

Arts



Carol Lazier, board president of the San Diego Opera, gets some welcome news and some audit news as the opera drama continues.

Page 3

Clean-Tech



Sue Reynolds, of Community HousingWorks, discusses the group's efforts to make sustainability part of the affordable housing picture.

Page 23

Supplements:

STEM
Page B37

Sustainable
San Diego
Page C41



Degree of Difficulty

HEALTH CARE: Nursing Grads Face Tough Job Search

By MEGHANA KESHAVAN

Michelle Lee left medical school to pursue her passion for nursing, preferring the more intimate contact nurses tend to have with patients over the "in-and-out" bedside manner she sees as typical of many physicians.

Now, as the freshly minted registered nurse with a master's degree from the University of San Diego enters the health care workforce, that passion is being met by concern. Like other new nurses in the class of 2014, Lee is anxious that the tens of thousands spent on

her advanced nursing degree, plus a few thousand more for specialized training outside her USD curriculum, may not be enough to get hired — despite an ongoing and well-documented shortage of nurses. About half the new graduates have landed jobs. The rest are still looking.

"It's hard," Lee said of her job search. "I've been applying."

Lee and several members of her graduating class, along with USD Assistant Nursing Professor Kathy Marsh, recently shared their outlook for the future of their profession, one that is marked by a distinct workforce paradox.

With the U.S. facing a very real nursing shortage, California is ranked 46th

Grads page 53

Photo by Stephan Whalen

From left, Carli Johnston, Lynell Lemon, Ana Kaviani, Cyrise Sanders, Anthony Rodelo, Amy Owenby, Michelle Lee, Alexis Heard and Terri Phan are among the class of 2014's new nurses whose job prospects are not as plentiful as they might have thought.

Wermers Expands Its Multifamily Mission



Rendering courtesy of Wermers Properties
San Diego-based Wermers Properties recently began work on a 256-unit luxury apartment project in Mission Viejo called Adagio on the Green.

PROPERTY: Experience in Building Leads to Development

By LOU HIRSH

After building multifamily projects for other developers for much of its 57-year history, San Diego-based Wermers Cos. is placing significant bets of its own on continued high demand for apartments in Southern California.

The latest example is the \$130 million Adagio on the Green, a 256-unit luxury apartment project in Mission Viejo, adjacent to Mission Viejo Country Club in southern Orange County, on which the company recently started

Wermers page 54

M2M Focus Part of New Novatel Strategy

TECH: Profit Drought Stirs Personnel and Other Changes

By BRAD GRAVES

Wireless telecom equipment maker Novatel Wireless Inc. plans to throw its laptop computer business overboard in an effort to right its ship after sinking deeper in loss during its most recent quarter.

Novatel (Nasdaq: NVTL), whose last profitable year was 2009, detailed ongoing course corrections in a document filed with securities regulators this month.

Besides exiting the laptop market, the com-

Novatel page 54

Commercial Realtors Watching Waterfront

PROPERTY: Citywide Vote on Barrio Logan Plan Update Looms

By LOU HIRSH

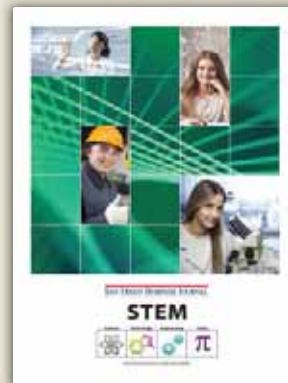
San Diego's Barrio Logan remains a tight fit for the residents and businesses that have co-existed there for the past several decades, and a pair of measures on the June 3 city ballot will determine how tightly they continue to fit.

Local commercial real estate brokers say industrial tenants in Barrio Logan, especially those serving the region's shipbuilders, face being squeezed further if city voters embrace

Barrio page 52

Supplement:

STEM PAGE B37



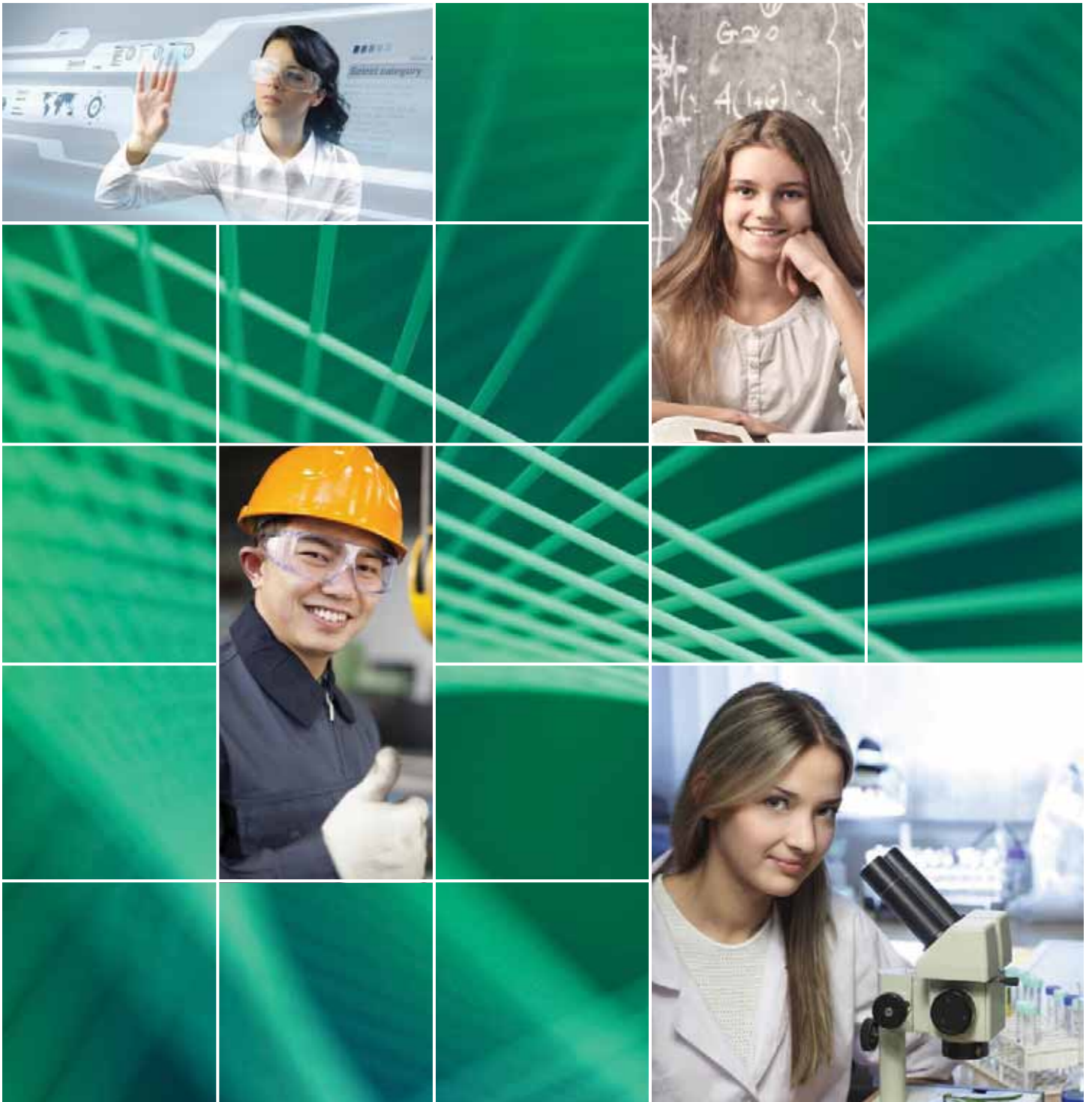
Helping your business **GROW** in a challenging economy

High quality audit and tax services with a personal touch

www.cbiz.com • www.mhmcpa.com • 858.795.2014



9 780133 333333



SAN DIEGO BUSINESS JOURNAL

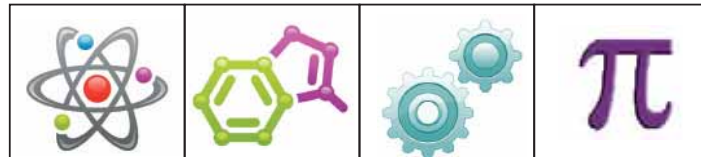
STEM

Science

Technology

Engineering

Math



SAN DIEGO BUSINESS JOURNAL SUPPLEMENT

Does Business Need Art and Science to Be Innovative?

"As a physicist and erstwhile 'science guy,' I have honed my views on innovation through the lens of science and technology. However, a closer examination of the innovative process reveals it is not that simple or straightforward. We certainly need more scientists, engineers, and mathematicians, but we may have been missing an opportunity by not more effectively engaging in the innovative process one of the most creative groups in our society—artists and designers," said Walter Massey, Ph.D., president of the School of the Art Institute of Chicago.

People in business are realizing that science, technology, engineering, math (STEM) and now art, are necessary to grow a successful future. STEAM, as it is becoming known, is a curriculum based on the idea of educating students in those five specific disciplines in an interdisciplinary and applied approach. STEAM integrates them into learning based on real-world applications.

Innovation is the buzzword in business and in arts and science education. Some say it is the heart of business. How do you teach it, promote it, and encourage it to get a competitive edge? STEAM has some answers.

How Entrepreneurs Come Up with Creative Ideas

In his 2011, State of the Union Address, President Barack Obama said, "The first step in winning the future is encouraging American innovation."

Tyde Richards, a local computer engineer with a music education background and a former senior



"Plastic Bottled Fish, Sea Changes ACT" by Kira Carrillo Corser

engineer with Apple and IBM states, "I worked in the Advanced Technology Group. We were a technical think tank, encouraged to talk to people and share ideas. It was all about inventing a culture of collaboration and innovation. We were prototyping future possible apple technology." Today Richards is fully committed to arts integration and is currently the chair of a project developing an IEEE Actionable Data Book for STEAM education.

STEAM education gives a distinct advantage in many ways. Studies show that studying music at an early age increases temporal reasoning. The areas of math that require spatial temporal reasoning are geometry and certain aspects of calculus, which require transformations of images in space and time. Higher mathematics

is also associated with this type of reasoning because it requires an intuitive sense of natural sequences and the ability to think ahead several steps.

Some people think art means a beautiful painting framed on a wall. But art includes technology, performance, sound and more. When art is an important part of curriculum, such as in STEAM education, it can help businesses by inspiring workers, by improving cognitive and collaborative skills, and by teaching people that it is acceptable to make mistakes and then find beautiful successful solutions.

In business, putting together a team of successful nonjudgmental problem solvers is a challenge that can greatly affect innovation and production. Many San Diego companies are benefitting by promoting creative innovation

including BIOCUM, Qualcomm, the San Diego Foundation, Jacobs Center for Neighborhood Innovation, and the San Diego Visual Arts Network. San Diego is working hard to lead this future. From June 23 to 26, San Diego will host the BIO International Convention, which is expected to draw entrepreneurs, scientists, CEOs and government officials from more than 60 countries.

How Science, Technology and Art Engage the Innovative Process

At UC San Diego the neurosciences seek to transform understanding of the brain and the Cognitive Science Department includes multi-disciplinary, brain computer and behavior studies. Several American universities now teach cognitive science and the arts. These sciences can affect the workplace in many ways, and when this knowledge is combined with beauty in art, it can affect change.

Local Hera Hub, a co-working space for female entrepreneurs with three San Diego locations, has become a collaborative center for combining these interests. Hera Hub has rotating curated art shows by professional artists; hosts free receptions with demonstrations; a professional artist and former business owner Deborah Wiley as staff curator; and promotes art making workshops.

Combining art, behavioral science, technology and business in the workspace can have beneficial effects. One of Hera Hub's entrepreneur members is Sherry Nouraini. She observes, "Being exposed to works of art on a daily basis is a constant

continued on page B39

STEAM Goes to Work

A recent example of collaboration with scientists from the National Oceanic and Atmospheric Administration, Scripps Institution of Oceanography, the California Department of Fish and Wildlife and California artists is Sea Changes ACT. This project includes marine science and cognitive science research that has resulted in artistic and scientific installations, public outreach, and a successful experiment, addressing the issue of disappearing coral reefs worldwide, growing baby coral onto glass art in local Birch Aquarium. Sea Changes team member Michelle Kurtis Cole has been a glass artist and diver for 30 years. She designed the glass coral experiment with the plan for doing a larger piece in the Pacific Ocean.

Some of this project's work can be seen at the Oceanside Museum of Art until August 3. Sea Changes ACT, started with a seed grant from the DNA of Creativity Grant, by the San Diego Visual Arts Network.

One of Sea Changes ACT's exhibitions includes scientists speaking about the ocean and climate changes, artists' works, and interactive video projections onto hanging eight foot silks creating a Virtual Undersea Experience. The exhibition has shown at local Hera Hub and the Museum of Monterey. The project has been asked to present in Washington D.C. at the International Child Art Foundation's Environmental Day Festival and at a California State Resources Conference in Sacramento this summer.



Courtesy of Kira Carrillo Corser

Sea Changes ACT artist team member Michelle Kurtis Cole and Fernando Nosratpour, curator at the Birch Aquarium have been working on a Coral Regeneration experiment testing the use of transparent glass, casted into familiar coral shapes, as a substrate for coral regeneration.

continued from page B38

reminder that to be remarkable, you need to push boundaries, to take risks and be brave—break the rules and try something new—that is truly how works of art inspire me.”

The idea to remember is that an action has a creative aspect distinct from thinking. And thinking need not come first. STEAM education can fuel the heart of any successful business by flaming great ideas and problem solving.

Some people think art means a beautiful painting framed on a wall. But art includes technology, performance, sound and more. When art is an important part of curriculum, such as in STEAM education, it can help businesses by inspiring workers, by improving cognitive and collaborative skills, and by teaching people that it is acceptable to make mistakes and then find beautiful successful solutions.



Art courtesy of Kira Carrillo Corser

Creative technologies are used in the Virtual Undersea Experience, part of Sea Change ACT's installation currently at the Oceanside Museum of Art.



By Kira Carrillo Corser
Creative Projects Consultant
Founder, Sea Changes ACT Project
Founder, Art Connecting Communities
Corser specializes in collaborative creative projects and has taught and directed projects in the schools and at California State University Monterey Bay. She is the founder and leader of the Sea Changes ACT Project, www.seachanges.org and www.artconnectingcommunities.org. Corser worked as staff photographer for KPBS TV and radio stations, then spent many years working and teaching in Monterey and the San Francisco area before returning to San Diego. Her work has included coordinating a grant to build sustainability in the arts resulting in new economic creative industry clusters, new arts and technologies centers, and family arts classes that include promoting businesses with a wide range of art forms.

San Diego's STEAMConnect

“What we're really talking about is the arts and creativity as a way of thinking, a way of understanding the world. Through that lens, businesses today know they need skilled workers who can find creative ways to solve the problems we don't yet face. Our education system is starting to open up to the critical changes needed to catch our youth up to the future. There needs to be a stronger collaborative tie between our business community and education,” said Kim Richards, cofounder of STEAMConnect and founder of KDR PR in San Diego.

STEAMConnect is a forum for science, technology, engineering, arts and math collaboration and collection of resources for all. STEAM education moves innovation forward, whether the issue is education, sustainability, technology helping with climate change adaptation or social justice. Artists and businesses need to engage, adapt, re-imagine, and continue to move the definition of innovation forward.

CSUSM



Preparing tomorrow's STEM leaders



- /csusm
- @csusmnews
- /csusm
- @csusmnews

CSUSM.EDU



CSUSM Students Serve up STEM to Local High Schools

A career in science was just about the last thing on Rhianna Rodea's mind when she graduated from high school. It wasn't until she took an introductory chemistry class during her sophomore year at CSUSM that she discovered her true passion and began an unexpected journey from business major to budding scientist.

Despite delaying her graduation by several months, Rodea is convinced that switching majors was the right decision.

"You have to be passionate about what you do," she told a group of students during a recent outreach event at Vista High School. "My [science] classes are more difficult, but it's worth it!"

The Science Technology Engineering and Math program at CSUSM (STEM @ CSUSM) hopes that Rhianna's story, and those of other science and math majors, will convince local high school students to pursue STEM-related degrees at CSUSM.

STEM @ CSUSM is an education and outreach program funded by the National Science Foundation's STEM Talent Expansion Program, the American Physical Society's PhysTEC project, and the CSU Mathematics and Science Teacher Initiative. Their goals are to foster excitement and interest in STEM education through CSUSM science and math programs, the STEM tutoring center and other support services, K-14 outreach activities, and STEM teacher preparation efforts.

After a 2011 research study revealed a lack of awareness of the University's science and math programs, CSUSM launched the STEM Ambassador program, which connects undergraduates with local high school and community college students. By interacting with these students during after-school clubs, field trips, classroom demonstrations and other events, the ambassadors increase students' familiarity with research opportunities at CSUSM and raise the University's STEM profile.

Recently the STEM program also added a series of informal lunchtime programs called STEM Cafes to the menu of outreach offerings. Each month, teams of five or six ambassadors visit Vista and San Marcos high schools to engage small groups of students in discussions about undergraduate research, college life and career opportunities. Turnout at both locations has been even greater than expected, and the feedback from students and teachers indicates a significant need for the program.

Deanna Gifford, a physics teacher at San Marcos High School believes the STEM Cafes provide students with critical information about local options for postsecondary education.

"We need to do a better job of connecting students [with local universities] and changing the perception that you need to go far away to get a quality education," she said. "Why should you overlook great opportunities in your own backyard?"

If the fall 2013 admission numbers are any indication, more local students are getting the message. Overall, the number of students admitted to the College of Science and Mathematics increased by over 13 percent from 2012, and the number of incoming freshman in STEM majors from Vista and San Marcos high schools increased by 68 percent and 61 percent respectively.

While there's no direct evidence linking the STEM Cafes to these increases, Rhianna and the other ambassadors would like to believe their conversations influenced some of the students' decisions.

CSUSM biology major Josephine Gonzalez wants to communicate how important it is to get students thinking about STEM college and careers. "It's the kind of thing I wish someone would have done for me when I was trying to figure out what I wanted to do with my life," she said.

Submitted by California State University San Marcos

**WELLS
FARGO**



**Golf
Classic**



Thursday, June 5, 2014
Rancho Bernardo Inn Golf Course
10:30 a.m. Shotgun

Each Player Receives:

- \$100 Donovan's Gift Card

- On-Course Fun, Lunch & Cocktail Reception
- Green Fees, Golf Cart & Driving Range

**WELLS
FARGO**



EDCO
DISPOSAL CORPORATION



America's Best
DONOVAN'S
STEAK & CHOP HOUSE



SAN DIEGO BUSINESS JOURNAL

www.HolidayBowl.com

OLP is Full "STEAM" Ahead



— ACADEMY OF —
**OUR LADY OF
PEACE**
FOUNDED 1882

STEM subjects are taken seriously at the Academy of Our Lady of Peace (OLP), a Catholic, college preparatory school for girls and the oldest high school in San Diego County.

The rigorous curriculum includes access to more than 40 classes in STEM disciplines and more than 24 Advanced Placement and Honors courses. OLP believes that in addition to comprehensive STEM offerings, it is also imperative to provide a rich visual and performing arts curriculum. STEM + Arts comes together at the school's annual STEAM Day, aimed at providing an opportunity for 7th and 8th grade girls to create, innovate and be inspired to further pursue STEAM learning.

OLP's STEM curriculum features a variety of classes including chemistry, physics, computer applications, marine science, genetics, and AP calculus to name a few.

New Head of School, Lauren Lek, supported the formation of a Robotics club and competition team, the OLP MicroChicks. In a recent competition, the team finished with the second highest total of match points, and won the Connect Award for community service involving STEM.

OLP also has a thriving Society of Hispanic Professional Engineers (SHPE) club. The school was the first Catholic, as well as first single gender, school in the United States to apply for and be granted a Jr. SHPE Chapter status. The OLP SHPE chapter supports and encourages young women interested in becoming engineers. The group regularly welcomes guest speakers from top STEM companies in San Diego, participates in Engineering Week and works with the Society of Women Engineers.

Submitted by the Academy of Our Lady of Peace

Learn more about OLP, their innovative programs and STEM initiatives at www.aolp.org.