A VIRTUAL SUCCESS

ONLINE MASTER’S PROGRAM PROVIDES GREATER FLEXIBILITY, ADVANCED FOOD SAFETY EDUCATION TO WORKING PROFESSIONALS

“My work schedule is kind of rigid and it’s kind of crazy at home with the farm and all the responsibilities that are part of my life and my community. I realized that the online professional master of science in food safety program would allow me to take courses at my own pace and that I could take them in my kitchen — or at Starbucks.”

“The professors are people with actual real-world knowledge, not textbook ideals that don’t connect to the actuality of the situation and challenges faced in food safety.”

“The flexibility of the program and the scope of the courses allowed me to push my limits of creativity while broadening my knowledge of food safety and provided a sound academic background for the work I do day-to-day.”

“I was just notified that I was selected for promotion to chief warrant officer III. I am sure my degree placed me well above my peers in the selection process.”

“The difference with an online program is that you are always ‘on time.’”

These are just a few of the many positive comments received from students and alumni of the nation’s first and only fully online Professional Science Master’s (PSM) in Food Safety Program, offered through the MSU College of Veterinary Medicine. The program — which received a 98 percent overall satisfaction rating in a 2009 program assessment sent to current students and alumni — allows students to complete their master’s degrees from home, work or the road as personal and professional needs dictate.

“This innovative graduate degree program is designed to help food safety professionals pursue advanced training in food safety while simultaneously developing workplace skills highly valued by employers,” said Julie Funk, associate professor of large animal clinical sciences and director of the
“The capacity to innovate depends not only on scientific discovery, but also on the ability to translate new knowledge into products and services.”

— from “Professional Master’s Science Programs Merit Wider Support,”
Science Magazine, March 27, 2009

program. “Students learn how to evaluate new technologies as they arise; address new concerns related to food security, emerging food-borne pathogens, zoonotic [transmitted from animal to human] disease or biotechnology; and develop the organizational and leadership skills that will allow them to be more effective, efficient and confident in an ever-changing workplace.”

Although it may seem strange to some that a food safety program would be offered through a veterinary medical college, Funk said that it’s a natural place for the program to be housed.

“Veterinarians have always played a key role at the preharvest level on the farm, making sure that animals are wholesome, disease-free and ready to go to market,” said Funk, who was a veterinarian in swine practice before heading up the PSM food safety program. “Veterinarians also serve as the principal inspectors for all meat products leaving USDA-inspected plants. They have historically served as public health officers and have been charged with many of the food safety responsibilities for the armed services, making sure that food for the troops is safe. They are integral players in the food safety equation.”

A Higher Degree of Food Safety Education

The impetus for the PSM food safety program, now in its eighth year, was the findings of a market survey commissioned in 2000 by the late Ed Mather, former professor and deputy director of the National Food Safety and Toxicology Center at MSU.

“As the food system has become more globalized and the challenges of maintaining a safe and secure food supply more complex, there was recognition by Mather, other MSU faculty members, and key government and food industry stakeholders of the need for advanced food safety education,” Funk explained. “However, it was really unclear who the best target audience was or how to go about setting up a program — would the need be best addressed by short courses and executive training or an outreach-type program, or was there really a need for a formal degree program?”

Mather asked MSU communications colleague Janet Lillie (who is now associate dean for undergraduate education in the College of Communication Arts and Sciences) to develop a strategy to assess interest in the PSM program. Lillie conducted phone interviews with employers and students from across the country that might be interested in an advanced food safety program to get a read on their education needs and expectations. Survey findings revealed that the greatest need for food safety education was for people already working in the field.

“Respondents indicated that they would love to get an advanced degree — a master’s degree — but the problem was that they couldn’t just pick up their families, stop work and come back to MSU for a traditional degree,” Funk said. “Nor were the skills that they wanted necessarily the ones acquired in a traditional master’s program — a thesis-based degree that is research-intensive and research career-path-focused.”

At the same time the survey was being conducted, Funk said that online education was beginning to emerge as a viable possibility.
“It’s hard to overstate the importance of being able to offer this degree online,” she said. “People need the flexibility. There’s always new knowledge coming out. An online program allows you to put quality, scientific education at students’ fingertips wherever they are, at any time, and allows people all over the world to interact in the same place.”

Funk added that universities were also beginning to experiment with the idea of professional master’s programs that develop advanced scientific knowledge and skills such as communication, risk analysis and crisis management.

“There’s a critical need for people with advanced degrees in applied sciences,” she said, “and they need some complementary skills to go along with their science knowledge, skills that will allow them to be successful in the workplace, whether it be an industry, government or nonprofit organization position.

“The coming together of the need for food safety education beyond the classroom, the emergence of online education and the idea of a professional science master’s compelled Mather to develop and launch the program in 2002.”

Since then, the program has seen its enrollment grow from a handful of students to 70 alumni and 120 current students. Collectively, they represent 33 states and 13 countries.

**It Takes a Village...to Ensure Safe Food**

Funk was quick to add that, although the PSM food safety program is offered through the veterinary college, it is an interdisciplinary curriculum.

“We have staff and faculty representation from colleges and departments all across campus, including agriculture and natural resources, animal science, business/hospitality, food safety and toxicology, food science and human nutrition, packaging and – of course – veterinary medicine,” she said. “We even work with the School of Criminal Justice to provide instruction on the risk of intentional threats from food-borne terrorism.”

MAES large animal clinical scientist Dan Grooms has been involved with the program as an instructor since its inception and worked with Mather in conceptualizing the program. He currently teaches a one-week food protection and defense class, and he organizes a four-module preharvest food safety course. Grooms’ teaching approach illustrates the interdisciplinary makeup of the program’s curriculum.

“What I’ve elected to do is reach out to my colleagues around the country and at MSU and ask them to participate,” Grooms said. “We have researchers from Mississippi State University, the University of Nebraska, Western College of Health Sciences in California, as well as MSU faculty members and folks in private industry that teach and help with the course development for preharvest food safety. It’s a team-taught course — we’ve got a lawyer, microbiologists, a poultry veterinarian, epidemiologists — the teaching cuts across many areas.”

Funk added that Mather preferred to use the term “transdisciplinary” in describing the program because its focus on food safety, both within and beyond discipline boundaries, presents the possibility of new perspectives that can be used to address contemporary issues that cannot be solved by one or even a few points of view.

“Einstein said, ‘You cannot solve a problem at the same level of thinking that created it.’ This program provides an incredibly rich learning environment because the students are working professionals, so they bring real-world problems to the courses,” Funk said. “I think that feeds faculty knowledge about what the challenges are in the food safety field and informs their research direction and priorities. The students, in turn, have a direct link with the people doing the research and access to an international community of practitioners with whom they can network. It’s a win-win scenario — each group informs the other for the benefit of all.”

**Where Science and the Real World Meet**

Perhaps one of the most innovative aspects of the PSM food safety program is the application model upon which it is based.

“The idea of a professional science master’s that allows people to apply science in their workplaces is becoming increasingly relevant,” Funk said. “The PSM food safety program is heavily targeted toward application and culminates with an applied project rather than a more traditional thesis.”

Students are required to complete a three-credit food safety applied project before graduation from the program. To emphasize the importance of these projects, an outstanding student award was established in 2007. The award is given annually to recognize students whose projects make significant contributions to the food safety field.

The program’s first outstanding student award was given to Marianne Courey, a Michigan Department of Agriculture food inspector, for her work on food safety risks during transportation.

“Marianne was concerned that food wasn’t being transported under the right temperatures or with the right protection,” Funk said. “So, to begin her project, she developed an educational CD for people who transport food. That evolved into a multistate, multijurisdictional, real-life road survey, where trucks were being pulled off the road and checked to see if they were hauling food and, if so, if they were hauling it under the appropriate conditions.”

Frank McLaughlin, chief warrant officer III in the U.S. Army Veterinary Corps, received the award in 2008 for conducting survey work that examined the relative food safety and food protection levels of European food suppliers to Army personnel in those regions.

“Frank really focused on international threats, and that led him to a job where he is helping to write policy around food
protection defense,” Funk said. “He is also providing instruction to future veterinary corps food inspectors.”

Heather Farrell Clark, quality assurance manager, Barbados Dairy Industries, Ltd., was the 2009 award recipient.

“A lot of the Caribbean countries are beginning to explore the need for their own equivalent of a national food safety organization,” Funk explained. “Heather conducted a needs assessment to get feedback from government officials and food producers in Barbados about the efficacy of a national food safety organization there. Assessment findings showed the need and support for such a group.”

This year’s winners, Susan Linn, director of quality assurance, SYSCO Corporation, and Angie Lawless, director of crisis management for RQA, Inc., teamed up to examine the food recall process.

“Susan and Angie surveyed people who work in the food supply chain to gain a better understanding of what works and doesn’t work for them in food recalls, how they prefer to receive information, and what their food recall capabilities are,” Funk said. “Based on the findings, RQA and SYSCO improved their recall systems to help make recalls more efficient and protective of people.

“We’ve had everything from bench-top molecular work to children’s books come from these initiatives,” Funk added. “The program is very broad in the types of projects students can pursue because, to solve food safety problems, it takes people from many disciplines taking many approaches. Again, the program is real-world-focused — if students can actually apply it at their place of work, we’re having an impact.”

**Advancing Food Safety: Where the Rubber Meets the Road**

In addition to providing essential scientific knowledge, complementary workplace skills and an opportunity for students to apply what they’ve learned though an applied project specific to their interests or line of work, Funk said that program staff and faculty members hope the PSM food safety program can provide a number of other benefits.

“One of the other things we hope to achieve is improved communication across sectors, whether it be government to
Profile: Online Professional Science Master's Degree in Food Safety Program

The online Professional Science Master's (PSM) in Food Safety Program, offered through the MSU College of Veterinary Medicine, is the nation's first and only fully online food safety program and the only online PSM program housed in a veterinary medical college. It is part of a national network of 208 PSM programs that are offered through 98 affiliated institutions across the country. All of the information provided below is current as of Sept. 1, 2010.

<table>
<thead>
<tr>
<th>Program started:</th>
<th>2002</th>
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<tbody>
<tr>
<td>Current enrollment:</td>
<td>120 students</td>
</tr>
<tr>
<td>Number of graduates:</td>
<td>70</td>
</tr>
<tr>
<td>Credit requirements:</td>
<td>30 (21 core course credits, including a three-credit applied food safety project, and nine elective credits)</td>
</tr>
<tr>
<td>Residency requirements:</td>
<td>None</td>
</tr>
<tr>
<td>Time limit:</td>
<td>Five calendar years (the last 30 graduates took an average of 2.7 years to complete the program)</td>
</tr>
<tr>
<td>Number of faculty members:</td>
<td>29</td>
</tr>
<tr>
<td>Core courses:</td>
<td>Introduction to food safety, evolution and ecology of food safety, food safety toxicology, food safety research methods, food-borne disease epidemiology, food safety epidemiology, U.S. food laws and regulations, international food laws and regulations, and applied food safety</td>
</tr>
<tr>
<td>Elective courses:</td>
<td>Special studies in food safety, packaging for food safety, preharvest food safety, food protection and defense, topics in food safety, food safety disease control, product protection/counterfeit strategy, food law, homeland security and public health</td>
</tr>
<tr>
<td>Sectors represented by students:</td>
<td>Industry (74 percent), government (17 percent) and academia (9 percent)</td>
</tr>
<tr>
<td>Geographic representation of students:</td>
<td>33 states and 13 countries</td>
</tr>
</tbody>
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For more information: www.online.foodsafety.msu.edu.

Note: A 12-credit certificate in food safety is also available. Seven food safety certificates have been awarded to date.

industry or across different parts of the food supply chain,” Funk said. “We also hope to create a community of scholars who will, in the future, set food safety policy.”

Funk added that a good number of the students have told her and other program staff and faculty members that a week rarely goes by in which they don’t contact a colleague.

“They rely on each other a lot, even after graduation, for their respective expertise on food safety issues,” she said. “If they run across something that they need assistance with, they can say, ‘Oh, so and so knows about this, so I can call him/her.’”

“In today’s world, developing diverse networks of colleagues is necessary to solve complex problems,” Grooms added. “There is no doubt that food safety is a complex issue. This program not only enhances knowledge but also builds this diverse network, thus further helping to ensure food safety globally.”

Funk is enthusiastic about the future of the program and its ability to provide access to an advanced food safety degree that, for many, would otherwise be difficult — if not impossible — to attain.

“This degree is not designed to replace traditional programs but to help working professionals gain the advanced instruction and skills training they need to be successful,” Funk said. “We’re trying to create a broad network of professionals that are equipped to address the food safety challenges of the 21st century. We’re committed to a safe food supply.”

— Val Osowski