He loved college so much that he wanted to share that experience. The life of a Resident Director suited him perfectly.

His leadership instincts kicked in and he chose to come to OSU two years ago when the Residential Life department was being built. Carl became part of the department’s vision to enhance student life in academics, personal health, sports or a mixture of interests.

Carl brings experience to his position. As a sixth year RD, he has faced the suicide of a resident, a meningitis panic, and numerous homesick students. Though a wily veteran, Carl is constantly learning and growing. "I haven’t experienced [a resident suicide] before," he says. "It takes it to a whole different level."

But perhaps the greatest life lesson doesn’t even stem from his profession. It’s getting married two years ago and, a year later, having a son. His whole focus has had to change to include his wife Jennifer and son Nathan in his decisions. "I have to think about the consequences and what type of role model I am," Carl says.

With the time commitments to his job, students and family, Carl is lucky to grab any free time. When he does, however, his interests vary in a wide spectrum, from hiking to critiquing the movie Robocop. "If I had cybernetic enhancements, I could do my job ten times better!" he exclaims with his trademark sarcasm.

For now, McNary residents are stuck with this cynically humorous, philosophically savvy guy. Nice to meet you, Carl.
Drugs, booze, and sex. When I came to the dorms in September, that’s what I thought dorm life would be. I saw it on TV all the time, so naturally I assumed it to be true. Stupid TV. It was wrong.

Much to my dismay, the Hollywood picture of dorm life is far from the truth. Then again, I’m living in the McNary Honors College dorm. In any case, I’m liking it here. Even without the drugs, the booze, and ahem… the sex, life is good.

I really can’t complain. When I wake up at three in the afternoon, all I have to do is leisurely walk down two flights of stairs, swipe a piece of plastic, and [insert meal here] is served. It’s like magic! Come on, how awesome is that? No cooking, no dishes, no cleaning. Manners are optional. What more can a guy ask for?

Though it does seem like Heaven, I do have a suggestion: variety. I have no beef (or chicken) with the stir fry bar; I don’t think anyone does. But eating chicken fried steak and mashed potatoes everyday is evil. Mix it up. There just seems to be the same menu routine each week and that can get tiring fast. I’ve only been here for one term, and I’m already all ‘dorm-fooled’ out.

But in the process, I have become wiser. I’ve discovered three universal laws. One: Easy-Mac is God; Two: caffeine is food for the soul; and Three: nothing, and I mean NOTHING beats home cooking.

Don’t get me wrong on the dorm food thing, though. The convenience is fantastic. The fruit is fresh. And the cafeteria ladies aren’t bad either. It’s just that I don’t know if I can eat another slab of roast beef. Literally.

Nonetheless, as much as I hate to admit it, there is more to college than just food. Sadly, it was quite the slap in the face for me. People really do matter. To avoid using a cliché, one of the best
aspects of living in a dorm is belonging to a community. It's a lively community to boot. Basically, I'm living with friends, and we each have our own two-foot-square room. Excuse me, our own two-foot-square cozy room.

We're perfectly free to pop in and out without having to endure the Oregon rain. Everyone is just a hop, skip, and a jump away. And with each leap comes a familiar face, a new person, or a disgruntled Resident Assistant (RA) telling us to shut up.

From the sexy nerds on the second floor (including yours truly) to the "Don't slam your door" sixth floor to the all-girl third floor "nunnery"; from the fourth floor engineers to the fifth floor... ummm... well, there's always someone new to meet. We're just one big happy family that doesn't actually know each member. I can't get this constant interaction at a house or apartment. It's wonderful!

Also, along with the dorm community come the activities. We're usually bustling with them. We're like busy bees without the birds. Confused? No worries, I am too. What I'm trying to say is that there is always something to do. Whether it's midnight Ultimate Frisbee or Matrix movie night, you can always find something. Sometimes, it's as simple as grabbing a coffee with a friend or visiting the sexy nerd floor.

You're truly never bored unless you want to be. It's like that saying, "You're never bored unless you choose to be."

In the dorms, there's an atmosphere of non-idleness. Students are continually searching to meet new people and remain active. This sociable attitude is the core of dorm living.

There's simply no place like the dorms. Then again, there's no place like home. But if you make the dorm your home, then you can say there's no place like home and still refer to the dorms. Either way you put it, there's still no drugs, booze, or sex. But don't worry, Mom and Dad. We're not here for that stuff anyway. We're here... to study. Yeah, that's right. We're here to study...

All and all, dorm life is good. Everyone needs to live in a dorm at least once in college. It's no Animal House, but that's probably for the best.

Here's one final bit of advice, though: Don't trust TV.

Living close to campus is important, and I am fortunate enough to live only about seven blocks from Apperson Hall. More important, though, is the group of people I live with. We all have the same majors, take the same classes, and help each other out. Four of us are even working as a team on our senior project.

Overall, I'm very happy about living off-campus. My years on campus were valuable, and I learned a lot and gained some good leadership skills, but it doesn't compare to living off-campus. I have many times the pleasure at a fraction of the cost. Everybody should live in the halls for at least a year, and maybe even two, but certainly move out and experience having a house and friends and independence.
ARIES
March 21–April 19
The alignment of the planets suggests that you will soon find true love. Your special someone will remind you of your mom. Don’t run away screaming. You will only get one chance.

TAURUS
April 20–May 20
Tides of change are lapping at your ankles. Dog paddle out to the opportunities that await, before the tide recedes and you are nothing more than a sad fool with a swimsuit and a rubber duck.

GEMINI
May 21–June 21
You are about to come into possession of a large amount of money. But beware! Your homework beckons! It is time to put away the Monopoly board and get back to work.

CANCER
June 22–July 22
The stars are shining brightly on your good side. You are happy, funny, charming, and glowing. Share some joy with those who are eclipsed by your glorious presence.

LEO
July 23–August 22
Sorry, your day will be identical to every other day this week. Just as the sun rises and sets, so will your daily activities remain constant. Variety may be the spice of life, but predictability is our staple food.

VIRGO
August 23–September 22
TV dinners have been your meal of choice for too long. Treat yourself to a three course meal: mac and cheese, Top Ramen, and canned fruit cocktail. You deserve it.

LIBRA
September 23–October 22
You have been looking for a way to fit exercise into your busy schedule. Try biking to school. You will feel more energetic, and the constant Oregon rain will save you the precious minutes previously devoted to showering.

SCORPIO
October 23–November 21
Your professors are beginning to sound like the adults in a Charlie Brown movie. Take a class outside your major to mix things up a little.

SAGITTARIUS
November 22–December 21
You are going to die. Eventually, everyone’s going to die. But right now you are alive, so stop being such a killjoy and have some fun.

CAPRICORN
December 22–January 19
You have a general problem that applies to everyone. So... be strong, don’t be afraid to ask for help, you will get through this, etc., etc... Sorry, we were low on material, but you get the point.

AQUARIUS
January 20–February 18
You haven’t left Corvallis for two months straight. A road trip is in order. Grab a change of clothes, take your roommate’s car, and get the heck out of Dodge.

PISCES
February 19–March 20
Too many house plants have suffered and wilted at your hands. Don’t compromise your priorities, but do the plant world a favor and get a pet rock.
Effects of Anti-Epileptic Drugs (AED), Phenytoin and Carbamazepine, on Calcium Transport in Caco 2 Cells, An Immortalized Human Intestinal Cell Line

Melinda von Borstel

Adverse effects of anti-seizure medications/anti-epileptic drugs (AED) on bone density have been observed and reported since the early 1960s. Phenytoin and carbamazepine are two commonly prescribed AEDs most frequently associated with osteomalacia, which includes fractures, bone demineralization, and reduced bone formation. Newer agents (e.g. topiramate, lamotrigine, gabapentin) appear to be less causative of osteomalacia but longterm studies on these are not as complete as research on the older agents.

The mechanism by which AED induces bone loss is not fully explained. Hypocalcemia is associated with AED treatment and with osteomalacia. Among the most likely mechanisms for AED-induced hypocalcemia are induction of vitamin D catabolism, inhibition of PTH-induced calcium mobilization, or decreased dietary calcium absorption. To more directly address the effects of AED on intestinal calcium absorption, I propose to quantitate calcium permeability in cultured intestinal epithelial cells (Caco-2 cells) in the presence of phenytoin and carbamazepine.

My hypothesis is that phenytoin and carbamazepine will inhibit calcium transport from the apical to basolateral side of Caco-2 cells grown on semi-permeable supports. Caco-2 cells will be grown to confluency and maintained in culture until tight junctions form between the cells as confirmed by a transepithelial electrical resistance of >200 ohms. Only cultures meeting this criteria of selective permeability will be used for the transport studies. Calcium transport from the apical to basolateral side of the polar monolayer will be monitored by spiking the apical cell culture medium with radioactive $^{45}$CaCl$_2$ at time zero. Calcium transport will be quantitated by sampling the basolateral medium and measuring by liquid scintillation spectrometry the amount of $^{45}$CaCl$_2$ radioactivity present at 20 minute intervals for up to 3 hours post treatment. Calcium permeability as a function of calcium transport over time will be calculated under conditions of calcium homeostasis (equal starting calcium concentrations in apical and basolateral medium at time zero). The effects of various concentrations of phenytoin and carbamazepine on calcium permeability will be quantitated. A dose response relationship between drug concentration and calcium permeability will be established.

I have collected some exciting data that shows an effect of both phenytoin and carbamazepine on calcium permeability.
Leadership-Based Curriculum for a Youth Officer Team
Training Program Designed for Local Chapters of the National FFA Organization
Kevin Richards

The thesis involves the development of curriculum that is experiential in nature and supports the educational theories of brain based learning. The curriculum will be designed for chapter advisors or past members to host intense leadership trainings for officers in the FFA. Once developed, the intended training will be 1-2 day experience outside of the traditional classroom environment. While the project will be developed specifically for FFA, special care will be taken to assure that the final product can be adapted to serve other youth leaders and their organizations.

Spatial Patterns in Age and Growth of Juvenile Quillback Rockfish
Thomas H. Young

I am analyzing the inner ear bones, called otoliths, of juvenile rockfish in order to elucidate the spatial patterns of age and growth for these fish along the central and southern Oregon coasts. Previous research has discovered that important demographic parameters for marine algae and invertebrates, such as settlement and growth rates, vary tremendously between the southern and central Oregon coasts. These biological differences are presumably due to regional differences in important oceanographic processes and conditions, such as upwelling frequency, nutrient concentrations, and water temperatures.

In light of this research, I am attempting to determine the spatial scale of differences in growth, date of birth, and age at settlement for young (first year) rockfish on the Oregon coast (i.e., Do differences in growth and age manifest at regional spatial scales, as in algae and invertebrates, at population-level or local spatial scales, or at the scale of the individual fish?). I collected juvenile rockfish from the canopy of kelp forests at three sites on the southern Oregon coast and at two sites on the central Oregon coast. I measured the fish and am currently identifying them to species using genetic analysis.

So far, they appear to be mostly quillback rockfish. I have extracted their otoliths, which accrue daily growth rings analogous to the annual rings on trees. I will use the daily rings of these ear bones to estimate the ages of the fish at their time of capture and at their time of settlement (transition from the plankton to a reef or kelp forest). From these estimates I can calculate their average growth rates and their date of birth and date of settlement. I may also be able to back-calculate daily growth rates and use these measurements to compare growth rates over time among my study sites and between the central and southern regions. My research may help clarify the extent to which the observed oceanographic differences between the central and southern Oregon coasts influence differences in the demographics of marine fish populations.
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