

## CSU-LSAMP RESEARCH IN THAILAND.

### INTRODUCTION

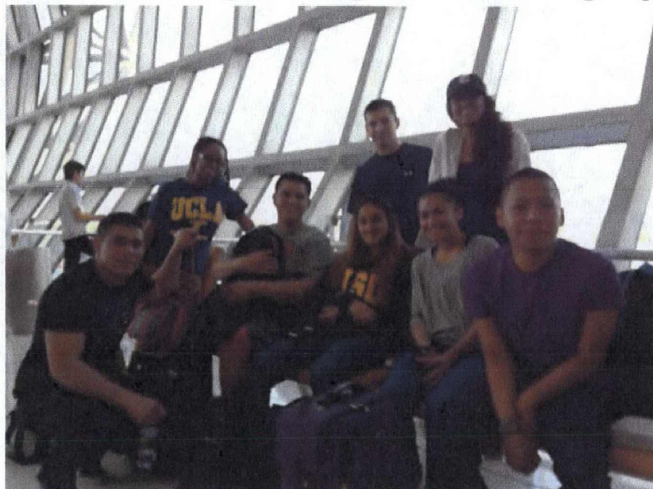
The Thailand trip was from 28 May-30 June, 2013, with research work being conducted June 3-June 28. Two faculty mentors accompanied the students: Dr. Christina Goode, CSU Fullerton LSAMP program director and Dr. Stephen Goode, CSU Fullerton Chair of Mathematics who was there to assist the two mathematics students, Juan and Kimy. The location of the research was Chiang Mai University (CMU), which was founded in January 1964 and was established as the first institution of higher education in Northern Thailand. In the field of research, CMU has several innovative initiatives and development projects, is recognized as one of Thailand's nine "National Research Universities" and is one of the top four universities in Thailand in terms of academic quality.

CSU Fullerton has an established MOU with CMU that is in effect until 2015 and CSUF has been sending students to participate in research at CMU since 2000. This LSAMP experience was funded by CSU Statewide to support students from the alliance to engage in an international research experience. Following a call for applications and an interview process (via Skype) students from 7 CSU campuses were selected for the trip from a total application pool of over 20. The students were:

Kimberly Trevino, Sonoma State, Chemistry major  
Jacinto de la Cruz, San Jose State, Biological Sciences major  
Alex Benitz, Channel Islands, Chemistry major  
Juan Rodriguez, Bakersfield, Math major  
Kevin Hernandez, Sacramento, Chemistry major  
Kimberly (Kimy) Gutstein, Humboldt, Math major  
Bethel Mieso, San Jose, Biology  
Pooja Patel, Fresno, Biology

### THE TRIP

All students travelled to Los Angeles and we met at the departure gate at LAX. It was quickly apparent that we had a collegial group and the long plane journey gave ample time for everyone to get to know each other. Spending two days in Bangkok prior to travelling to Chiang Mai allowed the group to have the opportunity to



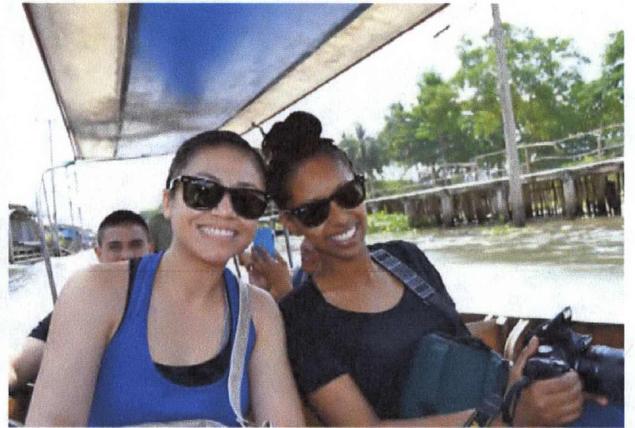
recover a little from the trip and to get acclimatized. The morning after our arrival (which was at 1.00am) we took the sky train and purchased phones for everyone. In the afternoon a heavy monsoon-like storm entertained us all and the girls decided that this would be a great opportunity to





go for a walk!!

On Friday as a group we took a long boat tour to the floating market where some souvenir shopping was done. We also visited the first of many temples through this trip.





On Sunday morning we transferred to the airport and arrived in Chiang Mai at midday. After dropping the luggage off at the hotel we did some shopping at the local supermarket, toured the university and got acquainted with what would be our home for the next 4 weeks.



Research began Monday morning with introductions to the various mentors and research projects. Kevin and Jacinto would work with Jaroon Jakmune on cost-effective methods to analyze contaminants in the river waters. Kimberley (Trevino) was teamed with Nuttee Suree on protein-ligand modeling, virtual screening, and vaccine design. The two math students, Kimy and Juan, would work with Rujira Ouncharoen studying differential delay models of HIV infection. Alex was assigned a project with Panchika Prangkio working on the formation of liposomes to carry curcumin and Bethel and Pooja were teamed with Apinpus Rujiwatra on synthesis of nanoparticles.

On Tuesday the LSAMP group was joined by an additional 5 students from the CSUF ESRT program, two of whom joined the group with Kim and one who partnered with Alex. We also welcomed another faculty mentor for CSUF, Dr. Brady Rhodes from Geology.

At the end of our first week LSAMP hosted an ice-breaker dinner which was attended by mentors, the LSAMP students and the Thai students who would be



working with them. It was a wonderful opportunity to get better acquainted and really set the tone for the great friendships that would develop.





Although the students spent all day in the labs we did have time for a few group



activities. One was to the highest point in Thailand, Doi Inthanon where we were able to get away from the city and experience the tranquility of this state park. We also visited Doi Suthep, a temple just outside Chiang Mai. A highlight of the trip though was when the entire group of LSAMP and ESRT students spent the day at an elephant sanctuary where we learned about the importance of the elephant in Thai culture, and

the seeming dichotomy of how poorly "domesticated" elephants are treated. The long history of the logging trade, the more recent consequences of banning that industry in Thailand (but not neighbouring Mynamar), and the existence even now of land mines in Northern Thailand, Mynamar and Laos were also clearly evidenced in elephants that had been hurt or mistreated.





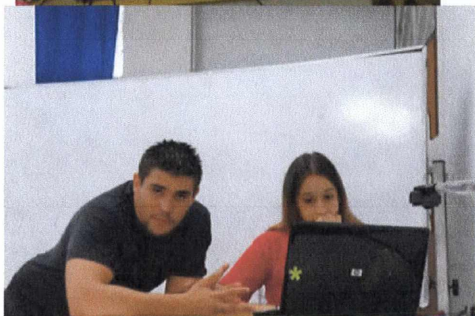
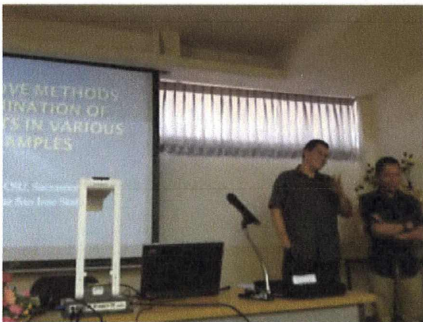


Other trips were to the paper factory where we saw how paper was made and fashioned into umbrellas, the jade factory (and a lecture on geology), the silk factory, and of course a lot of shopping at the walking street and night bazaar. The students also visited many temples, tiger kingdom, horticultural gardens, a local waterfall, and even got a traditional monk's blessing

Our final event was a goodbye and thank you dinner for the students and mentors which was attended by over 40 people and carried on into the very early hours of Friday.



Even so we were all up early for the afternoon presentations by the students about their research, which were open to the entire CMU science faculty, graduate students and chemistry club students. That evening each of the research groups spent the last night in Chiang Mai together.





The journey back was a lot more subdued than the one from California but we have all agreed to meet up again soon!!!



## FINAL STUDENT REFLECTIONS

Much more can be found at <https://www.facebook.com/CSUFLSAMP?fref=ts>

### **Kevin :**

The last week of our research program is here. The time here has passed by way to fast, but nonetheless it is time to hit the overdrive button. I have learned so much from everything here in Thailand. I have learned how to appreciate the little things in life more, how to be grateful of all things I have back home, and how to be more humble. What a great experience to be apart of! I owe all my thanks to LSAMP for choosing to give me this wonderful eye opening experience. Without LSAMP, I do not think I would be half the student I am today. Thank you LSAMP for providing me with the experience of a lifetime.

### **Alex**

I got to work soon at Chiang Mai University with Marty under Adjunct Orm working on a familiar project, curcumin! We had much friendly guidance (and patience!) from our labmates Gift and Yim. I shared the lab with Kimber and Ramin, and made fast friends with Pan and Por, Kanoonz and Ting, and Adjunct Young. They introduced me to a scientific Thai family and really went out of their way to make me feel welcome by sharing lunch with me everyday.

To my LSAMP friends, I want to thank each of you. Kim, for always being up for fun and honesty; Kevin, for always having my back; Jacinto, for helping me see a perspective when my view became myopic; Kimmy, for your fierce independence and resilience; Juan, for being laid back and quietly wise; Bethel, for your logic and smiles and photos; Pooja, for your endless positivity and willingness to immerse yourself in new cultures; Dr. Goode, for some good old fashion common sense.

Marty, Ramin, Brady, Ohara, Billy, and Christine: I will not forget you either! We had many adventures and thanks for making this experience fun and putting up with my stubbornness. Lyanna, Rhia, and Alex thanks for the good times and fun conversations! Okay, this post has become too long.

I will remember this trip forever, and I am so glad and fortunate to have my eyes opened in a way I did not know was possible. I know I will be back to see my new friends again, and I will take the new perspectives with me wherever I go. I hope to stay in touch with each of you. Khumkum-krap, sawadi-krap!

### **Jacinto**

Thailand and its wonders were truly amazing and breathtaking. I don't ever want to forget the things that I saw and how they made me appreciate and admire other cultures. I was a person who took everything for granted, but thanks to this experience I became more aware and appreciative of my surroundings. Places like Dui Suthep, Doi Inthanon, tiger kingdom, limestone waterfalls, and the old city, were as majestic as their names imply. Their magnificence was so great that now that I'm back in America, I missed them more than ever.

My research was based on analytical chemistry, a branch of chemistry that is not of my taste. However, towards the end of my research in Chiang Mai University (CMU),

I could think of many ways in how to potentially apply what I had learned at CMU to my current research at San Jose State University. That was one of my favorite parts, because I learned how to be more cost effective, more patience while working with others, and of course to apply other knowledge. At the end, it TRULY made me a better researcher. Thank you NSF for a unique life changing experience, an experience that makes students better researchers.

Here is the hard part to write about, but the best part, the PEOPLE. I have no words to describe how thankful I am to the people of Thailand; they were role models to me. They're peaceful, sincere, charming, warming, hospitable, and the list goes on. I sincerely mean when I say THANK YOU to all of the people I met, they gave me the best time of my life and best example of how my life should be. I hope one day I can see everyone again, until then I would practice my Thai. I would definitely be back, I pinky promise.

### **Bethel**

Saying good-bye.

I can't even begin to explain how I'm feeling at this moment. I'm sad that I have to leave this beautiful country and I'm going to miss seeing all the people I've spent time with in Chiang Mai, but at the same time I'm happy that I have many memories to take back home with me. I don't think it's hit me quite yet that I won't be waking up tomorrow morning with breakfast waiting for me on the second floor. Or that we won't have Mr. Narong there to take us to Chiang Mai University. Or that I won't get to see my Ajahn and lab mates, or walk down Nimmanhaemin Road, or visit the night markets, or have dinner for less than \$1 almost every day.

Is this really happening?

I spent one month in a country I've never been to and learned so much about the culture, people, and language during this time that I wish I could stay and learn more!

Before I go, I'd like to say thank you, Chiang Mai, for being so welcoming. In a place where dark skin and big hair is not common I've appreciated the kindness of your people. I must say, the attitude that Thai people exude is contagious and I've seen it rub off on each member of our group. I know that I've personally grown in more ways than one from this experience. I've come to appreciate the small things like water, air conditioner, and toilet paper, but I've also grown to adapt to the simplicity of life here in Thailand. America is a great place but I think we could learn a few things from other countries. It is for this reason that opportunities like these should be more accessible to students. Honestly, every time I visit another country, I leave feeling humbled. A new perspective on life is sometimes just what we need to make us appreciate the things we have. The strangest thing I saw within the last few days of our journey here was a Laundromat with a tree growing in the middle of it. I found this very interesting because rather than cutting the tree down to make room for the business, they built around it. Mai pen rai as the Thai people say which means 'don't worry about it'. After seeing this, I realized that I could confidently say



that being immersed in this culture has taught me how to deal with things which are not within my control. If it's raining, run in it. If there are trees in the middle of the sidewalk, go around them. If there is an ant on your plate, wipe it off and continue eating. I just hope I will hold on to this new found approach as I return to the States. Thank you Dr. Goode for this AMAZING opportunity! I really hope to see this program continue on!

I will be back Thailand!

### **Kimy**

As I lay in my bed at the hotel in Bangkok, just a few hours before we fly back to California, I reflect on my Thailand trip. My research was off to a slow start but once I got back in the mix of solving and analyzing systems of ODEs, there was no stopping me. My research was to replicate the work of A.B. Gumel and S.M. Moghadas in their mathematical paper, HIV control in vivo: Dynamical analysis. The goal of this study was to qualitatively analyze the role of anti-retroviral therapy in controlling HIV in the body of an HIV-infected person, i.e. to find the optimal efficacy level of anti-retroviral therapy needed to eradicate HIV from an infected individual. I had help from my mentor, Ajahn Eed, from Somsak, her PhD student and from our coordinate's husband, Dr. Goode, or as I like to call him, Mr. Dr. Goode. Without these people I would not have gotten through this paper. I met some other cool people in the math department, A and Fern, both PhD students. They were kind enough to take me out to dinner a couple of times. Besides research, I got the chance to visit lots of awesome places like Doi Suthep, Doi Inthanon, the Silk Factory, the Umbrella Factory, the Jade Factory, numerous temples, Tiger Kingdom and my favorite, the Elephant Sanctuary. Research abroad has been one of the best experiences of my life! I've met a lot of great people during this journey, especially the group I came with. They are one of a kind! I did not know any of them until hours before coming to Thailand. We all met at the airport in LA. I'm so happy we all got along and got to share this amazing experience together! Dr. Goode could not have picked a better group! Thank you NSF for funding this program. Everyone worked extremely hard for this opportunity and continued to work hard throughout the month. ... I'm going to miss you and the LSAMP group too much!

### **Kim**

I've dreaded this last post the minute I realized I never wanted to leave Thailand or the friends I've made here. It's sad knowing I'm not going to be walking into Dr. Tom's lab on Monday and seeing Orion Pan, Por Thangsunan, Kanoonz Cuz, and Ting. They have taught me so much in these 4 weeks that words can't even begin to describe; but I'll try my best to give you a glimpse of how awesome the people and their culture is. I'm going to miss everyone's politeness and willingness to go out of their way to help you. I've changed so much since the first time I stepped foot on the CMU campus. Not only did I gain knowledge on how to do computational chemistry, something I've never even thought of doing before, but I also gained lifelong friends. I will miss Por and Pans laughs that filled the lab, the delicious coffee, the beautiful

colors of the walking street and night bazaar, Rungnapa Pookpan's bubbly spirit, being greeted by a bow, bartering for goods, the staff at Nimman Mai hotel, and all the new friends I've met. Goodbyes are always hard but I know someday I will return to this beautiful country and reunite with my Thai friends. Until then, I will forever cherish the memories I have gained here. Thank you Dr. Christina A. Goode, LSAMP, and Chiang Mai University for giving me this opportunity!

### **Juan**

The end of our trip has come to an end, sadly. In a few days we will be back in California and this will all be just a memory. I learned a couple of things. I learned how to get along with my group beyond our differences. I learned that Thai people are the nicest people I've ever met (generally speaking). Everyone treats you with respect, they help you, they take you to places. I did not meet a Thai person that was disrespectful to me or anyone. In fact, if it wasn't because of them we wouldn't have experienced so many things here in Chiang Mai. Working habits I learned a couple that I will apply when I do my own work at my school. Also, of the food I cannot complain sometimes was good and sometimes was too different however it was amazing trying all sorts of food. I can say I fell in love with the fruits here, especially one pronounced "chom bu." I would go and ask for this fruit at the store and they would always think I was asking for shampoo... That is because Thai is a tone language and sometimes you if don't say it correctly how it is it can mean other things. About the elephants, the waterfalls, the mountains, and the temples those were amazing trips. In conclusion, this experience was incredible and I had so much fun, I learned a lot both culturally as educationally.



### **Pooja**

Finally the last post! It has officially been a month since I've been back from Thailand and every single day I've had the opportunity to reminisce back to living in Chiang Mai and interacting with the Thai people and my fellow researchers. The day we landed in Los Angeles, and after I quickly said my goodbyes I followed Kimberley Trevino and her parents out to their car. Upon hesitation at the crosswalk, the first thing I said was "It's nice to have my right of way back". I came home to only my dog and spent the next nights together with him in silence. The rest of my family was out of town. Usually my home is hustling, chaotic and busy with my parents running around doing work, my brothers running errands or sleeping in and my



grandparents hollering at us. I had this inclination of going out of my way and buying myself a Frappuccino, and playing pool. I began to notice all these Thai Massage places that I used to blindly drive by. I follow the traffic rules more now. I use my phone less, text less, and call people more. I learned that the lady who sells strawberries is from Laos, is named Mai, and replies to Sawadikah and Sabaidemai. I am way more conscious of the tone of my voice. Once, I had an extra pair of running shoes in the front street of my car and went out of my way to hide them under the set so no one would break into the car...and remembered how Thai students left their helmets hanging on their scooters lock free. I stopped complaining about the this Fresno heat. I appreciate our indoor air conditioning. I remember Dr. Christina Goode when I hear British accents. I learned from her that all people have special unique talents but sometimes people overlook them. I applied to this program hoping to figure out if I really wanted to practice medicine. I learned quickly that I want to pursue Public Health. I learned plenty about myself by interacting with my lab mates. By doing research with them I became less ignorant and more culturally aware. I think the most important lesson I've learned here is to be more understanding and patient with people. BE polite. BE welcoming and go out of your way to do things. Don't be so rude. This world already has plenty of mean people, but by immersing students into such a different culture, they will always know that across the globe there ARE people who would handle stressful situations differently. This program must continue so that other students can be enlightened from the culture themselves! Kah puhn kah for this opportunity Dr.Goode!

THE DATA (Survey Monkey following the trip)

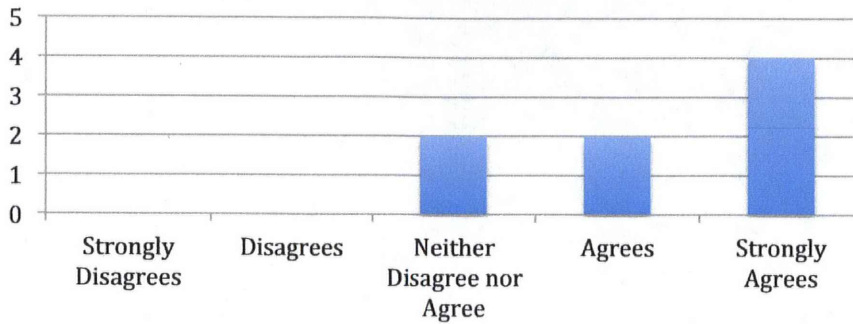
|   |   |
|---|---|
| Prior to this trip, how many countries had you visited? |   |
| 0   | 1 |
| 1   | 4 |
| 2   | 3 |

|   |   |
|---|---|
| Prior to this trip, had you participated in any research experience other than at your home campus? |   |
| Yes   | 3 |
| No  | 5 |

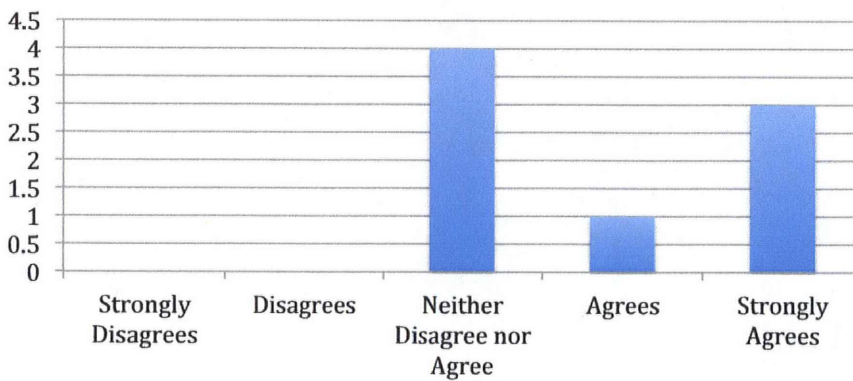




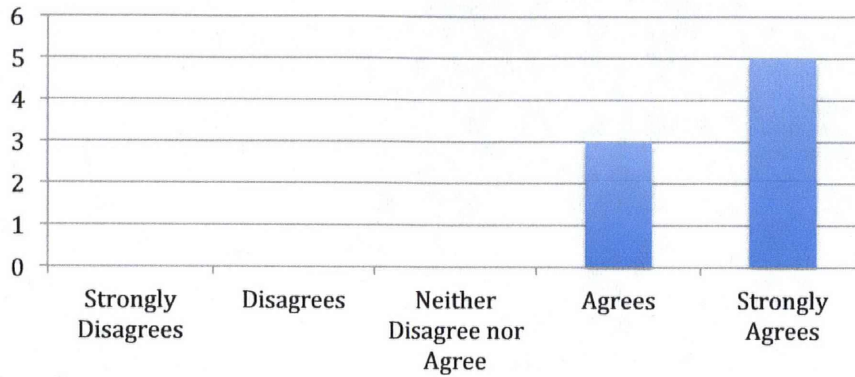
**This experience gave me the opportunity to learn new techniques in research.**



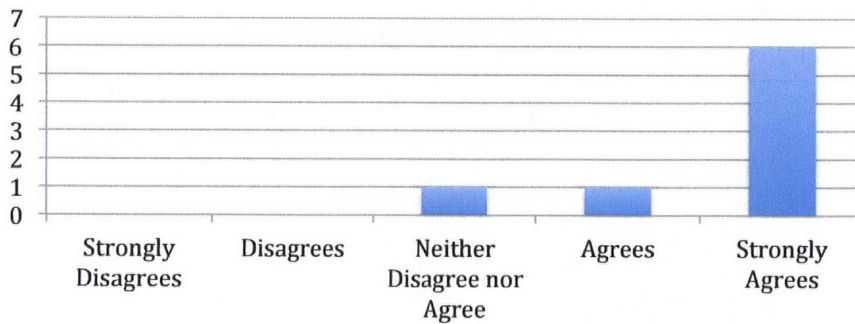
**This research experience will be valuable for my work on campus.**



### **This experience has broadened my global view of science.**



### **I will seek additional international research experiences to learn more.**



**Please write any other comments you may have in the box below:**

This was the best summer of my life.

7/15/2013 4:37 PM [View Responses](#)

Awesome experience! Wouldn't change it for the world. Loved my colleagues and mentor. Thanks for everything!

7/12/2013 10:37 PM [View Responses](#)

It was an experience like no other. I am very thankful that I got to experience research at a different point of view.

7/9/2013 3:56 PM [View Responses](#)

I had an amazing time in Thailand, I got to do science and see the world. I definitely feel the positives of this trip overshadowed the negatives. The country is beautiful and the people are wonderful. I wish I could experience the same hospitality back in California. I know I made some lifelong friends and I am very grateful for the experience!

7/9/2013 1:19 PM [View Responses](#)



## **Please comment on the most valuable thing you learnt on this trip.**

I learned how to adjust into a culture where I did not speak any of the language and could not read any signs. It was difficult but a great experience.

7/17/2013 1:21 AM [View Responses](#)

The most valuable thing I've learned on this trip has been the art of being reserved, content and calm amidst the insanity of life. You know how sometimes in movies or documentaries there's a scene where one person is standing in the middle of a crowd or sidewalk in a big city and everyone around them are like ants just hustling by? I feel like that a lot in the states. I definitely try to keep up with the rush, but sometimes amidst my growing to-do lists, continuous emails, texts or phone calls and constant thinking about future plans, I become robotic. It's like my emotions become glazed in this neutral state and I'm just floating in time like a ghost. I thought participating in fun activities and keeping busy while juggling these things was considered living in the moment. In actuality, I learned that living in the moment, means one is at peace in the moment and in every moment. This may seem like a very simple concept to some, but for me it's a state of being I've always tried to accomplish, but never completely understood. Being disconnected from my cell phone, and not having so many errands to run or responsibilities to meet, I had a lot of time to think about the simple things. Simple things such as walking around cracks in the sidewalk, really paying attention when crossing streets (not texting and floating with fellow pedestrians as I did in the states; aka not multitasking!). I had time to wonder and be curious, without having that annoying random thought floating around in the back of my mind. I learned that by being quiet and observant, one could learn so much. I learned to communicate with Thailand without having to be verbal. I raised my hand to catch myself a saungthaew, I swatted mosquitoes on my arm, I felt the rain on my face and in my hair, I created eye contact to speeding drivers while crossing streets, I communicated to the street security men using hand signs and facial expressions, I bowed to strangers and smiled, knowing that language wasn't necessary to get by—I only needed the desire to understand that which was unspoken. I bargained by dialing numbers into calculators and vigorously shooing my arm in disagreement, I scribbled in the air to receive my bill at restaurants, I kneeled to monks and received blessings, and I exhaled my loudest "sigh" upon entrance into an air conditioned room. 5 glasses of juice later the juice lady at the mall understood that coconut water was my favorite one, and with joined palms I showed respect to my Ajahns. My eyes have taken in so much exuberance from forests and waterfalls that they're blinded in awe. I visited temples in forests, tunnels, near floating markets, on mountain tops, in market places and even on campus. All of these locations varied in noise and the number of people, but every temple had a Buddha that stared me down with the same focused gaze regardless of his surroundings. Thailand has made me into a patient person. I've never been so conscious about these actions when I go about things in Fresno. This "thai-style" peace is everywhere. It's dependent on me to escape the noise and achieve equanimity. I can't forget to hear myself breathe when my world becomes noisy. I don't need to be in Thailand to achieve this peaceful ecstasy, it is found everywhere.

7/15/2013 4:37 PM [View Responses](#)

Of the many things this trip revealed, the one thing I valued was discovering and learning to adapt the selfless attitude of the Thai people. Aside from the many stares I received for being darker skinned with big frizzy hair, I was welcomed by everyone I encountered. The people on campus, in the restaurants and the hotel were all very friendly and genuine. Not once would I have imagined making friends with the various people we did: students around campus, the lady at the coffee shop, the guy selling faux Ray Bans at the night bazaar, the hotel housekeeper, security guards, and front desk host, etc. What these people all had in common was their hospitable manner. While in their company we were treated with the upmost respect and were offered their full attention – a few things we as Americans sometimes tend to forget. Our new friends shared what they could with us and some even inviting us to spend time with them. Here we were, strangers in this homogeneous society being accepted into the homes and hearts of these people. To add to their inviting personality I was humbled by the joy they display despite their lack of luxuries. In situations where I caught myself complaining it seemed as if the Thai people around me were equipped with a positive attitude that prepared them for whatever might come their way. I am pleased that my travels brought me to a place where the people have reminded me that I could be a little more kind and a little more thankful.

7/14/2013 11:26 PM [View Responses](#)

I learn to value the little things in life more.

7/14/2013 5:16 PM [View Responses](#)

Getting to interact with students and breaking through our cultural differences.

7/12/2013 10:37 PM [View Responses](#)

The most valuable thing I learned on this trip was that people make the most out of what they are living. I think

we can also make the most of what we have and not what we do't have, which is what we re usually concerned of.

7/9/2013 3:59 PM [View Responses](#)

I learned to approach science from a different point of view. I realized that a good balance between research and an exciting life is very healthy to a scientist. It allows your brain to think better.

7/9/2013 3:56 PM [View Responses](#)

The new friends I made and the adventures I had. Learning how to be an independent team player.

7/9/2013 1:19 PM [View Responses](#)

## **What would you change for next year?**

Longer stay in Chiang Mai.

7/17/2013 1:21 AM [View Responses](#)

I would definitely recommend that students walk to campus if the distance is bearable. It's totally worth the sights you see in the morning as Chiang Mai wakes up. Dr. Goode really helped me a lot as a counselor and provided useful information in the field of public health. Luckily by talking to her, I've redirected career goals. Students should get academic counseling. Each student should make (at least) 1 Thai friend, and be pen pals!

7/15/2013 4:37 PM [View Responses](#)

I would definitely change the duration of the trip to six weeks instead of four. I loved my experience in Thailand but I believe two more weeks would have not only given us more time to explore, but also the chance to get more out of our research projects. Also, I was speaking to a man on the plane who is a travel guide for a travel agency and he mentioned that while on their trip to Chiang Mai they had a chance to visit Myanmar and Laos since the border is only about 3 hours away. I believe this would be a great experience if possible to work out for next year!

7/14/2013 11:26 PM [View Responses](#)

Have the program extended a week or two, so that students have more time to process results and data.

7/14/2013 5:16 PM [View Responses](#)

Longer stay. A few more weeks would have been nice in order to gain better results.

7/12/2013 10:37 PM [View Responses](#)

look for a different place next time.

7/9/2013 3:59 PM [View Responses](#)

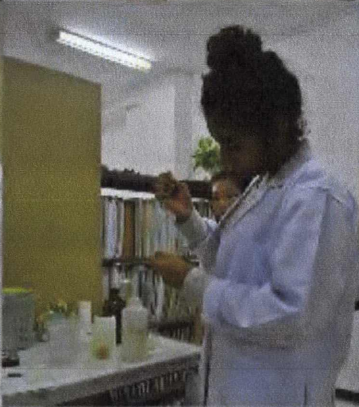
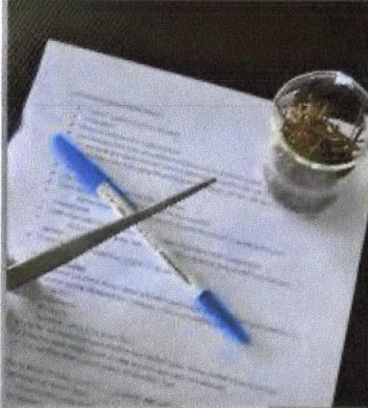
Recommend whoever is going to take meaningful gifts and learn some Thai!

7/9/2013 3:56 PM [View Responses](#)

More field trips.

7/9/2013 1:19 PM [View Responses](#)







ขอเชิญคณาจารย์ นักศึกษา และผู้สนใจ  
เข้าร่วมเป็นเกียรติในการนำเสนอสรุปรงานวิจัยระยะสั้น  
ของนักศึกษาแลกเปลี่ยนจากประเทศสหรัฐอเมริกา  
ในวันศุกร์ที่ 28 มิ.ย. 2556 เวลา 14:00-16:00 น.  
ณ ห้องประชุม CB2230/1 (partition)



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**สัมมนาพิเศษ**

ของนักศึกษาแลกเปลี่ยนจากสหรัฐอเมริกา  
วันศุกร์ที่ 28 มิถุนายน 2556 เวลา 14-16 น.

**Special Seminar**  
for the Exchange Students from  
California State Universities  
On Friday June 28, 2013 from 2-4 PM