

Building a Better Future



Keeley
McConnell '16

You want to know Keeley McConnell's strategy for success, the thing that's helped her go from remedial math to high-level medical research? It's this: Stay focused on the path in front of you. One foot in front of the other. If you can make that next step, you can keep going.

Four years ago, the next step was: Get the kids in the car. Pack everything else in around them. Get the heck out of Dodge before your ex comes back.

Eighty miles later, McConnell and her three children arrived at a shelter for victims of domestic violence. She'd left her job, her home. She had no idea how she would support her family on the money she earned as a medical assistant. But one thing at a time. Find a place to live, get some stability.

It was only three months later, when McConnell had moved her family into an apartment, that she considered college. "When I was in high school, I never thought about college as an option," she says. "I'd taken one class when I was pregnant with my son, but I tested into the lowest level of math they had and I thought, 'Oh my goodness, this is going to take forever!'"

However, a friend encouraged McConnell to come with her to apply to Clark College. Just as she'd feared, McConnell tested into DVED 21, the lowest-level math course offered at the time. But one thing at a time. Keep your eyes on the path.

McConnell's other strategy has been listening to advice from friends, family, and mentors. When an instructor suggested she enroll in Clark's Math Academy program, McConnell signed up. This yearlong program pairs standard classroom time with dedicated math labs, where students get extra help understanding difficult concepts. McConnell describes it as "the key to my success in math."



Keeley McConnell helping a student in Clark College's STEM Tutoring Center.

By the time McConnell finished her last Math Academy class, not only was she prepared to enter college-level math courses—she'd been recommended to become a math tutor herself. The experience helped boost her confidence and gave her the tools she needed to continue pursuing her dream of becoming a physician's assistant.

That goal would require her to spend two more years at Clark to earn an associate degree, plus another two at a four-year institution to complete a bachelor's, followed by at least two years of medical school. *But*. One foot in front of the other. Stay focused on the path in front of you.

McConnell continued to thrive at Clark, finding she enjoyed the intellectual challenge of biology coursework. And once again, a mentor stepped in to change the course of her life. When biology chair Dr. Travis Kibota first approached her about applying to the BUILD EXITO Scholar Program, she was skeptical. Run by Portland State University in partnership with Oregon Health Sciences University, and with funding provided by the National Institutes of Health, the program helps undergraduates from diverse backgrounds become successful in health research careers.

“I was hesitant at first, because I wasn’t originally interested in going into research,” McConnell says. “But it’s been the most amazing opportunity.”

Through her participation in BUILD EXITO, McConnell joined a cohort of students from community colleges in the region who formed a Research Learning Community. Within that RLC, she could learn about careers in research, develop skills, and connect with mentors. She also had a built-in social network to help her make the adjustment to a four-year institution after she graduated from Clark in spring 2016.

“If I had had to do all this without EXITO, I would have been really overwhelmed,” she says. “I knew everyone at Clark—staff, faculty, students. PSU was huge. But the EXITO staff have been there for me—you can go in and ask them anything.”

Now a junior in her second semester at PSU, McConnell is deeply immersed in research in her chosen field of trauma medicine; she’ll even see her name on some upcoming research papers, a big boost to career advancement in the research world. “I work with the Chief of Trauma at OHSU,” she says proudly. “I wear a pager; when a call comes in, I’m there, collecting data and samples.”

McConnell says it was overwhelming when she first walked into

OHSU. “I looked up and thought, ‘I’m so close. I’m literally standing in the building I want to have my future in. It’s what I’ve been waiting for my whole life.’”



Keeley McConnell, *left*, celebrates graduation from Clark College in 2016 with a friend.

She still faces challenges. While BUILD EXIT0 students receive a stipend that significantly eases the financial burden of being a college student, McConnell still works 30 hours a week outside of school to support herself and her three children, now ages 8, 9 and 18. And she struggles to find time to be present for her children as a mom.

“It’s probably my biggest challenge right now,” she says. “But they’re great, they’re my little drivers. I want them to have something better. They need to see that, when you want something and you work really hard at for it, you can get it.”

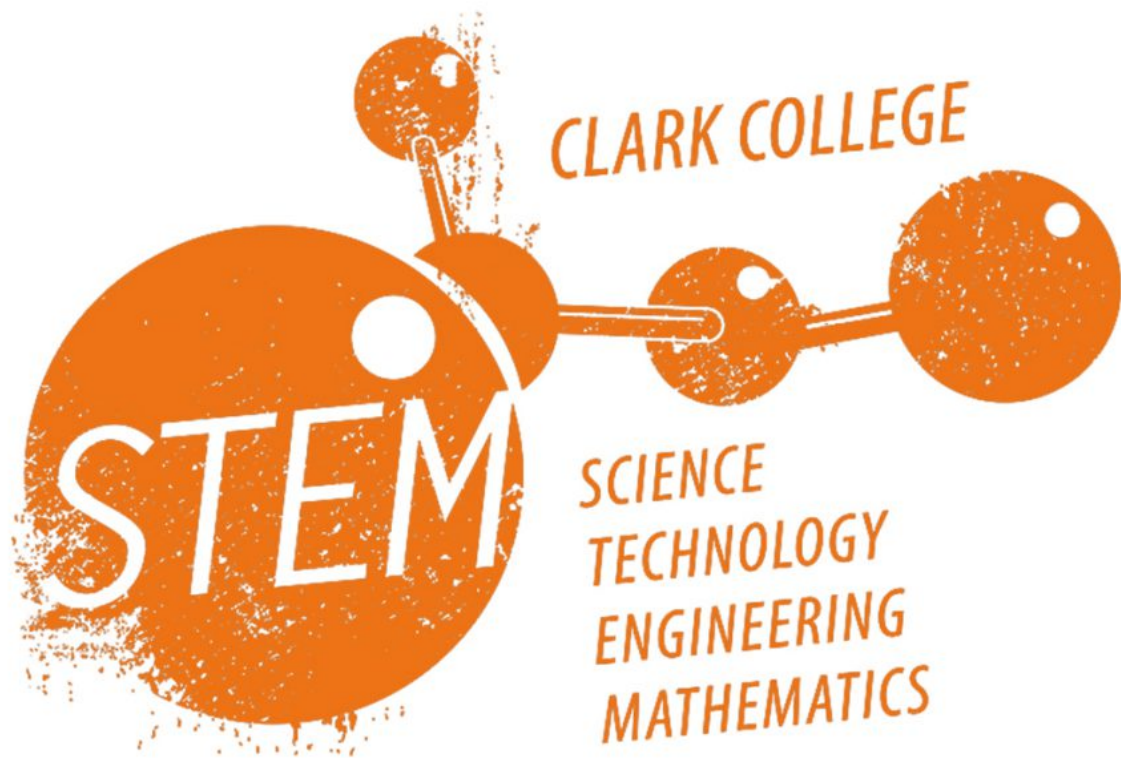
McConnell brought her son with her earlier this year when she was invited to the Washington State Association of College Trustees’ Transforming Lives Awards banquet, where they sat between Clark College President Bob Knight and two state senators. “I wanted him to experience that,” she says. “But once we were there, I realized how big a deal this was for me, too. With me, I get so focused on the road ahead, I don’t spend much time thinking about the big picture. It made me

realize, 'Oh, gosh, I guess I have come a long way.' And, you know, my kids and I—we're still moving forward."

Are you a student interested in participating in BUILD EXIT0? The application deadline for the 2017-2018 year is February 28, and there is a free application help session on Friday, February 24, 10 a.m. – 11:50 a.m., in SHL 124.

Photos: Clark College/Jenny Shadley

Clark College announces Winter STEM Seminar Series



Clark College is inviting the public to come back to school for a series of free lunchtime seminars that explore Science, Technology, Engineering and Math (STEM). Begun in 2015, the Clark College STEM Seminar Series launches its 2017 Winter season on Friday, January 20, at noon in Clark's new STEM Building with "Hair-Raising Volcanic Hazards."

This seminar features Liz Westby of the U.S. Geological Survey sharing information about volcanic hazards and their impacts, along with monitoring efforts on Cascade Range volcanoes. She will also be sharing a series of videos about volcanic hazards.

Other winter quarter events in this series include:

- **Feb. 3: Amazing Animal Acupuncture** with Dr. Christy Novick, veterinarian at Feline Medical Clinic and owner of Columbia Companion Animal Acupuncture
- **Feb. 24: Historic and Hazardous Hanford** with Ginger Wireman, outreach specialist for the Washington

Department of Ecology working at Hanford

- **March 10: Great Gravitational Waves** with Dr. Duane Ray, former instructor for Clark College Economic & Community Development and holder of a doctorate degree in physics

All events are held on Fridays from noon to 1 p.m. in Clark College's new STEM Building on Clark's main campus. All are open to the public. Light snacks will be available and guests are welcome to bring their own lunches with them.

"We already do lots of outreach to encourage interest in STEM among our community's young people through our annual Science Olympiad and other events," said Clark College STEM Coordinator Erin Harwood, who helps organize the seminar series. "This is a way to show adults as well that learning about STEM can be lots of fun. We're hoping people start looking forward to these seminars as a great way to spend their Friday lunch break learning something new."

Clark College is located at 1933 Fort Vancouver Way, Vancouver. Driving directions and parking maps are available at www.clark.edu/maps. Anyone needing accommodation due to a disability in order to fully participate in this event should contact Clark College's Disability Support Services Office at (360) 992-2314 or (360) 991-0901 (VP), or visit Penguin Union Building room 013, as soon as possible.

STEM is Silver



Clark College's new STEM Building has a LEED Silver certification. Here are a few environmentally friendly aspects of the building and its construction:

- The building is cooled by water pumped from the local wellfield through a campuswide hydronics (water-based heating and cooling) system. This same water is used to heat the building with help from high-efficiency gas boilers, then is circulated back to irrigate the campus landscaping. This creates a "closed circuit," where the water is continually pumped from, and then returned to, the land—a system that eliminates waste and reduces energy costs.
- Bike lockers on the lower level and a shower on the first floor encourage bike commuting.
- Bottle-filling stations on each floor allow students and visitors to eschew single-use bottled beverages in favor of reusable drink containers.
- The windows of south wall are made of double-paned glass

filled with Argon gas and coated with a low-E value film to reduce the light and heat load. Additionally, metal sunshades block the higher sun during the hotter days of summer, but allow the lowered sun in winter to strike the glass directly and increase available natural lighting and heat. The sunshades also reflect light up into the corridors to reduce the need for artificial lighting during the day.

- Almost 99 percent of the construction waste was recycled.

Photo: Clark College/Hannah Erickson

A look into the future



The STEM Building opened for classes at the beginning of the

2016 fall quarter. *Photo: Clark College/Wei Zhuang*

Shortly before Clark College's STEM (Science, Technology, Engineering, and Math) Building opened for classes at the beginning of the 2016 fall quarter, Clark College Construction Project Manager Jim Watkins stood on its north plaza and pointed out a few hidden features to a group of visitors.

Watkins pointed to the lines marking the poured concrete that make up the plaza floor. "The smaller squares around the perimeter are in 1-meter increments, while the large squares are 3-by-4 meter and 4-by-4 meter blocks," he said. "That way, if a physics class is doing experiments where they need to measure the flight of a projectile or something, it's easy for them to gauge how far it's traveled."



Structural elements like heating pipes were deliberately left exposed to serve as teaching tools for engineering students. *Photo: Clark College/Wei*

Throughout the building's 70,000 square feet, details abound that reflect and strengthen its purpose. Structural elements—including heating equipment, water pipes, and earthquake-proof concrete—have been left visible deliberately to serve as teaching tools for engineering students. Decorative touches, like the “STEM” laser-carved into the metal stair railings and the ceramic-tile periodic table inlaid into the second-story floor, remind visitors what's studied here. And that column of glass that rises from above the front entry doors to the top of the building's airy lobby? It's actually a 44-foot high, 4-foot square drop tower, where dropped objects can be filmed with a high-speed digital camera in experiments by engineering or physics students.

While the building opened to students on September 19 for fall classes, an official ribbon-cutting ceremony is scheduled for October 3.

“I am so excited to see students enthusiastically learning in the new STEM Building on the first day of the new academic year,” said Dean of STEM Peter Williams regarding the opening. “The STEM Building is a beautiful, technologically advanced educational facility that perfectly supports academic excellence, one of the core themes of Clark College's strategic plan. It is ideal for students who may not know how exciting and interesting science can be, and hopefully provides a starting point for a career in a STEM field, one of the fastest growing job fields in the country.”

The new, LEED Silver-certified building—the largest ever built on Clark's main campus—holds nine classrooms, twelve labs (including some spaces that serve as both), two conference rooms, 16 student areas of various sizes, and 41 offices. It will house much of Clark's engineering, chemistry, biology, and physics departments. The first new instructional building to be built on the main campus since 1994, it was paid for

primarily through Washington State capital funding, supplemented with generous donations to the Clark College Foundation to make up for a budget gap in the project's \$40 million cost created when the state reduced its contribution due to the economic recession.



Learning extends outside the STEM Building, with multiple outdoor classroom/study areas set along the south wall. *Photo: Clark College/Hannah Erickson*

The building offers many new opportunities for Clark students. A six-table cadaver lab includes operating-room LED lighting and a high-definition camera that allows even those students who aren't at the dissection table to see anatomy and procedures clearly on two large plasma screens. Clark College is one of only four community colleges in Washington to have a cadaver lab, and this new lab greatly expands the number of students able to take the perpetually waitlisted Anatomy and Physiology classes that are required for a number of health-related degrees.

Additionally, a Collaboratorium sits at the heart of the building's main floor. This high-tech "makerspace" is filled with tools and machinery to allow students—and possibly community members, in the future—to create their own designs. Watkins showed visitors the large double doors facing out to

the north plaza. “We designed this so you could bring a truck-size project through here if you wanted to,” he said. “We didn’t want our engineering students to feel limited as to the projects they could take on.”

According to the Washington Student Achievement Council, Washington State has the third-highest concentration of STEM-related jobs in the United States—but up to 40,000 of those jobs may go unfilled by 2017, in large part due to a lack of qualified applicants with the appropriate training.

“I am so impressed and excited by the possibilities this new building brings to the college,” said Clark College President Bob Knight. “Clearly, STEM is going to be very important to this region’s economy, and we are proud to be able to offer state-of-the-art training and education in this field, continuing a legacy of excellence that stretches more than 80 years.”

Clark College goes to the Fair



Oswald greets visitors to the 2016 Clark County Fair.

In keeping with this year's Clark County Fair Theme of "Science Fun," Clark College is offering a host of family-friendly, hands-on activities promoting Science, Technology, Engineering, and Math (STEM).

Clark students, staff, and faculty will lead demonstrations every day of the fair, which runs from August 5-14. Clark College was invited to participate in this year's theme to highlight the college's highly regarded STEM programs, as well as the opening of its new STEM building this fall.

All activities take place in the college's exhibit area in South Hall 1 and are free with fair admission. Scheduled events include:

Teeth and Technology

The Clark College Dental Hygiene program demonstrates modern ultrasonic methods of removing tartar or calculus from teeth. *Fri, Aug. 5: 10:30 a.m. – 11:00 a.m., 11:30 a.m. –*

noon, 1:30 p.m. – 2:00 p.m.

Science Fun with the N.E.R.D. Girls

Clark College's N.E.R.D. (Not Even Remotely Dorky) Girls, a student club focused on getting younger students interested in engineering, lead hands-on activities like building balloon-powered pinwheels and demonstrating Newton's third law of motion. *Sat, Aug. 6: 11:30 – noon, 1:30 p.m. – 2:00 p.m.*

Pharmacy Innovations

Learn about new, high-tech ways of compounding pharmaceuticals from Clark College Pharmacy Technician faculty. *Sun, Aug. 7: 11:30 – noon, 1:30 p.m. – 2:00 p.m., 2:30 p.m. – 3:00 p.m. Fri, Aug. 12: 11:30 a.m. – noon.*

The Science of Sourdough

Learn all about fermentation when Clark College baking instructor Alison Dolder explains how sourdough is made. Try some delicious sourdough pancakes and take home a little sourdough starter of your own. *Mon, Aug. 8: 10:30 a.m. – 11:00 a.m., 1:30 p.m. – 2:00 p.m. Sat, Aug. 13: 11:30 – noon, 1:30 p.m. – 2:00 p.m.*

POKE-A-MAN!

Faculty from the Clark College Phlebotomy program will demonstrate how to draw blood from a model arm. Participants can use a centrifuge to make their own aliquots from imitation blood and plasma. *Tues, Aug. 9: 11:30 a.m. – noon, 1:30 p.m. – 2:00 p.m., 2:30 p.m. – 3:00 p.m.*

Simulation Technology and Nursing Education

Meet the "Sims," the lifelike automatons used by Clark College nursing students in the college's state-of-the-art simulation lab to practice procedures ranging from tracheotomy to childbirth. *Wed, Aug. 10: 10:30 a.m. – 11:00 a.m., 11:30 a.m. – noon, 1:30 p.m. – 2:00 p.m. Sun, Aug. 14: 11:30 a.m. – noon.*

Additionally, visitors can test their dexterity at the college's Automotive Technology installation and view STEM-related student projects, including an aluminum boat created by some of the college's welding students. The college also will have staff available during the fair to answer questions about available programs, GED courses, Running Start, financial aid, and more. Staff also will be available to assist current students with registering for fall classes, looking up records, and other student support needs—and Clark's lovable mascot, Oswald the Penguin, will be present many afternoons and evenings for photos with children.

For those interested in attending Clark, the \$25.00 application fee will be waived for the first 50 applicants each day who apply at the fair. Current students and alumni and students will be able to stop by the booth for special giveaways and drawings for prizes.

For more information, visit www.clark.edu/cc/fair and follow Clark College on social media.

Photo: Clark College/Jenny Shadley

Battling stereotypes, they found success



Qi Wu and Tammy Senior are Clark College's representatives to the 2016 All-Washington Academic Team.

Two outstanding Clark College students were selected to attend the 2016 All-Washington Academic Team Recognition Ceremony, held on March 24 at South Puget Sound Community College in Olympia, Washington. Tammy Senior and Qi Wu are two of just 66 students from community and technical colleges across the state to receive this honor, which recognizes students for their academic excellence and service to the community.

At first glance, Senior and Wu don't seem terribly similar. One is young even by the standards of Running Start, a program that allows high schoolers to take college courses; the other is coming back to college after serving four years in the military. One has spent her whole life in Vancouver; the other has lived in more countries than she can count on one hand.

But on closer inspection, certain parallels become clear between the two young women: They're both fascinated by science and technology. They both are driven students who make

time in their busy schedules to serve their communities. Both have had to challenge others' assumptions and figuring out creative ways to get around obstacles in their educational journeys. And so far, both are succeeding impressively.



Clark student Qi Wu stands before the college's new STEM Building, slated to open in fall 2016.

Wu's obstacles began surfacing when she and her mother emigrated from China to the United States. Wu, then a sophomore in high school, struggled to maintain her grades while learning a new language in a new culture. She also found herself confronting gender stereotypes, as classmates and teachers assumed she would be more interested in subjects like art and the humanities instead of math and science.

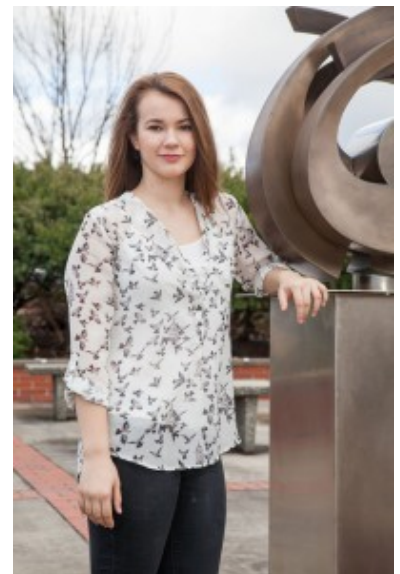
"When I was growing up, I was always better in physics and chemistry," she said. "I like numbers, I like logic. When I came to Clark and took my first engineering course, it was like, 'Wow, this is where I belong!'"

However, soon a new hurdle appeared. Wu, whose mother had remarried and had another child, realized her family could not afford to pay for her college education. Hoping to support herself, she enlisted in the U.S. Navy in 2010 as an aviation mechanic, and took every opportunity to earn educational credits and develop new skills—despite the doubts some had of

the petite young woman's abilities.

"When I got transferred to Japan, my supervisor told me, 'Well, you can do the desk job here, because you're a girl,'" Wu recalled. "And I said, 'No. I want to do the job I trained for.'"

Wu said that overall, she's grateful for the opportunities the military provided her to travel and learn skills that will help in her electrical engineering career. She's currently receiving scholarships from Clark, which allows her to save her military education benefits for the more-expensive, four-year institutions she hopes to attend one day to earn her master's degree. She also works in Clark's scholarship office herself, and spends weekends training as a Naval Reservist.



Clark student Tammy Senior says she's been impressed by how welcoming the college was to her, even when she took her first class at age 14.

Like Wu, Senior's challenges also began in high school, but

they were of a different nature: She felt stifled. "I wasn't being challenged enough," she recalls. "I took a class at Clark and found it so much better."

Senior's family couldn't afford to pay for a full load of college classes out of pocket, and when the 14-year-old visited Clark's scholarship office, she discovered she was too young to qualify for financial aid or scholarship opportunities. Then, the scholarship staff offered a new possibility: Perhaps Senior could enroll in Running Start, the Washington State program that allows eligible high school juniors and seniors to take college classes tuition-free. The only problem was that Senior was still a freshman. She wound up skipping the 10th grade in order to qualify, enrolling at Clark as a full-time student at age 15.

"It was definitely interesting," Senior, now 16 and set to graduate in the spring, said with a grin. "But Clark's pretty welcoming, and I really thrived in the community here."

Senior has maintained a 4.0 GPA while taking classes in Clark's challenging Honors Program, volunteering with her church, teaching private music lessons, and serving as the vice president of leadership for Clark's chapter of Phi Theta Kappa, the international honor society for two-year colleges. She'll be 17 when she enters a university—potentially with junior standing, depending on where she attends.

"People ask me, 'Why don't you enjoy your high school years?'" Senior said. "But I'm a planner. I think ahead. My mother wasn't able to finish school because she started a family. I know I have a lot of school ahead of me, and this is a way to speed things up."

Senior hopes to become a neurologist, a goal developed when her beloved grandmother suffered a series of debilitating strokes in 2014. Like Wu, Senior faced some skepticism about her ambitions.

“When I tell people I want to pursue a career in neurology, sometimes they look at me strangely and say, ‘Oh, why don’t you go into nursing, so you have time for a family?’” she said. “But I know I can do it. I can have a family. I can have the career of my choice. I just have to work hard. And you know, they would never tell a male student that.”

Both students say they appreciate the support they’ve found at Clark. “I like the diversity here,” says Wu, a first-generation college student. “Engineering professor Izad [Khormae] is from Iran. My physics teacher is from Russia. I think half the STEM faculty are women. And then in my classes I’ve met a few other veterans. You get so many different experiences here, different cultures.”

Wu and Senior were honored for their achievements at the All-Washington Academic Team induction ceremony on March 24, 2016, in Olympia, where Gov. Jay Inslee was the keynote speaker. The All-Washington Academic Team is a program of Phi Theta Kappa, the international honor society of two-year colleges. Team members are eligible for numerous scholarships, including transfer scholarships at most four-year universities in the state.

“It is such an honor,” said Senior, sitting with Wu during a break between classes.

“It’s nice for your hard work to be recognized,” adds Wu.

“Yes, you feel like your hard work is finally paying off,” said Senior.

Photos: Clark College/Jenny Shadley

Turning students into scientists



Clark College is providing an unprecedented opportunity for eligible students to start their research careers while still in community college—getting hands-on research opportunities, paid internships, and special educational support to help them succeed in the exciting career of scientific researcher.

This opportunity comes through a recently developed program called BUILD-EXIT0. Introduced in 2015, BUILD-EXIT0 is a program designed to support undergraduate students who are interested in pursuing research careers in the biomedical, behavioral, clinical, health, and social sciences. Scholars receive a broad range of support and opportunities. Over the

course of their three years in the program (one here at Clark, the other two at Portland State University, the University of Hawaii at Mānoa, the University of Alaska in Anchorage, or the University of Guam), scholars will enroll in specific courses and will participate in workshops designed to enhance their skills and knowledge in science and research. In addition to summer research training, scholars will be placed in research labs and will receive paid research internships, as well as some tuition benefits. And scholars will have access to dedicated advisors and mentors to help them navigate their educational pathway.

This a great opportunity for students interested in solving pressing medical problems, discovering new scientific breakthroughs, or simply satisfying their curiosity about the world around them. Interested students can visit [The first step to applying is to visit the BUILD-EXITO website](#)—but they should do so quickly, as the application deadline before noon on Friday, March 4.

Clark students interested in participating in the program may direct questions to Professor Travis Kibota (tkibota@clark.edu, 992-2282). Dr. Kibota can put interested students in contact with one of Clark's current 2015 BUILD-EXITO scholars to get some first-hand information about the program.

This article was contributed by Prof. Roberto Anitori

Learn as you lunch



Biology professor Steven Clark

Clark College is inviting the public to come back to school for a series of free seminars that explore the lighter side of Science, Technology, Engineering and Math (STEM). New this academic year, the Clark College STEM Seminar Series launches on Friday, October 16, at noon in Anna Pechanec Hall room 201 with “Rockin’ Out with Rock Rabbits.”

This seminar covers research done by biology professor Steven Clark on pika, tiny rabbit-like creatures who normally live in high elevations. Prof. Clark will discuss what he’s discovered about an unusual population of these creatures living in the Columbia River Gorge whose survival may hold keys to understanding how our environment can adapt to global climate change. Expect Prof. Clark, who recently received an Exceptional Faculty Award, to share photos and insights in an exciting, high-energy presentation geared toward anyone with an interest in science—no Ph.D. required!

Other fall quarter events in this series include:

- **The Science Behind Sci-Fi** with Prof. Joe Pitkin, Oct. 30
- **Handicapping Horse Races** with instructor Robert Weston, Nov. 13
- **Breaking the Cycle of Abuse** with Prof. Mika Maruyama, Dec. 4

All events are held on Fridays from noon to 1 p.m. in APH room 201. All are free and open to the public. Light snacks will be

available and guests are welcome to bring their own lunches with them.

“Clark College has long been a center for STEM learning in this region,” said Clark College STEM Coordinator Erin Harwood, who helped organize the seminar series. “We already do lots of outreach to encourage interest in STEM among our community’s young people through our annual Science Olympiad and other events. This is a way to show adults as well that learning about STEM can be lots of fun. We’re hoping people start looking forward to these seminars as a great way to spend their Friday lunch break learning something new.”

Clark College is located at 1933 Fort Vancouver Way, Vancouver. Driving directions and parking maps are available at www.clark.edu/maps. Anyone needing accommodation due to a disability in order to fully participate in this event should contact Clark College’s Disability Support Services Office at (360) 992-2314 or (360) 991-0901 (VP), or visit Penguin Union Building room 013, as soon as possible.

Exceptional Faculty Award spotlight: The naturalist



Biology professor Steven Clark in his office.

Steven Clark's office is full of animals. There's the "Cats Against the Bomb" calendar; the poster of the grizzly bear; the woodblock print of a turtle; the vintage Audubon Society birdwatching chart; photos of bees, rodents, spiders, his dogs. The effect is something like walking into a natural history museum that's been shoved into a filing cabinet.

"This room is reflective of my interests," says Clark, glancing over at an illustration of wildflowers above his desk. And, indeed, a conversation with Clark is likely to take you through the intricacies of parasitic wasps, the difficulties involved in attaching radio monitors to pond turtles, and a startlingly accurate imitation of a pika—a small, rabbit-like creature whose populations in the Columbia Gorge Clark has been helping to monitor for years.

It's hard not to look around this room and assume that Clark was destined to be a biology professor. But Clark, who received his Master of Special Education for the Hearing

Impaired from Lewis & Clark College in 1986, began his career teaching almost everything *but* biology at the Washington School for the Deaf.

“I was attracted to the idea of teaching an underserved population,” he says. Eventually, however, Clark found himself drawn to the sciences, and in 2000 he left the School for the Deaf to pursue a master’s degree in Environmental Sciences and Resources at Portland State University. For four years, he worked as a field biologist for the Washington Department of Fish and Wildlife while also teaching mathematics and biology at Clark as an adjunct instructor.

For Clark, teaching at a community college still fulfills that urge to help underserved populations. “There are great teachers at all colleges, I know that, but I think the mission of the community college—to teach the rank and file of our community—I like that,” he says. “My mother never got to go to college. But I used to think that if my mom *had* gone to college, she would have gone to a community college.”



Professor Clark at a STEM demonstration in 2015.

Clark, who received tenure in 2014, currently teaches the biology sequence for life sciences majors, a three-quarter series that has earned a reputation as a daunting academic challenge.

“It’s funny, because I think of myself as a warm person, but I

know my class is often perceived as ... rigorous," Clark says, smiling and pausing as he searches for the right word. "I think some students get nervous at first when I explain the work load. But the reason I talk about it from the very beginning is that I want them to understand what they're getting into. I invite students from the past year to talk about what worked in getting them to be successful. I'll tell students to show me their notes so I can see where they're missing something. And you know, I think by the middle of winter quarter, their [study] habits have gotten better and they're starting to have fun."

Clark's theory is backed up by the many students who nominated him for a 2014-2015 Exceptional Faculty Award. "Biology may very well be the study of life, but without an enthusiastic instructor it can seem completely lifeless," reads one nomination. "Steven Clark has somehow managed to maintain a strict and efficient authority over his classroom, while also making it incredibly fun and intriguing. I can honestly say that I have never seen those two concepts, authority and fun, incorporated into a class so well together. ... He truly cares for his students, that is abundantly apparent."

For Clark, his classes' rigor is one of the ways he shows that he cares. "I like my students to know that they did all their hard stuff at community college, where the focus is on teaching and the tuition is lower and there's more room to recover from mistakes," he says. "The best thing for me is when former students email me and say, 'I'm at Washington State University right now, and me and the other Clark students are in the top tier.'"

Learn about other recipients of the 2014-2015 Exceptional Faculty Awards.

Photos: Clark College/Jenny Shadley

Small World Could Bring Big Rewards



When antibiotics were first introduced in the 1930s, they seemed almost magical in their ability to save people from previously fatal infections. But recently, the medical community has warned that bacteria are evolving to resist the current drugs available, creating an urgent need for new antibiotics. Now Clark College has joined with Yale University to become part of a program searching for new antibiotics—and getting students interested in science, technology, engineering and mathematics (STEM) at the same time.

Called the Small World Initiative, the project is funded and organized by the Yale Center for Scientific Teaching. Clark is

offering the Small World Antibiotics Research classes (BIO 105 & BIO 106) in the winter quarter of 2019, and another session of BIO 105 in the spring quarter.

“Clark College was one of only four community colleges in the country to be picked to start this pilot program,” says Dr. Ryan Kustus, a Clark biology instructor who teaches the Small World class. “That makes Clark not just different from other community colleges, but different from other four-year colleges, other universities. This is a very different learning experience that a lot of students in this country just don’t get.”



Biology instructor Dr. Ryan Kustus, *standing*, helps students in the Small World Initiative class.

In Small World, students learn microbiology by doing hands-on research—in this case, collecting soil samples to test them for potential new antibiotics. Approximately 75 percent of the antibiotics currently in use are derived from microorganisms living in the soil. After students gather their soil samples, they bring them back to the classroom, where they learn to grow the organisms living within those samples in various media in petri dishes until they have enough to test. Students

then purify those organisms in order to test them against four sample bacteria that are commonly used to test antibiotic-effectiveness by pharmaceutical companies, in the hopes of finding organisms that can kill them.

“It’s really student-driven,” Kustus explains. “I give them supplies; I tell them what may work, what might not work; and then they experiment. It really is a truly hands-on, authentic research experience.”

Any promising microorganisms are sent to Yale for DNA testing to see if they already are known to medical science; if they aren’t, these microorganisms could become the source of medicine’s next broad-spectrum antibiotic. During the class’s inaugural run at Clark during the 2014 spring quarter, two students found an organism that killed all four pathogens, and while it turned out that the microorganism had already been discovered and studied by other scientists, the possibility of discovering something that could one day save people’s lives helps keep students motivated and enthusiastic.

“I told everyone I could about that class,” says pre-nursing student Dawn Smith, who enrolled in Small World after seeing a poster advertising it near Registration. “It would be so awesome to be involved in something like finding a new antibiotic. Just the idea of that is incredible.”

It's also crucial, given that more and more infections have grown resistant to currently used antibiotics.

According to the Centers for Disease Control, each year at least 2 million people in the U.S.



become infected with antibiotic-resistant bacteria; at least 23,000 of them die due to those infections. Yet pharmaceutical companies have been reluctant to research and develop new antibiotics because the drugs are rarely profitable—patients only take them in emergencies, and only for a week or two at a time.

“We simply do not have enough drugs to treat our current infections,” says Kustus. “We’re going back to the 1800s, when you treated infection by amputation—which is a terrible vision for our future. Someone has to do the initial legwork to find these drugs. We’ll never be the people doing the clinical testing and human trials and all that, but no one else is doing this basic legwork.”

“In this class, money was stripped out of the equation,” says Smith. “All we had was the big question mark hanging over our heads—our curiosity. We didn’t have to worry about profit.”

Kustus says that combination of hands-on learning and potential real-life rewards makes Small World the perfect way to get more students interested in science. BIO 105 has no prerequisites, meaning non-science majors can take it to complete their science requirements for their degree. If a student is interested in the second Small World course, BIO 106, but has not completed the prerequisite of BIO 105, they

may contact microbiology professor Dr. Roberto Anitori for a waiver (ranitori@clark.edu).

“I had a couple students who had taken a couple classes in biology, and they said this solidified that they really want to go down this path,” says Kustusch. “But the majority of the students in this class weren’t interested in science—or thought they weren’t. Now I have two students talking to me about, ‘How do I pursue a B.S. in biology?’ I think that was the goal of this class: For the people who really like science, let’s keep them interested. And for the people who never thought of this as a potential option, they’re now excited and thinking, ‘Maybe I can do something in a STEM field.’ And that’s fantastic.”

Photos: Clark College/Jenny Shadley