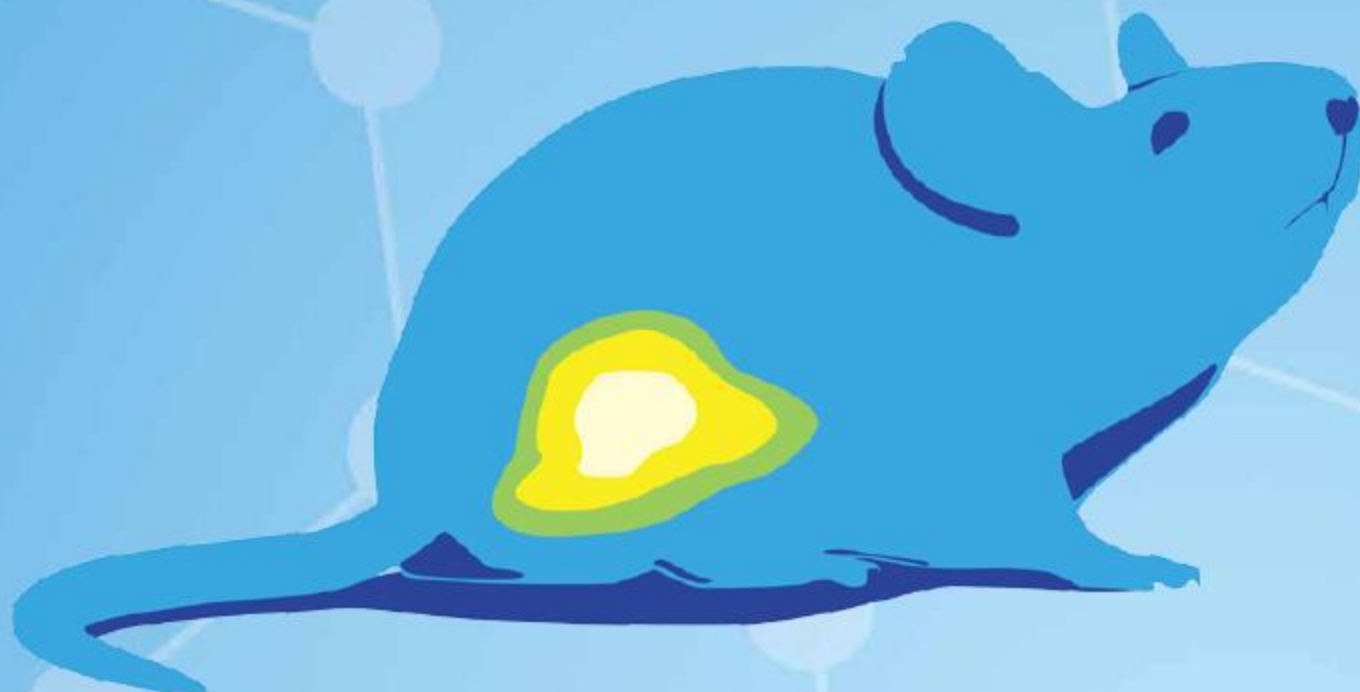


Glow away, cancer



OSU researchers use compound to make cancer cells glow, aid in treatment, removal of ovarian cancer

By **Lauren Sluss**
News Contributor

Researchers at Oregon State University have discovered how to make cancer cells glow in a treatment that both helps surgeons to locate cancer cells for removal and kills any cancer cells that remain.

The research team based out of the College of Pharmacy recently unveiled the breakthrough in a presentation at the American Association of Pharmaceutical Sciences' annual meeting in Orlando, Florida.

The success of the treatment is due to the compound naphthalocyanine, which glows when exposed to near-infrared light.

"Basically, we have developed a diagnostic agent to be used for image guided phototherapy application. We can deliver this agent to cancer tissues to make it glow," said Olena Taratula, principal investigator and assistant professor at the College of Pharmacy. "The surgeon can then see more clearly where the cancer cells are located, and have an easier time

removing them."

The process was not an easy one, though, as naphthalocyanine isn't water soluble and has a tendency to house itself in several cells within the body, rather than just the cancer cells. By adding a special water-soluble polymer called a dendrimer, scientists were able to coax the compound to reside exclusively in cancer cells.

This breakthrough has both diagnostic and therapeutic applications.

"Not only can these nanoparticles injected into the cancer cells provide additional image guiding during surgery, but they can also be used for cancer therapy," Taratula said. "These nanoparticles can generate heat under an infrared light and kill the cancer cells on the spot."

The nanoparticle injections have already had positive results. Although it is too early to begin clinical trials, the OSU research team has successfully used the chemical compound on mice.

"We injected it into the mice and within 24 hours

the compound had entered the tumor, allowing us to use phototherapy and infrared light to cut out and destroy the cancer cells," Taratula said.

The research responsible for making the discovery was conducted on ovarian cancer cells and has real implications toward an advancement in ovarian cancer treatment.

"We expect about twenty-two thousand women to be diagnosed with ovarian cancer each year. What we are trying to do is to provide a safer, more efficient way for surgeons to remove the cancer cells," Taratula said.

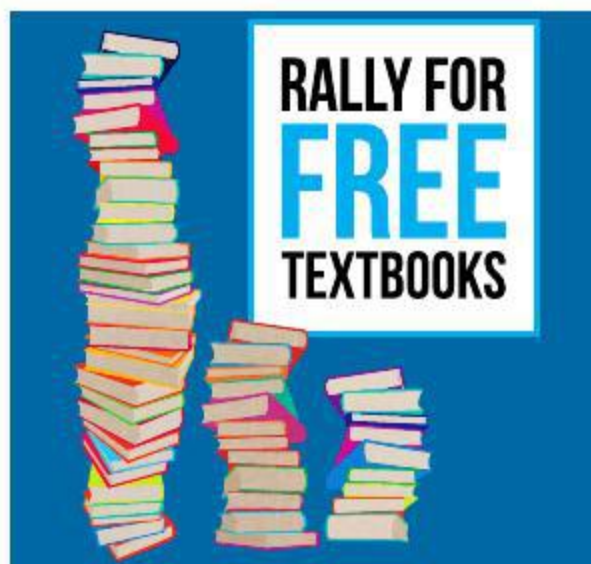
The ultimate goal for the team is to move to clinical trials, junior and biohealth major Tony Duong explained.

Duong has been working with the research team for over two years, and has seen the implications the nanoparticle research can have.

"The plan overall is to eventually be able to produce our nanoparticles on a mass scale and to be able to

See **Glow**, Page 6

Students rally in the fight for free textbooks



CONTRIBUTED BY ASOSU

ASOSU textbook rally works to bring free textbooks to OSU

By **Julie Cooper**
News Contributor

According to Oregon State University's financial aid and scholarship webpage, OSU students pay an average of \$1950 per year on textbooks and school supplies.

The most recently distributed biannual student survey by the Oregon Student Association listed textbook affordability as the number two issue of concern for OSU students, following college affordability.

On Wednesday, Nov. 4, Associated Students of Oregon State University will partner with the Beaver Store, OSU Faculty Senate and the OSU Library to hold a rally in the Student Experience Center Plaza to provide information on

how students and faculty can become involved with bringing free textbooks to OSU.

To address student concerns, OSU is attempting to get more legislative support and funding for the use of Open Education Resources.

Lyndi Petty, the ASOSU vice president and current interim ASOSU president, has taken over the responsibility of putting on the rally in the aftermath of ASOSU President Cassie Huber's recent impeachment.

According to Huber, the Higher Education Coordinating Committee recently granted Oregon's 24 public universities and community colleges a fund of \$700,000 to be shared for the purpose of compensating and developing textbooks. Huber said ASOSU originally requested \$1.1 million, but the full amount was not approved.

"The goal of the rally is really to increase awareness about open educational resources, and to develop

a system where we can get faculty, students and administration behind us to go back to the legislature, and be like, 'We've got this long list of people dedicated to the use of OERs, let's move this forward. We need more money,'" Huber said.

Petty will speak briefly at the rally on behalf of ASOSU, and provide support to those who have been involved in the project from the start, including ASOSU's Executive Director of Government Relations Tabitha Pitzer.

Petty's greatest hope for the rally is creating a widespread knowledge and involvement among students throughout the process of change.

"I really want as many students as possible to be there, because this is a really awesome opportunity for students to be directly involved with something that's really important," Petty said. "We do have a voice as stu-

See **Rally**, Page 3

News

USC professor brings computer animation to life

By Ronald D. White
Los Angeles Times

LOS ANGELES — The gig: Animator Hao Li, 34, is an assistant professor of computer science at USC, running a small, newly renovated lab with five graduate students at the university's school of engineering. His team is working on cutting-edge graphics and animation, including what Li described as "dynamic shape reconstruction, real-time facial and body performance capture, 3-D hair acquisition and garment digitization." Li is also the founder and chief executive of Pinscreen Inc., a Los Angeles-area startup focusing on "next-generation mobile communications in 3-D."

Making a name: In 2013, Li was named one of the world's 35 top innovators under age 35 by the MIT Technology Review. Formerly with the Industrial Light & Magic visual-effects house, Li's film credits include "Star Trek Into Darkness," "Captain America: The Winter Soldier," "The Hobbit: The Battle of the Five Armies" and "Fast and Furious 7." In the last film, Li helped with the animation of the late Paul Walker's character to make it appear as though Walker was present throughout the movie even though he died in a car accident before filming was completed.

Bad hair day: "One of the incredibly difficult things" Li said he was working on at USC with his graduate students is an algorithm that attempts "hair capture," or movement, making it look as though each strand of hair — there are about 100,000 on a human head — is moving individually as well as changing appearance depending on sources of light or shadow.



MICHAEL ROBINSON CHÁVEZ | LOS ANGELES TIMES

USC professor Hao Li works on cutting-edge computer graphics and animation with his students and with Hollywood studios.

Early effects: Li dubs himself a "German-born punky of Taiwanese descent doing computer graphics," adding, "I know, #epicfail." Born in Saarbrücken, Germany, Li points to the influence of his mother, Cheng-Tze Liu, who was a painter, calligrapher and costume maker for stage dramas, ballets and operas. His

father, Chuan-Tseng Li, was a chemist and engineer for a pharmaceutical company. "It was the perfect combination for computer graphics," Li said. "I had the aspect of art from my mother and the science from my father."

Picking a path: Still, Li's parents didn't see where he was headed while he "played video

games several hours a day" on a Commodore 64 computer and began learning simple computer coding and computer languages, like BASIC, in high school. "Chinese families always wish their sons will go into medicine or become a lawyer," Li said. "I just kind of refused that and decided I wanted to go into computer science."

Movie magic: Exposure to effects-heavy films including "Jurassic Park" and "The Terminator" set Li's sights on a computer animation career. "I saw those special effects and said, 'Wow, that is what I really want to do.'" Li said that two of his high school teachers were "instrumental in telling what subjects I would need to take. By 16, they had given me a better idea of what I would have to

do to be in computer science."

European education: Li got a master's degree in computer science in 2006 from the University of Karlsruhe (now the Karlsruhe Institute of Technology) and a doctorate in computer science from ETH Zurich in 2010. Li followed that up with post-doctoral work at Princeton University and Columbia University through early 2012. "I got the formal training on the theoretics of computer science. ... I started to experiment with graphics and put them on YouTube," Li said. If it's well done "it immediately catches attention in the industry."

Getting noticed: Li said he wound up getting job offers from Microsoft Corp. and Industrial Light & Magic. "At the same time, I started applying for faculty positions," Li

said. "That's how I came to USC" in June 2013. Li said he chose academia over commercial positions because of the stability of academic environments, the resources and because "you can do crazy things and ideas and not worry about commercializing it. You can also do long-term, fundamental research, something you can't do in an industry job."

Advice: Stay open to possibilities, Li said, adding, "Have a rough idea of where you want to go, but don't just stick with that because technology is changing so quickly now. There is no way to plan. You just have to adapt to the changes."

Leadership style: Li starts off by working with his students closely, but then wants **See Animate, Page 6**

**Artists Wanted for
A Willamette Valley Christmas**

Event: 12/20 Auditions due: 11/13

Hosted by Life Community Church
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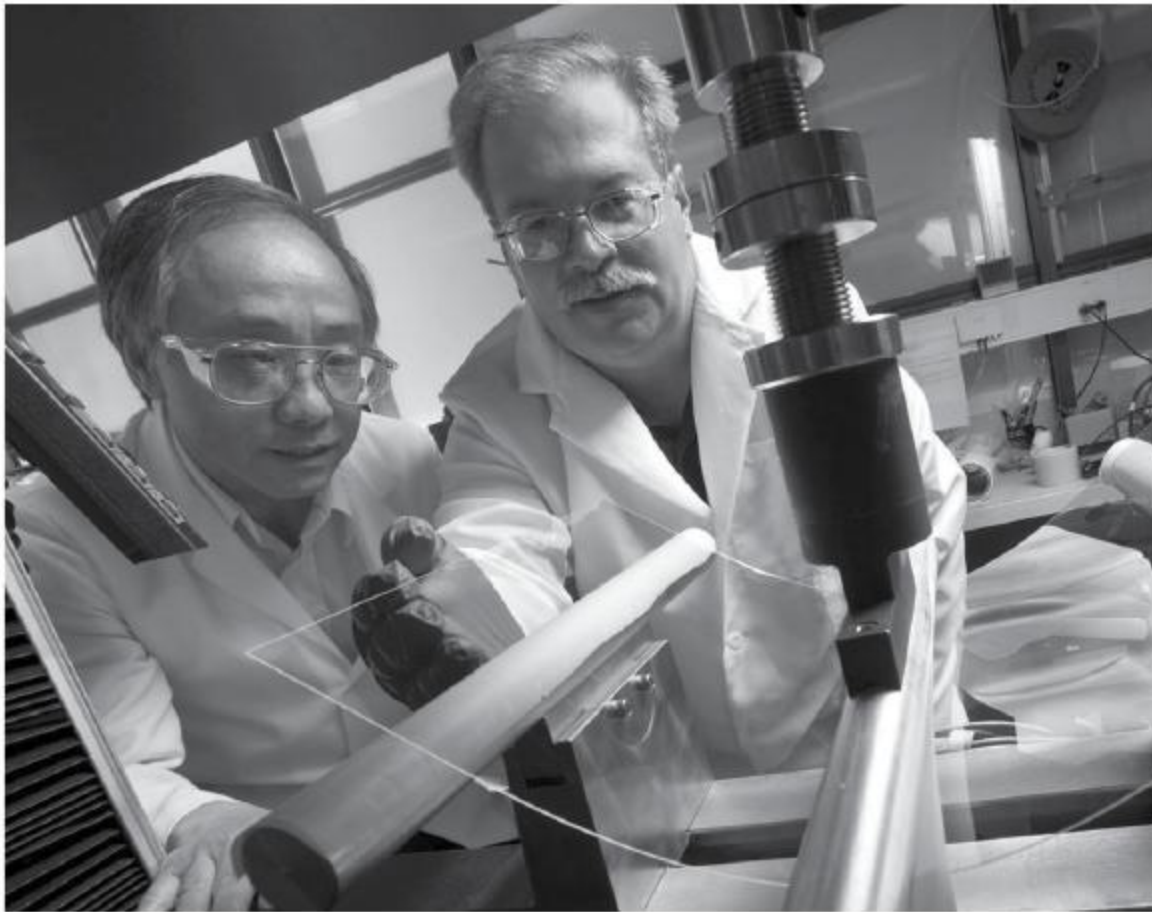
Today's Crossword Puzzle

<p>Across</p> <p>1 See-through kitchen supply</p> <p>6 Mythical king of the Huns</p> <p>10 Kitchen spray</p> <p>13 Flared dress</p> <p>14 Ancient Greek theater</p> <p>15 Land in l'océan</p> <p>16 *Sneaky blow</p> <p>18 Some kitchen appliances</p> <p>19 Did a slow burn</p> <p>20 Passengers in flight, often</p> <p>22 Cyberspace marketplace</p> <p>23 Snobbish</p> <p>24 Chopper</p> <p>27 Mount Hood's state</p> <p>29 Prominent periods</p> <p>30 Keep the censor busy</p> <p>31 The NBA's Kevin Love, e.g.</p> <p>34 Alternative to dis?</p> <p>35 Easy mark ... and a hint to the starts of the answers to starred clues</p> <p>37 Dressing ingredient</p> <p>38 High rails</p> <p>39 Bassoon cousins</p> <p>40 Vending machine buy</p> <p>41 "Absolutely!"</p> <p>43 Kicked off the flight</p> <p>45 Well-protected</p> <p>47 Sweater outlet?</p> <p>48 Island nation near Sicily</p> <p>49 Get in the game</p> <p>54 Form 1040 calc.</p> <p>55 *Peanuts</p> <p>57 Nickelodeon pooch</p> <p>58 Spine-tingling</p> <p>59 Hawaii or Alaska, on</p>	<p>many a map</p> <p>60 Number before quattro</p> <p>61 Editor's "Let it stand"</p> <p>62 Hoopster Archibald and rapper Dogg</p> <p>Down</p> <p>1 Back talk</p> <p>2 Homecoming guest</p> <p>3 Affluent, in Andalusia</p> <p>4 Low socks</p> <p>5 (If) required</p> <p>6 Together, musically</p> <p>7 Watch over</p> <p>8 Director Jean-___ Godard</p> <p>9 "Can't wait to eat!"</p> <p>10 *Place for brooding</p> <p>11 Watchful</p> <p>12 Embarrassing, as a situation</p> <p>14 Nashville attraction</p> <p>17 Bring up</p> <p>21 Great Lakes' ___ Canals</p> <p>23 10-time All-Pro linebacker Junior</p> <p>24 Hand over</p> <p>25 Taken by mouth</p> <p>26 **Walkin' After Midnight" singer</p> <p>27 Young hooter</p> <p>28 Rules, briefly</p> <p>30 ___ gin fizz</p> <p>32 Trusted underling</p> <p>33 Prince who inspired</p>	<p>Dracula</p> <p>35 Loser only to a straight flush</p> <p>36 Calais cleric</p> <p>40 "The Bartered Bride" composer</p> <p>42 Away</p> <p>43 Former U.K. carrier</p> <p>44 Mischievous boy</p> <p>45 Snazzy-looking</p> <p>46 Ready and willing</p> <p>47 Love-crazy Le Pew</p> <p>49 "Absolutely!"</p> <p>50 Give out</p> <p>51 Scientific acad.</p> <p>52 Architectural S-curve</p> <p>53 Fishing gear</p> <p>56 Riled (up)</p>	<p>Tuesday's Puzzle solved</p> <table border="1" style="font-size: small; text-align: center;"> <tr><td>I</td><td>L</td><td>S</td><td>A</td><td>B</td><td>U</td><td>S</td><td>H</td><td>B</td><td>A</td><td>N</td><td>F</td><td>F</td></tr> <tr><td>S</td><td>O</td><td>U</td><td>S</td><td>O</td><td>H</td><td>I</td><td>O</td><td>A</td><td>R</td><td>O</td><td>A</td><td>R</td></tr> <tr><td>H</td><td>U</td><td>N</td><td>K</td><td>Y</td><td>D</td><td>O</td><td>R</td><td>Y</td><td>B</td><td>I</td><td>T</td><td>S</td><td>Y</td></tr> <tr><td>T</td><td>O</td><td>A</td><td>H</td><td>E</td><td>A</td><td>V</td><td>Y</td><td>D</td><td>A</td><td>T</td><td>E</td><td></td></tr> <tr><td>T</td><td>E</td><td>A</td><td>U</td><td>R</td><td>N</td><td>S</td><td>W</td><td>F</td><td>L</td><td>O</td><td>G</td><td></td></tr> <tr><td>H</td><td>U</td><td>N</td><td>T</td><td>D</td><td>O</td><td>W</td><td>N</td><td>S</td><td>A</td><td>R</td><td>O</td><td>N</td><td>G</td></tr> <tr><td>Y</td><td>R</td><td>S</td><td>R</td><td>O</td><td>O</td><td>S</td><td>C</td><td>U</td><td>T</td><td>E</td><td>S</td><td></td></tr> <tr><td>H</td><td>A</td><td>I</td><td>R</td><td>D</td><td>R</td><td>O</td><td>Y</td><td>E</td><td>R</td><td></td><td></td><td></td></tr> <tr><td>H</td><td>E</td><td>T</td><td>U</td><td>P</td><td>M</td><td>U</td><td>T</td><td>E</td><td>T</td><td>O</td><td>M</td><td></td></tr> <tr><td>A</td><td>L</td><td>E</td><td>R</td><td>T</td><td>S</td><td>H</td><td>A</td><td>L</td><td>F</td><td>D</td><td>O</td><td>M</td><td>E</td></tr> <tr><td>M</td><td>E</td><td>M</td><td>L</td><td>A</td><td>B</td><td>P</td><td>R</td><td>O</td><td>P</td><td>E</td><td>R</td><td></td></tr> <tr><td>H</td><td>A</td><td>P</td><td>P</td><td>Y</td><td>D</td><td>A</td><td>Y</td><td>S</td><td>E</td><td>R</td><td>S</td><td></td></tr> <tr><td>O</td><td>N</td><td>E</td><td>U</td><td>P</td><td>H</td><td>O</td><td>M</td><td>E</td><td>D</td><td>E</td><td>P</td><td>O</td><td>T</td></tr> <tr><td>C</td><td>O</td><td>R</td><td>F</td><td>U</td><td>A</td><td>G</td><td>O</td><td>G</td><td>M</td><td>I</td><td>C</td><td>E</td></tr> <tr><td>K</td><td>R</td><td>A</td><td>F</td><td>T</td><td>I</td><td>A</td><td>G</td><td>O</td><td>I</td><td>N</td><td>H</td><td>D</td></tr> </table> <p style="font-size: x-small; text-align: center;">©2015 Tribune Content Agency, LLC 10/18/15</p>	I	L	S	A	B	U	S	H	B	A	N	F	F	S	O	U	S	O	H	I	O	A	R	O	A	R	H	U	N	K	Y	D	O	R	Y	B	I	T	S	Y	T	O	A	H	E	A	V	Y	D	A	T	E		T	E	A	U	R	N	S	W	F	L	O	G		H	U	N	T	D	O	W	N	S	A	R	O	N	G	Y	R	S	R	O	O	S	C	U	T	E	S		H	A	I	R	D	R	O	Y	E	R				H	E	T	U	P	M	U	T	E	T	O	M		A	L	E	R	T	S	H	A	L	F	D	O	M	E	M	E	M	L	A	B	P	R	O	P	E	R		H	A	P	P	Y	D	A	Y	S	E	R	S		O	N	E	U	P	H	O	M	E	D	E	P	O	T	C	O	R	F	U	A	G	O	G	M	I	C	E	K	R	A	F	T	I	A	G	O	I	N	H	D
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CORNING | LOS ANGELES TIMES

Corning technicians do a flex test on their Gorilla Glass. The glass is scratch- and shock-resistant.

By Tracey Lien
Los Angeles Times

PALO ALTO, Calif. — “We don’t make that kind of glass,” said Waguhi Ishak, director of Corning Inc.’s West Coast Research Center, pointing to the windows lining his office and, beyond that, to the windshields of the cars parked outside.

“That is very thick glass, where impurities and small defects don’t really matter. At Corning, we make electronic-grade glass.”

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What more could Corning’s lab in Palo Alto do besides make it a little thinner, a little smoother and a little clearer?

Ishak smiled. His face was friendly, but the knowing look in his eyes was clear: You have no idea.

He played with a plastic-like sheet between his hands, bending it back and forth.

See **Glass**, Page 6

Rally

Continued from page 1

dents, and if we make enough noise in the legislature and our community, we can really push for open educational resources.”

The collaborating sponsors of the rally have pulled out all the stops to make the rally appealing to students and to increase involvement of all OSU stakeholders, including students, faculty and staff. The rally will include brief presentations by guest speakers, tabling and information about OERs, and several stations of activities and games, complete with prizes and all.

The Oregon State website describes OERs as “digital materials that exist online in the public domain and are offered freely for students, teachers and researchers to share, use and reuse as a means of increasing the world’s access to knowledge. Examples of OERs include full courses, course modules, syllabi, lectures, homework assignments, quizzes, classroom activities, pedagogical materials, games and much more – all located in digital media collections around the world.”

Open Oregon State helps OSU faculty to develop OERs that can be accessed freely by students and teachers in digital media collections around the world. The department formed 2 years ago, and has since seen significant interest from faculty who want to create OERs for their courses.

“We work with faculty—whether they teach online or whether they teach on campus—to try to help them to find no-cost course materials for their students,” said Dianna Fisher, director of Open Oregon State. “If they can’t find an open textbook that meets their needs, then we will work with them to either

take an existing textbook and modify it to meet their needs, or if that’s not an option, we will work with them to create a textbook that does meet their needs, and then offer that for free to the students here at OSU and students, really, in all other places.”

The members of ASOSU cite the recent successful implementation of mandatory OER use in all undergraduate courses at the University of Maryland as a sign that the campaign for OERs at Oregon State has a great chance to be effective, and to help spark a movement toward the use of OERs on college campuses elsewhere.

However, resistance to OERs could come from some faculty members who have stuck with the same textbook for many years of teaching, and may have even constructed their courses around specific reading materials.

Tabitha Pitzer, ASOSU’s Executive Director of Government Relations, said that although students have a greater stake in the results, many faculty also hope to move toward more accessible class materials.

“With the costs of textbooks continually rising, we need to do something now,” Pitzer said. “Students are really feeling this burden of having to pay so much just to be able to succeed in their classes that they’re already paying so much more for. But also, professors are looking for ways to be able to make higher education more affordable for their students.”

Pitzer has taken charge of seeking out legislators to attend the rally, and will be tabling at the event to explain the bill and its funding, talk about issues related to the funding, and answer questions about how students can get involved in making the switch to free materials.

“If students show interest, I will be leading task forces to talk to professors,”

“We know that students have this struggle of higher education affordability and so we want to give students the opportunity to know that they can advocate for themselves and make a difference.”

Tabitha Pitzer
ASOSU Executive Director
of Government Relations

Pitzer said. “I’ll be training students on how to articulate their narrative as to why this is so important to them, and I’ll be taking students to Salem to lobby our legislators about receiving more funding for open educational resources.”

The textbook rally is the starting point of a movement toward change that will affect all OSU students and faculty.

“This is kind of the opening dialogue,” Pitzer said. “We know that students have this struggle of higher education affordability, and so we want to be able to give students the opportunity to know that they can advocate for themselves and make a difference.”

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Sports

Beavers look primed for another stellar season

Wrestling starts new season with high ambition

By Danny Rice
Sports Contributor

Oregon State wrestling is stocked with potential, experience and eagerness ahead of the start of their season.

Head coach Jim Zalesky is excited for the season to begin and for his team to start making noise nationally.

"We have seven guys who have been to the NCAA tournament before," Zalesky said. "That's the most we've had here at Oregon State since I've been here. Our goal is to do a lot better at the NCAA tournament and that's what we've been training for."

As a team, the Beavers will look to claim their fifth consecutive Pac-12 championship, something no Pac-12 team has done since Arizona State won seven straight from 1985 to 1991. Oregon State hasn't won five straight conference titles since the 1960s when they won six straight from 1965 to 1970.

At 125 lbs, the Beavers will look to sophomore Ronnie Bresser. Statistically speaking, Bresser had quite the season a year ago compiling a 34-7 record, a Pac-12 championship and a trip to the NCAA tournament—but don't expect Bresser to be thrilled about his season a year ago.

"I plan to keep training everyday," Bresser said. "Last year, I feel like it was a bit of a let down at the NCAA tournament. I think about it everyday. I'm training everyday to improve that. I believe I can be an NCAA champion this year and with the work I'm putting in, I can do it."



Redshirt sophomore heavyweight Amarveer Dhesi works to take down his opponent in practice on Nov. 3. The Oregon State wrestling season kicks off on Wednesday at the Orange and Black Meet at Gill.

Bresser is ranked 11th in the nation by InterMat in their preseason polls, so look for Bresser to improve on that ranking.

At 133 lbs, Oregon State will be happy to trot out redshirt junior Joey Palmer. Palmer redshirted last season, so they'll be excited to have him and his leadership back on the mat competing for the Beavers. Palmer is a previous NCAA participant, he went in 2014 at 125 lbs, so he'll look to improve on that mark this season.

"My main goal is to be an NCAA champion," Palmer said. "I've improved on certain skills on the mat and improved my mindset. I'm just excited to compete in front of the fans, and I think we have a really strong team,

and it should be a fun season."

At 141 lbs, redshirt sophomore Jack Hathaway will look to get the nod. Hathaway went 27-12 a year ago and became the Pac-12 champion at 133 lbs and an appearance at the NCAA tournament. Redshirt junior Jared Reis will also be in the mix for the starting role. Look for Hathaway and Reis to compete for the job for even the first half of the season.

149 lbs will most likely shape up to be one of the more interesting weight classes. The two main guys competing for the starting job didn't wrestle this weight a year ago. Redshirt junior Joey Delgado wrestled at 157 lb last year behind departed Alex Elder and redshirt sophomore Devin Reynolds started at 141

lbs and went 23-9 last year for the Beavers. Delgado was an NCAA participant and Pac-12 champion two years ago at 141 lb so he's hungry to finally crack the starting lineup. Zalesky said Reynolds is out currently with a concussion, but once Reynolds is back, keep an eye out for this weight class as it looks to be the most competitive one.

At 157 lbs, redshirt sophomore Abraham Rodriguez will look to be the starter. Rodriguez went 26-12 a season ago and was a match away from qualifying for the NCAA tournament. Rodriguez is a guy Zalesky sees as a little under the radar, but can make some noise.

"He didn't get to nationals last year, but he had a good year," Zalesky said. "He

has improved, and he looks good."

At 165 lbs, the Beavers will have senior Seth Thomas. Thomas, who is ranked 12th by InterMat, went 26-14 a year ago and competed at the NCAA tournament last year as well. Look to see a determined Thomas try to end his senior campaign and Beaver career as an All-American.

174 lbs is a weight class that is up in the air. Zalesky has two guys competing for the job in redshirt sophomore Tyler Chay and redshirt junior Ali Alshujery. If either of these guys are to emerge the starter, it would be their first year. No matter the experience, the starter will be competing hard to keep his job with the other guy on his tail.

At 184 lbs, Oregon State

will most likely rely on redshirt freshmen Corey Greigo. Greigo went 17-4 last season as the backup to the departed Taylor Meeks. It should prove tough for Greigo replacing a decorated wrestler like Meeks, but Greigo showed last season he is capable of competing and getting results against top wrestlers.

At 197 lbs, the Beavers have redshirt sophomore Cody Crawford. Crawford, ranked 12th by InterMat, is a returning NCAA participant and Pac-12 champion at the same weight. Crawford went 32-10 last season, so he'll look to get back to the NCAA tournament and be one of the strong points in a tough Beaver lineup.

At heavyweight, Oregon State will be delighted to have redshirt sophomore Amarveer Dhesi back in action. After redshirting last season following an injury, Dhesi will be back and hungry for the success he had his freshman year that saw him earn a spot at the NCAA tournament. He is currently ranked seventh by InterMat and should also prove to be one of the more reliable weight classes this year in terms of wins and points earned for the team.

Multiple weight classes will be determined Wednesday as the Beavers open their season in their annual Orange and Black Intrasquad Meet at 7 p.m. at Gill Coliseum. Admission is free.

Oregon State opens their regular season Sunday. They travel to Pacific University in Forest Grove for the Mike Clock Open.

On Twitter @DRice1720

Rewind: Beavers stay undefeated in 2012 with win at UCLA



Senior wide receiver Markus Wheaton catches a 42-yard touchdown against the Bruins on Sept. 22, 2012. OSU hosts the Bruins on Saturday at Reser Stadium.

Mannion, Cooks, Wheaton pave for Beaver upset at the Rose Bowl

By Brian Rathbone
Sports Editor

The Wednesday Rewind is a weekly feature that takes a look back to the last time the Beavers and their opponent faced off. This week we look at the UCLA Bruins, who the Beavers defeated 27-20 at the Rose Bowl on Sept. 22, 2012 behind a career day for quarterback Sean Mannion.

What was at stake?

Oregon State had only played one game of the season after their first game of the season was rescheduled due to Hurricane Isaac. The Beavers then had an early bye week following the Beavers 10-7 upset victory over 13th ranked Wisconsin. UCLA had worked their way to a 3-0 record and No. 19 ranking in the polls under first-year head coach Jim Mora Jr. With a victory, head coach Mike Riley would tie former coach Lon Stiner for Oregon State's all-time leader in victories.

Offensive storyline:

After leading the Beavers to victory against Wisconsin where quarterback Sean Mannion played an efficient game completing 29-of-47 passes for 276 yards and a touchdown, he broke out for a career game at the Rose Bowl against UCLA. Mannion passed for a then-career high 379 yards and two touchdowns, finding receivers Markus Wheaton and Brandin Cooks each long touchdowns. Cooks and Wheaton combined for 15 catches, 325 yards and two scores. Running back Storm Barrs-Woods, in his second career start, ran for 96 yards on the ground, including the game-winning touchdown in the third quarter.

Defensive storyline:

Entering the game, UCLA running back

Jonathan Franklin had played himself into the Heisman trophy conversation through the first three games of the season. He was averaging 220 yards from scrimmage, 8.19 yards per carry and had four touchdowns in the Bruins first three victories on the year.

The Oregon State defense built on their performance against Wisconsin, where they held Heisman candidate Monte Ball to 61 yards on the ground two weeks earlier, by holding Franklin to 45 yards rushing—his lowest output of the season. Containing Franklin made the Bruins have to rely on redshirt freshman quarterback Brett Hundley who threw for 372 yards, but only led two touchdown drives.

Turning point:

The offenses for both teams came out slow out of the gates, early in the second quarter UCLA was able to tie the ball game with a field goal bringing the score to 3-3, it appeared Oregon State was in their second defensive battle in as many games.

The ensuing play after UCLA tied the game, Mannion hit Cooks on a quick slant, and Cooks did the rest, dashing past the UCLA defense for a 75-yard touchdown to jumpstart the Oregon State offense. The Beavers would finish the game scoring 27 points and 501 yards of total offense.

What happened next?

UCLA entered the game ranked No. 19, the next week they would be unranked. Oregon State entered the game unranked, the next week they were ranked No. 18. Both teams ended up having successful seasons, the Beavers went on to win their next four games reaching as high as No. 7 in the polls and go on to play in the Alamo Bowl. The Bruins represented the Pac-12 South division in the Pac-12 Championship, they finished with a 9-5 record and a birth in the Holiday Bowl.

On Twitter @brathbone2

THE DAILY BAROMETER ARCHIVES

Notebook: Beavers learn from last year's loss to Western Oregon

Oregon State men's basketball opens their season in 10 days

By Josh Worden
Senior Beat Reporter

The Oregon State men's basketball pre-season is nearly over. Thursday's home matchup against Western Oregon at 7 p.m. leads the Beavers up to the regular season opener Nov. 14 in Gill Coliseum against Northwest Christian.

Though the Western Oregon contest is an exhibition game, the Beavers will have the added boost of playing the Wolves a year after losing 57-47 at home in head coach Wayne Tinkle's first game at OSU. No Beaver player scored more than 10 points as OSU shot 35.6 percent as a team.

The Beavers rattled off three straight wins after that defeat, however, and won their first 14 home games.

"Going 14-0 after that showed we really improved a lot after (Western Oregon)," said senior forward Olaf Schaftenaar. "That game was good for us, in a way."

Now a team trying to end a 16-year absence from the NCAA Tournament, the Beavers look to fight through injuries and handle the visiting Wolves.

"It's a new team, new year, new opportunities," Tinkle said Monday at practice in preparation for Thursday. "It's a totally different group. We've got so many injuries, right now we're just hoping to survive, get better

and get healthy."

Injuries

The players expected to miss Thursday's game are freshman guard Kendal Manuel (broken leg; out for the year), junior center Cheikh N'Diaye (shoulder), senior forward Jarmal Reid (stress fracture in right foot) and senior forward Daniel Gomis (broken bone in hand). Senior guard Langston Morris-Walker and freshman center Gligorije Rakocevic were banged up earlier in the pre-season but have been practicing in full.

Defensive Development

Last year, the Beavers thrived on stingy defense and finished second in the Pac-12 in points allowed (59.2 per game) and opponent field goal percentage (38.6), trailing only Utah in both categories. This season, Tinkle has said the defensive end is the side in need of the most improvement.

"We are trying to get a little more up-tempo in transition (offensively), but in order to do that we've got to get stops," he said. "Right now, that's the focus. We're not nearly as good defensively as we need to be. Once we are, I think that will lead to the balance in scoring."

Especially when the conference schedule arrives, OSU will face plenty of teams with strong front courts and talented post players.

"I've never had to play guys my size," said freshman forward Drew Eubanks. "I'm kind of strong but I'm not as strong as (Arizona's 7-foot, 250 pound center Kaleb) Tarczewski and a lot of the other big guys in the Pac-12, so I've got to out think them more, I guess you could say. Beat them to the spot before they have a chance to duck in and post on me."



JUSTIN QUINN | THE DAILY BAROMETER ARCHIVES

Head coach Wayne Tinkle offers some advice to senior forward Langston Morris-Walker against USC on Jan. 29th, 2015. Oregon State opens play on Nov. 14.

Scrimmage

The Beavers will return to Gill Coliseum after an intrasquad scrimmage last Wednesday, in which 74 points of the game's 121 were scored by freshman. Stephen Thompson, Jr. had 28 points to lead all players, followed by fellow freshman Tres Tinkle's 16 points, Derrick Bruce's 13, Eubanks' 12 and Rakocevic's eight.

"I felt I did pretty well, but obviously there

are some things I need to work on like court awareness, rotations and getting the plays solidified," Eubanks said of the scrimmage, adding that he is close to having a complete understanding of all of OSU's plays.

Thursday's game with Western Oregon will be televised on the Pac-12 Networks, as will the regular season opener on Nov. 14 against Northwest Christian at 4:30 p.m.

On Twitter @Brightfies

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THE BLOCK

Glass

Continued from page 3

"This is Willow Glass," he said, forming a bell curve with the sheet. "It's 0.1-millimeter-thin glass."

Corning can now mass-produce Willow Glass and ship it around the world in large rolls.

"And this," he said, tapping on some smaller pieces of glass on the table, "is Gorilla Glass."

Gorilla Glass is the glass in iPhones. Thanks to Corning's chemical formulas, it's the reason phones are now more scratch- and shock-resistant than earlier models.

Now picture this, Ishak said: razor-thin glass with the flexibility of plastic and the durability of steel.

Think what it would mean for mobile devices. Heck, think what it could mean for any electronic device with a screen.

"Plastic ages," Ishak said. "After a few years it becomes yellow and deteriorates. Glass

doesn't."

He continued: "If you have a 1-millimeter sheet of plastic, it will take an oxygen ion (that is, moisture) a few hours to get through it. Moisture is terrible for electronics. If you have a 1-millimeter piece of glass, it will take 30 billion years."

More durable phones could also mean the end of phone cases, which, according to Daniel Hays, a principal partner at PwC, could "improve the viability of having dual-screen phones where the back of the phone serves a different purpose," he said. A second screen, perhaps? Maybe a touchpad?

Or, according to Hsu, if glass can get so thin that it's bendable while retaining its strength, think of the different forms devices could take.

"In the early days of phones, there was a diverse ecosystem of handsets that took many different forms and shapes," he said. "Then, after 2009, every one had a rectangular slab."

Tougher devices, more powerful and longer-lasting devices, and more diverse devices are all inching closer to reality all thanks to glass.

Los Angeles Times

Glow

Continued from page 1

use it for clinical purposes, which could potentially benefit people all over the world," Duong said.

Although this breakthrough has already advanced the fields of cancer imaging and phototherapy, it needs more funding in order to actually move to clinical testing.

"The next step is to get divisional funding from the College of Pharmacy, and

hopefully move to perform surgeries on dogs, and eventually humans," Taratula said.

With the proper funding, this research has the potential to save lives.

"This breakthrough is a step in the right direction," Duong said. "Not only has our team worked hard to produce these nanoparticles, but we also are providing a platform on which other researchers can build upon as well, and hopefully benefit millions of people."

news@dailybarometer.com

Animate

Continued from page 2

them "to develop their independence. It's not just giving them a task to do. They need to have their own agenda, where they decide" the next project they will be working on.

Looking ahead: Li sees a future in which self-crafted avatars, enhanced to one's own tastes, can assemble in a 3-D virtual room for a meeting or social activities. The technology will "become an integral part of every computer, mobile device and living room," Li said, "streaming terabytes of data about us and our friends every second over the Internet." Li added, "Our world is 3-D, and I want machines to be able to see it like we do."

Personal: Li, who is single, has taken up cooking as a hobby and currently is working his way through Italian cuisine. Another leisure pursuit is art, which Li showcases on his website, www.hao-li.com. Despite his love of computer animation, his favorite tool is a simple pencil.

Los Angeles Times



New to the MU this year!

Family Friendly Lounge
(West of the Main Living room)

Classifieds

Help Wanted

MID-VALLEY HEALTH CARE ADVOCATES, a Corvallis organization working for universal publicly funded health care in Oregon, needs a freelance social media contractor. Work from home; attend occasional meetings; responsible to Board. Jan 1 through September 30. \$350/35-40 hours per month. Details: www.mvhca.org/social.

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Print Rates:
15 words or less, per day - \$3.75
Each additional word, per day - 25¢
10 Days - 25% off • 20 Days - 50% off

Calendar

THURSDAY, Nov. 5:

Open Discussion: 12:30 p.m. - 1 p.m. Baha'i Campus Association
Location: Talisman Room, Memorial Union
Open Discussion on acclimating oneself to hardship.

Event:
6 p.m. - 8 p.m. OSU Healthy Aging Club
Location: Waldo 400
OSUHAC presents Silver Screen "The Office - Work & Family"

FRIDAY, Nov. 6:

Event:
2 p.m. - 4 p.m. Veterans Honor Ceremony
Location: 2601 NW Tyler Ave
Pinning ceremony & refreshments for veterans from any country/branch served.

Event:
1:30 p.m. - 3:30 p.m. Kidsthetics club
Location: 2601 NW Tyler Ave
Free family event. Family art class 1:30 p.m. Family music class 2:00 p.m. Play and practice 2:30 p.m.

MONDAY, Nov. 9

Meeting:
5:30 p.m. - 7:30 p.m. Death Cafe Corvallis
Location: 2nd Street Beanery, 600 2nd St.
Got thoughts about mortality? Death Cafe Corvallis exists in order to listen and talk about death.

Event:
10 a.m. - 2 p.m. OSU Healthy Aging Club
Location: MU-SEC Plaza
Come to MU/SEC Plaza @ our "Thank A Vet" table to sign thank you cards to veterans on historic occasion of OSU honoring Veteran's Day.

TUESDAY, Nov. 10:

Speaker:
7:30 p.m. - 10 p.m. University Events
Location: LaSells Stewart Center
Provost's Lecture Series. Leadership Under Pressure: A Historian's Close-up Look at Presidential Decision-Making.

WEDNESDAY, Nov. 11

Event:
5:30 p.m. Horticulture Club
Location: ALS 4009
Join us for a wellness discussion and nursery owner speaks on opportunities in the field.

SATURDAY, Nov. 14:

Event:
10:30 a.m. Chi Omega
Location: Benton County Fairgrounds County Fairgrounds
Color Me Chi O is a 6k color fun run, walk and roll that benefits the Make-A-Wish Foundation!

Event:
7 p.m. - 9 p.m. Book Bin Bookstore
Location: 215 SW 4th St.
William Ritter, author of Jackaby will be at the book bin reading from his new book Beastly Bones.

MONDAY, Nov. 16

Meeting:
5:30 p.m. - 7:30 p.m. Death Cafe Corvallis
Location: 2nd Street Beanery, 600 2nd St.
Got thoughts about mortality? Death Cafe Corvallis exists in order to listen and talk about death.

WEDNESDAY, Nov. 18:

Event:
5 p.m. - 6 p.m. Recreational Sports
Location: Dixon Conference Room
RecSports board meeting

WEDNESDAY, Dec. 2:

Event:
5 p.m. - 6 p.m. Recreational Sports
Location: Dixon Conference Room
RecSports board meeting

Sudoku

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SOLUTION TO TUESDAY'S PUZZLE

6	1	4	9	2	5	8	7	3
2	7	9	3	8	6	4	5	1
8	5	3	7	1	4	2	9	6
3	9	7	8	4	2	1	6	5
5	8	2	6	7	1	9	3	4
4	6	1	5	9	3	7	2	8
9	2	6	1	3	8	5	4	7
7	3	8	4	5	9	6	1	2
1	4	5	2	6	7	3	8	9

Complete the grid so each row, column and 3-by-3 box (in bold borders) contains every digit, 1 to 9. For strategies on how to solve Sudoku, visit www.sudoku.org.uk

Horoscope

Today's Birthday (11/04/15). Win together this year. Your friends are the aces up your sleeve. Consistency profits. Passionate possibilities spark (after 3/9). Thoughtful planning pays (after 3/23). A group project shifts (after 9/1). One game folds and another begins (after 9/16). Play.

To get the advantage, check the day's rating: 10 is the easiest day, 0 the most challenging.

Aries (March 21-April 19) — Today is a 9 — Today and tomorrow get especially busy. Work requires your personal touch. Discover and resolve a structural problem. Pull what you need out of storage. The action is behind the scenes. Learn the value of what you have.

Taurus (April 20-May 20) — Today is a 9 — Let friends arouse your curiosity. The next two days are reserved for fun. Encourage creativity. Play around. Romance blossoms if lovingly tended. Practice your arts and magic. Follow the beat of the music and dance.

Gemini (May 21-June 20) — Today is a 7 — Your home and family require more attention. Fix up your place today and tomorrow. Get creative with color, form and line. You can get what you need without straining the budget. Prepare for an upcoming social event.

Cancer (June 21-July 22) — Today is an 8 — Things are getting clear over the next few days. You see a solution. Read, write and study. Issue press releases. Communicate with your networks. Re-supply locally. Meditate on what you want before speaking. Make long-range plans.

Leo (July 23-Aug. 22) — Today is a 7 — Take care of financial matters

over the next few days. Tally up your balance sheet. Keep payments current, and issue reminders on accounts receivable. Patience pays off. Keep your agreements. Be determined, and not dissuaded.

Virgo (Aug. 23-Sept. 22) — Today is an 8 — Your confidence and personal power expands today and tomorrow. With strength, you also gain options. Let your team know how they can help. Pay attention to a brilliant, yet bizarre, suggestion. Wait for a roadblock to clear.

Libra (Sept. 23-Oct. 22) — Today is a 5 — The next two days are nice for laying low. Upgrade your equipment and organize your space. Prepare for a new project by closing up old ones. Stick close to home. Listen to someone who thinks differently than you.

Scorpio (Oct. 23-Nov. 21) — Today is an 8 — Enjoy a two-day party phase. Social activities and team projects go well today and tomorrow. A risk could pay off big. Ask for help to gather resources and talents. Stifle rebellious tendencies. Build a strong foundation together.

Sagittarius (Nov. 22-Dec. 21) — Today is a 7 — A professional challenge requires your

attention over the next few days. Opportunities could arise if you play your cards right. Fix something before it breaks. Postpone travel. Take on more responsibility. Teach what you're learning.

Capricorn (Dec. 22-Jan. 19) — Today is an 8 — Educational adventures draw you out today and tomorrow. Discover new methods, tricks and ideas. Listen to a mentor or teacher. Go and see for yourself. Make long-term plans and dream big. Imagine ways to apply what you're learning.

Aquarius (Jan. 20-Feb. 18) — Today is a 9 — Plan strategically over the next few days, especially regarding money. There's no rush. Join forces with another for funding. Others seek your advice. Come up with a plan together. Gain more than expected. Enjoy a tranquil evening.

Pisces (Feb. 19-March 20) — Today is an 8 — Someone nice thinks you're cute. Get your homework done before going out to play. Discover romance where least expected today and tomorrow. Charm with your talents and passions. Your reputation precedes you. Dress to impress.

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UNIVERSITY

Forum

Learning is research: Software for citations helps boost academic papers



By Jon Dorbolo
Dr. Tech

All learning is a form of research as we test our mental models of reality against the cold hard facts of the world.

When someone keeps making the same mistake we can say that they have not learned what that mistake is and how to avoid it.

Humans have evolved the ability to keep track of our successes and failures in order learn.

Keeping track of and analyzing what happens is the basis of research, which I claim is the foundation of learning.

It follows that treating your education as a research process will make you a more capable learner.

Technology can help you to become a more capable researcher, and help to better understand the relations of information and reason to knowledge.

Zotero is an Oregon State University supported no-cost application that assists with

collecting, organizing and citing research sources.

You should be using Zotero, or a similar tool, because when you write a paper or produce a project the sources upon which it is based are critical.

Your sources are established by citations which follow formats including APA, MLA, Tubian and IEEE.

If these are not familiar to you, then you are at a distinct disadvantage when developing a paper or project for a class, as many instructors place significant grade value on well-formed citations in the correct format.

Check your syllabus and assignment description to ascertain the citation format then install Zotero and access the OSU Library resources to learn how to use it well.

Zotero has a stand-alone version to install on Windows or Mac and also as plugins for Firefox, Safari and Chrome, and apps for iOS and Android

Build your Zotero "Library" by creating a

“While developing your work, such as a paper or project, use Zotero to retrieve sources and then to cite those sources for your bibliography.”

“Collection” and adding sources as you search for sources.

A “Collection” may be for a project, a class, a topic or whatever you need to gather information for.

The sources can be books, articles, websites, videos and other forms of information that you have used in developing your work.

While developing your work, such as a paper or project, use Zotero to retrieve sources and then to cite those sources for your bibliography.

A bibliography is the part of a work that lists the sources that form the research upon which the work is based.

The purpose of a bibliography is so that readers can retrieve the sources in order to check on the accuracy of the claims in the work.

Bibliographies consist of references, which provide the information that anyone needs to find and retrieve the source referred to.

Citations are the expressions embedded in the text of a work that indicate the reference on which that portion of the work is based.

In my work as an editor, I have received submissions that included bibliographies that contained numerous references that were not cited in the text of the paper.

I sent those submissions back for revision because relevant references are those that are used in creating the work.

It is an error to pad a bibliography with books and articles that you did not read or use in your writing.

If you did use a source, then cite and reference it properly.

If you did not use a source, then do not refer to it.

If any of these aspects of research puzzle you, then you should visit the OSU Writing Center at 123 Waldo.

Writing Center assistants will help students, staff, faculty and community members with all aspects of writing from brainstorming to writer's block, to bibliographies and beyond.

Once you understand what citations and bibliographies are, and know what formats are required for your papers, then you are in a strong position to use writing tools like Zotero effectively.

A powerful feature of Zotero is the capability to create “Collection” items contextually from your Web browser, so it gathers relevant reference information from whatever web source that you are viewing.

This contextual sensing feature is amazing when researching journal articles, news articles and books in the OSU Library – see the Valley Library tutorial “Using Zotero with ISearch.”

I emphasize again that finding likely titles and capturing reference information is not research unless you read the sources and use them in your work.

Once you have a collection of sources Zotero helps you tag, sort, move, copy, annotate and edit your sources.

Organizing and connecting your sources, which are prior information about a topic, is a powerful way to construct knowledge out of your research.

Knowledge constructed from intentional collections of sources may involve finding patterns, drawing inferences, producing new research questions, identifying problems and much more.

A research-based paper and project is designed to communicate the knowledge that you have constructed, your findings, from the sources that you have collected and analyzed.

That is a basic description of how research and learning work.

Zotero supports sharing collections online which vastly increases its power as a research tool, for instance when working on a group project designate a role for “research manager” in the group and have them curate the Zotero collections.

With your thesis, narrative, and references accomplished, you then use Zotero to produce the bibliography, which can export to Word and OpenOffice documents.

With a collection and bibliography created it is easy to re-format your references to different citation standards.

Valley Library has many resources including workshops and online tutorials for becoming proficient with Zotero at guides.library.oregon-state.edu/zotero.

In addition to Zotero I have used Citation Machine, a web-based citation creator, to create bibliographies for publications – citationmachine.net.

Both tools provide a form in a selected citation style that prompts you for necessary information about a source such as author's name, book title, publication date, page number and publisher.

Both tools allow switching citation styles for already created references.

Zotero is the more powerful of the two, but Citation Machine is handy.

Social bookmarking is a technology that is related to the research-oriented tools.

Diigo and Delicious are powerful social bookmarking applications, also called “social tagging,” with browser extensions that support tagging, annotating and highlighting web sources including pages, PDFs, blog posts, images and videos.

The social character of these tools is changing the way that information and knowledge works.

Think of the efficiency with which disinformation such as rumors spread.

Now imagine similarly efficient information, but grounded in referenced sources.

Our information environment is changing fast, and you will be better equipped for that change when you are able to use social bookmarking and referencing tools.

Most important is your understanding of how information constructs knowledge and how references provide evidence.

Of immediate value to you is how you can use these tools to do a better job of writing papers and projects.

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