Earth Sciences

Spring 2015 Newsletter

As California enters the fourth year of an unprecedented drought, and recent forecasts for a major earthquake in the Bay Area indicate increasing probabilities, I find little to question when I consider the importance of Earth science education, and our mission here at the Earth sciences department of City College of San Francisco. I began my first full 3-year term this semester as chair of the Earth sciences department and I am grateful to have this opportunity to serve our faculty and students. Overall, our enrollment has declined by perhaps a third or more in the past two years, largely due to the bad press the college received for the administrative deficiencies that lead to the accreditation crisis we slowly seem to be emerging from. Despite this, we continue to offer diverse programs in geography, geology and oceanography, as well as our certificate program in GIS. In fact, our programs only continue to grow richer with the addition of a new AS-T (Transfer) major in geology last fall and a new class this fall, historical geology lab, GEOL 11L. We also had a new geography course approved, World Regional Geography, and began offering our first online class in oceanography (OCAN 1). Finally, we welcome new part-time instructors Alicia Cowart (Geography) and Tyler Ladinsky (Geology).

As you will read below, our instructors continue to enrich their classes and lives with new resources and exciting adventures both near and far. Most importantly, we continue to draw highly motivated and community minded students, who’s stories, academic accomplishments and dreams I hope will inspire you as much as they have me.

Chris Lewis, Department Chair – May 2015

A Special Thank You to all our tutors and lab volunteers!

★ Colin Busby (geography)
★ Adam Baluk (geography)
★ Glendon Hyde (geography)
★ Cort Benningfield (geology and geography)

And also to Dr. Joyce Lucas-Clark and Cort Benningfield for their ongoing help with our fossil collection.
JAMES E. COURT ENDOWED SCHOLARSHIP IN EARTH SCIENCES

Spring 2015 Winner: Ryan Caspary

My name is Ryan Caspary, I am a first generation college student and am very proud to be a student here at City College. I am also very grateful for receiving the James E. Court Endowed Scholarship in Earth Sciences this year, and would like to tell you a little bit about myself. I am currently finishing up my 3rd semester and have been trying my hardest to get good grades. I genuinely enjoy coming to school every day and learning. I think that I enjoy school so much because I know how hard it can be to succeed without an education. I grew up in a household where they didn’t stress the importance of an education. My father is a manual laborer and my mother is a senior caregiver. In high school I barely scraped by after being transferred to a continuation high school, where I eventually earned a high school diploma. After high school I found work as an apprentice electrician, but realized that I needed to get away from my environment due to drug problems. So I joined the Marine Corps, where I learned a whole bunch of useful skills and matured into a responsible person. I go was able to travel to places I never imagined I would go to and did some amazing things. Once I got out of the Marine Corps I moved to San Francisco with my wife and started to go to school. At first I was very nervous because I had been out of school for 7 years and couldn’t remember anything I had learned from high school. I had to take remedial math and English classes and discover how to be a productive student. One of the first classes I took was Physical Geology. It was a fantastic experience because I found something that I am passionate about, science. Taking that geology class reignited my imagination and a lost dream of mine, I had always wanted to be a scientist. I remembered as a boy I idolized Bill Nye the Science Guy and would imagine myself as part of Ms. Frizzle’s class in the Magic School Bus. After taking several more introductory science classes, I have decided to pursue that dream and I am now on the path to achieve that goal. City College gave me a second chance at life and I am eternally grateful to be a student here. The instructors are inspiring and their enthusiasm to educate makes me
want to push myself harder. I plan on transferring to a UC in Fall 2017. I recommend that every student APPLY! to as many scholarships as you can. I feel very fortunate to have received the James Court Scholarship in Earth Sciences this year. No matter how small the award amount is, every little bit counts and will help keep you in school longer and get you closer to graduation or transfer. Good luck and have a great summer! See you all in the Fall! – Ryan Caspary, Spring 2015

**GEOG/GIS 110 Honors Student Jon Gausman**

Elizabeth Proctor, Instructor

I chose Heron’s Head Park as the focus of my GIS Honor’s Project because I was familiar with the site, had a willing assistant who worked at the site, and because I felt that his may be of some use in the future, by a sustainability class, or in some native-plants-restoration planning.

Most of the "city" data, like shoreline and Port Authority Jurisdiction are from the data.sfgov.org website. All other data was gathered in the field using a Garmin GPS unit, or drawn using heads-up digitizing from aerial photos supplied by ESRI’s baseman. I was able to connect a wacom tablet to my computer, which made drawing polygons directly into Arcmap amazingly easy, and fun.

I used tools like Clip, Erase, Spatial Join, and created tons of polygons, polylines, and took over 500 points in the field.

The finished map is a representation of the vegetation at the park, with layers for grass types, and a layer of points which represent individual plants, with attribute data for the species and common
name also attached to the points. The result is a fairly accurate map that can be used to track changes in vegetation, and also track the success of previous plantings.

This was a great project, and I learned quite a bit, and got some good practice under my belt. AWESOME! THANK YOU FOR THE AWESOME CLASS!!!

Jon Gausman, Fall 2014 GIS Honors Student

SPRING 2015 DEPARTMENT FIELD TRIP

It was a beautiful late spring morning, the fog tepidly creeping through the Golden Gate, only to evaporate into thin wispy ribbons over a glaucophane blue bay...

Saturday, 10:00 AM  Earth science faculty, alumni, students and friends set out on a moderate hike into a high grade Mesozoic metamorphic zone. We saw sparkling blueschists (thus the glaucophane reference) and garnet studded eclogites, alongside slumping serpentinite slides. A newly minted USGS map from Sonoma State geologist David Bero guided us, along with expert geologic interpretations from Tyler Ladinsky. Kirstie Stramler helped us understand the changing sky above, and Alicia Cowart gave us a better understanding of native and non-native plants around our feet. Along the way, chemist Jim Ambrose illuminated the different forms of serpentine minerals, and taught us some of the basics of Suisiki, the Japanese art of stone appreciation. Most auspicious, are white capped rocks that represent distant snowy mountains, or peaks in the mist. Everyone had something to contribute, and so far, no complaints of poison oak...

Chris Lewis, May 2015

“FIELD CLASSES ARE FUN!”

WE OFFER A VARIETY OF FIELD EXPERIENCES FOR STUDENTS. CHECK OUT THE SAN ANDREAS FAULT THIS SUMMER WITH GEOL21C, OR OUR COASTAL GEOLOGY FIELD CLASS, 21A IN FALL.

Geology 21C class at San Andreas Lake, March 2015

CCSF Earth Sciences
Darrel Hess — Geography

As we reach the end of the 2014-2015 academic year, I hope that City College of San Francisco is climbing out of its accreditation problems. I remain proud to teach here alongside colleagues who have never wavered from their high academic standards, nor wavered from their commitment to serve our students.

I enjoyed a year off from working on my textbooks, but I'm now back at it with illustrator Dennis Tasa and my editors at Pearson developing the 12th edition of McKnight’s Physical Geography: A Landscape Appreciation. I remain indebted to my late UCLA mentor (and founding author), Tom McKnight—I will do my best to carry forward his legacy with this new edition, scheduled to be finished by early 2016.

Nora and I enjoyed a number of vacations this last year. We've been diving in Maui twice since last spring. In the summer we repeated our scuba dive with hammerhead sharks off the island of Molokai, as well as our usual skin diving off of Black Rock and Ke'analapali Beach.

When we returned to Hawaii this January, we arrived during a strong winter storm. We hadn't been scuba diving inside the popular offshore volcanic crater, Molokini, for a number of years and so hoped to do that this time around. However, strong winds and currents forced our dive operators (Lahaina Divers) to change plans. The safest place for us to dive wasn't inside the crater as it usually is, but along the outside back wall. A drift dive along the back wall of Molokini is one of the best dives in all of Hawaii—a sheer wall that drops down to a depth of more than 200 feet (so don't drop anything...), decorated with some of the most beautiful marine life on the islands. Winter in Hawaii is always a treat because the Humpback Whales are around—whenever we were below the surface, we could hear them singing.

In early August I took my annual solo backpacking trip up out of the Mono Basin. On the first day I set off into the downpour of a summer thunderstorm. As I sloshed along the trail, I rounded a bend and came upon a foraging bear—he immediately bounded off, evidently more startled than I was (bears can run really fast when they want to...). By evening the rain had stopped and the next morning I woke up to a spectacular sunrise over Mono Lake. On my way back home I drove into Yosemite Valley to scout out a hike up to Columbia Rock (partway up the trail to the top of Yosemite Falls). I plan to add a description of this hike to my Yosemite Valley Field Guide when I begin the revisions of my Fourth California Edition textbook later this year. The view of Half Dome from Columbia rock is well worth the steep climb.
Nora and I also began working on a second field trip site for my *Central Valley Field Guide*. We worked on a route in the central San Joaquin Valley that will take students over the dry bed of Tulare Lake (before water diversion began in the late 1800s, it had the largest surface area of any freshwater lake west of the Mississippi!), through a pair of wildlife refuges, and to the old agricultural community of Allensworth.

In February I went to Death Valley for my annual visit (I’ve been there so many times, it’s now like I’m visiting an old friend each year…).

I brought down the new portable telescope that I’ve been working on for the last year (a 10” f/6 Newtonian), and enjoyed beautiful views of the late winter Milky Way. Death Valley National Park is the largest *International Dark Sky Park* in the world—a place so dark and clear it’s like being in a planetarium, only better because it’s real.

Although I’ll be working full-time on the book this summer, Nora and I will take some time off for some rest and relaxation. I look forward to seeing students and colleagues alike when the new school year begins this August. Safe travels everyone.

**Chris Lewis – Geology/Physical Science**

I’ve already had a chance to say a few things, so I will keep my update here short. The biggest event in my life this year is yet to come. Judy, my longtime partner, poet and English professor at Dominican University, are “committing matrimony,” as colleague Darrel Hess calls it. Saturday, May 30th is the date! We plan to travel (back) to Vancouver BC, as well as to Glacier National Park this summer.
Other than that, I’ve been continuing my exploration of the artistic and practical side of experimental petrology, aka ceramics, at my private studio in the Bayview (SF Clayworks), and enjoyed teaching our San Andreas Fault field class both semesters. Seeing the wide variety of features resulting from motion along the fault system first hand in the field never ceases to amaze me, and it’s clear from the wide-eyes and “Wow!” reactions from students that they feel the same. Thank you all for another great year here at CCSF, and best wishes for a safe and pleasant break this summer.

Katryn Wiese – *Oceanography and Geology*

I continue to be pulled more and more into college-wide accreditation-related projects, with less time for teaching. Since Fall 2013 I’ve been helping to design and implement software for integrated curriculum development, assessment, and planning. (Asleep yet?) Sigh... For Fall 2015/Spring 2016, I’m giving up trying to do both and will be devoting myself nearly full-time to continuing to implement and support this software for the college. Hopefully I’ll be able to return full time to teaching the year after. Hopefully we will meet the restoration requirements and all will be well! :) Unfortunately, for the first time in 20 years of teaching at CCSF, I had no winter break. I did, however, get a summer break last year and spent some time boating through the San Juan Islands.

**Check out Katryn’s new online oceanography course in our fall schedule – a first for our department!**

Jim Kuwabara – *Oceanography*

For the 35th year, I continue to work as a Research Hydrologist in the National Research Program (NRP) of the U.S. Geological Survey, Water Mission Area in Menlo Park. I am fortunate to serve as an Oceanography instructor at CCSF with the approval and encouragement of my agency. My multidisciplinary research team continues to focus on the benthic (bottom) sources of contaminants in surface-water systems (that is, lakes, rivers, estuaries and coastal
waters), and helps develop process-interdependent models to describe how benthic environments affect aquatic ecology. As a follow up to our studies over the entire 200 km² Upper Klamath Lake, Oregon, our work last year focused on temporal (weekly) changes in those benthic sources over a much smaller Lake area in order to observe how the Lake water column responds to benthic changes.

This summer, we will be focusing on the contribution of groundwater flow to the lake chemistry (see attached photo), and also pleased to host our fifth intern from the USGS – National Association of Geoscience Teachers (NAGT) Internship Program who will work with us in the field and chemical-analytical laboratories. For more detailed information, please visit my project Web site (http://wwwrcamnl.wr.usgs.gov/solutetransport/index.htm).

As a complement to our biogeochemical studies in Upper Klamath Lake, Oregon, the flow of groundwater into the Lake (as depicted in this piezometer deployment) will be directly measured to provide estimates of contaminant transport due to groundwater sources.
Elizabeth Proctor – GIS

It's hard to believe I am coming up on ten years of Intro to GIS! And every semester I am newly impressed with the creativity and cleverness of our beginning GIS students and their site suitability models. Check out these different -- all great -- results for solving the following problem that we tackle in Intro to GIS:

"You are commissioned by the San Francisco Municipal Transportation Agency, Livable Streets, and the San Francisco Bicycle Program to help with an exploratory study to identify possible sites for a bicycle transit center in San Francisco. Where should we place a bike transit center?"

We also want to acknowledge all our faculty who were not able to submit an update in time this year…

Thank you!

Kirstie Stramler, Ian Duncan, Tyler Ladinsky, Alicia Cowart and Gordon Ye
Wingyee Lee

It is with great pleasure that I am writing this update for the CCSF Earth Sciences Department.

I started city college in 2008 and transferred to UC Berkeley in 2011. In 2013, I graduated with distinction in geology and immediately began graduate school at UC Davis. I was initially accepted as a PhD to work on a project funded by the Department of Energy. However, after a year of doing research and teaching part time I found myself to be more passionate and enthusiastic about teaching. It was one of the toughest decisions I had to make, but I decided to withdraw from my PhD and switched to the master program. Fortunately, my advisor Dean Alexandra Navrotsky has been extremely supportive and encouraging. I was able to continue my project on rare earths at Peter A. Rock Thermochemistry Laboratory at UC Davis. The project also allowed me to work at Lawrence Livermore National Laboratory as a visiting graduate student. I am finishing my master degree this June [Thesis: Europium in calcium sulfate (Phosphogypsum)] and will be starting a teaching credential program in science at UC Davis this coming fall with the Robert Noyce Teacher Scholarship. While I look forward to what the future has to offer, I can't help but reminisce on the time I spent at CCSF and all the ways it shaped the person I am today.

Growing up in a family where neither of my parents went to college, CCSF gave me a chance to pursue a high quality education. The instructors at CCSF were committed, dedicated, engaging, understanding, inspirational and motivational; exceptional qualities which helped shape the person I am today. I am deeply impressed by their enthusiasm, and I believe the instructors at CCSF will continue to make a difference no matter what the future holds. Happy 80th Birthday, CCSF!
Michele Markowitz

I'm about to complete my final semester at CCSF, and in the fall I will begin a PhD program in Earth and Planetary Sciences at UC Santa Cruz. I completed almost all of my undergraduate STEM coursework at CCSF.... couldn't have done it without y'all!

Taking a sample from the Saut Mathurine River in southwestern Haiti.

We were doing a tracer study with rhodamine; that's why the water is pink. :) I went to Haiti last summer as part of the LDEO summer internship... something I really recommend CCSF students apply for! It is an awesome experience!

The Lamont Summer Intern Program for undergraduates from U.S. colleges and universities provides a summer research experience in Earth and ocean sciences. The program features a hands-on research project under the supervision of a Columbia-affiliated scientist, as well as special lectures, workshops and fieldtrips. Visit the program page for details and access to the online application.

http://www.ldeo.columbia.edu/education/summer-internship
Hide Takahashi – *Geography Major, Geology Minor*

San Francisco State University, Class of 2016

My first year at San Francisco State University was very robust, writing a lot of rigorous research papers and challenging coursework in upper division geography and geology classes. Simultaneously, however, I expanded further knowledge and experience in earth science, learning numerous techniques and skills by using instruments and equipments that are used in field measurement and research methods. I also reunited with many former students from City College of San Francisco that are pursuing either BA in geography or BS in geology, including memorable students from earth science lab classes while I was mentoring and serving lab aide back then. I think San Francisco State University is a great institution that offers a lot of interesting geosciences classes in northern CSU campus.

From Fall 2014 to Spring 2015, I had nine geoscience classes with five great professors: Prof. M. Smulyan for Geographic Techniques (GEOG 103), Dr. A. Oliphant for Earth’s Climate System (313), Bioclimatology (314) and Climate Change GWAR (500GW), Dr. Q. Guo for Economic Geography (425) and Urban Geography (432), Dr. N. Wilkinson for Geography of California (552) and Geography of Water Resources (647), and Dr. K. Grove for Geologic Techniques (GEOL 120). Each professor has unique pedagogy and specialty in geography and/or geology that contributed valuable lessons and strategic advisory to their students and me. For instance, Prof. Smulyan taught us statistics that are used in geography, fundamental programs in GIS and cartography, and field instruments. Dr. Oliphant encouraged his students to practice excel spreadsheet program for constructing figures and tables and write scientific research papers for developing effective communication skills. Dr. Guo challenged his students to understand the urban models and economic functions in logics and spatial pattern that are applicable to the real world. Dr. Wilkinson tied both physical and human environmental perspectives to understand the issues in California and global water resources, offering a weekend camping trip to eight unique sites in Northern CA. Dr. Grove encouraged her students to get familiar with tools that are used in geology and experience actual field works by offering a weekend camping trip to Point Reyes Peninsula. I occasionally experienced intense stress and temporal slump, yet nevertheless my first year was very productive.

During the Fall 2014, I volunteered Prof. K. Wiese’s Physical Geology Lab. I had a great time helping her lab students again with Jennifer Alvarez, and I still learned more techniques from her class. Because I was working on studies of mineralogy and petrology of rock units in Japan at that time, I had a great opportunity to review minerals and rocks in her lab class. I also joined the public presentation on the Story of Time and Life on Darwin Day, February 7, 2015. There were over 40 guests, and I thought Prof. Wiese offered superb presentation! I was very happy that she invited me and couple of former and current Earth Science mentors.
Hide at hilltop in Point Reyes, near to Cow Stampede! This was during the weekend camping trip for GEOL 120!

Cliff Face at Kehoe Beach, Point Reyes! Can you see a fault and contact between Sandstone & Granodiorite?

Whiskeytown Lake, near Camp Site

Shasta Dam Reservoir (April 26, 2015)

Dr. N. Wilkinson’s Geography of Water Resource class, 2015!