# Teaching Earth Science (with lab) through Antelope Valley College, Inside California State Prison, Los Angeles County

**Paper 27-11: Aurora Burd, Antelope Valley College**

GSA 2019 22–25 September Phoenix, Arizona, USA

## Introduction

The California State Prison Los Angeles County (CSP-LAC) in Lancaster, CA, has worked with California State University (CSU), Los Angeles since 2016 to offer inmates the opportunity to pursue a BA in Communication Studies through classes held inside the maximum-security men's prison on the Progressive Programming Facility (PPF, Yard A). CSU Los Angeles offers the only face-to-face BA program within the California State Prison system.

The first cohort of students is close to earning their degrees, but the CSU graduation requirement of a lab science has been a stumbling block, as the classroom facility has no lab space and lab courses are not typically taught as correspondence courses (the typical method by which students fill gaps in face-to-face programming).

Antelope Valley College (AVC), part of the California Community College system, is based in Lancaster, CA. AVC has offered classes inside CSP-LAC since 2016 (on both the PPF Yard A and the General Population Yard B). Students may earn an AA-T in Communications Studies. Students on the PPF Yard A who complete the AA-T may transfer to the Cal State LA program to continue their studies.

During summer 2019, I taught Introduction to Earth Science (including lab) to 22 inmates on Yard A. Roughly half of these students are part of the first CSU cohort while the rest are AVC students.

This is the first time a lab science has been taught inside the CSP-LAC facility. Bakersfield, Chaffey, and Imperial Valley Colleges have previously offered geoscience lab courses at other California State Prisons including the Kern Valley State Prison, California Institution for Women, and Centinela State Prison [Corrections to College CA].

ERSC 101 (transferable to the University of California and CSU system) is a full-semester course covering an overview of geology, astronomy, meteorology, and oceanography, and the Course Outline of Record specifies that "students will examine minerals, rocks, [etc. and that] laboratory exercises will expose students to a variety of hands-on activities exploring the Earth Sciences."

## Acknowledgments

Thank you to Cathy Hart (AVC Dean, Palmdale Center & Extended Learning), Ronald Underwood (CSP – LAC, VEP Coordinator College Programs, Facility A & classroom photographer), JD Hughes (CSP – LAC & Cal State LA), AVC Prison Education Program, Cal State LA Prison Graduation Initiative, the AVC Books H.E.L.P. Program and Second Chance Pell Grants.

Special thanks to the men of ERSC 101, Summer 2019, who were the most diligent and collegial cohort I have had the privilege to teach.


Students investigate glacier flow behavior during lab.

## Student Success

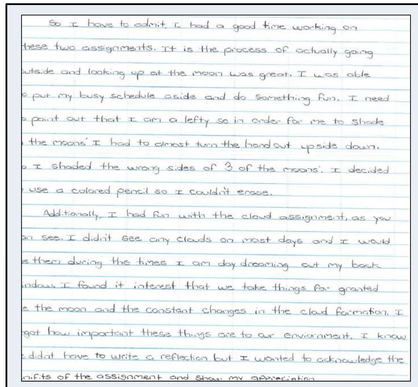
Course materials were similar to the Spring 2019 ERSC 101 course taught on Antelope Valley College's main campus (with the exception of a major change to the earthquake unit to cover the nearby July 4-5, 2019 Ridgecrest earthquake sequence, and removal of field trips from the curriculum).

| Comparison of Student Success Metrics | Spring 2019 (AVC Main Campus) | Summer 2019 (CSP-LAC) |
|---|---|---|
| Total # Students | 19 | 22 |
| Final grade: A | 0 | 18 |
| Final grade: B | 7 | 4 |
| Final grade: C | 8 | 0 |
| Final grade: D | 2 | 0 |
| Final grade: F | 1 | 0 |
| **Percentage C or higher** | **79%** | **100%** |

| Comparison of Student Demographics (estimated) | Spring 2019 (AVC Main Campus) | Summer 2019 (CSP-LAC) |
|---|---|---|
| % African-American | 10 | 36 |
| % Hispanic | 58 | 14 |
| % White Non-Hispanic | 32 | 27 |
| % Other | 0 | 23 |

CSP-LAC students' work was much higher quality on nearly every assignment, with most students completing 100% of assignments on time.

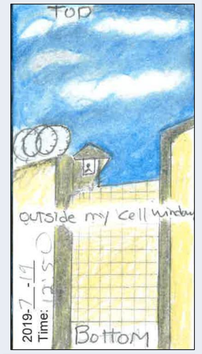
Possible factors contributing to student success: interest and engagement, prioritization of education, majority of students near completion of BA, and 'print once' rule for written assignments.



So I have to admit, I had a good time working on these two assignments. It is the process of actually going outside and looking up at the moon was great. I was able to put my busy schedule aside and do something fun. I need to point out that I am a lefty so in order for me to shade the moons' I had to almost turn the head out upside down. I shaded the wrong sides of 3 of the moons'. I decided to use a colored pencil so I couldn't erase.

Additionally, I had fun with the cloud assignment, as you can see, I didn't see any clouds on most days and I would sit there during the times I am day dreaming out my back window. I found it interest that we take things for granted like the moon and the constant changes in the cloud formation. I got how important these things are to our environment. I know I didn't have to write a reflection but I wanted to acknowledge the merits of the assignment and show my appreciation.

Mr. B. appreciated observing clouds and moon phases.




Mr. L. observed clouds from his cell.

This lab was a lot of fun. Our group all participated and everyone had a chance to be heard. We covered a lot of information

Mr. B. noted that the students value the contributions of their peers during class.

As kismet would have it, the plate tectonics lecture delivered several days prior to the recent seismic activity in Ridgecrest, California was fitting. The initial motion hit as I sat at the desk reading my textbook. Dr. Burd's lecture came to mind as I steadied myself through the seismic waves. Is this a P wave or S wave I thought, then I began counting to determine the length of the time for the shock. The media was saturated with coverage of the event. A prominent figure throughout the broadcast was Dr. Lucy Jones of Cal Tech. Dr. Jones provided real time measurements and used terminology I'd recently learned during lecture and lab with Dr. Burd. The Ridgecrest earthquake caused me to reflect on the Northridge earthquake in 1994 and the previous earthquakes I have experienced, applying the knowledge from lecture. The recent event also sparked a vibrant discussion amongst my fellow scholars.

Mr. H., a science major pre-incarceration, reflected on the nearby Ridgecrest earthquake sequence.

I cannot believe that six weeks have gone by with 108 hours of earth science with lab-work would ever take place inside of a prison. Nevertheless, it has, and I am so filled with gratitude and thankfulness that I was given an opportunity to take part in it. I hope that I was able to help in making this program move forward with our success in the first ever Lab here at Lancaster State Prison. I am going to give you my best moon rendition of the phases it goes through on its trip round the world. I learn that the moon takes 29 days to make this trip. To be honest I thought that the moon made its trip around the world in a day. Because one day I would see the moon on the right side in the sky, and on the next day I would see it on the left side in the sky. Therefore, I assumed that moon went around the earth in a day. I have always understood that earth is angle

Mr. G., a clerk for the education program and one of the original students in the program, made sure that ERSC 101 ran smoothly every day. Here, he reflects on how his understanding of the Earth-Moon system has changed.

I've talked about this before – I am an outdoors person. I really like to camp and to hike. So, I've seen the moon in its different phases, and I've seen lunar eclipses even. But, I never understood the relative movements of the earth and moon around the sun. For instance, I thought that the difference between winter and summer were because of the Earth moving closer to the sun or farther away. I know now that it's actually because of the 23.5 ° tilt of the Earth on it's axis. In the lab, we used our ping-pong balls as the Earth and moon. We drew own the continents and some craters to make the man on the moon, for both of the ping-pong balls. Then tilting the Earth ping-pong ball at 23.5°, we moved it in orbit around one of the globes, which was the size of our giant sun. We also moved the moon around the Earth to show how only the face of the moon looks at the Earth. Although I knew about only one side of the moon facing the Earth, seeing it (we only put craters on one side of our moon) was really interesting. We had to turn the little moon to face the Earth, while we move the ping-pong moon around the globe. I realize now that this means that the moon **revolves** around the earth in about 28 days, ***and*** that the moon rotates on its axis about every 28 days. Seeing that through the model was mind-blowing!

Mr. R. enjoyed thinking about the relative motion of the Earth and Moon.

There is no doubt that the moon orbits the Earth and not vice versa. What is interesting about the moon as it orbits is that the moon does not spin as the Earth does, so you will only and always see the same side of the moon; only half. Sunlight always illuminates only half of the moon. As the moon orbits, you will see the same side of the moon but different amounts of this side of the moon will be lit by the sun. The moon is going through a cycle of phases in which at each phase, the moon is given a name. It takes the moon twenty-eight days to orbit the Earth. The diagram below will provide a better understanding of what is described above.

Mr. W.'s work was succinct and near-poetic.

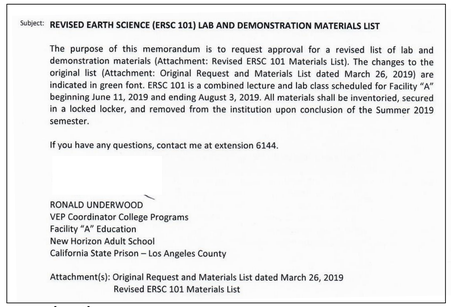
*THIS IS IT!!! WE MADE IT GUYS. AT THIS POINT WE'VE ALL PASSED, BUT I KNOW WE ALL WANT TO DO OUR BEST. IF MY NOTES HELPED YOU, I AM HAPPY TO HAVE SHARED. I HOPE EVERYONE DOES WELL, AND REMEMBER TO READ THE QUESTIONS! I MESSED THAT UP LAST TEST AND MISSED TWO QUESTIONS I SHOULDN'T HAVE. HOPEFULLY THOSE GUYS WHO ARE INTERESTED WILL ALL GET BACK TOGETHER FOR GEOLOGY 102.*

Mr. J., who mastered the material extremely quickly, helped other students study for exams.

## Logistics challenges

Materials:

- Approved by prison, Inventoried, & stored securely
- After course ended, approved for removal & inventoried again
- Substitutions for glass, metal, electronics, etc.
- ➢ Solution: organization



Subject: **REVISED EARTH SCIENCE (ERSC 101) LAB AND DEMONSTRATION MATERIALS LIST**

The purpose of this memorandum is to request approval for a revised list of lab and demonstration materials (Attachment: Revised ERSC 101 Materials List). The changes to the original list (Attachment: Original Request and Materials List dated March 26, 2019) are indicated in green font. ERSC 101 is a combined lecture and lab class scheduled for Facility "A" beginning June 11, 2019 and ending August 3, 2019. All materials shall be inventoried, secured in a locked locker, and removed from the institution upon conclusion of the Summer 2019 semester.

If you have any questions, contact me at extension 6144.

RONALD UNDERWOOD
VEP Coordinator College Programs
Facility "A" Education
New Horizon Adult School
California State Prison – Los Angeles County

Attachment(s): Original Request and Materials List dated March 26, 2019
Revised ERSC 101 Materials List

Communication:

- No cell phones inside
- No flash drives may be brought inside
- Only one computer with (limited) internet
- Videos/animations must be loaded onto classroom computer
- Students have limited access to technology and are completely dependent on education program for classroom materials
- ➢ Solution: patience, flexibility, and planning ahead

Paramilitary environment:

- Dress code, wearing alarm, etc.
- Schedule changes due to guard staffing, count, etc.
- Students have little control over their own schedules
- ➢ Solution: patience, flexibility, and situational awareness

Other:

- No air-conditioning in some classrooms, in the Mojave Desert in the summer
- No dedicated lab classroom
- ➢ Solution: hydrate, and try to teach class in the spring/fall in future

## References

Cal State LA, Center for Engagement, Service, and the Public Good, Prison Graduation Initiative, 2019: http://www.calstatela.edu/engagement/prison-graduation-initiative (accessed September 2019).
Antelope Valley College, Prison Education Program, 2019: https://www.avc.edu/academics/pep (accessed September 2019).
California Department of Corrections and Rehabilitation, California State Prison, Los Angeles County (LAC), 2019: https://www.cdcr.ca.gov/facility-locator/lac/ indicating Progressive Programming Facility (yard "A") established 2000 (accessed September 2019).
Corrections to College California, 2019, Spring 2019 CDCR Face to Face Course Catalog: https://correctionstocollegeca.org/resources/spring-2019-cdcr-face-to-face-course-catalog (accessed September 2019).