

Another Advancement In

STEM Education



Iowa State University informing decision-makers about research in Science–Technology–Engineering–Mathematics Education

Food product development course extracts very essence of STEM ed

Sitting down to your favorite meal may not conjure up images of STEM education, but experts say science, technology, engineering, and mathematics are the perfect ingredients for creating innovative food products.

To cap off their undergraduate careers, all Iowa State University students majoring in food science take the food product development course - FSHN 412. While its objective matches its name, the course is more than a “how to” on creating a new culinary masterpiece: It is an intensive, semester-long experience in teamwork, product formulation, marketing and commercialization, and processing – with an overriding STEM education emphasis.

“All FSHN classes are based around science concepts,” said Lester Wilson, a university professor of FSHN and one of the FSHN 412 instructors. “This is definitely a field where students need to have a strong understanding of the science of ingredient integration; the technology used to create new food products in an efficient manner; the engineering of equipment to produce the product; and using mathematical and statistical formulas to make industrial-size batches [of the product], and quality, safe food.”

In teams of three, students formulate a new product idea and present it to a panel of industry professionals from companies such as Tones Spices, Hy-Vee, and Wells Blue Bunny. Based on the panel’s feedback, students convert their ideas into gold-standard products, complete with food quality assurance and safety checks, legal nutritional labeling, and appropriate marketing materials. It’s about as close to the actual industry as students can get, Wilson said.

“It’s really a class that integrates all [the] components of what they’ve learned [in previous courses],” Wilson said.



Students in FSHN 412 create a whole-wheat squash ravioli for their new food product. Students use many elements of STEM education in developing and producing their innovative food products.

“We visit alums working in high-profile jobs, and they say they still use their notes from this class when approaching a new project. For students, this course gives them a very real feel of what it’s like to work in the food science industry.”

Wilson said this year’s students are exploring every inch of the food pyramid through healthy recipes and a variety of flavors. From pineapple-habanero turkey burgers to Brazilian corn cakes with lemon-lime coconut frosting, creative ideas abound.

“Some of the student-[made] products have been picked up by the industry,” Wilson said. “It’s amazing to think of our students creating the foods that are in grocery stores and on the kitchen table.”

For more information:

Check out other STEM education stories from the College of Human Sciences at www.hs.iastate.edu/news/stem.