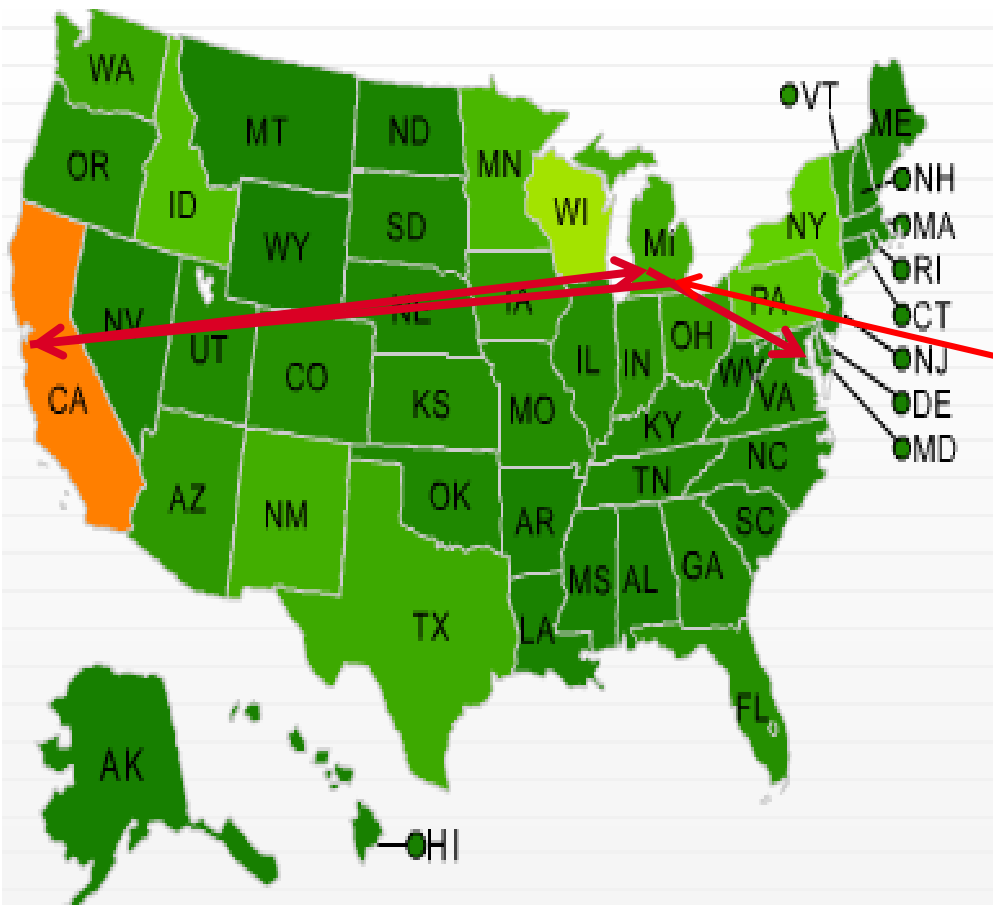


“Love Food as well as Chemistry?”

***How to Find and Build a Career
in the Food and/or Flavor
Industries***



Life's Path



Careers

- Research Chemist
- Professor
- Author
- Quality Assurance Manager
- Regulatory Manager



Advice

- Be Flexible
- Take a Chance
- Develop People & Communication Skills
- More than One Way to Utilize Knowledge
- Life Long Learning



Why Food Science?



In 2009:

- The median starting salary was \$50,000
- The median salary was \$87,700
- The median salary by degree was:
 - BS: \$79,000
 - MS: \$85,000
 - Ph.D.: \$103,000

Source: *Food Technology* magazine, February 2010

Who can you work for?

- Food processors
- Ingredient manufacturer/suppliers
- Academia
- Self-employed/Consultant
- Government
- Non-government organizations
- Foodservice
- Testing laboratory



What kind of jobs are available?

- Product Development Scientist
- Processing Engineer
- Microbiologist
- Sensory Scientist
- Culinary Scientist
- Flavor Chemist
- Packaging Engineer
- Government Official
- Analytical Chemist
- Professor
- Basic Research
- Production
- Supply Chain Management
- Marketing
- Regulatory Affairs
- Legal Affairs
- Government Relations
- Quality Assurance
- Food Safety

Analytical Chemist

- Analyzes and conducts tests on products and ingredients
- Determines & sets specifications
- Responsibilities
 - Testing
 - Troubleshoot
 - Experimental design
 - Perform, analyze, and report experimental results

Case Study: Juice



A chemist from the USDA prepares to analyze limonoids in orange juice. Some limonoids are bitter, and the presence of these limonoids in high concentrations reduces the acceptability of citrus juices to consumers and forces citrus juice producers to lower the bitter limonoid content through juice-blending dilution or the removal of bitter limonoids.

Product Development Scientist

- New Product Development
 - From concept to formulation to production
- Brand Maintenance
 - Creates line extensions (i.e. new flavors)
- Quality Improvement
 - Makes changes as necessary (i.e. supply chain interruption, consumer complaints)
- Knowledge
 - Raw Materials
 - Customer Wants & Needs
 - Commercialization Process

Case Study: Juice



To formulate a juice beverage, product development scientists can use a variety of ingredients including: fruit juices, juices from concentrate, and juice flavors

Flavor Chemist

- Develops flavors for the flavor and food industries
- Investigates the compounds responsible for flavor in food products
- Knowledge
 - Raw Materials
 - Interactions/Synergies with each other
 - Flavor interactions with the Food Matrix
 - International Regulations
 - GRAS in which countries; GMO; Kosher; Allergens
 - Customer Requirements (Needs & Wants)
 - Sensory Analysis
 - Like/Dislike
 - Match



Regulatory Analyst

- Provides documentation about formulations
 - Technical Data Sheets (TDS)
 - Ingredient Statements/Labeling
 - Material Safety Data Sheets (MSDS)
 - Specifications (RM & FG)
- Paralegal Consulting
 - Product Developers
 - Customers/Vendors



Consumer Safety Officer

- Responsible for publishing, implementing, and enforcing regulations for government agencies
 - Investigates complaints of injury, illness, or death caused by a regulated product
 - Initiates actions against violators
 - Advises industry, state and local officials and consumers on enforcement policies, methods, and interpretation of regulations
 - Plans and directs regulatory programs
 - Develops inspection procedures and techniques
- Responsibilities
 - Rulemaking
 - Inspection/Enforcement
 - Troubleshooting

Case Study: Juice



Consumer Safety Officers from the FDA have jurisdiction over the labeling of juice. According to Title 21 Section 102.33 of the Code of Federal Regulations (CFR), beverages that are 100% juice may be called "juice." However, beverages that are diluted to less than 100% juice must have the word "juice" qualified with a term such as "beverage," "drink," or "cocktail."

Hands on Experience

- Internships
 - Major food companies offer internships to undergraduate and graduate students
 - They usually take a variety of majors (food science, chemistry, biology, engineering)
 - Placement can be in the plant or in research & development
 - They are a great opportunity to see how the food industry works

Food Science Departments

- Alabama A&M University
- University of Alberta
- University of Arkansas
- Auburn University
- Brigham Young University
- University of British Columbia
- University of California-Davis
- California Polytechnic State University
- California State University, Fresno
- Clemson University
- Cornell University
- University of Delaware
- University of Florida
- University of Georgia
- University of Guelph
- University of Idaho
- University of Illinois
- Iowa State University
- Kansas State University
- University of Kentucky
- Louisiana State University
- University of Maine
- University of Manitoba
- University of Maryland

Food Science Dept. Continued

- University of Massachusetts
- McGill University
- Instituto Tecnológico y de Estudios Superiores De Monterrey
- Michigan State University
- University of Minnesota
- Mississippi State University
- University of Missouri
- University of Nebraska
- North Carolina State University
- North Dakota State University
- Ohio State University
- Oregon State University
- Pennsylvania State University
- Purdue University
- Rutgers-The State University
- San Jose State University
- University of Tennessee
- Texas A&M University
- Tuskegee University
- Utah State University
- Virginia Tech
- Washington State University
- University of Wisconsin-Madison

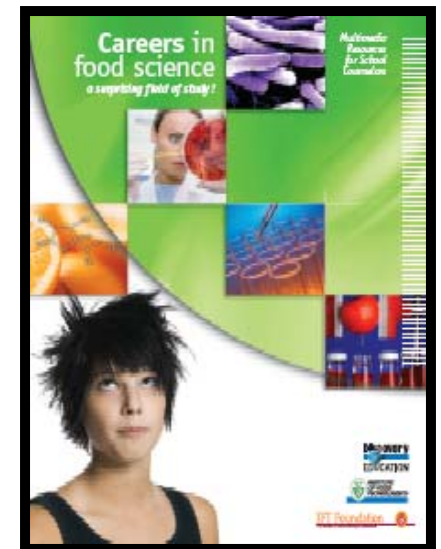
Institute of Food Technologists

- Visit:

- <http://www.ift.org>
- <http://www.iftsa.org> (Student Association Website)
- <http://school.discovery.com/foodscience/>

- Find a Food Scientist:

- A database of IFT members who are willing to provide more information about the field of food science to you
- <http://members.ift.org/IFT/Education/TeacherResources/findafoodscientist.htm>



The Society of
Flavor Chemists

www.flavorchemist.org

Seven years apprenticeship

www.flavorchemist.org/docs/syllabus.asp



Flavor Extract Manufacturer's Association



www.femaflavor.org

Grocery Manufacturers of America



www.gmabrands.com

Other Places to Network.....

- American Association of Cereal Chemists
- American Oil Chemists' Society
- American Society of Brewing Chemists
- American Society for Quality
- Association of Official Analytical Chemists
- American Spice Trade Association
- Society of Dressings & Sauces

ACS Webinars: Your Career Matters! Discussion

<https://communities.acs.org/community/employ-econ/yourcareer>

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Upcoming Event:
Feb 18, 2010. 2-3pm ET

“Failure is an Option: Learn How to Turn Failure into an Advantage”

Join us to learn from speaker *Ben Yerxa, PhD, Executive Vice President & Chief of R&D at Inspire Pharmaceuticals*. We are all familiar with failures and yet failures carry a negative stigma to both individuals and companies. Just as the phoenix can rise from the ashes, successful individuals and companies are those who have successfully turned failures into advantages. Join us to learn from our speaker the art of calculating risks and taking charge of setbacks. You too can turn failures into success.



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