

# The PULSE

*The Place for Undergraduate Learning and Scientific Exploration*

*The Department of Natural Sciences and Mathematics Newsletter*

## NTSM represented at VoteSmart Challenge by Team Energy

By Dr. Kenneth Frost (Instructor, Chemistry)

On October 14, an all star team of Tasha Kahn, Tracy Krinard, Kylie Mitchell, Theodor Morrow, and Shahdad Saeedi made a presentation during the campus-wide VoteSmart assembly on the crucial issue of California's energy future. Framing their discussion was the upcoming gubernatorial election and the vote on California Proposition 23, the initiative placed on the ballot as a referendum on California's Greenhouse Gas Emissions legislation, AB 32. The team began its work in late summer under the direction of faculty mentor Dr. Kenneth Frost, and it is continuing its work in preparation for a presentation on California's energy challenges as the state prepares to roll back greenhouse gas emissions to 1990 levels.

From their studies, the team concluded that not only should the proposition be defeated, but California should stick to the emissions regulation phase-in prescribed in the legislation. Their extensive review of the way Californians use energy and the

way it has been produced over the last two decades suggests that with modest additional governmental support the state can achieve 1990 levels of carbon dioxide emissions in spite of mounting population.

Through their studies, they confirmed that the California energy-use profile has not changed significantly since 1990, even though the total emission level has increased. Transportation continues to account for the largest proportion of our emissions and will likely continue to in the future. Based on up-to-date emissions data, a few significant changes could allow us to reach the 1990 levels again. They recommended a pragmatic approach towards energy use management. As our population increases, we must continue to improve overall efficiency by improving passenger car fuel economy, by incentivizing further capitalization of wind, solar, and geothermal electricity generation as substitute for fossil fuel plants, by utilizing inexpensive electric power savings devices, and by adopting improved soil management schemes for agriculture.



*Image courtesy of Brandon Davis, Senior Graphic Designer, Marketing*

The VoteSmart Energy Team and department chair Dr. Sibdas Ghosh. From left to right: Dr. Kenneth Frost, Theodor Morrow, Kylie Mitchell, Shahdad Saeedi, Tasha Kahn, Tracy Krinard.

# Making Connections

The Department of Natural Science and Mathematics is in a constant state of expansion. Along with the launch of the new chemistry major this fall semester, other initiatives have blossomed and been initiated.

Chemistry Week



Dominican University of California hosted and co-sponsored with the California Section of the American Chemical Society in celebration of National Chemistry Week. The presentation entitled "Chemistry-Colorful, Exciting, and Fun" was made by Professors Marvin Lang and Donald Showalter of the University of Wisconsin, Stevens Point. In their tie-dyed

lab coats and brightly colored safety glasses, they wowed the crowd of nearly 80 with demonstrations of chemical magic and then explained how it wasn't magic after all but applications of chemical science. Students from Dominican, local high schools, middle schools and grade schools were captivated for an hour and a half along with parents, teachers and even a grandparent or two. Tamalpais High School's entire AP chemistry class came and enthusiastically participated in the evening.

## Marin Math Circle facilitates learning for young students

Professor Linda Greene tells the PULSE about the weekly program that brings together middle school students and professional mathematicians.

The goals of the program are to introduce students to beautiful theories and challenging problems and inspire them to pursue education and careers linked with mathematics.

The circle meets on Wednesday evenings during the school year. Each session is led by a mathematician who presents the key ideas of a mathematical theory, offers related problems for students to solve, and guides students towards making their own mathematical discoveries. Unlike other extracurricular programs such as Mathletes and Mathcounts that focus on timed competition, the Marin Math Circle emphasizes collaborative problem solving and in-depth exploration of mathematical topics.

Continued on p. 4

## Dominican-Kaiser Mentorship Program going strong

Each student was paired up with a mentor, a Kaiser Permanente Physician - in a specialty of their choice. Their mentor will help them explore the profession and better understand what it means to be a doctor. They will give the students an inside look at the world of healthcare, teach them interesting facts about medical issues and procedures, and share tips and recommendation on medical school.

This program also offers the opportunity for the students to explore a variety of specialties through numerous rotations, allowing them to ask questions and giving them insight into each field. Rotations include the Emergency Room, OB/GYN, Ophthalmology, Anesthesiology, Gastroenterology, Nephrology, Dermatology, and Infectious Diseases.

### Dominican Student

Cosette Standridge-Folsom  
Tracy Krinard  
Ebony McGillbra  
Vanessa Morales  
Eleno Nunez  
Circe McDonald  
Luis Loza  
Brittany Philpot  
Millie Mae Hathaway  
Denise Ortiz  
Matthew Stegman  
Elizabeth Castellanos  
Alexandra Hom  
Kristin Koenig  
Kylie Mitchell  
Angelina Andrews

### Kaiser Permanente Mentor

Dr Scott Pinner, Physical Medicine and Rehabilitation, SR  
Dr Roberto Gonzales, Internal Medicine, Petaluma  
Dr Mike Matsumoto, Pediatrics, Novato  
Dr Lori Selleck, Internal Medicine, Novato  
Dr Ray Brow, Internal Medicine, Downtown SR  
Dr Shideh Shadan, Hospital Based Specialist, SR  
Dr Clay Angel, Hospital Based Specialist, SR  
Dr Mary Mockus, General Surgery, SR  
Dr Joe Zimmerman, General Surgery, SR  
Dr Mike Parnes, General Surgery, SR  
Dr Jeff Cardneau, Vascular Surgery, SR  
Dr Carol Ekelund, Pediatrics, Petaluma  
Dr Danny Choung, Podiatry, SR  
Dr John Delson, Internal Medicine, Novato  
Dr Jason Cunnan, Anesthesia, SR  
Dr. Jessica Keane, Internal Medicine, Downtown SR

## Dominican biology graduate Meghan Peck comes back to head up MESA Program

We asked the Director of the new MESA program at Dominican to tell us a bit about the initiative and what it means for the school and community

### What is the purpose of MESA?

The mission of MESA at Dominican is to promote math and science education for disadvantaged and underrepresented middle school and high school students so they can excel academically and become competitively eligible for the most rigorous colleges and universities. Our hope is for the MESA students serv□

### How did you become involved in MESA?

I have always had an interest in both math and science, but it has been my goal to educate students about these subjects using a hands-on approach. With that, I figured being a part of MESA is great opportunity to support not only Dominican but also the disadvantaged students in our community with STEM (Science, Technology, Engineering, Mathematics) education that is needed for future technology professions.

### Why is this an important opportunity for people?

Not only does MESA provide hands-on math and science learning for low-income and/or first generation students, but it gives them the exposure to college and career opportunities that they wouldn't otherwise get. Students become excited about math and science by building projects such as, mousetrap cars, balsa wood gliders, and bridges and then compete on college campuses against other schools.

MESA also provides parent and teacher support. Parents learn how to become effective advocates for their children's academic success. Teachers are provided with training and curriculum to help them discover new techniques to teach math and science.

Continued on p. 4

## ...Marin Math Circle continued

The Marin Math Circle was started by two parents, Jon and Nancy Sigerman, who wanted a program that their son could enjoy. They brought their idea to Dr. Ghosh at Dominican. My husband, Robin Cunningham, who was teaching at Dominican at the time, got involved in the planning stages, and when he told me about the circle, I asked to help out. I loved math contests and math clubs when I was a high school student, and I still love hearing about new topics and problems and sharing old favorites.

I knew that by helping organize the circle, I'd get to attend the sessions. As sessions began in Fall, 2009, I gradually took on more and more of the role of director -- I invited and introduced speakers, led games and problem sessions, and gave my own talks from time to time. Nancy and Jon continue to do much of the fundraising and other administrative work, with help from Dominican staff members. Now that I'm teaching at Dominican myself I can enjoy a close relationship to both the Math Circle and the university that sponsors it.

*Dominican University sponsors the Marin Math Circle as one of its community outreach activities. Dominican provides a room for the weekly sessions and for special events like contests. In addition, Dominican acts as fiscal agent for the program, provides administrative support, and offers website design and support.*

### Congratulations to the Fall 2010 Thesis Defenders

Tracy Krinard - Bioethics and Profession: A Survey of Biomedical Ethics in Therapeutic Riding Instructors and General Population

Theodor Morrow - Differentiation of Mouse Embryonic Stem Cells Into Neurons and Myocytes: an invitro model to study cell specialization during embryonic development

Mark Liew - Role Of Glycosylation In The Efficacy Of Cox-2 Inhibitors

## ...MESA continued

### Do you think it is especially important to cultivate interest in mathematics and the sciences in young women?

There is a need for more women in math and science-based careers. It all starts with the opportunities that they receive with education. Females should be encouraged into math and science when they are young so that the thought process of science is not for women can be changed.

### What is Dominican University's relationship with MESA?

Dominican is a MESA Center. Statewide MESA houses Centers at colleges and universities throughout California. Each Center is responsible for serving a number of middle schools and high schools within the area. As a university, we create the partnership with teachers, administrators, school district officials and industry representatives to provide this academic enrichment model. Dominican, along with other Centers, also provides a space for students to gain exposure to a college campus by hosting MESA events and meetings.

## International Field Biology Trip 2011: Madagascar

May 16 - 27

A trip that can be taken for 1-3 credits or just for fun. Students can experience the wonder of Madagascar's biodiversity.

Trip highlights include a visit to a Baobab forest, Isalo National Park, and encountering Madagascar's iconic animal: the lemur.

Cost estimated to be around \$5,200

See Dr. Sibdas Ghosh or Dr. Vania Coelho for details

*PULSE newsletter reserves the right to edit submissions for grammatical and stylistic errors.*

**Advisory Editors:** Sibdas Ghosh and Mietek Kolipinski. **Faculty Editors:** Maggie Louie and Mohammed El Majdoubi. **Faculty Advisors:** Vania Coelho, James Cunningham, Bill King, and Diara Spain.

**Layout:** Tasha Kahn. **Graphics:** Tasha Kahn, Tracy Krinard, Brandon Davis (Marketing Dept). **Writers:** Tasha Kahn, Tracy Krinard. **Contributors:** Kenneth Frost, Linda Greene, Meghan Peck