



COSMOS UC San Diego

California State Summer School for Mathematics and Science 

A RESIDENTIAL ACADEMIC EXPERIENCE FOR TALENTED HIGH SCHOOL STUDENTS AT UC SAN DIEGO

Week 1 Newsletter

COSMOS 2016 has begun!

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Cosmos is here and what a week it has been! The students are settling in, making new friends and becoming familiar with the campus. This newsletter, the first of our weekly newsletters, will provide you with a glimpse into your students' lives over this past week.

CONTACT INFORMATION

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La Jolla, CA 92092-0100

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COSMOS @ UCSD
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RECAP of OPENING DAY

One hundred and eighty four students arrived on the UCSD campus for the greatly awaited COSMOS 2016 program to begin. Families and staff were found dispersed throughout the Eleanor Roosevelt College (ERC) as students moved into their suites, their home for the next month. The joyful music and friendly environment was very welcoming. All people present then walked to Peterson Hall for the Introduction presentation and Welcoming remarks. Students then split into their clusters and took a tour around campus led by the Residential Advisors. They then returned to ERC



and said their good-byes to their families. The clusters had ice-breakers for the students to begin meeting each other, for they will be working and learning closely together throughout the program. Dinner was well-enjoyed at the college dining hall, Cafe Ventanas. After dinner, the rules and boundaries for the program were clearly explained. There were still plenty of activities left to do for the day. More ice-breakers were played by everyone together and others that involved friendly competition between the clusters. Eventually, everybody headed to their suites, where they finished moving in and met with the group of people with whom they will be living. Lights were out by 11:00pm, to ensure enough energy for the next day. This was only the beginning...



RESIDENTIAL LIFE

Your minds will be at ease to know that your student is alive and kicking. As a matter of fact, students have been kicking soccer balls, kicking and screaming when we make them go to sleep at 11pm, and kicking it with their neighbors, cluster mates, and the staff. Activities have included Laundry 101, basketball, chalkboard design, soccer, ice cream socials, ice breakers galore and more. And that was just the first four days. They have also been hard at work preparing their cheers and choreographing their dances/skits for the famous COSMOlympics competition between clusters for Friday afternoon. We are thrilled to report that we have had no major injuries so far despite housing 184 teenagers. Though safety has been our number one priority, the students have been successful in creating a chatty and energetic community in a short period of time. All in all COSMOS has been off to a great start in and out of the classroom. We hope to continue developing the community next week as we go to the zoo; we try out the beach; make it over to the natatorium; and continue to kick it!



DISCOVERY LECTURE SERIES



FAMILY WEEKEND REMINDER

Family Weekend is July 22nd through July 24th. Students must be checked out by an adult specified on the Family Weekend Form between **6-9pm on Friday and must return between 2-5pm on Sunday**. Optionally, students can be checked out at 6pm on Friday and returned by 9pm that same evening or alternately, 2pm on Sunday, returning by 5pm that day. We do not have the staff to accommodate individual schedules. **All students MUST be back to campus by 5pm on Sunday.** PLEASE speak with your child and let us know *by email* if their choice for the weekend has changed so we can staff appropriately. There are many students who will be staying on campus during the weekend and the RAs have a full schedule of activities and fun planned for those students. **If you have any questions, please call our office at (858) 822-4361 or email cosmos@ucsd.edu.**



Admissions Presentation: 7/24 @ 3pm. Parents welcome to attend!

CLUSTER 1: COMPUTERS IN EVERYDAY LIFE

Cluster 1: <http://ucsdcosmoscluster1-2016.blogspot.com/>

On Day 1 of COSMOS, Cluster 1 had not only gotten a glimpse of what was in store for the next four weeks, but created an Android app! During this first week, we began to learn AppInventor. It is a scripting language with a graphical interface



which allowed us to put together our simple app in a matter of hours. AppInventor allows us to develop applications for Android based devices, like cell phones. Some of our first applications for the Android phone included having our phone count aloud as we changed its orientation from portrait to landscape. Next we worked on our own unique app with our partner. If we wanted to, we could put our apps up for sale in the Android Market! We were

paired up in teams and made a group app which we we'll present on Thursday afternoon to the cluster. In about three days, we had created an app and could see what other features we still had to work on.

On Wednesday, we practiced number conversions between different bases – binary, octal and hexadecimal. Then we played "Around the World" where Prof. Diba showed us a flash card with a binary number on it and we had to give the hexadecimal equivalent. The "winner" was the one who could go around the room against each person and return to their seat – therefore going around the world. Steven went the furthest! During lab, we finished up working on our apps and continued to discover the possibilities and limitations of working on a mobile platform.

Thursday we heard a presentation from the Science and Engineering librarian that will help us do our research for our upcoming work. In the afternoon, we'll present our work to our cluster. The presentations will be available on our blog -

<http://ucsdcosmoscluster1-2016.blogspot.com/>. Our first presentation to the cluster will Thursday afternoon to share what each group did for their original app. We will also begin working on Scribbler Robots during lab. We can't wait to begin to get our robots to obey our every command!

Friday will be working on our RoboArt. We will be programming our Scribblers to draw a design of our choosing on the ground. Videos of our app presentations and photos will be posted this weekend on our [blog](#).



CLUSTER 2: ENGINEERING DESIGN AND CONTROL OF KINETIC SCULPTURES

Students in Cluster 2 hit the ground running in week one with the development, construction, and analysis of their first assignment - a working mechanical pendulum clock! Lessons and lectures are given by both Professors Delson and de Callafon, teacher fellow Bryn Bishop, and our awesome TAs Jackie and Jayant. Here are some things the students had to say:

Monday -The first day of class was an amazing experience. It started off with a presentation about safety and labs, and then we met with our professors, which are Professor Delson and Professor de Callafon. They talked about their lives and their research, which was interesting to hear because it shows us that we are able to do those things as well. From there, we were introduced to our first project, which is creating a pendulum clock. We also discussed teamwork, which is an important part in our second project. After lunch, we were separated into two groups. My group went to a different room where we learned how to construct our pendulum using bolts and a sheet of acrylic. Afterwards, we went to a computer room where we created a model of a part of the pendulum using computer software named Inventor. - **Janica Mendillo**



Tuesday- Today we finished up some major components of our pendulum clock (with some special touches of our own). For lunch, we went to a different cafeteria from the usual, which was far superior than the last. -**Brend Meng** To-day, my cluster and I were privileged to listen to a Discovery Lecture about light,

optics, and the development of light bending technology. In class, we continued building clocks and finished up the design of brackets to support our clocks. We finished up the day with a delicious dinner at the Canyon Vista Dinning hall. -**Aaron Nhan** **Wednesday**—COSMOS has been different than anything I would have ever imagined. People have told me that it would be so much fun and that I would also learn so much. But in my opinion, COSMOS has been so much more. The friends I made and the things I learned will be something that I will always treasure. For example, today, we learned about the physics behind the pendulum and how to use a program called "Work Model 2D" to test out possible working models before building them. In addition, we spent the day learning and applying CAD (Computer Aided Drafting) concepts to parts of our clock. In the end, I am delighted to say that I never thought I would learn so much and have so much fun in just three days. -

Terry Xiang Today we continued to work on our clock pendulum projects by designing the major components on a 3D designer software called Autodesk Inventor and also learned how to use another software called Working Model 2D to model real life simulations in the two dimensional field with basic physics properties like moment of inertia. With the Autodesk Inventor we CADed (Computer Aided Designed) our own pendulum designs that we sketched and drew ourselves. For example some people designed Pokemon as their pendulums while others used animal heads as their pendulums. Using arc tools, line tools, or constraint tools, most people were able to finished completely modeling their pendulum on the software. Some were even able transfer their design into the \$100,000 Lasercamm to laser cut their pendulum out of acrylic material. Besides laser cutting, many of us were able to 3D print a part with the MakerBot for the clock project. With Working Model 2D we learned how to simulate real life scenarios like dropping a ball and bouncing it on the ground or rolling a ball down the ramp. It's really interesting how you can project how your situation will turn out without actually performing it in real life. You can even speed up the process or make it slow motion to visualize every

detail. Overall it was a fun packed day of learning and using new software. I'm looking forward to completing the clock project during the next few days! -**Austin Hwang** **Thursday and Friday**—The rest of the week, students are finishing up their clocks using a bracket that they designed individually and 3D printed, an escapement wheel and pendulum cut with Lasercamm, and parts students machined in the shop. This entire project will be finished and students are currently creating websites to show their clocks and results. The websites aren't due to be finished until next Tuesday, so I'll include instructions on how to view your student's clock webpage in the NEXT newsletter.



CLUSTER 3: LIVING OCEANS AND GLOBAL CLIMATE



Cluster 3 of COSMOS has had an action-packed first week! Dr. Pomeroy has been leading discussions regarding climate change and Dr. Lai has been taking students to examine marine biology. Mr. Matt Ruppel, a former COSMOS graduate student, and current teacher at High Tech High North County, is happy to return to COSMOS this year and help teach the students about scientific communication. Rather than me going on about this though, I'll turn it over to the students and their thoughts on week one!



"For Monday, Cluster 3 started off the day with a lecture from Professor Lai and afterwards he took us to the end of the pier that the public is not generally open to which was exciting to do. Everyone was excited to go outside and look at La Jolla's beautiful beach, as well as observing some sea life. Afterwards, we went to Professor Skip's lab and learned about the greenhouse effect and global warming through labs and lectures. Then, we ended off the day with picking a theme for our skit in the Cosmolympics. Overall, everyone had a full and interesting day." – **Elisa Rivera**



"We started off Tuesday with a discovery lecture from the world renowned Boubacar Kanté, a professor of Nanoscience and Engineering at UC Berkeley. Nanotechnology is a very popular emerging field of study, one that deals with particles so small that they are measured in nanometers - which are a billionth of a meter." – **Sabrina Jin**



"In Science Communications, our instructor started the class by breaking the tense air with some ice-breakers. Everyone got to know each other even better and to know a little bit of our teacher. Then there was a lecture by another professor named, "Skip." He explained about hertz and their relation to wavelengths. As the day carried on, we finished our lab from the day before that we now understood. It was soon noon and we went to lunch with more knowledge on springs and their frequencies." – **Diana Paniagua**



"The first few days of COSMOS has been so much fun! Today we picked out the projects we wanted to do. There were five groups of four. Each presentation focused on something new. It ranged from measuring the amount of brown carbon to examining respiration in animals. The project I chose had things involving coulometers and creating Bluetooth devices. I can't wait to start my presentation and work with my group!" – **Pauline Yang**



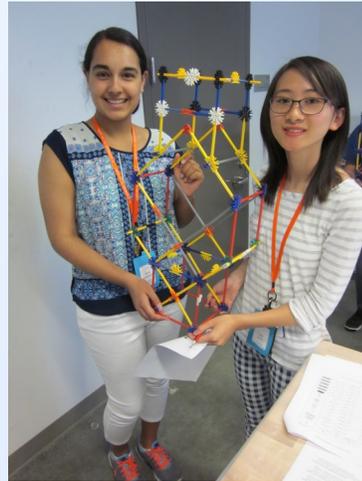
"We began our Wednesday morning at SIO where Professor Lai taught a short lesson. Next, we went to the beach and discovered crabs, slugs, and sea anemones around the rocks. Then, we went back to SIO where Professor Lai taught us how to determine the gender of a cricket and gave a lecture about invertebrate life in the ocean. In the afternoon, we performed an experiment to learn more about surface albedo and climate. Afterwards, we watched the movie *Merchants of Doubt*." – **Michaela Ellis**



CLUSTER 4: WHEN DISASTER STRIKES: EARTHQUAKE ENGINEERING

The 2016 Major League Baseball All-Star game just concluded here in San Diego, but we feel our Cluster 4 students are the real all-stars. Following Monday morning's lab safety presentation and a brief introduction to our C4 teaching staff, lead professor Lelli began her lecture on the foundations of Structural Engineering. These students simply soaked it all in, asked clarifying questions, took organized notes, and truly validated their selection to our awesome program with their enthusiasm and insights.

To illustrate the design-build-test process, students worked in small groups and constructed multi-story K'Nex structures that were tested for strength on our shake table. While some withstood the energy, many tumbled down. A ratio of cost per square foot was calculated, and the students learned about the real life considerations facing architects and engineers. It was a fun ice-breaker activity for day one, and we were impressed at how well the students cooperated and brainstormed within their groups. They also learned that failure is the predecessor to success!



As the week progressed, our students continued to impress with their tenacity in absorbing new information and digesting the myriad of new terms and concepts, many of which mirrors college sophomore level material. And a testament to their upbringing, they maintain a polite and positive demeanor even when the concepts become frustrating and perplexing! The next challenge they faced, and mastered, was truss analysis. It took some concentration, but they made sense out of the vector analysis and trigonometry as they applied their new skill set to designing a truss bridge. Our awesome cluster assistants Elide and Robert (both PhD students) patiently double checked the students' calculations and guided them to a deeper understanding. Again we made predictions, slowly increased the applied load to each truss bridge, and compared the results at the failure point to student predictions. We hope you enjoy the pictures and videos of this activity on our cluster webpage!

Ingrid is our lecturer on geotechnical matters, and she introduced the students to earthquake mechanisms and plate tectonics. Students will soon appreciate the necessity of scientists in related fields effectively communicating in order to forward structural safety in the populated world of today. Robert followed up the lecture with a cool activity involving rock stress and earthquake recurrence intervals. Several students remarked that they were beginning to understand why we were involving them in seemingly unrelated activities, and that the whole will be greater than the sum of its parts.



Students are learning that not all building materials are equal. They tested metal 'coupons' for tensile strength and behavior, crunched numbers and formulas using Excel, quantified the differences between aluminum, steel, and brass, and graphically displayed the data. They are learning the importance of data recording and analyzing the results. While thinking clearly and applying scientific reasoning can be difficult at the end of the day, they continue to persevere. Students are eagerly anticipating our Delta Soil Lab field trip Friday, as well as the famous COSMOlympics Friday night. It will provide a well deserved reward for their diligent efforts during week one!



<https://sites.google.com/a/eng.ucsd.edu/ucsd-cosmos-cluster-4-2016/>



CLUSTER 5: FROM LASERS TO LCDS: LIGHT AT WORK

Cluster 5 hit the ground running with a safety brief on proper use of class 3B, 3R and 4 lasers followed by a lecture by Professor Charles Tu about the fundamentals and the revolutionary potential of light technologies. After lunch at Canyon Vista Restaurant in Warren College, we returned to the photonics lab in the basement of the Jacobs Engineering building to conduct an investigation using red and green lasers to develop a clearer understanding of total internal reflection, Snell's Law and dispersion of light which was led by Development Engineer Dr. Peter Ilinykh.

By the end of the second day's lab, we had created working organic solar cells using blackberry juice and graphite with titanium dioxide as the semiconductor. Each team measured and compared the voltage, current and calculated power of their solar cells with the other team's results. In addition to being fun, the daily Photonics lab challenges each of us to improve our lab skills, optical physics-based math knowledge, team work and communication skills. We will continue to deepen our conceptual knowledge of photonics through lecture and labs. Currently, we are close to achieving the goal of developing a understanding of the structure and function of semiconductors such as LEDs and spectrometers by the end of the first week. For each of us, COSMOS Cluster 5 has already been an unique experience and opportunity that has deepened and advanced our knowledge of the physics of light and light-based technologies. *Fiat lux!*

After such a busy week we are looking forward to having fun AND winning the COSMOS OLYMPICS!!! Followed by a well-earned weekend spent relaxing at the world-famous San Diego Zoo and the beach-es of La Jolla Shores! Weekend Weather : Early morning clouds, followed by sun both days. Temperatures : Satur-day are 74° to 64° (RealFeel© of 81° to 63°), Sunday are 75° to 66° (RealFeel© of 82° to 64°).



CLUSTER 6: BIODIESEL FROM RENEWABLE SOURCES

In the first week of COSMOS, Cluster 6 has begun exploring the organic chemistry involved in making biodiesel.

"Sunday was the first day of COSMOS. After registering, we dropped our possessions off in our rooms and left to attend the opening ceremony where we met the staff and the residential advisors for our suites as well as the advisors for cluster 6, Harold and Alejandra, who led us on a tour around campus. Afterwards, we returned to the large lawn in front of the dorms, where we played a few ice breaker games and met our Teacher-fellow, Mr.T. We then ate dinner, which was followed by a few rounds of ice breaker games with the collective COSMOS body; a portion of time where we engaged in "controlled chaos," enjoying such games as Oh Captain My Captain and a Pitch Perfect-Style Riff-off. We then dispersed into our suites after singing happy birthday to 2 fellow students. Once we arrived back in our suites, we crafted community guidelines and reviewed the rules of the camp."

Aaron Lin

"Monday was our first full day of classes. We were introduced to Dr. Pomeroy and he led our first lecture of the course about energy and the reasons behind the importance of renewable energy. After lunch at 64 Degrees (which had really good Chinese food), we were able to go right into the lab and begin making our biodiesel. I had personally never had such hands-on experience in a lab which made it even more fun for me. The teachers are all very passionate about what we are doing and commit themselves to helping us understand, not only the procedure, but the chemistry behind the projects. After lab, all of the clusters met outside of the dorms to begin practicing for COSMOlympics. Our cluster is going to be performing a rap battle/dance battle between "Petroleum" and "Biodiesel." Yes, it is going to be as funny as it sounds. "

Adi Ralls

"Just like all the other clusters, we started with a lecture from Professor Kanté about the innovating and new technologies used. It was the first time that many of us had been to a lecture and gave us a taste of a college education, compared

to a high school one. This lecture had been the perfect opportunity for us to learn about improving our presentation communication skills, a topic that, with the guidance of our teacher fellow Mr. Towler, we discussed in order to prepare for the presentations that our group have at the end of these four weeks. Following that was, in my opinion, the most exciting part of our day: the first time we got to form our groups and start our final projects. Cluster 6 had five different project topics, giving



everyone a chance to try something that they were interested in. Our topics included the creation of soft foam for flip flops, harder foam for surfboards, an additive to improve the quality and efficiency of biofuels, tests to foreshadow the destruction of algae ponds from bacteria, and particle counting. Learning more specifics about our project has only continued to make us more interested in the necessity for biodiesel and what a tremendous impact it will make to our future, and doing it with the best cluster makes it even more interesting!"

Akanksha Sancheti

"Wednesday, Dr. Pomeroy taught us about bonds and explained to us how and why our biodiesel reaction worked. It was interesting to sit in an actual auditorium and learn from a real college professor. Moreover, we could see how much or how little our chemistry classes back home had taught us. Today, we started washing and purifying our biodiesel in the lab. Washing was accomplished by pouring water down the sides, which would capture particles of our catalyst and flush them out. Technically, we have actual useable biodiesel now. After class, we prepared for COSMOS Olympics by planning and dancing. It really looks like it's coming together now. Plus, it's fun. COSMOS Olympics is in two days so everyone is hyping up. There was also fruit snacks and those were good too. For mandatory recreation, I drew with chalk. Overall, not a bad day. "

Alex Mantong

With our first week well underway, we'll next be using an array of instruments to analyze the properties of the biodiesel we've made. We have lots of experiences still ahead of us, and we'll have a great time with the adventure.



CLUSTER 7: BIOENGINEERING/MECHANICAL ENGINEERING: THE AMAZING RED BLOOD CELL

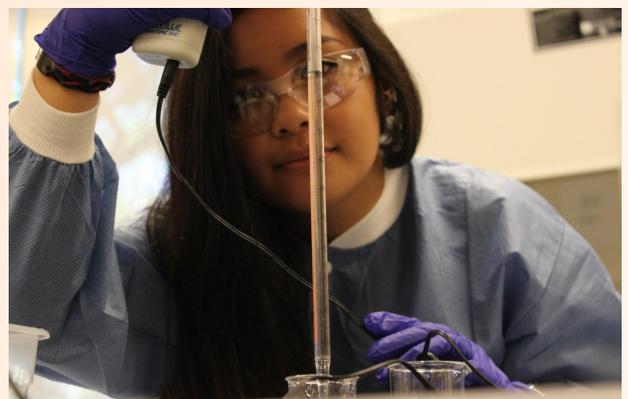


It has been an amazing first week here at COSMOS!!! On opening night students met their RA's, teacher fellows, professors, cluster students and said good-bye to their parents for next month as they began their COSMOS Journey. After a fun evening of team building and settling into their dorms students woke up early Monday morning to attend for their first day of classes. All students attended a *lab safety training* to prepare and familiarize themselves with all the protocols and procedures for safe laboratory conduct. In the afternoon, Cluster 7 (The Amazing Red Blood Cells) learned about red blood cell transport, lineage and development, structure and function from Dr. Vera who himself became interested in hemorrhagic shock as an EMT in Tijuana prior to pursuing Medicine.

In our first lab, students got hands-on with using micropipettes to transfer small volumes of liquids with accuracy and precision. In class we explored some of the research groups in the Biomedical Engineering Department here at UCSD and discussed possible ethical dilemmas the each research group might face. Wednesday students worked in the lab most of the day and had a chance to create "blood smear" slides and analyze the morphology and density of red blood cells under the microscope. Friday we will stain these cells to differentiate leukocytes (white blood cells) and erythrocytes (red blood cells).

Guest speaker Sanjeev Bhavani, a cardiologist at Scripps Translational Medicine gave an engaging talk entitled "Digital Health, The Future Today." He brought several devices including a cell phone case that could read EKGs, a wired shirt with sensors that could measure heart and respiration rate and even a digital pill that emits an electrical charge when it is digested so doctors know if patients have taken their medication remotely. Students discussed how to develop apps to help patients suffering from a variety of ailments utilizing this technology. Dr Bhavani is interested in TELE-Medicine and delivering healthcare to individuals in rural areas that do not have access to medicine. He started a health clinic in Kampala, Uganda where 1 hospital with 100 beds serves nearly 2 million individuals. He discussed the infrastructure challenges for treatment and outreach.

In class today we are currently working on our Ethics essays related to Science and Society. Students have chosen a variety of topics in from the increasing the prevalence of nanotechnology in our daily lives, designer babies, the need for TELE-Medicine in developing nations, artificial blood, gene editing and the need for privacy protection in the Healthcare System. All in all an action packed in Cluster 7!!



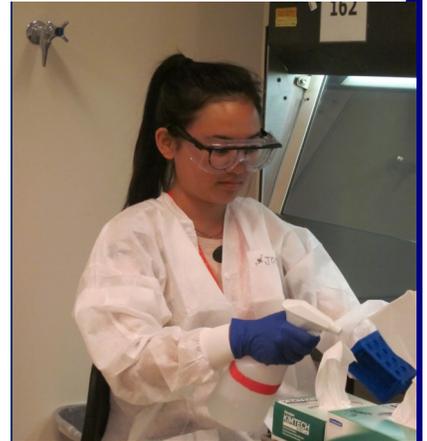
CLUSTER 8: TISSUE ENGINEERING AND REGENERATIVE MEDICINE

Bright and early Monday morning Cluster 8 was enjoying breakfast on the patio outside Café V. The breeze was cool, the sun was out and they were ready to have a GR8 first day. Our day began with two safety meetings, one general and one specifically for bioengineering, as safety is the top priority. Then it was off to meet Dr. Sah and Dr. Gaetani, our esteemed professors. Dr. Gaetani gave us an introduction to Tissue Engineering and Regenerative Medicine, specifically how tissue engineering began, how it has developed by the practice of combining scaffolds, cells, and biological molecules to form functional tissues, and how these tissues have helped with wound healing and even the formation of functional organs such as a bladder. Dr. Sah gave us time to get to know each other better and we are a talented group! He then spoke to us about the history, techniques and details of cell culture so that we will be well informed when we learn to grow our cultures in the lab. Erica, one of our Teaching Assistance, taught us how to use pipettes and we had some lab time in the afternoon to try out our newly acquired skill. While some of us were working in the lab, Rebecca, our second Teaching Assistant, taught us sterile technique and Neha, our third Teaching Assistant (yes, we have three incredible TA's), taught us how to make serial dilutions. As the sun set on our first day of COSMOS we headed back to the dorms eager to learn about COSMOlympics.

By the end of the first week in the lab we can now properly pipette using serological pipettes and micro pipettes, make and pH a solution, do serial and simple dilutions, and use sterile technique to make media. We have looked at graphing as a means of presenting data, how to analyze our data using Excel, and then how to use statistics such as standard deviation, to evaluate our data. We have continued to expand our knowledge about Tissue Engineering from Dr. Sah regarding the variable characteristics of tissues and organs and how these differences create challenges in tissue engineering. Dr. Gaetani has taught us more about characterization of tissue and elaborated on various methods and purposes of microscopy in the laboratory. At this point we have successfully mastered half of our twelve laboratory skills that will help prepare us for our own projects, understand the purpose of a variety of laboratory techniques, and definitely have a clearer understanding of Tissue Engineering.

During scientific communications the discussions have been focusing on how to effectively communicate and we were taught how to properly set up and use a scientific notebook. We are beginning our Ethics projects and with help from our library presentation and Dr. Sah's Literature Review we have the tools we need to perform background research. All of COSMOS had the privilege of hearing Dr. Kante, assistant professor of Electrical and Computer Engineering at UCSD, discuss his research using electromagnetic waves.

Finally, to complete the week we took our first field trip to the Sanford Consortium where we toured a wide variety of labs and learned about the robust collaborative research. On Friday night we will compete in COSMOS Olympics. Stay tuned for more about both of these in next weeks' newsletter. Overall we have had an amazing start because of meticulous lab work, collaborative thinking and the brilliant young minds in the GR8 Cluster 8!



CLUSTER 9: MUSIC AND TECHNOLOGY



We are finishing up a fun first week of Cosmos. First days are full of introductions; from introducing yourself to other students, to introductions from your professors in a brand new learning environment. One of our professors, Mauricio Oliveira, from the department of Mechanical and Aerospace Engineering, shocked us on the first day with the realization that pitch and rhythm are more closely related than we assume. What we consider pitch is simply rhythm being played at a fast enough rate that our brains are unable to differentiate each individual beat; we just get lazy! We have two Teaching Assistants, Kevin and Colin, who are doctoral students in UCSD's Computer Music program. We also met our Teacher Fellow, Kim, who loves math and attends all our lectures with us, and leads a Science Communication course on Tuesdays and Thursdays.

At COSMOS, we have access to numerous digital and physical resources that facilitate our learning of music production and technology. These state-of-the-art facilities include the EnVision Maker Lab, equipped with technologically sophisticated 3-D printers, a laser cutter, soldering station, and other industrial tools; the famous Geisel Library, an eight-story building that is as architecturally impressive as it is useful; and the professional recording studio located in the new Conrad Prebys Music Center, another workspace that we readily use. In UCSD's Engineering Building Unit II Lab, we played with littleBits, modular synthesizers equipped with magnets that allowed us to explore and invent synthesized music. We were led through a tutorial on Pure Data, a visual programming language that we utilize to create interactive computer music. With the aid of the TAs, we were able to program various tones, metronomes, chords and oscillating sounds, as well as audio re-

cordings and playback.

Being the Music and Technology Cluster, we have spent much of our time in the recording studios, control rooms, and other facilities of the Conrad Prebys Music Hall. During our time within the studio, we got to write our own original theme songs. We were placed into different groups, which allowed us to interact and work with other members of our cluster. After a short thinking period, we then got the opportunity to professionally record our tracks and perform them in front of our peers. During this process we were exposed to many new technologies and resources that we can use for our final projects, and far into the future within careers. Because of this experience, we got to feel what it's like to be a professional musician in a high end recording studio; furthermore, we felt like actual college students, learning complex musical programming and attending lectures with renowned professors.

During our first week at COSMOS we experienced many new lifestyle challenges and responsibilities. Waking up and walking ourselves to classes, as well as other activities gave us new insight to the responsibility and maturity required to live in a college setting. Cluster 9 is especially excited about preparing for our COSMOS-wide competition, COSMOlympics, where we came up with an original scene or musical arrangement. We're super excited to show off our cluster pride this Friday by incorporating music and technology! All of the staff at COSMOS work hard to make sure that the environment is warm and welcoming. All of the students are also very supportive of each other. It has been really easy to make new friends and get to know each other, and we can't wait to see what is coming!

COSMOS

Summer Fun

