

UC IRVINE

Wellness tips from Mahtab Jafari

- **Eat and drink less sugar.**
- **Be thankful:** "We really forget how blessed we are. We focus on things we don't have," she said. "This is something that I practice. I wake up and go to bed remembering some of the things in my life I'm grateful for."
- **Move:** She uses the term "move" as opposed to exercise because she means any kind of movement, such as a walking, is healthy. "Move in the nature." If you don't have time to walk on the beach or hike, you can walk around your neighborhood.
- **Help someone:** People who help others feel happier, she said. You can help by volunteering for an organization. But being of service to someone doesn't have to be as formal as volunteering for a nonprofit. "One of my students formed a study group for struggling students. It's just little things."

Life 101

Students: 110 per class
First offered: Winter 2013
Next class: Winter 2014
Units: 2
Length: One hour and 40 minutes, once a week for 10 weeks.
Prerequisite: "I wanted the course to be stress free All they needed to have was enthusiasm to learn, to question and to come and be present."
Topics include: Changing poor habits, stress management, nutrition do's and don'ts to optimize wellness, bad drugs, movement and exercise, emotional intelligence and social responsibilities.



MICHAEL GOULDING, ORANGE COUNTY REGISTER

Pharmaceutical sciences professor Mahtab Jafari shares a laugh with some of her students while photographing fruit flies in the lab.

LIFE LESSONS

UCI pharmaceutical science professor Mahtab Jafari saw students using drugs to get through the stress of studying. So, she developed a course to help them find a balance outside of class.



SHERRIL CRUZ REGISTER WRITER

Mahtab Jafari discovered that many of her students were using pharmaceuticals such as Ritalin to stay awake and Xanax to get to sleep.

One drug was counteracting the other, said Jafari, associate professor of pharmaceutical sciences at UC Irvine. "Then they go through this vicious cycle of no sleep or too much sleep," she said. "It compromises the immune system."

Students were under academic stress, worried about their GPA, she said.

They also came to class with energy drinks. If she could take a trash bag and empty the store shelves of things that are bad for you, she might start with energy drinks.

With teaching duties and a full slate of ex-

periments going on in her lab, Jafari said she had enough to do, and putting too much on her plate is one of the things that cause her to be stressed.

But she decided she needed to do something to help her students better balance their lives.

She developed Life 101, a two-unit course that launched last winter semester. "I felt my students needed it," she said.

The class is now required for pharmaceutical majors. It is open to all majors. One day she hopes to open the class to the public.

The course, which begins again in January, addresses 10 topics over 10 weeks.

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“She wants to make students’ lives easier, open their eyes and plant the seed in their head that it’s not just all about getting that A.”

BEATRICE CHIANG PHARMACY TECHNICIAN AND STUDENT

UCI IN FOCUS

Study: Fight bacteria with bacteria

When hit with a bad spell of food poisoning caused by salmonella, it's not often one's first thought to battle the symptoms with E. coli. But UC Irvine researchers have discovered that using a probiotic strain of E. coli can help battle against the notorious salmonella bacteria. It's called Nissle 1917.

"You always hear about the E. coli that causes diarrhea or the E. coli that causes bladder infections, but most people don't hear about the fact that there are some very good E. coli strains that live in the intestines," said Manuela Raffatellu, lead researcher on the UC Irvine team that made the discovery.

HOW IT WORKS

Nissle 1917 competes with a salmonella pathogen to obtain iron in the body. Iron is a nutrient that is necessary for salmonella to replicate and spread in the gut. Nissle



ANNA ILIFF REGISTER WRITER

and salmonella enter a tug-of-war for the nutrient, but Nissle wins the battle because it can acquire iron quicker and more efficiently than salmonella. This then reduces symptoms and preserves the nutrient while starving out the bad bacteria.

"If we knock out the iron acquisition in salmonella, then it doesn't grow very well," Raffatellu said. "It really needs iron to colonize. All bacteria want to do is replicate and grow and get food. You just need to find one that is better in doing so to displace salmonella. Nissle doesn't eliminate salmonella completely, but it facilitates the elimination."

Nissle 1917 has long been used to treat patients with inflammatory bowel diseases and it is an active ingredient in a popular German product known as Mutaflor. Muta-

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JEBB HARRIS, ORANGE COUNTY REGISTER

Assistant professor Manuela Raffatellu and her team have discovered that a strain of E. coli - cultured at right - can be used to battle salmonella infections.

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JAFARI

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MICHAEL GOULDING, ORANGE COUNTY REGISTER

Professor Mahtab Jafari: "When it comes to wellness and health, I'm a big believer in preventive medicine."

medications. They need to take antidepressants to balance the chemical imbalance," she said.

"But before we get there, we need to focus on wellness and prevention." Drugs should be saved as a last resort, she said. They come with side effects.

Jafari's medicine of choice is nature: Bommer Canyon in Irvine, Crystal Cove beach and El Moro Canyon. She hikes two to three times a week and she walks on the beach at least twice a week.

Walking only a half hour a day can make a marked improvement in peoples' lives, she said. Walking increases the amount of endorphins - "happy hormones" - in the brain, she said.

The class helped student Pia Dizon get perspective. "She put the science behind why we should be exercising," said Dizon, who is in her fourth year at UCI studying pharmaceutical science.

"I realized I was taking my academics too seriously," she said. "My life wasn't super balanced. I realized it was important to also take my health into account."

Dizon cut back on oily foods and started running once a week and then two times a week. "I try to balance my life more," she said.

Another big theme in class is kindness.

"It's not just about how you perform in class. It's about how you treat yourself and how you treat oth-

er people," Dizon said.

The things she learned in Life 101 also ties into caring for patients, Dizon said. "This is really helpful to treat patients."

Instead of treating people with drugs, changing lifestyle can be a better option, Dizon said.

Jafari weaves personal stories into her lecture. It makes the class more meaningful for her students.

She shares the story of her first C grade in grad school, and then her second and third.

She has shared one of the most stressful times in her life: sixth grade, living in Iran. She and her family would spend hours in the basement listening to the Iraqi planes drop bombs.

"We were sitting there waiting, hoping that our neighborhood is not the neighborhood that is going to be bombed tonight, and that we would be alive tomorrow to go to school," she said.

Her family fled Iran in the middle of the Iran-Iraq War and moved to France, where she attended high school and had to learn French. Then they came to California.

Jafari has an upbeat demeanor, but she tells her students that she's not always happy. Sometimes she's melancholy.

"I fall too," she'll tell them. "Sometimes you fall and in a few days or a few weeks you get up. Sometimes you fall and you're just comfortable sitting there because you're miserable."

It's also good to be real. "We don't always have to be happy," she said. "The key is when you get up."

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PHOTOS: JOSHUA SUDOCK, THE REGISTER

Liam Gillanders, left, and Michael Hannum, right, hack the sound box of a children's toy during a workshop.

Researchers aim to make hacking child's play

The classroom at Brea Olinda High School was a cacophony of high-pitched beeping coming from electronic toys



SHERRI CRUZ
REGISTER WRITER

playing "Silent Night" and other tunes.

High school students were altering the sound boxes of the toys as part

of a "toy hacking" workshop, led by UC Irving research scientist Garnet Hertz.

"It's hard to figure out how computer chips work - how to get them to work the way you want," said Liam Gillanders. Gillanders and fellow student Michael Hannum were trying to get the sound box inside their Mozart-playing crib toy to make some other kind of noise.

The goal for the students isn't necessarily to learn how electronics work, though that could be a by-product of the workshop.

The idea is for the students to try something new and get creative, said their high school computer science teacher, Todd Salesky, who offers these kinds of enrichment workshops as part of the school's Global IT Academy.

"We're trying to appeal to a broader audience," he said. "I'm trying to teach them to be technical."

Students in the Global IT Academy program at Brea Olinda take one elective each year in computer sci-

ence.

Salesky is aiming to prepare students for college and the job market. "The idea behind the program is to have experiences beyond the classroom," he said.

On this day, UCI researchers were conducting a study to see if their hands-on toy hacking workshop boosted the students' interest in science. The researchers surveyed the students before the class and had planned to survey them after.

The toy hacking project is funded by a National Science Foundation grant. The UC Irvine researchers plan to take the workshop to other schools and train teachers how to do their own, said Amelia Guimarin, a UC Irvine graduate and anthropologist who assisted at the workshop.

Hertz assisted the students in making use of a potentiometer, which regulates the flow of electricity. The potentiometer can make "Silent Night" sound like it's dying.

The toy hacking workshops were originally designed for adults, Hertz said. He has four children, and after observing his daughter go through elementary and middle school, he thought he could make science more interesting for school-age kids.

He's still got kinks to work out, such as how to make toy hacking less dangerous. It's possible to start a fire. "There is physical danger. The kids totally love that," he said. "It adds to the excitement."



UCI research scientist Garnet Hertz, left, helps Matthew Plunkett with some soldering at Brea Olinda High School.

Lab testing claims of supplements

By **SHERRI CRUZ**
ORANGE COUNTY REGISTER

Pharmaceutical Sciences

Pharmaceutical Sciences is a hybrid of biological sciences, physical sciences and clinical science. It is the study of how pharmaceuticals are discovered, developed, tested and used. It is one of the newest majors at UC Irvine.

Career fields: Pharmacy, medicine, graduate studies, dental, health care.

UCI's Department of Pharmaceutical Sciences was launched in 2008. Mahtab Jafari was recruited in 2005 to develop the major for UC Irvine. Her proposal was approved in 2006. Richard Chamberlin is chairman of the department. By 2014, the department expects to graduate 250 students a year, up from 12 students a year three years ago.

flies, she said. They're also easy to obtain. Researchers share fruit flies without cost, she said. Specific fruit flies are bred for different kinds of tests.

"They're very easy to work with," she said.

When her results were published, she had many people asking her if they should take Rhodiola. She told them: "If you're a fruit fly, then yes. But if you're not a fruit fly, I don't know."

That's why there are clinical studies. A clinical trial puts the results in fruit

flies to the test in humans, she said.

An Internet search of Rhodiola comes up with all sorts of claims, including increasing mental performance and physical endurance.

Jafari's lab is testing Rhodiola for its weight-loss claims. That claim hasn't been proven, she said.

The lab is also examining how Rhodiola affects the locomotion of fruit flies. "We measure their physical performance."

That's done by using a la-

ser to measure how well they fly. Every time the fruit flies travels back and forth, the laser catches the movement and sends the measurement to a computer program.

Her lab is in the beginning phases of testing to see if green tea has any toxic affects on fruit flies. The first step, which is underway, is measuring how much green tea fruit flies take in.

The lab has just started to use human cell cultures to see if Rhodiola can combat "oxidative challenges" such as pollution and sun exposure.

Like many labs, her facility has been hit by budget cuts.

Mice are expensive, so the lab cut back on mice. "National Institutes of Health funding has never been this bad," she said.

She's been doing more grant writing, given the congressional cutbacks on science research.

The lack of national funding may not have any immediate effects, but it will in 10 to 20 years, she said.

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