

Meeting Start: 8:00am

I. Welcome and Agenda Approval:

- a. Marjorie Bedessem: We will convene the meeting, our spring IAB meeting. Everyone take a look at the agenda, looking through it there will be department updates, news from student chapters, fundraising, ABET, etc.
 - i. Does anyone need to add anything to the agenda?
- b. Vladimir Alvarado: He wants everyone and faculty to have time for feedback. Before our student representatives leave, we need their perspective on educational objectives. We can collect feedback and register that in the minutes.
- c. Marjorie Bedessem: Before we approve the agenda, at the last meeting, we did an approval of the minutes, has anyone not received the minutes from the fall?
- d. Vladimir Alvarado: There was a small error in the minutes we need to clarify.
- e. Marjorie Bedessem: We need to correct this with Aaron and then we'll send it out.
- f. Mary Shafer-Malicki: There is nothing in the minutes from the Dean (Cam Wright) – is there an update from the college?
- g. Vladimir Alvarado: He asked Cam if there were updates, he shared some information about the new department head position.
- h. Mary Shafer-Malicki: Can you update the IAB about Cam's position as well? What the president decided.
- i. Marjorie Bedessem: That was intended in the update. Any other changes in respect to the agenda?
- j. Mary Shafer-Malicki: Moves to approve agenda.
- k. KD Bracken: Seconds.

All say I. None opposed. Agenda is approved.

II. Department Update:

- a. Vladimir Alvarado: (referring to a PowerPoint, please ask him for a copy if needed)
 - 1. The Dean Search committee was recalled after several months (in November), awaiting a decision. They wanted to incorporate President Seidel, who took office this academic year. They started a search for a new Dean, Cameron Wright is the interim Dean of the college.
 - 2. We used the same company for the Provost and Dean, visiting campus frequently. They agreed on deadlines but the search was kept on the down low. Some information is still confidential.
- b. The search was stopped to invite the short listed people to campus, the decision was made to appoint Cam Wright as the acting Dean. It was explained that 'acting Dean' is appointed for two years but he has all the powers of a regular Dean. There may or may not be another search after next year. He can now appoint whoever he needs (interim deans, department heads, etc.)
 - i. The School of Energy Resources created a position: Occidental Chair in Energy and Environmental Technologies for a faculty member to participate along with them. Professor Saman Aryana applied and was selected. He will work closely with SER to develop programs and guide the process.
 - ii. Dr. David Bagley was named Interim Associate Dean working on research, graduate studies and everything else the Dean (Cam) needs him to do. The other Associate Dean is David Mukai who focuses on academic programs. He also coordinates with the former Associate Dean, Steve Barrett who is Associate Vice President coordinating the Academic Programs Committee. He works mostly with undergraduate education.

- c. Mary Shafer-Malicki: These appointments and representations are great for the department. Does he maintain the classes he typically teaches or will we find some gaps there?
- d. Vladimir Alvarado: He is still teaching but he teaches less courses than normal. David Bagley is an exemplary academic.
- e. Mary Shafer-Malicki: We do lose some of the extra things he does for the department but good for him.
- f. Vladimir Alvarado: He never encouraged the overload of classes but we are in a good place. In terms of teaching, we're doing well. There may be challenges further down the road.
 - i. Renee from Shell will be the visiting industry professor/engineer for one year focused on Process Control and Instrumentation. She will work with CHE, Electrical and Computer Engineering. She will be a guest lecturer in a number of courses and will be mentoring a Process Design group.
 - 1. David Bagley is managing that, we're also discussing with the foundation. Things will be set in stone soon (job description, stipend, etc.).
 - 2. She's also quite knowledgeable about risk analysis in engineering. She's helping us increase our teaching in PC&I.
 - ii. He attended Kevin Carmen's interview process, from Nevada. He will be our Provost starting in July. There is a link with his description he (Vladimir) can send you if you're interested. Hopefully he will be established here for several years.
 - 1. Were any of you familiar with any of the choices/candidates for this position?
- g. Mary Shafer-Malicki: She just heard about it through the president to the foundation.
- h. Vladimir Alvarado: Everyone was trying to keep up with urgent demands for information, so it makes sense there wasn't much transparency or interactions with everyone about this.
- i. Mary Shafer-Malicki: Can you make any comments about the president's new advisor around Tier I engineering, Tom Peterson? Cam Wright had sent a note out about it.
- j. Vladimir Alvarado: A lot of that person's job will be remote advising.
- k. Mary Shafer-Malicki: He's somewhere in California.
- l. Vladimir Alvarado: He thought it was Mercer, CA. It will be someone with a lot of bureaucratic experience at this level to serve as an advisor.
- m. Marjorie Bedessem: The president's office approached the foundation to help fund the position. She was pleased that Cam had a good reaction to it. The president's background is computing science and engineering is a very hot topic at UW. He's using this guy to help him with forwarding that agenda.
- n. Vladimir Alvarado: If you look at the interests and what Cam has done, he has done a good job sharing with President Seidel the importance of the college.
 - i. The president has a background in high performance computing which comes from astrophysics focus. He created these pillars (strategic directions) and put together teams to develop those.
 - ii. The Four Pillars:
 - 1. Digital (systems, machine learning, etc.)
 - 2. Entrepreneurship/Innovation
 - 3. Inclusivity/Diversity
 - 4. Interdisciplinary Activity
 - iii. The college of engineering fits into all these pillars and we are indispensable, the key to these directions. Cam has been on 11 committees this past year and he's still teaching.
- o. Marjorie Bedessem: When talking about the four pillars, what was the third one you talked about?
- p. Vladimir Alvarado: Interdisciplinary activities. Research and educational programs. They want us to modernize. This involves bringing money in through grants to do that. David Bagley is part of one of these teams.

- q. Marjorie Bedessem: Emphasizing that collaboration and teamwork in order to get large research programs.
- r. Vladimir Alvarado: Cam is emphasizing these things to be sure it makes sense and to not let the college take a blow to the budget.
 - i. Budget Reduction:
 1. There has been many requests for information from Old Main. Mostly from Academic Affairs. We were told there would be a 10% reduction per year. The number boiled down to \$40 million total.
 2. Assuming we lose this money, everyone that needed to be renewed, was renewed. That didn't change. Any decision to let people go comes later. Originally, Cam, Megan and the accountants showed that we could lower the budget without losing vacant positions. Our finance office in Old Main committed us to get rid of 8 vacant positions.
 3. One of the actions was to go after small budgets in the college and reduce them by 10%. We always relied on foundation and overhead money. Our budget was close to \$40,000 a year for the restricted account. We can manage.
 4. To conduct any merging of programs or eliminations, it was originally planned to do program reviews for specific programs. Those that are operating in a healthy way could stay. Now every department on campus must prepare something and send it to Academic Affairs.
 5. Our strategy is to discuss our opportunities and weaknesses. One of our strengths is that CHE is necessary for industry in Wyoming and economic diversity for the pillars. We naturally feed all of them and we have room to grow, we are research active.
 6. There is the potential threat that we could lose people. We might be below critical mass. You need at least 12 faculty and we are there including John Tatarko and Michael Pishko. We're in a good position now in comparison to 2015 when PETE and CHE split.
 7. When you eliminate a program, you have to keep the faculty to finalize the program for those still studying within it. Fortunately for us we have a main degree and a minor in PC&I. The Biomedical Engineering minor is still in the process of becoming official.
 8. Reduction of the budget in restricted accounts will lower levels for temporary instructors. We use these positions for the Unit Operations lab. As long as we have the current number of faculty, we should be fine.
 9. There was a risk of the number of GA positions to be reduces, we normally receive four, 2 MS, 2 PhD. There was a drop in the total number of state graduate assistantships. Our numbers justify having the same numbers.
 - ii. Patrick Johnson requested his promotion to full professor. He assumes it's moving forward, once it's out of his hands, it gets processed through the college, Academic Affairs makes the recommendation and then the trustees make the final decision to appoint him. We have more full professors in the department than any other position. Joe Holles is also a full professor now. Saman and Katie will easily make it to full professor when they are ready.
 1. Karen is our only Assistant Professor, we haven't hired a tenure stream faculty ever in this department (since 2015).
 2. John Tatarko is the professor of practice. He is teaching more than he's required to.
 3. John Oakey and Katie Li-Oakey requested to take a sabbatical a year ago, because of COVID, they delayed it a year. They will leave in the fall, we'll have two fewer professors, we may not be able to teach some electives, but we'll be fine.
- s. Mary Shafer-Malicki: The students will all be back with in-person learning in the fall?

- t. Vladimir Alvarado: Students will be back face-to-face, there will still be some online activity for those who need it. We will not be required to teach hybrid mode (in-person with access to online lectures). The main difference is that we'll have full use of the rooms, social distancing will be dropped.
 - i. At this phase of the vaccination process, everyone can go, they are trying to promote that to create confidence for people to come back and learn face-to-face.
 - ii. New Department Head:
 - iii. Cam asked the whole department for suggestions as to who should do it or who would volunteer to do it. He identified 3 individuals. He will likely make a decision by the end of April.
 - iv. We still have Dave Bell as the undergraduate coordinator.
 - v. We still have Joe Holles as our ABET champion.
 - vi. Saman and Molly put in a tracking system for our graduate students.
 - vii. Patrick Johnson is involved with NASA on campus and material science and engineering. No formal program yet, but lots of activity.
 - viii. Michael Pishko is going to help with recruiting online.
 - ix. Teddi is our foundation person.
 - x. Laurie manages the success center.
 - xi. Enrollment:
 - xii. Graduate Program – still doing fine, it has dropped from last year, but it's not a trend yet. Part of this drop is COVID, part of it is a trend. We are recovering in terms of enrollment on campus from the previous year. There are economic issues at hand.
- u. Aaron Reichl: Do we know what the whole university's enrollment was in 2021?
- v. Vladimir Alvarado: Dropped 8-10% overall but some programs took a harder hit.
- w. Aaron Reichl: Any specific programs? There must be some that are growing.
- x. Vladimir Alvarado: Civil and architectural engineering had more programs than other departments and some of them grew. We didn't drop as much as mechanical or petroleum engineering. He's worried about the fall for CHE. We will recover somewhat, it's an appealing degree.
 - i. For the graduate program, the number of applicants is not very high. And they are not diverse.
- y. Marjorie Bedessem: MS student count is 6 students, do you have GA support for more than 6 students where you could be supporting more if you have more applicants?
- z. Vladimir Alvarado: No, we have only 2 state GAs for Master's students.
- aa. Marjorie Bedessem: Would everyone's research grants be able to support research assistants?
- bb. Vladimir Alvarado: Most faculty invest heavily on the PhD side of things. We cannot make a policy to hire more Master's students. There might be other sources of funding, like SER. Those aren't the type of projects people get through carbon engineering.
 - i. We've been working with our research office and technology transfer office to put umbrella agreements up with companies that want to work with us because they cannot do it internally or they need our expertise. These agreements may help fund undergraduate and graduate students.
- cc. Marjorie Bedessem: The number of PhD students has gone up, so the Master's program is still healthy, you just don't have very many MS students. It's primarily the undergrad drop that's more concerning.
- dd. Vladimir Alvarado: Yes. The number of research active people, it's an average of 3 graduate students per faculty member.
- ee. Dave Bagley: Part of the Master's drop is correlated to the undergrad drop because some MS students are QuickStart students, we take our best students and they can get a Master's degree with double counting courses in their undergraduate degree. With fewer undergraduates, there's a smaller pool of students who want to join the QS program.

- i. Very few people in the department are out recruiting Master's students. Recruitment efforts are spent on doctoral students.

III. Student Chapter Updates:

AICHE (American Institute of Chemical Engineers)

- a. Amanda Christensen: She is the president of AIChE, and she will be graduating this semester. They are trying to have normal (virtual) presentations and regular meetings. They've learned about some biochemical engineering sequencing. They've heard from the Wyoming Research Scholars Program.
 - i. Coming up, they have Patterson UTI and Oil Drilling from Texas presenting soon.
 - ii. They are working on recruiting people, getting freshmen and sophomores interested. They had a virtual regional conference recently, they had a jeopardy team who made it to the finals and placed third.
- b. Mary Shafer-Malicki: Do you foresee for the fall semester that you're going to get plenty of guest speakers? That's always a highly attended event by the students. Do you have a good handle on that?
- c. Amanda Christensen: Speakers are still challenging to get opposed to normal circumstances. The next president will probably adopt the same strategy which is to email way more people than you have slots for.
 - i. There is one presenter she knows of that is interested in presenting next year that she'll pass on to the next president. If anyone here is willing to present next year, she can collect a list of names.
- d. Mary Shafer Malicki: Perhaps you can work with Molly, send out an email to the IAB members to see how many in Laramie might be interested in presenting.
- e. Amanda Christensen: She appreciates everyone who has taken the time to present and allowed them to learn from.
- f. Kevin Milliman: The professional AIChE section headquartered in Denver includes Wyoming, they have done all virtual presentations (at no charge), he would encourage colleagues and students to join in on those. Know that they have a very active chairman this session to make linkages from the student chapters to the professional chapter. Encourage people to look for those opportunities.
- g. Marjorie Bedessem: Can you tell us about how many students are in AIChE right now and the distribution of classes? Is there anything the board can do to help you recruit?
- h. Amanda Christensen: They have way more seniors and juniors and there is little interest from freshmen and sophomores right now. The club has shrunk, even people who used to come aren't coming as regularly – part of that is the presence of COVID and having to test to come to campus. Sometimes students won't come because of that or because there isn't free food.
 - i. A lot of the more active members graduated last year, the club is around 12 people who regularly come to meetings.
 - ii. The hardest thing is getting people to come to begin with. She doesn't know how the IAB can help.
- i. JT (John Tatarko): You have done a great job. The freshmen and sophomores were so shell shocked last March when they were told they had to leave campus. His sophomores have said they haven't made any friends, don't know who to study with, etc. That's been a problem.
 - i. This is a reason why recruitment in AIChE has been lagging. He has been encouraging them to join.
- j. Korby Bracken: We as people in the professional environment, they can help feed people in AIChE or other groups some of the things they are implementing to reengage people back into the work force.

SWE (Society of Women Engineers)

- k. Alma Burwell: She is the president of SWE this year. They are having their elections for next year soon. Amanda hit on a lot of the same issues SWE has been having as well. When freshmen come in it's exciting. SWE gives you a friend base to talk to (even outside CHE).
 - i. It's not the same having meetings via zoom. They couldn't do a lot of events they normally do.
 - ii. Instead of a Chili's fundraiser, they are selling t-shirts.
 - iii. They usually do the "Womengineering" Conference in the fall, but couldn't attend that either.
- l. Marjorie Bedessem: She's glad SWE investigated ways of getting people involved from their homes, since they couldn't come to campus. If these people were at school, they may have been more interested, but since everyone is already at home, they aren't interested.
 - i. How much has the SWE enrollment gone down? What was the core number of people?
- m. Alma Burwell: Attendance was a lot better in the fall than the spring. They have 10-12 girls coming regularly in the fall. In the spring, there are more presentations and career oriented things. 6-7 were regularly coming in the spring.
- n. Maribeth Plocek: The organization she's in is also suffering declines because of zoom meetings. She has been trying personal phone calls to people which has helped. Emails and texts are easier to delete.
- o. Alma Burwell: She had the students do a show and tell, had everyone say their name and major and tell about one thing they do outside of school and show it to the group. It ended up being fun.
- p. Marjorie Bedessem: Who steps into your spot and will they be a senior next year?
- q. Alma Burwell: She is also graduating this semester, much like Amanda, and so is the vice president, treasurer and secretary. Some girls have reached out saying they're interested, but they haven't said which position. They will know hopefully soon who will fill these positions.
- r. Kevin Milliman: You're right to move as quickly as possible to find your back fills because you won't have much time to teach them what happens in those roles. Don't wait. If you have someone that volunteers and they're not sure what position, elect them for a position you think they would be good for.
- s. Alma Burwell: That happened to her, so she knows the importance of training the new officers of the chapter.

IV. ABET Outcomes/Objectives

- a. Joe Holles: For ABET policies and procedures, we need to review (every two years) the CHE program educational objectives. There are two: have our students successfully practice the profession of CHE and demonstrate successful career growth. We don't have to take action, but we have to review them. We could change them but he's not recommending that, doesn't see any reason to.
 - i. Amanda and Alex are representing for the students, some of you on the board are former students and other employ students, that's why we're talking about this now.
 - ii. Program educational objectives are broad statements.
- b. Dave Bagley: He was the ABET champion, these objectives appear vague, but that's deliberate. CHE people can work in a large variety of areas. Grad school, med school, industry, etc. We are preparing our students to be able to go into a variety of careers to work in.
 - i. These objectives were approved 5 years ago by ABET, but they welcome the input of the board. If there's something that needs to be changed, they take that very seriously.
- c. Marjorie Bedessem: These objectives are good, allows students, whichever career path they choose to have a broad variety of options.
- d. Joe Holles: Outcomes are the 1-7 list, the things we use in the classroom. This is the first year that these outcomes have been in effect. There were different outcomes previously (A-K outcomes). They have been somewhat reshuffled from the old ones, nothing crazy new or different.
- e. Korby Bracken: These are not up for discussion or negotiation?
- f. Joe Holles: Yes, these are ABET mandated and they're the same in every engineering department in the country. Regardless of the concentration (mechanical, civil, etc.)

- g. Korbey Bracken: Under the definition of 3-6 years after graduation, does ABET reach out to graduates and determine their career path/growth? How is that defined?
- h. Vladimir Alvarado: They do not do that, we are supposed to do that.
- i. Joe Holles: ABET doesn't do that, they tried to get people that the universities to go out and look at those things, inevitably they couldn't get people to respond to the surveys post-graduation so ABET gave up on that.
- j. Marjorie Bedessem: Only the outcome portion is assessed?
- k. Joe Holles: Correct. Originally, in 2002 with the last version of ABET, these program educational objectives were assessed. It became clear they needed to assess the outcomes, not the educational objectives.
- l. Vladimir Alvarado: Most programs reviewed by ABET would get dinged for not assessing things properly. It wasn't practical.
- m. Joe Holles: They assessed some outcomes in the fall, four of them in the spring semester. He has to collect assessments and share them at the next IAB meeting. Things are due July 1.

V. Process Control and Instrumentation Minor:

- a. JT: He is in the lab right now, showing you some of the equipment. Our centralized advising has not been very aggressive about promoting the minor. When classes resume in the fall, he hopes to personally go visit some of the introductory classes to introduce the minor.
 - i. They had a very robust first class but it has dwindled.
 - ii. They have some experiments from India coming on a plane right now. Still some equipment there and they may lock down again.
 - iii. The students enjoyed the laboratory work. See how controls work and take things apart.
 - iv. There's a standard industry controller, powerful, we're using a small portion of it. Temperature sensors. They can see how the controller works and how it reports.
 - v. Trying to simulate this on a computer is different than actually doing it in real life.
 - vi. There is a real valve base with an air diaphragm and an electrical actuator.
 - vii. Working with thermo couples, checking gauges for linearity, repeatability, etc.
 - viii. We've had a chance to go through all the courses one time (fundamentals, simulation, CHE 4090 and CHE Design course). We have a visiting professor coming in the fall, and gave a colloquium lecture.
 - 1. She will talk about PC safety within the plant.
 - ix. There will be an evolution of improvement on how he delivers the courses.
 - x. Because the last year has been so weird, he hasn't been able to interact with industry like he hoped (Genesis, Infinity Controls, etc.) hoping things will be somewhat normal in the fall.
 - xi. He submitted CARFs for a number of courses. Solids processing is a big part of CHE profession. It's a course rarely taught with this type of curriculum.
 - xii. They are hoping to offer in the fall, Fundamentals of Solids Processing. Which will take into account transportation, conglomeration, movement of solids, how they behave, Aspen simulations.
 - xiii. Hoping to offer a course on abstracting of chemical process control journals, taking abstracts, putting them together in conjunction with the marketing and communications department in CEAS. Sending this out to universities and industry as a blog.
 - 1. This will touting our program and giving students a chance to understand abstracting of journals. This will help ramp up the minor.
- b. Aaron Reichl: How many students are in your capstone class right now?

- c. JT: 6 in the class right now. They are doing their final design project right now, they've got a small plant and process and they're adding all the safety equipment. They are also adding full controls and implementing a safety system.
- d. Vladimir Alvarado: We will have a formal conversation on fundraising. We want to develop the virtual refineries, the consoles that is also the control room. A computer system that can be accommodated in one of the labs. We will still keep working to refine the labs and the coursework.
- e. JT: The content of the presentation of the coursework too. The lab work is going to be more important than the coursework – hands on experience. How it works and how it doesn't work. This is all courtesy of Genesis Alkali and some student fees.
 - i. He'd like to teach more about PLC programming. They've been pushing Teddi Freedman to go to Infinity Controls to see if they can donate some money to get us a small PLC programming system.
- f. Vladimir Alvarado: We already have really good software for this too.

VI. ABET continued:

- a. Joe Holles: He's preparing the self-study, it's a lot of work. He needs everyone who's working in the department to do an assessment. He needs other people to put course materials on the web page so it's all accessible (standard syllabi). Vladimir and Molly have separate jobs to provide him with information that goes into a lot of the tables.
 - i. The draft should be to the college by the end of May, then everything is sent to ABET by the end of June.
 - ii. Over the summer, people from ABET who do the inspection will be asking questions, he will provide answers.
 - iii. In the fall they come to campus, traditionally in person, but this year it will be a virtual visit. They will write up a document before they leave about their findings (3 levels), following that, we have 30 days to write a two process response to what they found.
 - iv. In late spring they will provide the official document from ABET with the things they found and things that still need to be addressed. Last time it took us 2 years clearing all the things they found. He doesn't anticipate any major issues, but likely some small things.
- b. Vladimir Alvarado: Under normal circumstances, the whole team travels to locations with different specialists. They person specific to the problem shares some thoughts and has direct contact with faculty, then the chair of the group will provide feedback. How will that work this year?
- c. Joe Holles: It will be roughly all similar, it will just be virtual.
- d. Vladimir Alvarado: We will make it work.
- e. Joe Holles: It will be way more work than a normal visit, because we will be needing to book last minute meetings with people, it will be hectic.
 - i. It's a bureaucratic process, so it all plays out in slow motion.
- f. Dave Bagley: The last self-study and visit was in 2015, right when the departments split and we had a new dean. ABET did not like that our processes were not well documented. As part of the interim report, we have been able to fine-tune our processes.
 - i. We are in a good position going into this cycle; we're doing things they expect to see us do. They expect to find things though; we will address those things and move on.
- g. Joe Holles: They will find that the college does not have the resources to do what we're supposed to be doing. There's nothing he can put in his report to change that. Cam has already said he thinks that's what they're going to find.
- h. Dave Bagley: In the past, the ABET team delivers their results to the president of the university. If the issue is that the department isn't receiving enough resources, the president hears that directly from the accreditors, which helps us move forward.

- i. Vladimir Alvarado: It's not intended to serve this purpose, but it happens.
- j. David Dandy: From their last accreditation visit in 2019, you're responsible for adhering to every single thing that's in their policies and procedures manual. AIChE is pushing hard on hazard recognition in teaching labs. They spent almost all their time in the Unit Operations Lab just to see if they were labeled properly, etc. they got a weakness for that. Take a look at the policies and procedures manual to see what might be hiding in there.
- k. Joe Holles: He had a university chemical safety officer come over last fall and inspect all our undergraduate student labs. He then addressed the comments and documented we've been addressing them and staying on top of the issues.
- l. Dave Bagley: We had a weakness related to that last time, not to the actual lab but to documenting we were presenting enough information to students about safety. We have to continue to keep an eye on these things and always double check.

VII. Department Updates:

- a. Dave Bagley: They've heard from the students, how difficult it's been for them with the pandemic. It's also been difficult for faculty, not being able to be in the classroom with students is a challenge. He thinks the university has done a great job managing during the pandemic. President Seidel's focus has been to keep the campus community safe.
 - i. Numbers of cases have decreased, we've been testing. The Laramie area has been as safe as you can be in the current situation.
 - ii. Vaccines have been rolled out, everyone in Laramie can walk in to get their shot.
 - iii. He's excited we're going back to face-to-face in the fall. Some sort of return to normal.
- b. Korby Bracken: What is the testing protocol the university makes you all go through?
- c. Dave Bagley: Starting last fall, they had purchased tests from Vault Health in a limited amount (had to be careful how many people they tested). Many were encouraged to stay off campus, but if you had to be on campus, you'd be tested once a week.
 - i. Then, the university developed their own test which rolled out in October. Then, everybody was subject to testing unless you could prove you were working fully remotely.
 - 1. Students had to test twice a week, providing a saliva sample, they would pool four tests together which allowed them to test more rapidly. If one in the pool of four came back positive, they'd bring those four people come in and do a full Vault test.
 - 2. Employees test once a week. If you're on campus and you don't test can be suspended from campus. Testing will continue through June.
- d. Vladimir Alvarado: At some point, Dave Bagley had to gather information about who was working remotely, who was in the lab, etc. This process has gotten better since last fall when everything went entirely on-line.
- e. Joe Holles: The university has done a good job, there are many tired faculty and staff around campus. There needs to be better communication from the president's office, trickling down. Interim provost Alexander has done a good job communicating.
 - i. Cam has been frustrated because in the initial rounds of budget cuts, he was told he'd have to cut a lot and he did that and then had to take an additional cut on top of that.
 - ii. There are many people in CEAS and across campus who are very scared to lose their jobs.
- f. Vladimir Alvarado: He agrees. It does create uncertainty. Direct, transparent communication would help with this.
- g. Joe Holles: We're in a slightly better state here in engineering opposed to other places across campus, but many people are still worried.
- h. Dave Bell: There are major budget cuts coming. Nobody knows what or how, there's been a lot of talk, but nothing has been confirmed. May 12th, the administration will go to the Board of Trustees with a list

of items to reduce or eliminate. Then by July they should have a plan in place for how to implement these cuts.

- i. In the past year or two, we've gotten our faculty count to where it should be. It will be a struggle to preserve those faculty and our resources to do the job we want to do.
- i. Vladimir Alvarado: We've never been better in the CHE department than now. We don't want any changes in our composition.
- j. Dave Bell: His fear is we will revert to a faculty set-up much like when he joined in the 90s. Which were tough times.
- k. Kevin Milliman: What do you see that the IAB can do? There may be limited influence on the outcome, what would you recommend?
- l. Joe Holles: The biggest thing is to keep pushing communication from the upper administration.
- m. Dave Bagley: The IAB has access to talk with other stakeholders in the state about the value of CHE and CEAS – to the state's desires, as the governor looks to diversify the economy. We're critical to that, we understand budget cuts and the difficulty, but we can be part of the solution. The more you share that with outside stakeholders and legislators, the better.
- n. Dave Bell: We're on the better end of things because we have a tie into the economy. That is the sore point right now, we need to emphasize our role in supporting the existing industry and being a possible avenue for growth and diversification.
- o. Vladimir Alvarado: We have more female participation in our department than any other does in the college. We are the major participator in carbon engineering, process and natural resources. We naturally do interdisciplinary activity. We're needed even though we're not the largest department.
- p. Dave Bagley: Engineers are problem solvers; we want to help solve problems, especially those affecting the state.
- q. Kevin Milliman: Communicate broadly, value of the department and its relations to both the four pillars of the university as well as the state at large. Do you have any specific recommendations on who and how to communicate to?
- r. Dave Bagley: Opportunities to chat with Dean Wright are always good, he's very supportive of the department. The more information he gets from outside people (IAB members), helps him to make an argument. If you happen to be in touch with senior leadership, share with them and advocate for CHE.
 - i. Teddi Freedman is our foundation representative; she is doing a great job.
 - ii. The university is always clear to us that we are not authorized to speak on behalf of the university to legislators on issues related to the university. We can as private citizens, but if anyone knows legislators or Board of Trustee members, help continue to share the good news about what we're doing.
- s. Vladimir Alvarado: Whatever directions of improvements there might be, this department doesn't have any significant controversies we need to solve internally, we are a functional department. We are all on the same page.
- t. Dave Bagley: As you talk with colleagues in industry who may not be as familiar with what we do here, they may not help with state budget problems but we can meet with people and help address their employment needs or if they have technical challenges. We are here to help solve these problems. The more people who know about us, the better.

VIII. Fundraising Priorities:

- a. Vladimir Alvarado: Things we will struggle to resolve:
 - i. We will not get a state line. We struggle with the process of maintaining the Unit Operations Lab, it's decent but can be improved. We are trying to merge some of the efficiencies with process fundamentals and PC&I labs. JT can only do so much.

- ii. We have requested these resources but this won't happen. Industrial research funding is fine. We can fundraise for our virtual refinery –curated data, software companies use to train people on PC&I. We need to keep bringing these things to our program, they attract students.
 - iii. If we continue to lack people to maintain the labs, we will keep facing problems.
- b. Marjorie Bedessem: Is this something you can work with Teddi on and ask specifically for support on?
- c. Mary Shafer-Malicki: Recent successes are endowed chairs, which are typically something donors get. PETE just got one. If you could raise money by professorships and engineers and such, don't you have to have the positions available? We've lost X number of positions (8) that have been eliminated via budget cuts. How do you raise money for professorships for a position that doesn't exist today?
- d. Vladimir Alvarado: A professorship is supplementary funding for faculty. It enables faculty to use that as seed money for engaging in a new research area or even support their current stature. We're rewarding behaviors. It's a smaller pool of money but an endowed chair allows for the prestigious teaching title but also provides regular funding for people to engage in certain areas.
- e. Mary Shafer-Malicki: What would you have to fundraise to have an endowed chair? How much does that cost?
- f. Vladimir Alvarado: The two models are spendable in 10-15 years, in the \$2 million range. The other is larger, \$5 million.
- g. Mary Shafer-Malicki: And the professorships?
- h. Vladimir Alvarado: \$50,000 per year. It could be \$500,000. Professorships are easy to fundraise and they can be eventually turned into an endowed chair. You don't need an endowed chair to fully fund the position.
- i. Mary Shafer-Malicki: By engaging Teddi, how does that money get raised? It gets raised when she's out talking to people engaged in the engineering conversation. If she understands what the needs of the CHE department are, then she carries that with her when engaging with individuals. You have to hit the right person at the right company at the right time.
- j. Vladimir Alvarado: He brought up the issue of the engineer because it's frustrating we have all these capabilities and then we can't fundraise to find people. We're the only department that doesn't have a technical staff to run labs.
- k. Marjorie Bedessem: If someone's in an existing faculty spot and they apply for this endowed chair, does that endowment have to pay for their whole salary or is that in addition to what their regularly normal faculty line is?
- l. Vladimir Alvarado: Typically in addition.
- m. Marjorie Bedessem: If you need to pay for everything, you'd need even more money.
- n. Vladimir Alvarado: If you want to convince someone to care about environmental engineering, you create an endowed chair so they can lead. It's not completely flexible money.
- o. Marjorie Bedessem: It has to be for a specific topic. It's a way to emphasize certain technical areas. It's frustrating that you don't have technical staff to maintain equipment to support staff/faculty. That's a poor investment on the university's part. You wouldn't think that would be a high cost position to take care of the labs.
- p. Vladimir Alvarado: It is a state line, they are scarce. We've never had technical staff for the lab.
- q. Dave Bell: We've never had one. It's gone from bad to worse. You used to have a regular faculty member run the Unit Operations Lab, who was responsible for anything going on in the lab. There was support from the engineering shop, but no one permanently in charge. Now we don't even have faculty, we have temporary lecturers who are only responsible for one semester. It can be dangerous for students if we don't fill these positions.
- r. Vladimir Alvarado: It's a high risk situation because OCEAA could stop in at any minute. The students are also missing out on opportunities to learn.

- s. Dave Bell: ABET could come in and help strengthen our argument for this.
- t. Marjorie Bedessem: Thanks for the summary, we'll make sure Teddi is aware of all this.

IX. Membership Committee:

- a. Kevin Milliman: They had a meeting to review the current IAB membership. Molly did some of that in the fall. There were several people we needed to confirm if they were still on the board or not. There are two people to they would like to recommend be added to the board. They received their names from Dr. Li, they need to double check to make sure they are still interested in joining.
 - i. He sent their resumes out to everyone on the board earlier in the week.
- b. Marjorie Bedessem: The CVs were sent out to the board; is there any feedback, any difficulty with adding these two members?
- c. Vladimir Alvarado: We're not looking for academic replacements. David, we'd still like you to be on the board.
- d. David Dandy: He appreciates that. He will think about it.
- e. Kevin Milliman: Good clarification. We haven't connected with Len or Ravi recently. We reached out to Len and he responded, but there's a bit more communication needed before we know if he will continue serving.
- f. Marjorie Bedessem: She thought Len wanted to hear from us on whether we want him to continue. She was not aware of what type of industry he's currently working for, he's in Michigan is that correct?
- g. Kevin Milliman: Yes, he works for CertainTeed. They work with fertilizer. He wanted to reach out to him about traveling and his willingness to travel. We can do things remotely, but there is value to being present in-person.
- h. Marjorie Bedessem: The fertilizer company would be consistent with what we're looking for, it would just depend on if his company would support him to the point where
 - i. he could join a meeting in person. You'll touch base with Len to find out more details about that?
 - i. Can you talk more about the two people you sent the CVs out about? What areas they represent?
- j. Kevin Milliman: Jason Burdick and Jeanne Benoit. They both have backgrounds and current activities in the bio side of chemical engineering. Dr. Burdick is at Penn. When they evaluated their roles, they identified bio as being of interest to add to the board. His perspective would add to that. Dr. Benoit is also in the bio realm, she is more local and it would be less of an effort for her to make in-person visits.
 - i. Augmenting our bio-capabilities, they are also younger than some of us on the council. We value the perspective of someone earlier in their career as well.
- k. Korby Bracken: Burdick graduated from Wyoming in 1996 or 1997 with his BS in CHE. He knew him back in the day.
- l. Marjorie Bedessem: At this point, given we don't have an actual commitment from these candidates to join us to vote them in. She hasn't heard anything negative. If Kevin ends up in a discussion with Jason and Jeanne and one or both of them are interested in joining, we would like them to participate in the fall meeting. To do so, our thought is to gather feedback today and based on what Kevin learns, we could come back to the board members and vote via email so they can join ahead of time instead of at the meeting in the fall.
- m. Kevin Milliman: They did have a list of candidates from various places, Dr. Li supplied some names. They did reach out to the UW foundation, Teddi provided some names as well. He would like to have a back-log of people so we can act on those if needed.

The decision will be made via email in the coming months, look for communication from Kevin about voting.

X. Fundraising Committee:

- a. Mary Shafer-Malicki: She'll keep working with Teddi about opportunities.

XI. Development Committee:

- a. Korby Bracken: Thank you to Vladimir. He has a personal friend who was looking to be recruited at the University of Wyoming in the CHE department. During the pandemic, with the issue of trying to get people on campus, Vladimir and Molly were able to accommodate the student who would be a great addition to the department. It was very well received, and they are grateful they were able to visit the facilities.
- b. Vladimir Alvarado: It was refreshing to have those people here.
- c. Korby Bracken: They're all UW graduates, so UW has a special place in their hearts. Seeing how the enrollment has decreased across the university, trying to go and talk to students inside the classroom proves extremely difficult. After the pandemic, getting back into the STEM schools to get kids interested in the program (CHE or engineering in general) will hopefully pick back up soon.
- d. Maribeth Plocek: She has a relationship with a counselor at Natrona County High School. She's been calling her with students that are interested in CHE. She has been doing presentations for them. It's hard for students to get intern positions during these COVID times, so Sinclair created a position for a year-long internship. They hired one recent graduate, who is doing a great job.

XII. Board Administrative Business:

- a. Marjorie Bedessem: The board chair lasts for two years. Kevin Milliman is next up for chair.
- b. Kevin Milliman: Yes, that's correct. He's happy to.
- c. Marjorie Bedessem: The transition will occur for the fall meeting. We should keep the regular rotation, even though this year has been weird. There aren't any other positions we need to fill at this time.
- d. Vladimir Alvarado: We need to decide who will come after Kevin.
- e. Marjorie Bedessem: For the fall meeting, that should be on the agenda. We're trying to update the roster with committee membership as well. Who else is on Korby and Maribeth's committee?
- f. Korby Bracken: It's just the two of them.
- g. Maribeth Plocek: She doesn't recall anyone else on that committee.
- h. Marjorie Bedessem: At the fall meeting, we can fill out the roster sheet with committee assignments and talk about if we want to augment committees with people who currently are not on one – potentially including new members.
 - i. Could there be a repository for our charter, our minutes and so forth? So board members all have access? It's important for new board members to be able to look at old minutes and past history. Is this possible?
- i. Vladimir Alvarado: If everyone had accounts on campus, we could easily set up a WyoCourses (WyoGroup) page. He will have Molly work with the marketing people in the college to find a way to set it up as a secure site. It could be a One Drive site.
- j. David Dandy: You could set up a One Drive or a Google Drive fairly easily.
- k. Marjorie Bedessem: For incorporating new members, and also for us to keep track and refresh our memories from previous meetings.
- l. David Dandy: He also suggested Box because that's what the DOE labs require their employees to use for security.
- m. Marjorie Bedessem: **We need to get the Box up and running before the fall meeting, so participants can get caught up (Molly).**

XIII. Additional Feedback/Wrap-Up:

- a. Kevin Milliman: Is there a timing for when the new chair will be identified/announced.
- b. Vladimir Alvarado: He contacted the Dean about it, he said they have 3 candidates and by the end of April, they would have a decision. He still needs to contact those people.
- c. Marjorie Bedessem: When are you stepping down?
- d. Vladimir Alvarado: End of June, the new head will start on July 1st.

- e. Marjorie Bedessem: Does Katie have any feedback before we adjourn?
- f. Katie Li-Oakey: She and John will be doing their sabbatical next year, trying to make some connections and help with recruiting.
 - i. She teaches a required core course, Mass Transfer, so she sees the students' growth and progress and via their interaction with the board.
 - ii. As one of the two female faculty in the department, we don't want to just use the number of females to say we're doing well in terms of diversity. We should ask ourselves as a department and as the IAB what can we put into place that support minorities and females.
 - iii. She challenges herself to talk about being here as one of the few that works extra hard to be here (considering gender and race) instead of "you're lucky to be here". Dialogue conversation will help support our female students and faculty, instead of just using enrollment numbers.
 - iv. Representation is the first step for minority and female students.
- g. Marjorie Bedessem: Has the number of undergraduate female students remained the same over the past several years?
- h. Vladimir Alvarado: We have sustained at about 26%. It changes from year to year, but that's the average.
- i. Marjorie Bedessem: This is high in comparison to many other engineering disciplines. Katie, when you're talking about supporting these students, besides changing attitudes, is there anything specific you have to suggest?
- j. Katie Li-Oakey: Hire more female faculty. We can also have more informal conversations, increase events through SWE throughout the year. It needs to be a more constant channel of information.
- k. Marjorie Bedessem: Are you talking about more external mentoring programs with other women in the field? Would that help?
- l. Katie Li-Oakey: She'd be happy to chat if anyone has ideas and act as a faculty liaison within the department. The power imbalance and struggle is there, cannot be denied. It'd be good for the ladies to have someone they're comfortable talking to. Implicit biases are there. We need to build our mentoring network.
- m. Vladimir Alvarado: It's a very important point. He thinks there has to be a careful line to maintain the balance. They are just as responsible for everything else that everyone has to do. We cannot abuse the limited number of female faculty we have and force them to take on more tasks just because they're women.
- n. Marjorie Bedessem: It's good to think about other sources for help.
- o. Vladimir Alvarado: Thank you all, he's enjoyed being department head. He's enjoyed greatly working with you all. He'll be around and will continue to help the department as he can.
- p. Mary Shafer-Malicki: You have done a great job and we will miss you next year. Thank you!

Meeting Adjourned: 11:53am