

Chemical Engineering Newsletter

College of Engineering & Applied
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MESSAGE FROM THE DEPARTMENT HEAD

This is the first spring semester Newsletter for our department, I think it goes well with the times, i.e. uniqueness. What started as news from far away has become a life-changing event in our life-time and as a part of our daily lives. This has affected everyone in ways we did not anticipate in that uncertainty is present, but resourcefulness is an equally powerful trait. People are suffering in ways beyond the direct consequences of the pandemic. With that in mind, I would argue that solidarity and empathy must prevail. In regards to education, most schools moved to the online delivery mode, but that means that our lives are now happening in seclusion and virtually. On the upside, this has become an opportunity to spend time with love ones, for those fortunate enough, and I hope we can learn the value of what matters the most.

In positive news, we welcome Molly DeLau, our new Office Associate, Senior. She accepted the job at a time when our campus had become unusually quiet. She has taken to her tasks enthusiastically. Our faculty and staff have doubled their efforts to continue with our main mission of educating the next generation. Despite everyone's best efforts, some students still struggle with the lack of classroom structure, and this comes to show that human contact is a necessity within education. UW continues to find ways to alleviate students' hardships and assist them with the plethora of challenges that this time brings. At the University of Wyoming, we are still pursuing research activities, though under more restrictive conditions. While we have experienced the closure of some facilities and different day-to-day protocols in the research space, we continue to pursue this part of our mission to the benefit of graduate students, postdocs and more seasoned researchers.

The **Process Control and Instrumentation Engineering (PCI)** minor is strong and our Professor of Practice, Dr. John Tatarko, has great plans that will benefit our department and the college. Our first pieces of instrumentation to equip PCI labs have arrived. A cohort of 17 students is taking the first course in the program. Synergy between our Unit Operations labs and the PCI minor is starting to bear fruit as we have been pursuing an aggressive plan to automate several of our Unit Operations labs experiments. This is an exciting opportunity to elevate the education of our CHE students that emerged from launching the PCI minor. Software for PCI will be acquired shortly and students' projects are underway.

Dr. Oakey is leading efforts to develop the Biomedical Engineering minor and discussions have reinitiated to get this minor through the approval process. Students have already inquired about this exciting opportunity that we hope to open next year. In the spirit of partnership, we are working closely with other departments in the college to make the minor available to several departments. All the work for the past several years, e.g. construction of the Bioengineering Lab, will support this initiative. I personally look forward to unveiling this new minor.

The strength of our Materials Science and Engineering group has led to many successful initiatives. If I were to guess, I would say that a minor in this area would complement well with our graduate education initiatives. We have not let the current situation deter us from planning our next steps. While true that some activities are on hold, we remain optimistic in regards to the future of this area.

Light comes after the dark. Please enjoy this "new" Newsletter!



Dr. Vladimir Alvarado



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TEACHING IN THE TIME OF COVID-19

COVID19 started as bites of news from far-off places. At first it seemed that it would stay that way. It soon became clear that the virus was rapidly afflicting new parts of the globe and could soon impact our daily lives; and it did. Wyoming has a rather small population and most of its cities are not closely connected to major centers of population in the Rocky Mountain Region. Many people in Laramie, Wyoming probably thought our isolation would work in our favor and that we would not be affected directly, despite the fact that living in a college town means exposure to students and faculty who travel nationally and internationally on a regular basis. As the number of infections started to rise on the coasts, it became abundantly clear that we would also be affected. The last session I met with my class (an undergraduate course I teach at the University of Wyoming), I discussed our plans in case the university decided to shut down the campus.

“Like many other academics, we are far away from our families and loved ones, which compounds the uncertainty of these times.”

HELPFUL LINKS

- ◆ IT Help Desk | <https://www.uwyo.edu/infotech/services/helpdesk/>
- ◆ VPN for Remote Server Access | <https://uwyo.teamdynamix.com/TDClient/1940/Portal/KB/?CategoryID=10424>
- ◆ Remote Work Assistance | <http://www.uwyo.edu/workteachremote/>
- ◆ Zoom Video Conferencing & Chat | <https://uwyo.zoom.us/>
- ◆ Student Technology Assistance Survey | <https://bitly.com/UWyoTechAccess>
- ◆ Graduate Education Information | <http://www.uwyo.edu/uwgrad/covid-19-related-information/index.html>

During Spring Break, we received the news that the break would be extended by one week. Soon after, the faculty and students were informed that all in-person classes were to be transitioned online. My first task was to write a midterm exam for the class that would gauge their level of understanding of the material while accounting for potential students with limited connectivity and access to resources. After agreeing on a plan with the students, I posted a take-home exam online and let the students know that, in the worst case scenario, they could write the answers on paper and send in pictures of the solutions. After configuring the digital platform needed to create notes and accompanying audio files, I conducted the first session online. At the end of the session, the students expressed a strong preference for an interactive format where I write on a virtual whiteboard and explain the concepts while sharing the audio and the virtual whiteboard with the class digitally. Aside from teaching, social distancing recommendations have meant working remotely, from home. The other complicating factor is the temporary closure of all pre-K, kindergarten and schools in town. This means I have to respond to email, read reports, write manuscripts, teach and participate in online meetings all while watching my two young kids and dealing with occasional screams in the background. As a result, I have noticed a sharp increase in typos, misspellings and odd phrasing, both in terms of frequency and severity, in all my communications. I checked, but that is not a common symptom of COVID-19. Like many other academics, we are far away from our families and loved ones, which compounds the uncertainty in these times. I hope we are all able to provide our families, communities and students with some stability and compassion during all this disruption.

— by *Saman A. Aryana*, faculty of Chemical Engineering
(credit to Gabriel Garcia-Marquez for the phrasing)



UW Chemical Engineering Department donates supplies from labs to the WTCC.

CHE DONATES PERSONAL PROTECTIVE EQUIPMENT TO WTCC

The Chemical Engineering Department made a generous donation of supplies to The Wyoming Technology Coronavirus Coalition (WTCC), in front of Merica Hall, on April 1st, 2020. Personal protective equipment (PPE) is in short supply due to COVID-19. Since the University has moved to online classes for the rest of the semester, many labs were asked to donate both essential and non-essential, unopened PPE to local medics and the WTCC. All donations collected were sent directly to Ivinson Memorial Hospital for medical staff use in helping battle Coronavirus.

A message from Ed Synakowski, Vice President of Research and Economic Development, described the prioritization of sought items and stated that the supplies would not only go to help local medical facilities, but would be distributed. UW will be joining forces with universities nationwide in responding to this call for PPE. Samantha Alford, a graduate student in the department of Zoology and Physiology approached UW about the WTCC grass-roots movement and brought awareness to us about this growing need. She coordinated pickup and distribution activities. Thank you, Samantha!

PPE SUPPLIES

The Chemical Engineering Department was able to gather items from this list to donate to the WTCC:

- ◆ Sterile & Non-Sterile Gloves (latex-free)
- ◆ Respirator Masks
- ◆ Surgical Masks
- ◆ Clear Face Shields
- ◆ Disposable Gowns
- ◆ Hand Sanitizer
- ◆ Bleach Bottles or Sprays
- ◆ Bleach Wipes
- ◆ Isopropyl Alcohol
- ◆ Eye Protections & Goggles
- ◆ PAPR Respirators (unused hoods, filters, batteries, chargers, tubes)
- ◆ Shoe Covers
- ◆ Biohazard Bags
- ◆ Sharps Containers



UW MORTAR BOARD HONORS 'TOP PROFS'

At the 40th annual Top Prof Night, members of the Cap and Gown Chapter of Mortar Board selected professors who have positively influenced their lives at the University of Wyoming. These professors go above and beyond normal classroom expectations to help their students succeed.

"It is such an honor for faculty members to be nominated by their students, and Mortar Board members really appreciate the opportunity to recognize the faculty who have helped shape them." says Christine Wade, an associate professor in the UW Department of Family and Consumer Sciences.

The Mortar Board is a national honor society that recognizes achievement in scholarship, leadership and service. UW chapter members participate in projects and activities on campus and in the Laramie community.



Wesley Nietfeld, from Brighton, CO, recognized Joseph Holles as his "Top Prof".

PROCESS CONTROL AND INSTRUMENTATION MINOR

Even in these challenging times the new *Process Control and Instrumentation Minor* is unfolding nicely and moving forward. The first set of experiments purchased from US Didactic is to arrive the week of April 5, 2020 for installation in the Process Control Laboratories: EN 3024/3026. Students from the first class, CHE 4990 Practical Fundamentals of Process Control, are preparing design layouts for both rooms. These designs will be presented at the Industrial Advisory Board (IAB) meeting on April 23rd and 24th.

Student-friendly simulation software has been acquired from Pi Control Solutions for use in CHE 3090: Simulation of Dynamic Processes. This *computer based training* (CBT) exposes the student to the theory and practice of industrial process control using real plant data and calculations with real industrial examples. This will include instruction and training in *system ID, start-up and shut-down of processes, and trouble-shooting*. Students will have the opportunity to interactively optimize production rates and observe its effects on the plant control system.

The Process Control and Instrumentation Colloquium will be instituted for the 2020-2021 academic year. This series of talks, 3-4 per semester, will feature nationally-known experts on the theory and practice of modern control. We are striving to make this minor the best in the nation. The answer to the question, "Where do I go to learn control engineering?" is UW!



— by John L. Tatarko Jr., Chemical Engineering faculty

RSO AWARD WINNERS ANNOUNCED AT UW

Student groups from the University of Wyoming were recognized for their exceptional efforts during the 17th annual Recognized Student Organization (RSO) Awards of Excellence banquet (May 6, 2019).

The 250-plus campus organizations provide outlets for students to become involved, make friends and network. They host hundreds of events on and off campus; attend conferences that enhance their professional development; and participate in service activities that positively impact UW and the local community.

The annual RSO Awards of Excellence banquet recognizes these groups and also student leaders for their accomplishments from the past year.

Sara Axelson Outstanding RSO Award: The American Institute of Chemical Engineers, for demonstrating commitment, character, citizenship, community service and visibility on the UW campus. The organization also was honored for creating relationships among other colleges, professors and its national partners.

— Campus Activities Center (CAC)

SECOND ANNUAL AIChE DEPARTMENT DINNER

The UW AIChE Chapter hosted the second annual department dinner on March 12, 2020. Last year's Chapter president, Seth Harris, came up with the idea to do an annual department dinner while the officer team was brainstorming ways to increase AIChE involvement and, more specifically, how our local chapter can help with career advancement. We also noted that most students in the Chemical Engineering Department aren't involved in extra-curricular activities until their junior or senior years.

Seth's idea to host an event, which increases interest in undergraduate research, was the perfect way to execute our goals as a chapter. Kameron Jensen and Julia Dickie were tasked with planning the first ChemE Undergraduate Research Dinner, which was last May. Along with their RSVP, students listed their research interests. These topics were used to create corresponding table arrangements, where students and faculty being seated with each other based on similar interests.

Chapter members created a scavenger hunt for attendees, as the dinner was held in the EERB, and they wanted to encourage students to explore the new building. In an effort to recruit new members, the winner of the competition earned a free AIChE membership for the 2021 school year. Examples of undergraduate research posters were on display and some professors gave lab tours to students at the end of the dinner.

This year, Julia Dickie established a planning committee, wherein planning efforts expanded, and so did the event itself. The committee did some rebranding in hopes of appealing to a wider audience, renaming the dinner to simply, "Department Dinner," since not everyone in the department is interested in participating in research. Students and faculty were again seated together based on similar interests, but faculty were encouraged to discuss their research interests in addition to the classes they teach. The seating arrangements were separated into two categories: one group during the entrée course and the other for dessert. This idea is reminiscent of speed dating, where students were able to socialize with multiple groups of students and two different faculty members throughout the night.

Julia Dickie commented: "Originally, we planned our dinner to take place in March due to scheduling conflicts with end-of-the-year events and student projects and I'm so glad we were able to have this event before the campus closures! As a lower classman, I noticed that few of my peers were aware of the resources available in our department, such as electives, undergraduate research opportunities, and even some names of faculty members who weren't widely known among my classmates. This event holds a special place in my heart - it offers a sense of community. I am so thrilled that we had tables full with people sharing their passion for engineering. In a field notorious for its social-awkwardness, these chemical engineers sure had some captivating conversations that night."

— *by Julia Dickie, Joint Engineering Council Representative, AIChE*



LATEST INFORMATION

- UW plans virtual spring 2020 commencement ceremony.
- UW announces \$2 Million to provide for student needs.
- Students can request Satisfactory/Unsatisfactory grading for spring semester courses.
- All of UW undergraduate and graduate courses will be delivered online for the remainder of the semester.
- If you have questions or concerns, please contact your direct supervisor (faculty or staff) or academic adviser (students). You may also email COVID19@uwyo.edu or call 307-766-2683.

CHE STUDENT QUALIFIES FOR NCAA DIVING COMPETITION

March 10, 2020 | Red shirt junior and chemical engineering student Karla Contreras placed seventh in the women's 3-meter springboard competition. She would secure a spot from Zone E for the 2020 NCAA Swimming and Diving Championships. It's the third time during her career that she has qualified for the event. The women competed in the 3-meter while the men were in action on the 1-meter.

"It was a much better day for us, as all three Cowgirls qualified for the finals and Karla's experience helped earn her a spot in the NCAA Championships," Head Diving Coach Ted Everett said.

On Wednesday April 8, 2020 the College Swimming and Diving Coaches Association of America (CSCAA) selected its 2019-20 All-American teams, honoring Contreras and Melissa Mirafuentes. The pair both qualified to participate in the 2020 NCAA Swimming and Diving Championships, which were canceled on Thursday, March 12 due to the COVID-19 public health situation.

— University of Wyoming Swimming & Diving



"UW Extends Online Course Delivery Through Summer Term"

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NASA SPACE GRANT UNDERGRADUATE FELLOWSHIP

Each year the Wyoming Space Grant Consortium (WSGC) awards fellowships to undergraduate students attending the University of Wyoming or one of Wyoming's community colleges to provide a student with the opportunity to do "real" research.

The student must be enrolled and in good standing at the University of Wyoming or one of Wyoming's community colleges. Funding is intended to be used for student hourly wages, while working on the research project. Proposals must be well written and include strong scientific justification, a clear set of goals, an evaluation mechanism which determines successful completion of goals, a detailed time-line for achieving the goals outlined, expected duties and responsibilities and an outlined budget for the project; in addition to a letter of recommendation.

This year, a junior undergraduate, Adam Russel, in chemical engineering received the competitive NASA Space Grant Undergraduate Fellowship. With this support, Adam will work in Dr. Katie Li-Oakey's research group in the fall semester (2020). Dr. Li-Oakey is happy to know Adam will be supported to work on a research project that

will make a meaningful contribution to the catalysis field. Congratulate Adam on his acceptance to this prestigious fellowship opportunity!

