

A little too much of a good thing: Finding work/life balance

HANNALORE GERLING-DUNSMORE
Contributing Writer

As another academic year begins, it is natural that the many things that make Caltech a special place come to mind. The campus is stunning, the weather is gorgeous without fail (even when it's brutally hot, the sky still is the most incredible blue), and many of the greatest minds in science are packed into one campus small enough that seeing a Nobel laureate becomes a pedestrian experience. Our venerated Honor Code allows a unique level of freedom in academic courses, and promotes an atmosphere of trust that I personally haven't seen replicated elsewhere. We have a unique culture that celebrates nerdiness and allows the natural curiosity and passion common to all Techers to flourish. However, there is a downside: having an environment full of brilliant, motivated people creates pressure to be endlessly productive.

Imposter syndrome is something every Techer I have met is familiar with. It's that creeping feeling that you really don't deserve to be here, that all your peers are vastly more competent and that at any moment, someone is going to see through your charade. Sometimes it manifests as not feeling as intelligent as those around you. Sometimes it manifests as feeling like you're not working hard enough. It can also manifest as feeling like everyone else you know is more accomplished, or feeling like everyone else is doing more — more classes, more research, more outreach, more CV builders and maybe even more social activities.

To some extent, imposter syndrome is experienced by all, or at least most, college students and graduate students. However, Caltech's stringent standards for admission — at all levels — create a prime environment for next-level imposter syndrome. All of the undergraduate students here were the best at their high schools, and all of the graduate students here were the best at

their undergraduate programs. These people often have identities highly tied to being the top of their peer groups. Unfortunately, even among the most talented and hardest working students, there will inevitably be some spread, and as a result, many students end up feeling like they've lost that major aspect of how they define themselves. This serves to compound imposter syndrome — not only are they now dealing with feeling inadequate, students are also dealing with a serious loss of identity.

One of the myriad great things about Techers, though, is that they don't just accept issues. They see a problem, and they want — even need — to solve it. They often feel like if they can't have the greatest raw intelligence, at least they can still retain some aspect of their former identities by working hard enough to still be at the top. For both undergraduate and graduate students, this leads to a tendency to work nearly incessantly. Days and evenings are a nearly meaningless distinction, and weekends are often simply days that students can just work, uninterrupted by classes or meetings. Eventually, this behavior ceases to come from really believing it aids in productivity, and starts becoming performative — a way to demonstrate that you really deserve to be here.

This behavior pattern is mimicked throughout academia. Postdocs work at least as hard as the students, except without nearly as much guidance or support from an adviser. Professors regularly put in 60-hour workweeks, at least, to try to earn tenure. Unfortunately, this has more negative side effects than just being hugely unpleasant and massively underpaid for the time worked. This culture of all work and no play doesn't just make Jack a dull boy, but creates an inefficient system that perpetuates inequality and is detrimental to the health of those in it.

Plenty of studies have shown that increasing the number of hours worked decreases the hourly productivity, and often

Continued on page 4

Dow Foundation grants add a new chapter to collaboration with Caltech

WAYNE LEWIS
Caltech Media Relations

This article was originally published online at caltech.edu.

The Dow Chemical Company Foundation has awarded two new grants to benefit Caltech's Division of Chemistry and Chemical Engineering (CCE), funding faculty start-up investments and leading-edge instrumentation.

These gifts are the latest in a decades-long association between the foundation and Caltech that has advanced research and education in fields including sustainable energy, materials science, and applied physics.

"The industrial-academic partnership between Dow and Caltech exemplifies our two institutions' commitment to addressing urgent problems that confront the world," says Thomas F. Rosenbaum, Caltech's president, holder of the Sonja and William Davidow Presidential Chair, and professor of physics. "We are grateful to The Dow Chemical Company Foundation for enabling chemists and chemical engineers to pursue their best ideas in defining areas such as materials chemistry and renewable energy."

One grant will underwrite start-up costs for new faculty members, giving CCE a key advantage in attracting creative, original thinkers. This is especially important funding for CCE—an academic program that has pushed the frontiers of discovery and trained generations of scientific leaders by making every recruitment count. This approach has helped the division build an active faculty that includes three Nobel laureates, four National Medal of Science recipients, one recipient of the National Medal of Technology and Innovation, and 20 members of the National Academies.

The second commitment will help CCE update and maintain equipment shared by all of its scholars—facilities for nuclear magnetic resonance, electron

paramagnetic resonance, and mass spectrometry. The funds also will support the cost of teaching graduate students how to use these instruments.

"Dow and Caltech have built a robust relationship, with a history of advancing research that addresses some of society's toughest challenges.

Caltech as well as endowing five graduate fellowships in chemistry and chemical engineering and another five fellowships in energy science. The agreement made Dow a member of Caltech's Corporate Partners Program, which provides a gateway for exchange and productive collaborations



Caltech's Altair Professor of Chemistry Greg Fu and postdoctoral scholar Jens Schmidt work with a nuclear magnetic resonance spectrometer. Shared resources such as the instrumentation funded by The Dow Chemical Company Foundation help advance discovery across Caltech.

Photo Courtesy of Philip Channing

These latest grants from the foundation will expand research opportunities, delivering benefits to engineering, the science community, the Institute, and ultimately society," says A.N. Sreeram, Dow's corporate vice president for research and development.

The link between the Institute and Dow stretches back more than 30 years and includes numerous joint research projects as well as steady foundation support for Caltech's Dow Travel Fellowship and Dow's Seminar Series in Organic and Organometallic Chemistry.

In 2009, Dow and Caltech initiated a \$4.2 million partnership that fueled investigations aimed at creating solar cells from inexpensive, abundant materials. That same year, Dow's Graduate Fellowship in Chemical Sciences and Engineering was endowed with help from the Gordon and Betty Moore Matching Program.

A \$10 million collaboration followed in 2011, providing resources for the Resnick Sustainability Institute at

between industry and the Institute.

"Caltech's leadership in science education and sustainability research make these grants a perfect fit in advancing innovation and building the workforce of tomorrow," says Rob Vallentine, president and executive director of The Dow Chemical Company Foundation and global director of corporate citizenship at The Dow Chemical Company. "We are pleased to provide resources that enable Caltech faculty and students to advance science and invent important technologies."

Established in 1979, The Dow Chemical Company Foundation contributes to sustainable communities by supporting strategic philanthropic investments to build the workforce of tomorrow and drive innovative global solutions to address the world's most pressing challenges. The foundation is a separately governed private foundation designed to carry out the charitable efforts of Dow.

IN THIS
ISSUE

NEWS | PAGE 2
SUPERMOON AND
LUNAR ECLIPSE CO-
INCIDE

OPINION | PAGE 3
NAILEN REVIEWS
"NEW BERMUDA" BY
DEAFHEAVEN

FEATURE | PAGE 4
NIMA TALKS BASICS
OF ASCIT

SPORTS | PAGE 5
JAMSHIDI ON PACE
TO BREAK KILLS RE-
CORD

Caltech Y Column

CALTECH Y

The Caltech Y Column serves to inform students of upcoming events and volunteer opportunities. The list is compiled by Neera Shah from information given by the Caltech Y and its student leaders.

Founded by students in 1916, the Y was organized to provide extracurricular activities planned and implemented by students as an opportunity to learn leadership skills and discover themselves. More information about the Caltech Y and its programs can be found at <https://caltechy.org>. The office is located at 505 S. Wilson Avenue.

Ongoing/past programs hosted by the Y: Make-A-Difference Day: Hillsides Home for Children, LA County Arboretum and Botanic Garden, Children's Hospital Los Angeles (Coachart), Eaton Canyon

Explore LA: Lakers game, Next to Normal musical, Norton Simon Museum trip

RISE Tutoring program (an afterschool math and science-focused tutoring program that serves public school students between grades 8 and 12)

Upcoming Events

1. Caltech Y's Centennial Kick-Off Celebration & PHD Movie 2

Tuesday, October 6 | Dinner and Concert 5:00 to 7:00pm

PHD Movie 2 Screening at Beckman Auditorium | Doors open at 7:00

The Caltech Y invites you to join us for the Caltech Y's Centennial Kick-Off Celebration with a Hollywood-inspired dinner followed by an exclusive red-carpet campus premiere of the *PHD Movie 2* followed by a Q&A with writer Jorge Cham, director Iram Parveen Bilal, and cast members. Receive Caltech Y Centennial T-shirts and other prizes.

Dinner is free and open to Caltech students. The movie is free and open to the campus community. Seating is limited and on a first-come first-served basis.

For more information, visit www.caltechy100.org.

Special thanks the following groups for their support: The Caltech Management Association (CMA), Caltech Dining Services, the Institute for Quantum Information & Matter (IQIM) and Piled Higher and Deeper (PHD Comics).

2. New Students: Explore the San Gabriel Mountains

Sunday | October 11 | 9:00 AM - 1:00 PM

Join the Caltech Y Outdoor Adventure group on a hike designed especially to introduce new students to the San Gabriel Mountains and the trails close to campus. We will hike to Henninger Flats, a forested campground and picnic area overlooking Pasadena and the Los Angeles area. The hike is 5 miles round trip with around 1200 feet of elevation gain. This is a great hike for both beginners and more experienced hikers who want to explore the mountains around campus and get some great views of local scenery. We will leave from the Caltech Y at 9:00am on and expect to be back on campus around 1:00pm. Transportation is provided. As a bonus, everybody who participates in this hike will get a FREE Caltech Y t-shirt! Contact Jeremy Sandler, jsandler@caltech.edu, for more details or if you have any questions. Sign up for the hike at the link below: <http://goo.gl/forms/uNdIjHwNct>.

3a. Pasadena LEARNS

Fridays | 3:00 - 5:00pm | Madison and Jackson Elementary School | Pasadena

Come volunteer at Madison and Jackson Elementary School! We are partnered with the Pasadena LEARNS program and work

with their Science Olympiad team or do regular tutoring along with occasional hands-on science experiments. Transportation is provided. For more information and to RSVP, contact vkumar@caltech.edu. Eligible for Federal Work Study.

3b. Hathaway Sycamores

Wednesdays | 5:30-8:00pm | Highland Park

Volunteer at Hathaway-Sycamores, a group that supports local underprivileged but motivated high school students. There are a variety of ages and subjects being tutored. The service trip includes about an hour of travel time and 1.5 hours of tutoring. Transportation is included. For more info and to RSVP email Sherwood Richers at srichers@tapir.caltech.edu. Eligible for Federal Work Study.

4. Caltech Y Committee Meetings

ExComm | Social Activism Speakers Series (SASS) | Outdoors

All Caltech Y programs are student-led and organized. If you are interested in planning, leading or learning more about Y programs, please join us for one of our committee meetings. For more info see us at Club Fair or email the contacts below.

ExComm Committee Meetings

The Caltech Y Student Executive Committee (ExComm) oversees all Caltech Y programs - which includes a wide variety of Community Service, Outdoor Adventures, Cultural Events, Social Activities, Activism and Leadership opportunities - and plans many events as well. Participation in ExComm Meetings is open to any students interested in helping to coordinate programs or learning more about the Caltech Y. Please RSVP for lunch to caltechy@caltech.edu if you are interested in attending.

Social Activism Speakers Series (SASS) Committee Meetings

The Caltech Y Social Activism Speaker Series (SASS) was developed to promote awareness of global issues and to challenge members of the Caltech community to seek ways of addressing world needs. SASS organizes a variety of campus lectures as well as a Science Policy Lunch Series. The SASS Committee is open to any students interested in planning events with this purpose in mind. The SASS Committee meets twice a month at the Caltech Y. Contact tsaxtonf@gmail.com for more information.

Outdoors Committee Meetings

The Y-Outdoors Committee is open to any students interested in planning group-focused outdoor adventure trips for students. The Y-Outdoors organizes a wide variety of outings for students of all skill levels that have included hiking, camping, biking, sea kayaking, and backpacking as well as Adventure 101 educational talks on a variety of outdoor adventure topics. The Y-Outdoors Committee meets twice a month at the Caltech Y. Contact jsandler@caltech.edu for more information.

Other Announcements - Beyond the Caltech Y

Temple City High School Robotics

Mentors are needed to teach students basics about building autonomous robots at Temple City High School.

Dates: 9/12/15-12/4/15

Times: 3:00 PM-5:00 PM (Mon), 3:00 PM -6:00 PM (Wed), 3:00 PM-4:00 PM (Thur)

Location: 9501 Lemon Ave, Temple City, CA 9178

For more info contact Edward Li at edward@barnabasrobotics.com, 626-578-5390 or visit www.barnabasrobotics.com.

Supermoon coincides with total lunar eclipse

ANDREW LUCAS
Contributing Writer

The time: 7:45 p.m., Sunday, Sept. 27. The fireworks on Beckman lawn had just ended. Following the advice of the illustrious ASCIT president, dozens of Techers made their way to the ninth floor of Millikan Library, which they had been promised would be a prime viewing spot for the lunar eclipse. Unfortunately, when they reached their destination, the only moon they found



-<http://www.birddigiscoper.com/>

was drawn in red marker on a whiteboard. Other whiteboards reminded them of an architectural fact highly relevant to their current situation — the east wall of Millikan Library has no windows. Seeing as the lunar eclipse was visible as the moon rose in the east, this was clearly a problem.

Fortunately, despite the many trees and buildings covering Caltech's campus, the moon was visible from several areas of the

Olive Walk — at least until clouds briefly covered it.

The eclipse ran from 5:11 p.m. to 10:22 p.m., with the umbral portion of the eclipse, when the moon was directly in the shadow of the Earth instead of just in the penumbra, running from 6:07 p.m. to 9:27 p.m. (<http://eclipse.gsfc.nasa.gov/>). The total eclipse, when the moon was entirely within the Earth's shadow, lasted from 7:11 p.m. to 8:23 p.m. This meant that the time between the fireworks and the movie showing at the carnival was a prime time for viewing the dim red moon during the total eclipse, but moonrise on Sept. 27 was at 6:39 p.m., so the moon was low enough on the horizon that trees and buildings were easily able to get in the way. Fortunately, the Olive Walk is a long enough straight stretch without buildings and has enough gaps in tree cover that the moon was visible from it.

Further exciting astronomy dilettantes across the country, the lunar eclipse took place during a full moon while the moon was at a close position to the earth during its orbit, making it a "supermoon." However, as this only meant that the moon would be a few percent brighter than usual full moons, it was only worth mentioning as an astronomical curiosity, and in fact was extremely difficult or impossible to detect with the naked eye.

Caltech live!

EARNEST C. WATSON
LECTURE SERIES

Wednesday, October 14, 2015 / 8 PM

BACK TO THE BEGINNING: THE ROSETTA COMET RENDEZVOUS MISSION

Comets are the most primitive bodies in the solar system. They retain a physical and chemical record of conditions in the solar nebula, the vast cloud of interstellar dust and gas where our solar system formed more than 4.5 billion years ago. Rosetta is the first spacecraft to orbit a cometary nucleus and will study it for more than two years as the comet moves closer to the Sun and then back out again. In this lecture, Weissman will recount Rosetta's arrival at the target comet in August 2014 and will discuss the many scientific discoveries accomplished so far.



PAUL WEISSMAN
Former Senior Research Scientist,
Jet Propulsion Laboratory

Free Admission
Caltech's Beckman Auditorium
www.events.caltech.edu



Call campus x 4652 for information

Deafheaven crosses genres on recent release *New Bermuda*, a good album – except for the details

NAILEN MATSCHKE
Contributing Writer

An anomaly in the black metal world, Deafheaven is a group that has broad appeal among listeners who would not touch the genre and that finds many of its critics hailing from its vitriolic cadre of fans. This is no doubt due in part to Deafheaven's inclusion of post-rock, shoegaze and other relatively modern guitar-based genres, following in the footsteps of oos "blackgaze" pioneers like Alcest and Agalloch, though Deafheaven is unquestionably a black metal band above all else.

Deafheaven's breakout came with 2013's *Sunbather*, which took Deafheaven's already rock-solid foundation from its 2011 debut, *Roads to Judah*, and built a sprawling masterpiece of collisions between euphoric happiness and crushing sadness, and between deafening, blackened roars and muted, even ambient, interludes. I can remember having *Sunbather* on heavy rotation for the whole summer after high school, and I couldn't have been more excited for Deafheaven's follow-up, *New Bermuda*. The first

two tracks released, "Brought to the Water" and "Come Back," were promising, and I personally enjoyed their harsher, death metal-influenced aspects, being partial to that other Scandinavian subgenre myself. Now that we have the finished product, I do have reservations regarding its pervasive flaws, but I will definitely continue to listen to it for a while.

New Bermuda is more concise than its predecessor, and its 46-minute length is on the short side for black metal. A large contributor to this is the absence of the interlude tracks that built atmosphere between the main ones on *Sunbather*, ranging in length from three minutes to twice that. *New Bermuda* starts off well, though not exceptionally, with "Brought to the Water" setting the stage for most of the ideas developed throughout the album. After some discordant bells, it comes in hot with a blast beat and some dissonant guitar strums, which abruptly turn into frantic "Raining Blood"-style palm-muted chugs beneath George Clarke's expressive vocals. This gives way to the usual black metal tremolos, which are noticeably louder and rougher than those on *Sunbather*. All of this so far is great material, but it's not incredible, and with this aggressive sound, I was hoping Deafheaven would write material that took advantage of the punishing or even technically

complex sound that subgenres like thrash and death metal encourage. However, I think the band's adherence to writing progressive, 10-minute songs may have hurt the album, as Deafheaven also

to appease the fans expecting it. You really could drop it on any modern post-rock band's album without it seeming out of place. This just dies out suddenly, as the band flips back to a bright, major-

success, and few tremendous peaks. It's an enjoyable ride, but you can tell how loosely it's held together if you listen closely.

The heavier, palm-muted guitars that make up a large portion of *New Bermuda* are its strongest asset, especially for fans of thrash and death metal. The second track, "Luna," has a very similar structure to the first, but exceeds it in almost every way, especially in this area. It comes right in with Slayer-esque chugging followed by the most intense blast beat-backed segment on the entire album, while later on the band builds on this with major chords and we get an arpeggio lick right out of Mastodon's playbook. This approach also has moments that aren't quite as polished,

[-https://pbs.twimg.com/](https://pbs.twimg.com/)

such as the disappointing, wah pedal-abusing solo over rolling power chords on "Baby Blue." On the whole, though, I would still say that Deafheaven did a good of keeping itself under par for the course.

More problematic is the fact that almost every single one of

these sections is interrupted by a burst of underwhelming post-rock. "Brought to the Water," "Luna" and "Come Back," by far the three most metal-heavy tracks, all suffer from this problem, and not a single one of these interlude sections contains anything memorable. "Baby Blue" does a decent job of starting with a mellower mood that goes over well, although it sounds almost cannily like early Lostprophets. I understand that this is just an expansion of an existing part of Deafheaven's sound, but it feels out of place in terms of not only song structure, but also the band's writing skill. Even closer "Gifts for the Earth," capped by clean sections featuring a tambourine, can't escape the issues the rest of the album has, with a thrash-inspired but simple riff, a forgettable section recalling *Sunbather* and even another liberal use of the wah pedal.

I've enjoyed *New Bermuda* every time I've heard it, and I appreciate what Deafheaven tried to do by smashing these genres together, moving further into the sphere of progressive metal. If the band decides to pursue this style, I think that in an album or two, we'll be getting some incredible genre-blending music. However, on this album the band fell victim to the tropes of its influences and produced a beautiful but scattered and inconsistent album. Perhaps my expectation of Deafheaven's songwriting ability is inflated by the success of *Sunbather*, but there were several points on this album that felt lazy or just sloppy. Hopefully practice will make perfect, and we'll see Deafheaven continue to mold and refine its identity at the crossroads of genres it occupies.



attempted to expand incorporation of all its other musical influences as well.

Instead of going to something brutal that would have blown the audience away, the band stalls on a long, anthemic guitar solo, which drops into some full-on post-rock that feels like a throwaway included

key black metal section, which is solid and has slick transitional riffs but also doesn't go anywhere and fades into a crammed-in piano line. All of this summarizes what you get on the album, in various forms: a collection of snippets of Deafheaven applied to the band's influencing genres, with varying

ellen's

626.441.4415

SILKSCREENING EMBROIDERY
& PROMOTIONAL PRODUCTS

1500 MISSION ST. SOUTH PASADENA

WWW.ELLENSSILKSCREENING.COM

Show Off Your
School Pride !!!

T-Shirts, Sweats, Caps, and
over 250,000 promotional
items to grab their attention!

Bring your student I.D. to receive one FREE large setup (a \$25 Value)



Balance important at Caltech and in academia as a whole

Continued from page 1

to the point of decreasing total productivity. Recently Sweden has gained much media attention, as many Swedish employers have started decreasing the standard workday to six hours. Perhaps most surprisingly, they have found nothing but positive results with the switch. Having more free time means people come to work with more energy and a better attitude, and workers are more willing to focus and accomplish what needs to be done efficiently. It's trivial to see how this would benefit academia – attacking a research problem with a fresh perspective is usually precisely what is needed to make progress on a difficult topic.

Beyond the benefits for productivity, having a culture with greater support for work/life balance enable traditionally marginalized groups to better partake in academia. For example, women generally are made to take on a larger role in taking care of a household in heterosexual relationships. Part of this is somewhat unavoidable – I challenge anyone to claim that pregnancy is an equally shared burden – but the majority comes from socialization. Men are generally not as socialized to be particularly mindful of keeping things clean and generally functional as women are, and often have not been taught as much about cooking healthy meals as women have been. Subsequently, even women with full-time careers often end up doing vastly more work in maintaining a home than their male partners. Further, if children are involved, women are generally forced into the primary caregiver position. Naturally, this punishes women in academia particularly harshly – if you're expected to work 60-hour workweeks on top of the societal expectations that you will also be the primary home-keeper and caregiver, there's barely any time left over for sleep. Of course an ideal solution would have men becoming more involved in maintaining homes and caring for children, but having more realistic expectations of work hours would substantially help in keeping more talented women in academia.

Further, those who come from poverty or the lower middle class – which is disproportionately comprised of people of color – often have huge time commitments to help care for ailing elderly family members, since paying for care is not a feasible option. They also have to find money to pay for childcare while paying

back the loans necessary for education. Again, this isn't simply academia's problem, as we need to have affordable family care options as well as more affordable education, but that doesn't change the fact that the current overworked culture of academia often pushes out people coming from lower financial means. Those with disabilities – both physical and psychological – are also punished and excluded by the current academic culture. Disabilities frequently limit workable hours due to the time required for receiving necessary healthcare. Of course the list can go on through all underrepresented demographics in academia, but the pattern should be rather clear at this point: the current academic culture self-selects from its current demographics, while pushing out those from more diverse groups.

Besides the obvious fairness argument for why this is important – which alone should be sufficient – there is also a substantial practical benefit to having more women and other underrepresented demographics in academia. The demographics people belong to shape their life experiences, and their life experiences shape their problem-solving abilities. When nearly all of the people in academia represent only very few demographics, they have very similar general life experiences, and thus tend to have very similar problem-solving abilities. Bringing in

people with a greater variety of experiences and backgrounds will enable a broader array of problem-solving skills, and this in turn can be the infusion of fresh perspectives needed to drive faster innovation in academia.

Finally, this overworked culture of academia leads to substantial health issues. Obviously not having enough freetimecompoundsthealready inherently sedentary lifestyle of academia, which is possibly the greatest evil against physical health. Quite frankly, you cannot do science if you die from a heart attack at age 40. However, this culture also creates huge psychological pressure that is horrible for mental health. Anxiety and depression are

just two of the most common psychological ailments resulting from this kind of culture. Any pre-existing mental health issue will be exacerbated by the kind of stress academia creates. This should be of tremendous concern to scientists, as people with mental health issues have often been the very source of some of the most important intellectual achievements in human history – Charles Darwin displayed many anxiety-based behaviors indicative of OCD and agoraphobia (Woodruff 1968, 666–667), Kurt Godel suffered

from what appears to be some form of schizoaffective disorder (Dawson 1997, 110–112), Isaac Newton seems to have been diagnosable with the entire DSM (Goodnick 1998, 412), John Nash had schizophrenia (Sylvia Nasar, *The New York Times*, Nov. 13, 1994), and the list goes on and on. Many studies have found a positive correlation between high intelligence and mental illness, and as much as science relies on hard work, it also generally

“This culture of overworking in academia ultimately comes from a mix of genuine passion, external pressure and deep insecurities.”

draws from those with high natural intelligence. Further, high stress environments can induce various mental health issues on their own, such as various anxiety disorders and eating disorders. Simply in the interest of self-preservation, academia needs to start considering how to make the environment more conducive to good health, both physical and mental.

This culture of overworking in academia ultimately comes from a mix of genuine passion, external pressure and deep

insecurities. Those of us at Caltech can understand that better than anyone. However, our habits from undergrad propagate to grad school, and from there to postdocs and professorships. Let's try to shift the culture of academia away from performative exhaustion and toward having enough balance to live full, complete lives and having enough energy to stay fresh and excited for our work. This year, let's try to keep our extra hours coming from our love of science, and try to limit those coming from fear. As with any paradigm shift, it won't happen instantly. It will come in small pieces, as a greater and greater majority demands it. Maybe you're not ready to limit the hours of work you're putting in each week to routinely fit in extracurricular activities. But I present this challenge to you: take some time next week for a favorite hobby. Go for a swim, run a 5k, play some *Skyrim*, binge watch some *Doctor Who*, read a book or just hang out with some friends. As famously said by Ferris Bueller, perhaps the antithesis of your usual Techer both due to his laissez-faire attitude towards academics and because he is a fictional movie character, “Life moves pretty fast. If you don't stop and look around once in a while, you could miss it.”

From the president's desk: ASCIT and you

NIMA BADIZADEGAN
ASCIT President

This year, I am continuing the “From the President's Desk” article series which had been written by some of my predecessors. Approximately every two weeks, I will be writing about an issue on campus that is relevant to the undergraduate student body or an issue important to me. This column will contain my personal opinions, discussions of policies or changes that students should know about and new things that ASCIT is working on or will work on in the future. For the first article in the series, I will be writing a little bit about the role of ASCIT, some ASCIT activities that you may not have heard of, and how you can participate in student leadership and student advocacy without an official ASCIT position.

ASCIT stands for the Associated Students of the California Institute of Technology and is the main organization that advocates

for and supports the student body as a whole. ASCIT is also responsible for managing many student publications, including *The California Tech*, and shared resources, like the ASCIT screening room and the jam room. Finally, ASCIT funds student clubs and runs campus-wide social events. ASCIT also includes the Board of Control (BoC), but the BoC is largely independent from the other officers of ASCIT. ASCIT is more than just the provider of bagels on Monday and donuts on Friday; we are also some of your best advocates on campus.

If you are part of a club, or any organization that runs events for the entire student body, your group probably benefits from ASCIT funding already, but as an individual, there are a few other programs that you have access to. The Academics and Research Committee (ARC) runs a number of student-faculty events, like student-faculty lunches and undergraduate seminars, where you can get to know your professors better.

Watch for emails from the ARC chair to find out when these events are, because they are a great forum for finding a SURF mentor and learning about the research that is happening at Caltech. Additionally, you can get together with a few friends and request some money from ASCIT to take a professor to lunch, dinner or any other event. This is one of the best ways to get to know specific professors, and all of the details are at http://donut.caltech.edu/ascit/Take_a_Prof_to_Lunch. It takes very little effort to set up a lunch with a professor, and it is a great way to get to know your adviser or another professor in an informal setting.

If you are interested in getting involved with ASCIT, one of the easiest ways to do so is to show up to the weekly meetings of the Board of Directors (BoD). One of the criticisms of ASCIT that I have heard over the past few years is that the BoD members only push their own agendas. To quote previous ASCIT President Ted Jou, “Unfortunately, those are the only agendas the BoD

knows.” If you want us to push your agenda or if you want to provide input on our ideas, the weekly BoD meeting is the best place to go. The minutes for these meetings are published in *The Tech*, and reading the minutes is the easiest way to keep up to date on what ASCIT is doing. The weekly meetings are open to everyone, and this term they will be held every Tuesday at noon. This week's meeting will be in the lounge in Winnett, but most ASCIT meetings are traditionally held in the SAC 15 meeting room under Fleming House.

The main point of ASCIT is to further the goals of the undergraduate student body as a whole. Club and event funding, campus publications, student-faculty interaction and student advocacy are all part of that mission. Finally, if you have any suggestions for things you would like ASCIT to discuss, or if you would like to discuss anything about this article, send me an email at nima@caltech.edu.

Hot streak puts Jamshidi on pace for kills record after Oxy match

GOCALTECH.COM
Actual Sports Content Editor

PASADENA, Calif. (Oct. 1, 2015) – Senior Cat Jamshidi continued her recent hot streak with her first double-digit kill effort of the season in a SCIAM matchup against Occidental College on Thursday night.

The Tigers played nearly flawless ball to claim a 3-0 victory and improve to 3-7 overall (2-4 in the SCIAM), dropping the beavers to 0-11 (0-6).

Jamshidi smashed 12 kills to bring her average over the past seven matches to 2.62 per set and 7.9 per match, putting her on pace to break the program record for kills in a career (her 470 trails Paige Logan's 2013 mark of 554).

Occidental opened the match absolutely on fire, smacking 15 kills without committing a single error

to post a .625 hitting percentage and cruise to the 25-9 victory. The visitors carried the momentum through the second set as they jumped out to a 13-3 lead and closed at 25-10. The Beavers finally found some footing in the third set to keep within five at 12-7, but took

just one of the final eight points for a 25-12 defeat.

Senior Harinee Maiyuran made eight assists and is averaging 7.25 per match over her past four, while senior Amy Hu led the squad with nine digs and chipped in another four assists.



I don't understand why we, as civilized human beings, still celebrate violent rituals such as killing opponents (with a ball nonetheless).

-<http://gocaltech.com>

Ball scores brilliant goal on volley against La Verne

GOCALTECH.COM
Actual Sports Content Editor

PASADENA, Calif. (Sept. 30, 2015) – Senior Adam Ball scored a brilliant goal as the Caltech men's soccer team put on its best offensive showing of the season in a 3-1 defeat to the University of La Verne on Wednesday afternoon.

The second-place Leopards improve to 9-2 overall and 6-2 in the SCIAM while the Beavers dip to 0-7 (0-7).

Things started slowly as neither could gain a footing on the other until La Verne struck on the first shot of the game in the sixth minute. Saul Uribe sent a cross in from the right wing, where Nathan Gonzalez trapped it in traffic and powered it into the back of the net for the 1-0 lead. ULV tacked on a second goal nine minutes later as Uribe took a pass from 10 yards out on the right side of the box and popped a shot off the crossbar.

Caltech slowly started to bounce back as junior J.D. Feist and the defense turned away a handful of Leopards chances while the offense earned some chances of its own, including a dangerous shot on target from sophomore Chris Haack in the waning minutes of the half.

Caltech dominated possession as the second half got underway, ripping four shots and winning a corner in the first five minutes. Two corners later in the 60th minute, freshman Tristan Née sent a looping ball to the top of the box, where the unmarked Ball smashed a volleyball off a goal line defender's head and into the net to halve the deficit.

The Beavers continued to threaten midway through the half but the Leopards found their stride again and pushed forward for an insurance goal, which they were awarded on an own goal in the 86th minute to seal the win.

Juniors Alec Sands and Schaefer

Reed and senior Theodore Wilkening each put a shot on target as well, while Feist made six saves between the posts.



Adam Ball performs a modern mating dance in an attempt to impress the ball. The ball (upper right corner) is not impressed.

Cross country steps up distance at Mustang Challenge

GOCALTECH.COM
Actual Sports Content Editor

SANTA CLARITA, Calif. (Sept. 19, 2015) – The Caltech men's and women's cross country teams stepped up from their season-opening distances of 4.5 and 6k, respectively, to 5k and 8k at the Mustang Challenge hosted by The Master's College on Saturday morning.

With the Beavers forgoing the UC Riverside course for the first time in four years in favor of more severe rolling terrain, times could be expected to come in a bit slower than in prior season.

"We expected the course to be more difficult than ones we have run in previous seasons," Head Coach Ben Raphaelson said. "We knew that even coming close to our prior early-season times would show how we have progressed, and we even had several beat their past times."

Yet freshman Michelle Marasigan and sophomore Caroline Atyeo ran impressive races on the women's side, with Marasigan just seconds off her 4.5k pace from two weeks prior as she clocked a 20:40.71 – just 13 seconds behind graduated 6k record-holder Stephanie Reynolds' 5k time last season. Atyeo also ran within two-and-a-half minutes of her 4.5k time and just 19 seconds off her 2014 time at the easier UC Riverside course.

Freshman Melissa Gutierrez snuck between Marasigan and

debut mile pace despite the longer distance and tougher course.

"Michelle's performance today on this difficult a course was probably comparable to her career-best in high school," Head Coach Ben Raphaelson said. "Caroline did an outstanding job pacing herself early and turned in a very strong performance as well."

Senior Aditya Bhagavathi made his debut working alongside senior Jared Forte and freshman Rohan Choudhury for the first three miles before opening it up over the final two. The 2014 NCAA qualifier clocked a blistering sub-10:00 split over the last two miles, which included a steep climb up the toughest hill on the course, to finish two second faster than his first 8k last year, in 26:45.11. Forte was not far behind, crossing the finish at 27:15.65 – five seconds quicker than his season-best NCAA West Regional performance in 2014. Choudhury kept fairly close to the pack as well, clocking a 27:56.34 as he ran within 15 seconds of the mile pace from his collegiate debut on Sept. 5.

"We took a similar approach to Aditya's first race last year, where he started conservatively and paced his teammates before stepping things up over the last two miles," Raphaelson explained. "Jared continued his string of strong performances and I'm happy to see his persistence paying off."

Freshman Joey Hong fronted a quintet of Beavers to finish next, all within one minute of each other, while freshman Noah Huffman moved up three spots within the team order of finish. Among the returners, seniors Elliot Simon and Mark Lorden (Brookline, N.H. / Hollis-Brookline) trimmed 51 seconds and 1:14, respectively, off their debut 8k times last year while sophomore Mason MacDougall blew away the rest of the squad with a massive five-and-a-half minute drop.

"Taking on their first 8k of the year, and in many cases the first one of their career, the men looked very strong in the critical latter stages of the race," Raphaelson said. "Some had better days than others, but everyone... is eager to build on today."

Atyeo with a 21:13.36, while senior Rachel Thorp posted a respectable 22:26.74 in her first race in nearly two years. Freshman Robin Brown rounded out the Beavers' lineup, nearly matching her collegiate

Ross introduces himself with 19 saves against Wash and Jeff

GOCALTECH.COM
Actual Sports Content Editor

PASADENA, Calif. (Oct. 2, 2015) – Freshman Charles Ross made an instant name for himself in his home debut, stopping 19 shots for the Caltech men's water polo team against Washington & Jefferson University on Thursday evening.

Despite Ross's heroics, the Beavers fell, 11-7, to dip below .500 at 4-5 while the Presidents improve to 7-3.

Ross was called upon to make three saves in the opening two minutes, but the Presidents broke through on their fourth attempt



"Bro, stop splashing. You're getting my ball wet." – The other dude.

Photo by Bob Palermini

and again two minutes later on a man-up chance to take the 2-0 lead. Senior Patric Eck pulled one back at the 2:50 mark but the

visitors stretched back out with a strike at 1:52. Senior James Blackwood came up with a big goal on the very next possession, though, and assisted junior with four seconds left in the quarter to level the score.

W&J had a big chance on the first possession of the second quarter as Bradley was tagged with an exclusion, but Ross picked up right where he left off with an-

other athletic stop. The Presidents notched on a counter attack off a turnover one minute later, but both teams locked down at that point with neither netting for the remainder of the half. The Presidents defense appeared suffocating at times as it forced six turnovers during that span, but Ross more than made up for the offensive shortcomings in recording 12 blocks over the first half alone.

Caltech was destined to equalize as the third quarter began. After a pair of steals on the Presidents' possessions, Bradley connected with Eck, whose shot just snuck over the line to tie the game at 4-4. W&J countered immediately

to regain the lead, but the Beavers matched that on a man-up opportunity at the 2:20 mark as Bradley completed his ninth straight brace to open the season.

W&J took the lead once more in the final seconds of the quarter and made it a two-goal game just a minute into the fourth. Blackwood hit freshman Eshan Govil for a big strike on the Beavers' next possession after Eck drew an exclusion to pull back within one, but W&J took control from there, scoring four unanswered goals, again despite Ross's best efforts between the posts. Blackwood netted a late consolation on an impressive long-range effort with two seconds remaining.

NOMINATE YOUR FAVORITE PROFESSOR FOR THE FEYNMAN TEACHING PRIZE!!!

Here's your chance to nominate your favorite professor for the 2014-15 Richard P. Feynman Prize for Excellence in Teaching! You have from now until December 15, 2015 to submit your nomination package to the Provost's Office to honor a professor who demonstrates, in the broadest sense, unusual ability, creativity, and innovation in undergraduate and graduate classroom or laboratory teaching.

The Feynman Prize is made possible through the generosity of Ione and Robert E. Paradise, with additional contributions from an anonymous local couple. Nominations for the Feynman Teaching Prize are welcome from faculty, students, postdoctoral scholars, staff, and alumni.

All professorial faculty of the Institute are eligible. The prize consists of a cash award of \$3,500, matched by an equivalent raise in the annual salary of the awardee. A letter of nomination and detailed supporting material, including, but not limited to, a curriculum vitae, course syllabus or description, and supporting recommendation letters should be emailed to kkerbs@caltech.edu or directed to the Feynman Prize Selection Committee, Office of the Provost, Mail Code 206-31, at the California Institute of Technology, Pasadena, California, 91125. Nomination packages are due by December 15, 2015.

Additional information including guidelines for the prize and FAQ may be found at <http://provost.caltech.edu/FeynmanTeachingPrize>. Further information can also be obtained from Karen Kerbs (626-395-6039; kkerbs@caltech.edu) in the Provost's Office.

REMINDER FROM COUNSELING CENTER:

Meditation Mob

(drop-in mindfulness meditation group)
Meets every Tuesday, 12:00-12:50 p.m.
Bottom floor of Winnett

News briefs from around the globe

A brief list of events from the past week, compiled by the editors

The Martian tops movie charts in all of North America

\$55M earned just during movie's opening weekend [BBC]

Last original lunch menu artifact from Titanic sold

\$88k paid at auction for artifact rescued by a first-class passenger [TIME]

Last gun store in San Francisco to close

26 days left before owner closes store on Oct. 31, in response to tightening regulations for gun sales [TIME]

University of Georgia scientists to build 'frozen zoo'

20+ years in the future, frozen stem cells can be harvested to save endangered species of cats [CNN]

South Carolina experiences historic rainstorms

1,000-year record rainfall causes dangerous flooding [CNN]

Air strikes hit Doctors Without Borders hospital in Afghanistan

19 confirmed dead, 37 injured after U.S. bomb hit hospital [CNN]

Russia continues air strikes on Syria

4 consecutive days of attacks on Syria confirmed have increased concerns for Moscow's international tensions [CNN]

Caltech Public Events Hiring Ushers

Flexible hours.

No experience needed.

Outgoing Personality.

Pay Rate:

\$15 per hour

**Caltech Students
only!!**

**Contact: Adam Jacobo
626.395.5907
ajacobo@caltech.edu**

The California Tech

Editors-in-Chief

Neera Shah
Nehaly Shah

Page Editors

Katherine Guo
Ching-Yun (Chloe) Hsu
Valerie Pietrasz

Contributing Writers

Nima Badizadegan
Hannalore Gerling-Dunsmore
Andrew Lucas
Nailen Matschke

Circulation Manager

Kit Chinetti

Advisor

Richard Kipling

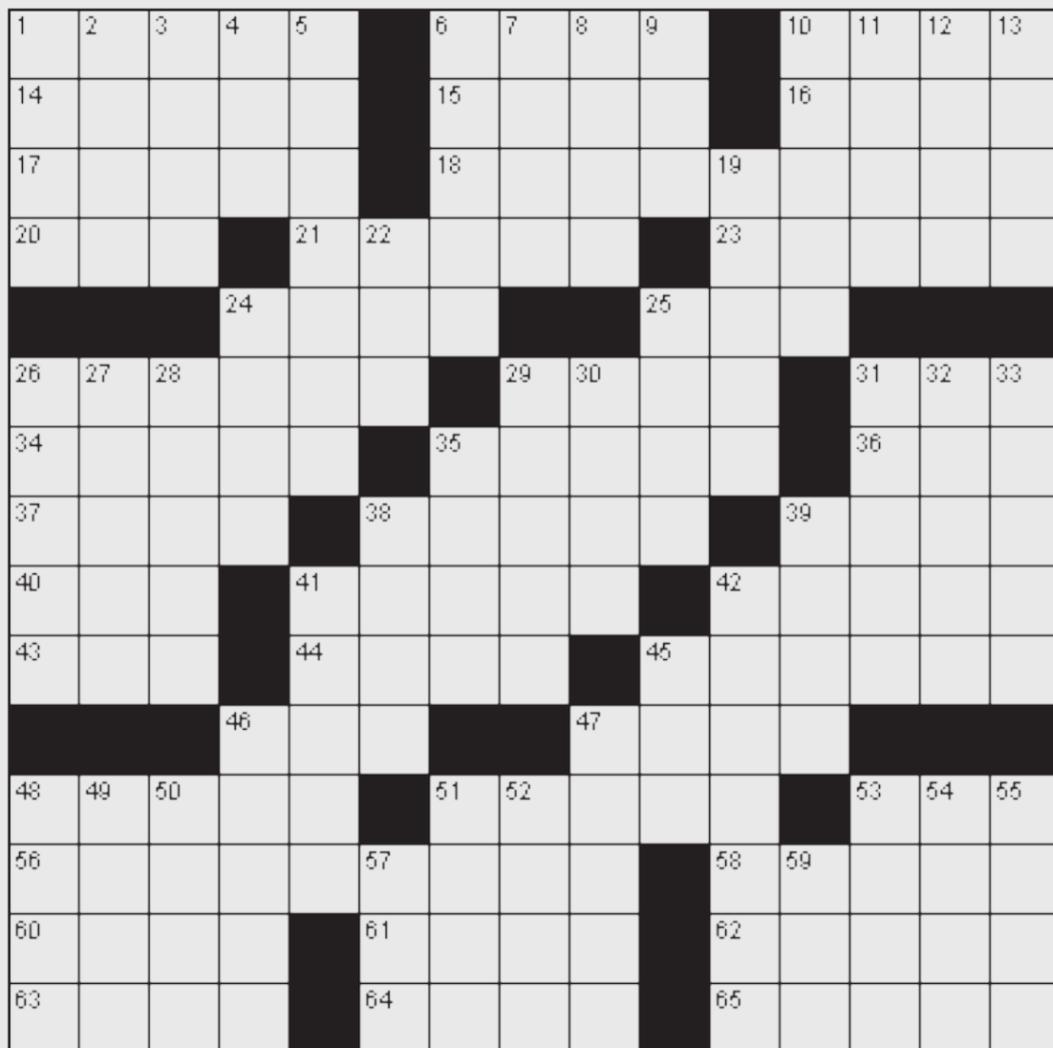
Caltech 40-58, Pasadena, CA 91125
Contact tech@caltech.edu

The Tech is published weekly except during vacation and examination periods by the Associated Students of the California Institute of Technology, Inc. The opinions expressed herein are strictly those of the authors and advertisers.

Letters and submissions are welcome; e-mail submissions to tech@caltech.edu as plain-text attachments, including the author's name, by Friday of the week before publication. *The Tech* does accept anonymous contributions under special circumstances. The editors reserve the right to edit and abridge all submissions for any reason. All written work remains property of its author.

The advertising deadline is 5 PM Friday; all advertising should be submitted electronically or as camera-ready art, but *The Tech* can also do simple typesetting and arrangement. All advertising inquiries should be directed to the business manager at tech@caltech.edu. For subscription information, please send mail to "Subscriptions."

Crossword



-<http://puzzlechoice.com>

Across

- 1. Acute
- 6. Remain
- 10. Fake
- 14. Quibble
- 15. Undulation
- 16. Counterbalance used to obtain net weight
- 17. Olfactory sensation
- 18. Being
- 20. Novel
- 21. Roman god of love
- 23. Correct
- 24. Throw forcefully
- 25. Male offspring
- 26. Misprints
- 29. Singing voice
- 31. Beer
- 34. Rodent
- 35. Weirdo
- 36. Hawaiian garland
- 37. Look with amorous intentions
- 38. Slumber
- 39. Preside over
- 40. Golf accessory
- 41. Walk stealthily
- 42. Hew
- 43. Make a mistake
- 44. Insect between larva and adult
- 45. Rag
- 46. For each
- 47. Open river valley

- 48. Jewelled headdress
- 51. Fervid
- 53. Joke
- 56. Musical instrument
- 58. Danger
- 60. Maize
- 61. Not in favor of
- 62. Transparency mounted in a frame
- 63. Leg joint
- 64. Ray
- 65. Frequently

Down

- 1. Make a wide, sweeping search of
- 2. Leporid mammal
- 3. Affirm solemnly
- 4. Flange
- 5. Appease
- 6. Cleared with a brush
- 7. Cab
- 8. Esurient
- 9. Affirmative
- 10. Beer mug
- 11. Suspend
- 12. Curved masonry construction
- 13. Encounter
- 19. Cavalry unit
- 22. Country, initially
- 24. Portable container
- 25. Pace
- 26. Represent
- 27. Pirate flag, Jolly
- 28. Measuring stick
- 29. Sports venue
- 30. Edible plant, related to the onion
- 31. Warning
- 32. Depart
- 33. Kind of duck
- 35. Small metal fastener
- 38. Disparaging remark
- 39. Tardy
- 41. Lance
- 42. Sea nymph (Mythology)
- 45. Bitumen
- 46. Having a tendency
- 47. Coarse durable cotton fabric
- 48. Stable gear
- 49. Graphic symbol
- 50. Land measure
- 51. Amercement
- 52. 9th letter of the Greek alphabet
- 53. Fortitude and determination
- 54. Auxiliary
- 55. Narrow secluded valley
- 57. Light touch or stroke
- 59. Fairy

You chose one of the most trusted institutions in **SCIENCE**.



Now choose one of the most trusted institutions in **FINANCE**.



When you want unsurpassed stability, integrity and value for your money, Caltech Employees Federal Credit Union offers an honest alternative. There are no gimmicks. No annual fees. No harsh penalties.

Just some of the lowest lending rates and highest savings rates in the nation... and a state-of-the-art eBranch for easy, convenient online and/or mobile access to your account. We're the overwhelming choice for financial services among the entire Caltech family. If you haven't yet joined, call or visit us online or in person today. You belong here.



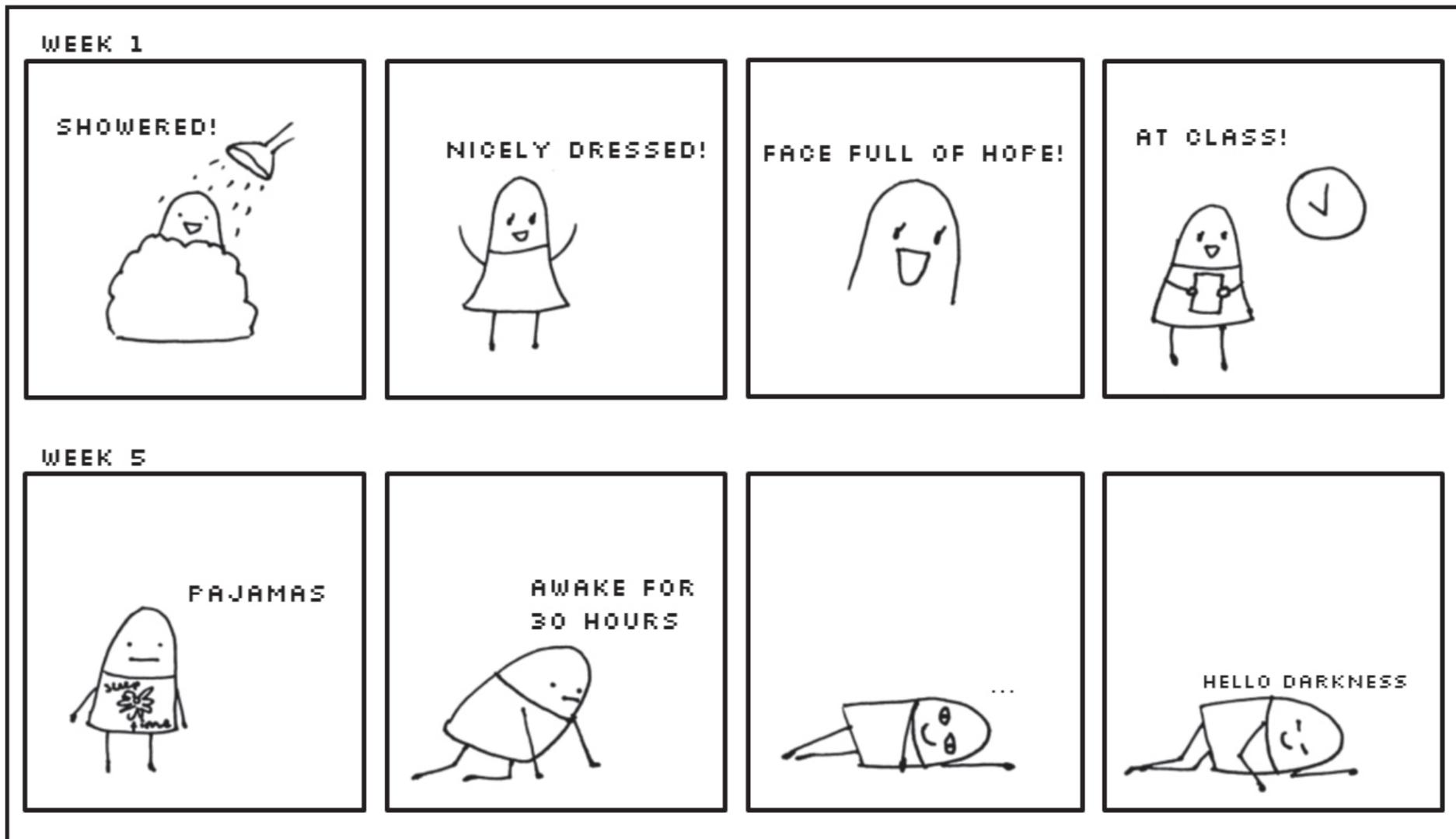
⁶²Smarter ¹⁶Solutions. ⁵⁹Proven ⁷⁵Results.

Campus Office 515 S.Wilson Ave. (physical address) • **Campus ATMs** Winnett Center & Keith Spalding Building
626/395-6300 • 800/592-3328 • www.cefcu.org

Must qualify for CEFCU membership to join. Minimum \$5 deposit and one-time \$5 membership fee due upon opening any CEFCU account. **Federally insured by NCUA.**

Go0000

K. Guo



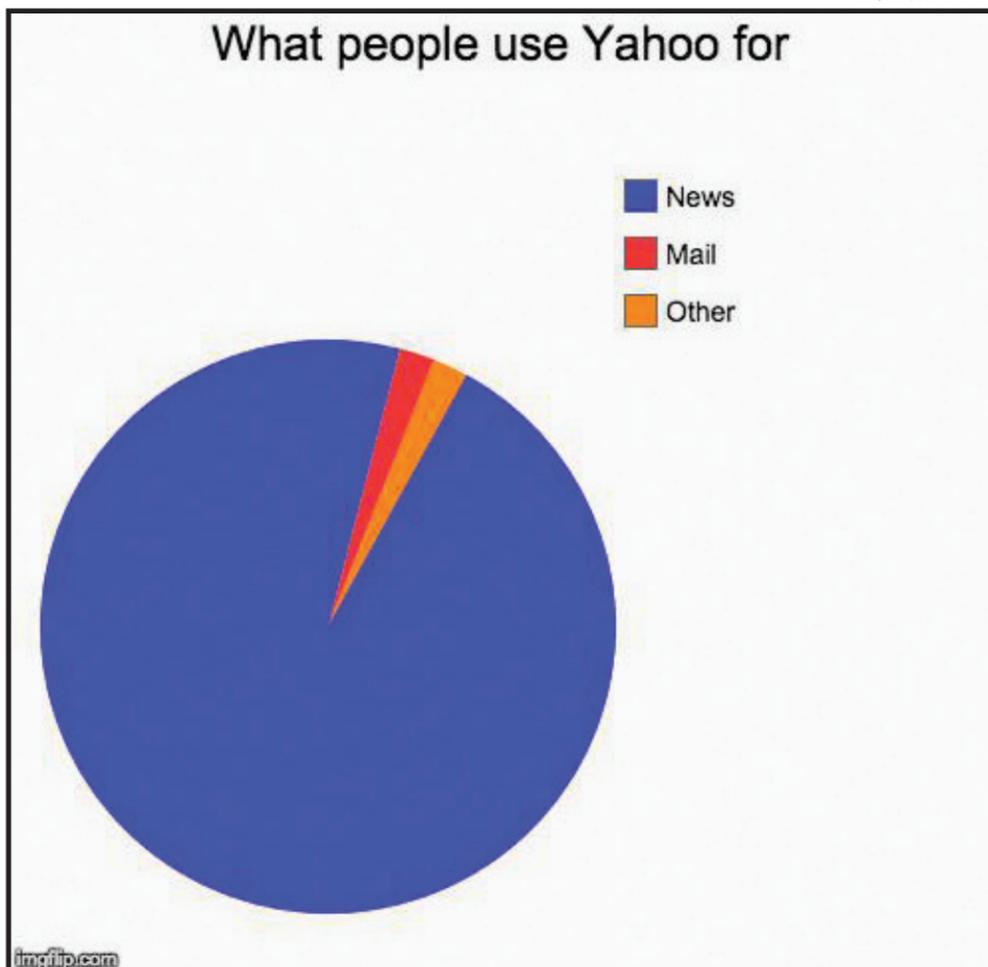
Answers to previous crossword

	S	U	E		S	P	A	M		T	H	U	G	
J	I	N	X		K	A	L	E		H	E	R	O	N
A	N	T	I		I	R	O	N		E	A	G	L	E
D	E	I	T	Y		S	N	U	B		D	E	F	T
E	W	E		O	B	O	E		R	A	Y			
			P	L	A	N		P	A	P		S	A	W
C	H	E	E	K	Y		R	U	N	E		C	U	E
R	U	S	T			H	A	G			B	A	R	E
A	L	P		L	I	O	N		A	N	O	R	A	K
M	A	Y		A	T	E		P	L	E	A			
			A	C	E		B	R	E	W		P	A	N
R	O	O	M		M	O	R	E		T	H	E	M	E
A	U	R	A	L		D	E	S	K		A	R	E	A
G	R	A	Z	E		D	A	T	E		L	I	N	T
	S	L	E	D		S	M	O	G		O	L	D	

-http://puzzlechoice.com

Truth

Memester



The California Tech
 Caltech 40-58
 Pasadena, CA 91125