Greetings from the Chair

So many years ago, when I was an undergraduate student, I volunteered to help promote the Food Science major at a recruitment event held on campus. Then, the issue we grappled with was how to explain the Food Science major to those who had never heard of it before. In short, how to best answer the question, “What is Food Science?” Fast forward a few decades and it seems that we still grapple with that very same question – what is Food Science?

We know what it is not – it’s not dietetics, nor culinology – although some programs have blended in those related fields. Food Science is, first and foremost, a science. To me, it is important that we continue to emphasize and support the life blood of any academic discipline – the application of science as a means of discovery. As I consider our personnel here, I see great minds from fields of biology, chemistry and engineering coming to bear on issues surrounding the conversion of material into edible, healthful foods. I often note how our best outcomes result from the intersection of these and other fields – a form of blending of views and disciplines to solve the hardest issues.

A recent trip to Massachusetts emphasized the value of such an interdisciplinary design. While in the Boston area, I visited the MIT campus and set out to learn how they operate and the foundational elements of their success. One of those elements is conveyed in their values statement which reads, in part, “…we believe in learning by doing, and we blur the boundaries between disciplines as we seek to solve hard problems.”

Leaning by doing. Blurring the boundaries between disciplines. Solving hard problems. I invite you to reflect on your time at UW-Madison Food Science and to review these statements as you consider what Food Science is, how it operates and what solutions we can generate. Some outcomes of this design are reflected in this newsletter where you will learn of the disciplines and people involved and the hard problems being solved through Food Science.

Warm regards,
Scott A. Rankin
Professor and Chair
Dr. Yaa Klu

Under Construction!
FS 375 - The Chocolate Experience: Science, Society and Sustainability

The Food Science Department was delighted to welcome Dr. Yaa Klu to its instruction team last fall and is excited about all she has already accomplished. Dr. Klu’s background in food science, nutrition, and public health as well as her extensive experience in education, has brought fresh perspectives, world views and innovative instruction on a variety of contemporary food, health, and nutrition topics to her courses. Dr. Klu’s primary teaching assignment is full responsibility for FS 437 and 438 (Foodservice Operations and Lab). In addition to these assignments, she is in the process of designing a new on-line course about chocolate!

The course, FS 375 “The Chocolate Experience: Science, Society, and Sustainability,” targets anyone who is looking to learn more about the industry of chocolate and how chocolate is made, from bean to bar. Every student on campus, alumni, and the general public are welcome to enroll; everyone can learn something unique from this course. The asynchronous format allows students to work through the course at their own pace, providing the flexibility learners desire.
Instructional Spotlight (continued)

Dr. Klu is “100% passionate” about designing and teaching this course. Part of her passion stems from the connection between her home country and chocolate. Dr. Klu is from Ghana, the second-largest producer of cocoa in the world and producer of some of the best quality cocoa found anywhere. The cocoa produced in Ghana is used as a global standard. Her roots have instilled a sense of pride within her as she designs the course. Many students do not realize the immense amount of effort required to build a new course from the ground up. In addition to slimming down the endless amount of content that can be included on chocolate; the technological and logistical side is a whole other realm. To heighten her skills on teaching technology, Dr. Klu enrolled in online courses through TeachOnline@UW. She found two courses, “Plan and Design” and “Facilitation and Management,” to be particularly helpful.

FS 375 is a transdisciplinary course meaning that it addresses socioeconomic issues, sustainability, and history in addition to the science of chocolate. Through eight modules, the course will cover topics including the history of chocolate, cultivation of cocoa, processing of beans, production of chocolate, the nutritional profile and health benefits (as well as risks) of chocolate consumption, complex socioeconomic issues of cocoa, and chocolate production and sustainability. The topics covered naturally connect with the broad area of confectionery science and, to some extent, functional foods and nutraceuticals, as cocoa and chocolate contain essential phytochemicals. By studying this breadth of content, students will develop a lens through which they can critically examine other products and industries. In addition, students gain hands-on experience through simple modules that can be performed right at home.

The Department is anticipating this course to be an exciting beginning and recognizes the work that Dr. Klu has invested into its development. As Dr. Klu says, “I am excited to teach FS 375 with renowned professors and I hope it will be super popular in the next few years when it comes to summer classes at UW-Madison campus!”
The newly formed Food Science Student Ambassadors Program is in full swing! The inaugural ambassadors Katie Brockman, Calvin Slaughter, Sami Lefever, Tori Budin and Nathan Riehle, hit the ground running and are already seeing results. The FS Ambassadors program was started to help recruit undergraduates into UW-Madison Food Science. The Ambassadors communicate the experiences they have had studying Food Science at UW-Madison and lead various outreach events. By communicating their experiences, they link prospective students and aspiring food scientists to the program at UW-Madison. Many people interested in science with a strong passion for sustainability, technology, human health, and innovation do not even know food science exists! The ambassadors prioritize ‘getting out in the field’ and connecting candidates with the incredible opportunities that studying food science brings.

This semester, the ambassadors spent hours talking to and hosting prospective students. They also contributed content to the webpage to allow prospective students to quickly access pertinent information. For example, the Ambassadors added a Schedule a Tour link to allow prospective students to schedule visits at Babcock Hall, as well as a prospective student webpage. They also worked with a digital media agency to create a food science video to show what food science at UW-Madison is all about!

As demonstrated by the current group, ambassadors are go-getters and leaders. This outgoing and creative group shares their experiences with enthusiasm to show prospective students the benefits of being a Food Science major. They speak candidly about their experiences and connect with all types of candidates. As put by Tori, “I chose to be an ambassador because I am super passionate about food science and the program here at UW and wanted to help keep this program alive and thriving!”

Being a Food Science Ambassador is a great way to make a difference in the Department, experience food science through a different lens, and practice scientific communication. With the strength and impact that the ambassador program has already shown, it will continue for the foreseeable future. There will always be a need for recruiting undergraduate students. A select team, charged with spearheading recruitment offers students valuable leadership opportunities. The team, composed of current undergraduate students, is also able to better relate to prospective students, as they were in those same shoes not that long ago!

Read more about each ambassador at: https://foodsci.wisc.edu/ambassadors.html

To catch a glimpse of some of the work the Food Science Ambassadors have been doing, check out the TikTok account they started: @foodscienceclubuw
Kate Higgins is one of many seniors that “simply” rose to the challenges of the last two years. We take this opportunity to spotlight her achievements and share her reflections.

Kate is the daughter of Anne and Mike Higgins and grew up in Minneapolis, MN. She is the 2022 recipient of the Doug Hyslop award for excellence in scholarship and willingness to go above and beyond. For the past two years, she served as intern for our External Communications Team, where she developed content for our social media platforms and wrote articles for this newsletter. Favorite courses include: Food Chemistry, Food Preservation, Logistics Management and New Product Innovation. Kate has many good memories from her time in Babcock Hall. Baking bread in Food Functionality and participating in Food Science Club events are among her favorites.

Kate’s Reflections: Growing up, I attended an international school in Switzerland and was able to travel lots with my family. No matter where I was, there were few-to-no foods that I did not enjoy. This passion for food stayed with me when I moved back to the United States. Eating with my family was always an important part of my day, especially in the summer evenings outside. I loved to maintain a small garden with my mom and cook meals with what we harvested. Throughout middle school and high school, I discovered my passion for science. Watching my dad progress through his career with a large food company opened my eyes to how many possibilities there are in the food industry, though I figured it was mostly business. When I saw that ‘food science’ was a major that I could study, I realized this was a natural way to combine my love of food with my passion for science and interest in business, to create and improve food products on the market.

I graduated from high school in 2018 and stayed home my freshman fall to complete some general education course requirements, before transferring to UW-Madison Spring 2019. I only had two full semesters under my belt before returning home because of COVID. The ‘meat’ of my food science classes started online. Online classes were challenging, and at times lonely, as I am sure other students and professors felt. But we made the most of it and I think it made me appreciate being on campus and in Madison even more! I had two phenomenal summer internships that I am grateful for. In addition, I think our food science class has really bonded throughout online and in-person classes.

Overall, studying at Madison has been a great experience. I loved being a part of the Food Science Department and the innovation, research, and hands-on learning experiences that came with it. As an added bonus, the proximity to the lakes allowed me to race competitively in sailing, in addition to my studies.

Career plans: When I graduate, I will be entering the industry as a food scientist in Research and Development. I am beyond excited to apply the technical principles I have learned throughout my undergraduate studies. I am planning a career path that fosters continuous learning and improvement. As a food science professional, my goal is to improve the efficiency, accessibility, nutrition, and quality of delicious, safe, and affordable food products while exceeding sustainability expectations. To meet my goals and expand my scope within the food industry, I am considering pursuing further education in food science and/or business.

Congratulations Kate! We will miss you and wish you the very best in your future endeavors!
This summer marks the 60th anniversary of Summer Candy School; an industry-focused, two-week course held in Babcock Hall each July. The course covers all aspects of Confectionery Science, including ingredient functionality, processing, troubleshooting, reworking, and sensory analysis. Lectures and pilot plant exercises are presented and supervised by technical experts from the industry and our Food Science Department. In addition to being consistently successful within the Department, Candy School has a resounding influence in the industry. It is widely recognized as an invaluable training program. It is estimated that over 1,500 people have successfully completed Candy School at UW-Madison. Changes in course oversight, consumer preferences, student profile, technology, and science, have altered the course over the years and contribute to its ongoing success.

In 1963, the National Confectioner’s Association (NCA) approached Dr. Joe von Elbe, a new professor in the Department, to host the course. Joe coordinated and taught Candy School for many years, until Dr. Richard Hartel took over in 1998. In 2011, much to Rich’s surprise, the NCA discontinued course oversight. The prospect of abandoning the course was devastating. However, Rich was poised to reorganize the course and make it his own. This reorganization included how resources are allocated and a commitment to integration of graduate students in course oversight.

Rich now uses the fees that were previously channeled to the NCA to hire graduate students to help with the course. Subsequently, these grad students are well equipped to enter the candy industry and share their wealth of technical knowledge. For example, Lindsey Doring, a current grad student, recently accepted a position at Clasen Quality Chocolate here in Madison and will report to one of Rich’s former grad students. Elizabeth James will assume the graduate student responsibilities for the course this fall.

Consumer preferences are constantly changing and have led to dramatic changes in the industry. Rich observes that, “to many consumers, sugar is now the devil and the candy industry is clearly the bad guy. Finding sugar replacements that provide desired texture, sensory and quality has really been a focus in recent years.” With current health concerns and diet trends, consumers seek “healthier” confections. Confectionery science plays a role in these trends by creating an experience of eating for pleasure in addition to meeting demands such as lower calorie, fat, or sugar content. Any company can attest to the fact that altering formulations to meet these demands is no simple substitution or elimination. Changes like these can affect mouth-feel, flavor, shelf-life, and manufacturability. Addressing these changes from a scientific and psychological perspective is a hallmark of Candy School.
The profile of students has changed as well. More women are attending the course and there is a broader international appeal with more attendees from outside the U.S. The course tends to cater to industry personnel, but with increased emphasis on research, some people have started to enroll simply out of academic curiosity. Rich recalls one student, an anesthesiologist, who took a vacation specifically to attend the course out of personal interest. He was a great student and appreciated the physical chemistry aspects.

The rapid evolution of technology in the candy industry has contributed to the divergence between commercial and artisanal candy making. Most modern machinery is fully automated and calibrated to produce consistent product, in comparison to the artisanal candy makers of the early years who relied on making confections by hand. While the primary focus of Candy School is training commercial candy makers, artisanal candy makers show growing interest in the course.

Creativity, development, and innovation can outpace scientific understanding. Traditionally, candy making has been seen as an “art.” Rich observes that creative people, like chefs, come up with new and novel food ideas and can get them into production without really understanding what’s going on technically. If these products run into problems, no one really knows what to do. The “unknowns” in confectionery science make it an exciting field for food science students, with lots of room to pioneer research in unchartered areas. Paralleling the increasing scientific knowledge, Rich has gradually increased the technical rigor of the course. However, students coming into Babcock and getting their hands on the equipment, experimenting with different conditions and formulations, is an invaluable part of the course. There will always be room for art in confectionery science.
Leadership is a concept that we work to integrate into every aspect of our mission. For the past five years, we had the pleasure of working with a colleague who embraced and embodied the spirit of leadership from day one. Tami Noll joined us in 2016 as our building manager. Her primary responsibility was to keep Babcock Hall in good repair. In addition to fulfilling her management duties, she enhanced every aspect of our programming in instruction, research and outreach. As we say goodbye and good luck in retirement, we take this opportunity to celebrate Tami’s IMPACT on Food Science. Tami graduated from our Food Science program in 1984 and worked for a variety of companies in many capacities before she returned “home” to Babcock Hall in 2016. As an experienced food scientist, she recognized and appreciated the opportunities for camaraderie within the department and through partnerships with other departments, stakeholders, industry partners and campus administration.

Tami kept the needs, mission and vision of the department as top-of-mind priorities and sought to improve and move the department in a forward direction. She kept the mantra that, “everyone is your customer”, and worked to make everyone’s job easier, if not pleasant. Tami clearly enjoyed being a part of the Babcock family and, in her official role as building manager, she especially enjoyed team projects related to short courses and construction. She states, “I’d really like to thank the dairy plant – Ray, Greg and Jesse for coming to my aid when I needed the brawn to get things moved!!!”

Beyond keeping our building safe, sound and inviting, Tami contributed to research, teaching and outreach. She worked with grad students to ensure that they successfully completed their programs. She supported our product development teams and helped one team earn first place for the ASB Product Development Competition.

As she moves on, Tami looks forward to having even more fun. She and her husband love to camp. They recently enjoyed an eight week camping trip along the southern and eastern coastlines. When they return they will start a new adventure as Volunteer Campground Hosts at the South Rim of the Grand Canyon for three months. Tami’s message to us is to take to heart that we all represent UW-Madison in everything we do. “We have a responsibility to keep our facilities looking good not only for ourselves but for prospective students, customers and clients.” She reminds us that there is always a solution to any problem if you work at it – “I truly believe in that and hopefully have challenged people along the way.” In the spirit of the Wisconsin Idea, Tami notes that learning never stops. And finally, she encourages us to stay positive. “Put a smile on your face, it will make someone else’s day brighter.”

We wish Tami the best and look forward to hearing about her future adventures!
Congratulations!
Department of Food Science
Class of Spring 2022

Max Joseph Armstrong
Mallorie Grace Arndt
Neve Hailee Blanz
Melissa Ann Bohn
Signe Winter Branham
Tori Budin
Andrew Aaron Firestone
Kiana Gomez

Mikayla Rae Haack
Emma B Hanisko
Katherine Higgins
Kelsey Lynn Hopkins
Jordan Kazu Ishizu
Elizabeth C James
Peach Khongkomolsakul
Anna Marit Larson

Claire Doolan McMonagle
Conner Allen Measner
Nathan Michael Riehle
Maggie Sue Simon
Erin Eileen Springer
Christine Wolfsmith
Kaitlyn Younger
Cameron Zalewski