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I Am Not A Chef

Careers in culinary and food science

The following article was featured in Table Matters, an online journal of food, drink and manners, published through Drexel University Pennoni Honors College. Nasella is a 2011 graduate of Drexel University with a B.S. in Culinary Science, he serves as a Food Safety Coordinator in QC for IFF/Ottens Flavors.

by James R. Nasella

Soon after graduating with a degree in culinary science, I began to be met constantly with the same question: "So, now you are going to be a chef?" That benign yet facepalm-inducing question was difficult to avoid, but it was even more frustrating to explain to the disappointed few that I was, in fact, not a chef. Nor was I going to be one.

Culinary science, I often explained, is the "biological brother" of Culinology, and the "cousin" of food science. Culinary science, like Culinology, is a blend of culinary arts with sciences — biology, chemistry, physics, and nutrition. Simply put, culinary arts teaches the how of cooking, and culinary science builds on that foundation to aid in understanding the why of cooking — why certain techniques produce unique flavors and textures.

The culinary scientist learns culinary arts techniques, much like their culinary arts counterparts. However, their culinary knowledge is augmented with food chemistry, cooking physics, ingredient interactions, and sensory science. As an undergraduate, I was fortunate to take classes in several different regional cuisines and apply to them a scientific understanding.

The distinctive difference between Culinology and culinary science is that Culinology was developed and trademarked by the Research Chef Association (RCA) with a set core curriculum and requirements. Culinary science, depending on the school and program, allows the student to follow a more flexible path. At Drexel University, for instance, culinary science students can pursue minors in business, marketing, or science concentrations (i.e. microbiology or chemistry). Culinary scientists have the knowledge base to create or improve existing products while also being able to liaise with customers and colleagues in other departments. Both Culinologists and culinary scientists can pursue careers as research and development chefs, food technologists (who use different flavors in food product applications), and project managers.

A food scientist, on the other hand, reduces the "broth" of culinary arts and opens a veritable spice cabinet of science concentrations that include sensory science, microbiology, chemistry, engineering, as well as business and marketing. Sensory science is a combination of psychology, sociology, and food. Sensory scientists interact with consumers and industry professionals to build insight on how desirable a product is, or what traits or trends a company should pursue within their products.

Food microbiologists, for simplicity, can be divided into two categories: those involved with food safety and environmental concerns and those who focus on product development. Food safety/environmental microbiologists ensure that a product, or the environment in which it is produced, do not harbor potentially dangerous microorganisms. They also conduct microbial risk assessments, or studies to see how well an organism can survive within a product. Whereas, the product development microbiologist may use fermentation or microorganism reactions to produce products or novel ingredients; for example, probiotic (beneficial microorganisms) yogurt. Food microbiologists would have to determine if a strain of probiotic organisms will work within a product, what dosage is required, and its impact on the final product.

Food chemists are the analytical food scientists. They often employ the chromatograph and other analytics to determine chemical concentrations of food or raw materials. They may also use their chemical knowledge to create fanciful flavors from raw chemicals.

Food engineering studies how food functions within a machine, or how processing equipment might affect food products. For example, a food engineer might study the rheology of chocolate — how temperature affects chocolate's movement properties. A few degrees plus or minu, can be the difference between a thin, crispy chocolate shell, or a dense chocolate armor.

These are but a few of the different careers and fields of opportunity that culinary science, culinology, and food science offer. However, these field are not islands. There is constant interaction between them academically and professionally. Product development often will require input from culinary scientists, sensory scientists, food engineers, sales teams, and food safety specialists to achieve the desired quality and enjoyment levelt.

How a culinary scientist interacts with a food scientist varies depending on the type of company and the company's products. For example, let's imagine a fictional company that produces chocolate granola cereal bars. The culinary scientist would create several lab trial products with different ingredients and chocolate flavor profiles. Trials might include cost reducing efforts, raw material substitution, or product extensions (creating new product styles). The food scientists would conduct consumer sensory test panels of the granola bars. The data collected from these studies would help the culinary scientist determine which chocolate flavor the test consumers preferred. The culinary scientist could use this information to improve the concept or move the product within the pipeline.

If the product had positive sales potential and was seen as marketable, it would move toward the production phase. The production team, assisted by food engineers, would be tasked to work together with the culinary scientist for "scale up." This involves scaling up from a five-pound trial test to a 5000-pound trial test. This process can reveal numerous production issues and impact on quality (positive or negative). These issues would be reviewed with the culinary scientist for adjustments until a mass producible product closely resembling the original trial product is attained. The product then would go to market, and if successful, new products or line extensions would be created, based on the original.

No, I am not a chef, and now with degrees in culinary science and food safety, I've left my original desire to be a product developer and have pursued a career in quality control and food safety. Although it's not exactly the path I envisioned as a new graduate, it is part of the field that is equally important and vital within the industry. •

(Table Matters, 2016)

A more colorful diet

Not only are fruit and veggies beautiful in color but they are packed with vitamins and minerals that are essential to our health and wellbeing. They contain compounds that reduce the risk of heart disease and stroke, some cancers, chronic respiratory diseases, diabetes and obesity. Did you know that the color of fruits and veggies can tell a lot about what health benefits they provide? The concept of 'Eating by Color" has been growing in popularity since the 2014 launch of *Eating in Color*, by Frances Largeman-Roth, and as consumers try to increase their wellbeing through a BEAUTIFUL balanced diet.

The red family of fruits and vegetables is certainly physically attractive, but it also boasts a wide range of heart-healthy nutrients like vitamin A, C and potassium. Red foods are rich in antioxidants, vitamin C, which helps fight damage caused by free radicals throughout the body. Potassium is essential for maintaining normal blood pressure and keeps your heart beating regularly. Some red fruits and veggies to include in your diet are, pomegranates, raspberries, strawberries, watermelon, radishes, tomatoes, beets, red peppers, radicchio, rhubarb, cherries, cranberries, red apples, and red onions.

The orange family doesn't just include oranges; it ranges from sweet peaches, to winter squash and everything in between! Orange fruits and veggies contain beta-carotene, which is converted to vitamin A in the body and is needed for skin and eye cell growth. It's also vital for a healthy immune and reproductive system. If you're in need of a bright pick-me-up give these a try: pumpkins, orange peppers, sweet potatoes, butternut squash, mangos, oranges, apricots, peaches, cantaloupe, and carrots.

Yellow fruits and vegetables can be hard to categorize ranging from lemons to radishes, and peppers. This sunny group contains antioxidant-rich compounds, which help fight chronic diseases including cancer and heart disease. Add some yellow to your dish with yellow beets, star fruit, yellow figs, lemons, or yellow bell peppers.

Green is obviously Mother Nature's favorite color. Not only are most greens low in calorie, making them a necessity to dieters, but they offer up antioxidants for longevity-boosting benefits. Greens are a great vegetarian and vegan source of iron, as well as the B-vitamin folate, which is essential for a healthy pregnancy. In our world, 'Green is the new Black", loving on arugula, kiwi fruit, avocado, broccoli, spinach, cucumbers, zucchini, kale, fennel, brussels sprouts, asparagus, edamame, mustard greens, sugar snap peas, herbs, lime, and watercress.

It's good to have the blues. This family of foods delivers high amounts of anthocyanins – a type of antioxidant that fights inflammation and may help reduce the risk of heart disease and cancer. And certain members of this gorgeous crew may also help keep your memory sharp and boost brainpower. If you're feeling blue, grab some blueberries, blackberries, eggplant, plums, prunes, figs, eggplant, purple potatoes, grapes, and purple carrots.

(Fox News, 2014) (Food Network, 2014)

Pizza, Pizza, Pizza!

Pizza, a favorite dish across the world, continues to get re-invented with innovative flavors, toppings and sauces. One hot trend we are seeing in the pizza category is the blurring of flavors from East to West. Ethnic inspired pizzas are showing up on menus and in the freezer aisle. According to Technomic, Mediterranean and Mexican flavored pizzas are the fastest growing on menus.

There is definitely growth opportunity for pizzas featuring ethnic toppings, 20% of US adults who consume refrigerated/frozen pizza cite that they tend to buy pizzas with toppings they have not tried before. Driving this trend is the desire to experience their favorite food in new formats or flavors.

We are also seeing Indian inspired flavors like curry in sauces. Naan Pizza in the US, features hand-stretched naan covered with various toppings and spices, then topped with fresh paneer cheese and cooked in a Tandoor oven. Kashi launched an Indian tikka masala pizza with mozzarella, fire roasted eggplant, spinach, tomatoes, and crushed red pepper with a spicy tikka masala sauce.

We are also seeing a lot of Hispanic influence in pizza—tropical fruits like coconut and pineapple, to spicy peppers, and even fresh cilantro. Deconstructed taco pizzas are a hot new item on menus, as well.

As the traditional cheese and sauce pizza continues to evolve, check with Ottens for ideas to incorporate flavors into crust and sauces!

(Internal Data, 2016) (Mintel GNPD, 2015) (Technomics, 2015)

Flavor of the Month

Natural Watermelon Flavor Type #11376

Watermelon, a summertime favorite is not just for kids anymore! No longer are we limited to a candy-type profile for watermelon, now it's all about staying true to fruit. Sophisticated watermelon flavors are popping up in beverages, yogurts, and frozen desserts. This authentic flavor is perfect for sweet treats, and works well with other fruit flavors. Add a splash of summer in your next creation with Ottens' Watermelon flavor.

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