



So you want to be a scientist? Learn all about what it takes to make it happen by checking out these exciting interviews! Professionals working in a variety of food safety careers tell all about their jobs and scientific discoveries, and reveal their secrets for success. Some candidates you have already met in the *Dr. X and the Quest for Food Safety* video.

IT'S REAL-LIFE SCIENCE IN ACTION!

GET INSPIRED!

The following pages feature interview highlights from people in a variety of food science careers, plus 5 full-length interviews. Find these professionals — and meet additional ones — at www.fda.gov/teachsciencewithfood



Vice President, Food Safety & Quality Assurance

"Dive into the subject, look for visionaries and leaders in that area, and learn from them."

Jorge A. Hernandez, R.S.



Career Title

Vice President,
Food Safety & Quality Assurance
U. S. Foodservice
Rosemont, Illinois

Fields of Expertise

- Food Safety
- Quality Assurance
- Public Health
- Crises Management Food Security

Academic Studies

- **Rockford College**
Rockford, Illinois
Bachelor of Science Biology & Chemistry
- **Universite Sorbonne**
Paris, France
French Culture & Civilization
- **Center for Medical and Microbiological Sciences**
Mexico City, Mexico
Medical Sciences

Employment History

- **VP Food Safety & Risk Management, Director Science & Regulatory Relations**
National Restaurant Association
Education Foundation
Chicago, Illinois
- **Regional Supervisor, Food Safety Coordinator**
Illinois Department of Public Health
Division of Food, Drugs & Dairies
Springfield, Illinois
- **Environmental Health Inspector**
Winnebago County Health Department
Rockford, Illinois
- **Foodservice Industry – Various**
While in high school/college
(Busboy, Dishwasher, Bartender,
Assistant Manager)

WHAT IF . . .

"If I hadn't chosen my present career, I would have become . . . a researcher in the medical or public health fields."

What do you do in your current job?

I'm responsible for creating the food safety and quality vision and strategy for US Foodservice, its 80 Distribution Centers, 17 Manufacturing facilities, and the 4,000 plus private label products. That includes aligning the expectations of internal and external customers and supplier partners, making sure that all food products meet regulatory compliance, and leading the continuous improvement of processes and procedures in food safety and quality in all these arenas.

What led you to your career?

Being from a third world country and having a degree in medical sciences, I became acutely aware of foodborne diseases and the suffering and death they cause—especially among the most vulnerable populations: children, the elderly and the immune-compromised. They are unnecessary diseases, as they are 100 percent preventable. When I came to the United States, I learned that no country is invulnerable to these diseases, and that 5,000 people die and millions are ravaged by these diseases in the United States every year. So, after college I decided to work in the environmental health field and to focus my career in improving the safety of food. Whether working for government or industry, that focus has been my guiding principle.

Was there a person who inspired you?

There have been many people who inspired me and many that still do. However, the one that stands out above the rest is my late father. My father inspired me to believe in myself, to see dreams as goals, to be focused, to work hard, and to never let any obstacle sway me away from those goals.

What twists and turns has your career taken to get you where you are today?

At first glance, my career might appear to have some twists and turns: government, industry association, and industry. However, I don't see it that way. Once I figured my guiding principle (see above), I just looked for visionary leaders and organizations aligned with the same principle.

What advice would you give to students who are interested in pursuing a career in science?

Science is a wonderful and extensive field, and it's full of opportunities. I would advise students to find out what it is about science that excites them, something that fuels their passion. Then, they should research all opportunities that match their excitement and passion. However, they need to be careful to not research only the common well known opportunities. For example, as first my career goal was medical studies, it wasn't until later in college that I discovered environmental health, almost by accident. That discovery changed my life. Anyway, once you take the step to focus, the rest is simple: dive into the subject, look for visionaries and leaders in that area, and learn from them. Also look to develop personal goals: What would you like to be doing in 5, 10, 15, and 20 years in that arena? Align yourself with those leaders and organizations that match your goals. Then, enjoy the ride. This simple advice has served me well and I hope it helps them just as well too.

Associate Director for Food Safety, National Center for Zoonotic, Vector-borne, and Enteric Diseases

"Be patient with your career development. Remember, the slow and steady win the race."

Arthur Liang, M.D., M.P.H.



Career Title

Associate Director for Food Safety,
National Center for Zoonotic,
Vector-borne, and Enteric Diseases
Centers for Disease Control and Prevention
Atlanta, Georgia

Fields of Expertise

- Preventive Medicine, Epidemiology,
Public Health Practice

Academic Studies

- Oberlin College**
Oberlin, Ohio
Bachelor of Arts in Art History
- University of Maryland**
Baltimore, Maryland
Medical Doctor
- University of Hawaii**
Honolulu, Hawaii
Masters of Public Health in
International Health and
Epidemiology

Employment History

- Math Tutor** (while in high school)
- Epidemic Intelligence Service Officer**
Centers for Disease Control and
Prevention
Atlanta, Georgia
- Director, Communicable Disease
Division**
Hawaii State Department of Health
Honolulu, Hawaii
- Assistant Director for Science
Division of Public Health Systems**
Public Health Practice Program Office
Centers for Disease Control and
Prevention
Atlanta, Georgia

WHAT IF . . .

*"If I hadn't become an epidemiologist,
I would have become . . . a clinician
(a doctor who sees patients)."*

What do you do in your current job?

I oversee planning and policies related to investigations of foodborne diseases in conjunction with FDA and USDA.

What led you to your career?

My brother Matthew, a rheumatologist (a person who diagnoses and treats patients with arthritis) at Harvard Medical School, inspired me to pursue my studies in public health. He told me that there's so much research sitting on shelves that needs to be put into action. He urged me to apply what I learn from my own research and the wealth of research that others have done over the years.

What's the most inspiring project you have ever worked on?

When I worked and lived in Hawaii, I worked with state legislators to obtain funds to start a Hepatitis B screening program for pregnant women. As a result of routine screening, it was estimated that we were able to prevent about 400 newborn babies from becoming chronically infected with this virus. This was also the first state screening program of its kind in the nation. Impacting the health of the public is one of the best parts of my job.

What other subjects, besides science, are important for this field of study and why?

Political science is important because, in this field, you have to understand how the government system works and how society, scientists, and government develop health policies. Public health administration, management, and leadership skills are essential because you have to understand how organizations work in order to translate public health policies into public health services.

Last, but not least, you need to know something about social and behavioral science because you have to understand how people and communities work in order for public health services to lead to public health action by individuals and communities.

What advice would you give to students who are interested in pursuing a career in science?

Write a list of things that interest you and from that list, select 5 things you enjoy most or have experience in. There are many ways to make a contribution to society, and you're most likely to do well in a field that you enjoy. Be flexible, and be patient with your career development. Remember, the slow and steady win the race. Also, expect that your interests will change as you change and the world changes. The sky is the limit, but the path does not have to be a straight line.

Senior Managing Scientist Food & Chemicals Practice

"To be in science, you must be goal oriented."

Art Miller, Ph.D.



Career Title

Senior Managing Scientist
Food & Chemicals Practice
Exponent, Inc.

Fields of Expertise

- Behavior and control of bacterial pathogens in foods

Academic Studies

- **Kansas State University**
Manhattan, Kansas
Bachelor of Science in Biology
- **Pennsylvania State University**
University Park, Pennsylvania
Master of Science in Food Science
- **Drexel University**
Philadelphia, Pennsylvania
Ph.D. in Food Safety

Employment History

- **Life Guard** (while in college)
- **Research Assistant, Biology** (while in college)
- **Middle School Science Teacher**
Lewistown, Pennsylvania
- **Food Inspector**
U.S. Department of Agriculture
Harrisburg, Pennsylvania
- **Food Technologist, Lead Scientist, Research Leader**
USDA Agricultural Research Service
Eastern Regional Research Center
Philadelphia, Pennsylvania
- **Lead Scientist for Microbiology**
Food & Drug Administration
Center for Food Safety & Applied Nutrition
College Park, MD

WHAT IF . . .

"If I hadn't become a scientist, I would have become . . . a musician or historian."

What do you do in your current job?

I am a consultant to the food industry on the safety of foods, with an emphasis on microbiological hazards, such as Salmonella or E. coli O157:H7, both pathogenic bacteria. I work with companies to ensure that their products are safe before and after products are marketed to consumers. This includes the entire food chain, from farming operations, to processing plants, to foodservice and supermarkets. When things go wrong, like a detective, I will visit a food operation, collect samples for laboratory analysis, identify the root cause of the problem and recommend solutions to prevent the problem from happening again. This work is conducted within the U.S. and internationally. Frequently I am asked to present information to scientific groups, government agencies, or trade associations.

What led you to become a scientist?

In high school, I was torn between science and the humanities. I especially liked biology, history, and music. I favored the sciences because my personality was more compatible with this field. For instance, when given a choice, I favored well-defined problems to work on.

While growing up, it was my dentist who encouraged me to learn more about the relationship between food and health. After college, I went to work in the food industry and decided that I wanted to spend my career improving the safety of food.

What do you like most about your career?

The diversity of the people that I work with, such as lawyers, engineers, physicians, research scientists, economists, and educators. I also love traveling. I once gave a series of lectures that allowed me to prove to myself that the world is round. I got on a plane in Washington, DC, and flew east, making stops and giving lectures in Frankfurt, Bangkok, Melbourne, Auckland, Los Angeles, and finally back to Washington. Just like Magellan!

This career also gives me the opportunity to write about my research and open doors that no one else has opened. It's a great feeling to enter a room full of strangers and have someone say, "I know who you are because I've read your papers!"

Have you been involved in any new scientific discoveries during your career?

Early in my career, I worked on ways to prevent cancer-causing compounds from forming during the cooking of food. My colleagues and I demonstrated that by adding Vitamin C to food or using "mild" cooking methods, such as microwaving, none of the carcinogens would form. In more recent years we identified ways to prevent the growth or kill harmful bacteria that may be present in foods; some of these approaches are now regulatory requirements that are used by the food industry to keep food safe.

What advice would you give to students who are interested in pursuing a career in science?

Remember, to be in science, you must be goal oriented.



Microbiologist

"Don't think of math as an insurmountable mountain. Instead, approach the mountain at the base with what you already know and work your way around it to the top."

Barbara Paul, Ph.D.

Career Title

Microbiologist

Food and Drug Administration
Office of Regulatory Affairs
Northeast Regional Laboratory
Jamaica, New York

Fields of Expertise

- Microbiology

Academic Studies

- **Howard University**
Washington, DC
Bachelor of Science in Microbiology
- **St. John's University**
Jamaica, New York
Master of Science in Biology

Employment History

- **Microbiology Technologist**
University of the West Indies
Jamaica, West Indies
- **Virology Technologist**
Manchester University School of
Medicine
Manchester, England
- **Lab Scientist, Microbiology**
Ife University
Ife, Nigeria
- **Supervisor of Virology**
Mt. Sinai Medical Center
New York, New York

WHAT IF . . .

"If I hadn't become a scientist, I would have become . . . a foreign interpreter."

What do you do in your current job?

I analyze foods from all over the world for contamination by pathogenic bacteria and conduct DNA fingerprinting of bacterial isolates.

You've worked in various countries around the world — how has working abroad helped you in your career?

It has made me aware of the impact of microbiology on the lives and livelihood of people in different parts of the world. In my present job, where the accent is on foods, my travels help me identify different foods from countries in which I have lived. I can then help the laboratory staff to determine how these foods should be treated based on the way they are consumed.

How did you become interested in science?

As a child, I was very curious. I even conducted my own experiments, such as adding bicarbonated soda or salt to the inside of an acidic fruit and watching it fizz. It was fun to "see" science in action, although at the time I didn't know it was science.

Later on, I found biology exciting. History, on the other hand, was my least favorite subject because I found it much easier to understand scientific concepts than to memorize historical dates and events.

Was there a teacher who inspired you to pursue your career?

Yes, her name was Mrs. Baugh. She was my biology teacher in high school when I lived in Jamaica, West Indies. Mrs. Baugh inspired me by her example. When I was younger, there weren't many females in the field of science. I looked up to Mrs. Baugh for what she had achieved as a female in science. Coincidentally, Mrs. Baugh and I were able to meet up with each other in Jamaica 2 years ago. Seeing her again brought back many fond memories.

What advice would you give to students who are interested in pursuing a career in science?

Math is necessary for science and life, and it's really not as difficult as it first appears. In fact, don't think of math as an insurmountable mountain. Instead, approach the mountain at the base with what you already know and work your way around it to the top.



Research Leader

"Trying to attack your road blocks can be an exhausting task. Instead, think of creative ways you can go over, around, or even under road blocks. In the end, you'll preserve your strength, positive attitude, and all the qualities you need to succeed!"

Morse Solomon, Ph.D.

Career Title

Research Leader

Food Technology and Safety Laboratory
Agricultural Research Service
U.S. Department of Agriculture
Beltsville, Maryland

Fields of Expertise

- Meat Science and Muscle Biology
- Animal Science
- Food Safety

Academic Studies

- **University of Connecticut**
Storrs, Connecticut
Bachelor of Science in Chemistry and Biology
- **University of Kentucky**
Lexington, Kentucky
Master of Science in Animal Science/Meat Science and Muscle Biology
- **University of Florida**
Gainesville, Florida
Ph.D. in Animal Science/Meat Science and Muscle Biology

Employment History

- **House Painter** (while in high school)
- **Short-Order Cook in Restaurant** (while in high school)
- **Insurance Salesman** (while in college)
- **Graduate Research Associate**
University of Kentucky and University of Florida
- **Research Scientist**
Agricultural Research Service
U.S. Department of Agriculture
Beltsville, Maryland

WHAT IF . . .

"If I hadn't become a scientist, I would have become . . . a salesman."

What do you do in your current job?

I lead a team of research scientists and support staff in the area of food technology and safety research.

What led you to your career?

I always wanted to be a leader. Dr. Donald Kinsman, my undergraduate professor at the University of Connecticut, was a true leader, and I wanted to be just like him. He convinced me to pursue a career in meat science and muscle biology. He was the "Michael Jordan" of this field, and he's the reason I'm doing what I do today. I love leading a team of scientists, solving science-based problems, and developing cutting-edge research programs.

What other subjects besides science are important for this field of study?

I report my research and make speeches around the world, so English and public speaking are very important. Scientists speak to a variety of audiences. For instance, one day, I may be speaking to a room full of scientists. The next day, I may be speaking to elementary school students. As a scientist, you have to be able to tailor your talks to different audiences, so they'll be able to understand the message you're trying to convey.

Have you been involved in any new scientific discoveries?

Most meat-tenderizing methods take days or even weeks to be effective. I, along with a team of scientists, discovered that underwater detonation explosives can instantaneously tenderize meat. (Who would have thought that I would ever be working with explosives in my field of study?) In the process, we also discovered that explosives can kill harmful bacteria in meat. This is an experimental process. It has not become commercial yet.

What advice would you give to students who are interested in pursuing a career in science?

Trying to attack your road blocks can be an exhausting task. Instead, think of creative ways you can go over, around, or even under road blocks. In the end, you'll preserve your strength, positive attitude, and all the qualities you need to succeed!

CAREERS AT-A-GLANCE

Food Safety Experts



Carolyn B. Brooks, Ph.D.

Professor, Executive Assistant to the President,
Research Director of Land-grant Programs,
Dean, School of Agricultural and Natural Sciences

University of Maryland Eastern Shore
Princess Anne, MD

"I'm an administrator, overseeing academic and research programs of 6 academic departments and the research experiment station of the university. I'm also the major professor and serve on the research committees of several graduate students, guiding them and overseeing their work. Working with college students is delightful; not only do they appreciate faculty who care, but they give back by enriching the lives of those who work with them."



Christine M. Bruhn, Ph.D.

Director of the Center for Consumer Research
Food Marketing Specialist in Cooperative Extension

University of California
Davis, CA

"I conduct research on consumer attitudes toward food safety and food quality. Right now, I'm researching food irradiation. Through my research, I've dispelled many myths, particularly the one that the public will never accept new technologies. In fact, I've discovered that the public will accept new technologies, as long as they're given enough information about the process."



Bonnie Buntain, D.V.M., M.S.

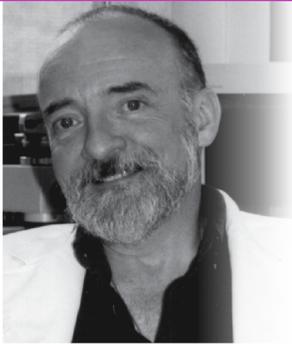
Assistant Dean, Government and International Relations Professor, Public Health

University of Calgary
Calgary, AB, Canada

"After 15 years in federal public practice, I have just moved on to another career as the Assistant Dean of Government and International Relations and Professor of Public Health at the University of Calgary, Alberta, Canada. I am also co-appointed as a professor with the College of Medicine. I am part of the founding faculty for a new college of veterinary medicine. This is an incredible opportunity to use my 10 years of veterinary practice and 15 years of public practice to shape an innovative veterinary curriculum. The college will focus on food supply veterinary medicine, ecosystem and public health, and research. It's a wonderful opportunity!"

CAREERS AT-A-GLANCE

Food Safety Experts



Theodore (Ted) H. Elsasser, Ph.D.

Research Animal Scientist/Physiologist
U.S. Department of Agriculture

Agricultural Research Service
Bovine Functional Genomics Laboratory
Beltsville, MD

"I study ways to improve the health of animals in order to insure that our food supply is healthful and safe. I live close to work and enjoy going to the 7,700-acre research farm daily where the views are great and there's plenty of wildlife to observe after-hours. I have considerable freedom to decide how I will approach solving a given problem or how to test a hypothesis that will support or refute a theory or hunch. Another rewarding part of my job is that I solve problems for 30 'patients' (animals) who can't tell me where it hurts or how they really feel."



Jack Guzewich, R.S., M.P.H.

Sanitarian/Epidemiologist
Food and Drug Administration
College Park, MD

"I develop and implement programs to coordinate responses to foodborne illness outbreaks and other emergencies. Every outbreak is a new mystery to solve — it's like being a detective. For instance, in the early and mid-1980s, Salmonella Enteritidis illness cases were increasing in the United States. I was involved in the discovery that the increase in Salmonella Enteritidis infections was associated with the consumption of shell eggs."



Roberta M. Hammond, Ph.D., R.S.

Environmental Administrator
Florida Department of Health
Tallahassee, FL

"I coordinate food and waterborne disease surveillance and investigations for the state of Florida. During foodborne outbreaks, my role is to provide information to all who need it (e.g., agency managers, other states, federal agencies, and the public). Our state was the first to have an outbreak of Salmonellosis linked to fresh-squeezed orange juice."



Rene E. Sotomayor, Ph.D.

Toxicology Reviewer
Food and Drug Administration
College Park, MD

"I study the toxicological effects of food contaminants at the molecular level, particularly in mammalian DNA. I discovered that the live, attenuated (ability to reduce virulence) virus vaccine for hog cholera was capable of breaking chromosomes in vivo (while the animal is still alive). This occurrence can cause serious problems for the animal. This finding is important because it may also extend to vaccines used for humans."