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EDUCATION

- JD** Seattle University/University of Puget Sound. **1995** Licensed to practice in the State of Washington. Admitted to practice in federal court.
- PhD** University of Massachusetts. Food Science and Nutrition. **1983** Minor in food engineering. Dissertation title: "Isolation and characterization of dogfish (*Squalus ancanthias*) pancreatic lipase".
- BSE** University of Pennsylvania. Philadelphia, PA **1979** Bioengineering (biochemical engineering). Minors in chemical and instrumentation engineering.

AWARDS

Fellow, Institute of Food Technologists (2005)

Elizabeth Fleming Stier Award, Institute of Food Technologists, for humanitarian service (2004)

Distinguished Lecturer, Institute of Food Technologists (2001-2005) on food law and food defense

EXPERIENCE

Professor, Department of Animal Science, 2024-2025. Teach and conduct research on food safety, food chemistry and food laws and regulations including short courses. Mentor students, serve on graduate student committees and support junior faculty. Serve as scientific advisor to Global Cold Chain Alliance.

Dean, College of Agriculture, Life Sciences and Natural Resources, University of Wyoming, 2019 -2023.

Direct faculty of 990 full and part time employees (104 tenure track faculty), ~1,500 students and \$80M budget comprised of ~\$36M state funds and remaining federal dollars). Lead research, teaching, and Extension initiatives statewide on campus and at 4 Research and Extension Centers.

Director, School of Food Science. 2014 - 2019. Interim Director, School of Food Science, 2013 – 2014.

Washington State University/University of Idaho. Manage undergraduate and graduate teaching programs (on campus and on-line), research and outreach activities for a program with an annual operating budget of ~\$8M, 25 faculty and staff and 230 students at 7 locations including 90+ distance degree MS students. Director, PNW Region, Western Regional Food Safety Center, USDA (2015- present); Director, Graduate Programs SFS, 2012 -2014. Associate Director, Viticulture and Enology Program, 2015-2019; Director, MS Ag Food Science Management Degree Program, 2013 - 2019. Director, Food Science Certificate Program, 2013 – 2019.

Professor, School of Food Science formerly Department of Food Science and Human Nutrition, Washington State University, Pullman, WA. 1998 – 2019. Currently Professor Emerita. Teach and conduct research in the areas of food protection, processing and analytical chemistry. Interests include: food safety (microbial and

chemical), food protection strategies, traceability, products liability, functional foods and ingredients for microbial control, risk assessment and risk management, food technology, food chemistry, food quality and aquaculture. Recent research projects involved: detection of adulterants and toxicants in foods using spectroscopic methods, improving validation and verification procedures for microbial inactivation in pasteurized, dielectrically heated and high pressure treated food with an emphasis on heat labile high value products, non-invasive analysis of microbes, analytical method development to monitor changes in nutrient, bioactive and toxin constituents in foods as a result of processing, nanoparticle-food interactions. Provide technical and legal assistance to food processing businesses domestically and internationally.

International Economic Development Program Manager (1995 – 2013). Program manager for WSU education initiatives in Afghanistan (2008). Manager, International Partnership Agreement, WSU/University of Agriculture, Faisalabad (2009 -2019).

Develop food safety and quality programs including laboratory analyses (chemical and microbiological) for small and medium sized businesses and federal-level regulatory bodies. Manage and conduct food safety and marketing training programs to increase the value of agricultural products within the community and improve food security. Conduct value chain analyses. Evaluate food security in high-risk communities, develop fortified foods for school feeding and infant feeding programs, evaluate domestic and export market potential for agricultural crops and processed foods for emerging economies in Central and South Asia and other regions.

Supervise Borlaug fellows and foreign visiting scientists on WSU campus.

Manage short term education and gender programs involving job creation in agriculture, light manufacturing and textiles sectors. Establish programs at women's colleges. Establish employment programs for disadvantaged individuals.

Draft statutes and national food policy for developing countries. Assist with legislative initiatives and regulatory reform for food, agricultural and natural resource sectors including regulation of inputs and ingredients including GMO. Develop export certification programs meeting international best practices. Draft regulations to comply with WTO and international market and food safety standards.

Participated in economic development programs in 37 countries including: Afghanistan, Armenia, Australia, Azerbaijan, Bangladesh, Cambodia, Canada, Chile, China, Columbia, Croatia, Egypt, Georgia, Hong Kong, Hungary, Iceland, Ireland, Iran, Jordan, Kenya, Libya, Malaysia, Mali, Mexico, Moldova, Pakistan, Russia, Sri Lanka, Thailand, Turkmenistan, Tunisia, Turkey, UAE, Uganda, UK (England, Scotland), USA, and Vietnam. Evaluated many dozen business plans in food and agricultural sector including food service, implementation of good manufacturing practices, food safety, food quality and marketing programs for small and medium sized businesses. Develop legislative initiatives and regulatory reforms in: Afghanistan (2007), Azerbaijan (2005/2006), Mali (2006), Bangladesh (2008), Pakistan (2009, 2010), Cambodia (2012, 2013), Sri Lanka (2013); drafted food safety standards modifying the Soviet GOST derived standards to comply with WTO, EU, or US requirements (Azerbaijan (2004-2005), Georgia (2006), Primorskii Krai (Vladivostok/ Khabarovsk region of Eastern Russia (1995)).

Provided state-side technical assistance to economic development, food safety, food defense and food security programs in: Afghanistan, Armenia, Azerbaijan, Bulgaria, Chile, Columbia, Croatia, Djibouti, Egypt, Eritrea, Georgia, Haiti, Hungary, Iceland, India, Iran, Jamaica, Jordan, Kazakhstan, Mali, Nepal, Oman, Pakistan, Russia, Sri Lanka, Tajikistan, Tunisia, Turkey, Uganda, Uzbekistan.

Language skills: Russian, Farsi, French, some German, Spanish (read) and Urdu.

Division Director/Assistant and Associate Professor, Institute for Food Science and Technology, College of Ocean and Fisheries Sciences, University of Washington, Seattle, WA. 1984-1998. Graduate Faculty: Nutritional Sciences. Teaching: fisheries technology, food chemistry, food analysis, food laws and regulations, food technology, food quality, and hazard analysis critical control point (HACCP) courses. Research encompassed food product and process development, analytical methods development (non-invasive, spectroscopic, immunochemical), aquaculture and fish nutrition, cereal foods product development, food adulteration and food safety. Consult with regional and local food businesses on food product development, food processing and process

monitoring, food safety, regulatory, legal and food quality issues. Criminal law practice in: counterterrorism, international abductions and human trafficking.

Law Clerk, Weyerhaeuser Corp., Tacoma, WA. (1993-1995). Provide legal research on intellectual property, product safety, labor and employment, contract, real estate, and environmental law issues.

Head Research Chemist and Quality Control Manager. Cargill Inc., Memphis, TN. (1983 – 1984). Responsible for quality control program at 205,000bu, 20M lb/day facility. Supervised 16 employees. Developed corporate training procedures and analytical methods for Milling Division.

Biochemical Engineer. Cargill Research Dept. Biotechnology Section. Minneapolis, MN. (1982 – 1983). Design and scale-up of enzyme and ion exchange processes for Milling and other corporate divisions. Technology evaluation and transfer. Provided technical service for corporate research and 3 production facilities.

SCHOLARSHIP

Publications: 300+ publications in the peer-reviewed literature. Five books published, two pending. Number of citations: 18,000+ (Google Scholar) H factor: 71. Full publication list available upon request. Patents: 2 issued.

GRANTS and CONTRACTS AWARDED

Over \$15 M (spending authority) in federal funding through 2019 and \$13M in foundation dollars through 2023. \$25M in program support for University of Wyoming in 4 years.

COURSES TAUGHT

Courses currently developed at Wyoming: ANSC 3720 Food Chemistry (3 cr), FDSC 4800 HACCP (1 cr)

Previously Taught at WSU/UI joint program: FS 516 Food Laws (2 cr twice annually), cFS 531 Advanced Food Safety and Quality (3 cr annually), FS 470/570 Advanced Food Processing (3 cr annually), graduate component with process controls emphasis, FS 401-1/501-1 HACCP/Preventive Controls for Human Food (1 cr twice annually), FS 401-1/501-2 GAP/Produce Safety Rule (1 cr twice annually), FS 401-3/501-3 Preventive Controls for Animal Food (1 cr annually), FS 379 Internship coordinator, University of Idaho (variable credit, annually), FS 495 Internship/directed studies, WSU (variable credit, annually). Average teaching evaluations: very good.

Previously taught at WSU for dietetics program: Food Laws (FSHN 370, 3 cr annually), Food Product Development (FSHN 420 (4 cr annually) *For Food Science program:* Food Processing (FSHN 303, 3 cr), Food Law - products liability section, Michigan State University (1 cr), International Food Laws (products liability section, Michigan State University (1 cr). Average teaching evaluations: very good.

Previously taught at University of Washington: Utilization of Fisheries Commodities (Fish 324, 4 cr annually), Food Chemistry (FS 482, 3-4 cr annually), Food Analysis (FS 483, 3 cr annually), Food Chemistry Lab (FS 492, 2 cr annually), Food Analysis Lab. (FS 493, 3 cr annually)

Food Regulations and Related Issues (FS 521, 1 cr), During alternate years: Advanced Food Chemistry and Biochemistry (FS 522, 3 cr). *Other courses taught:* Seafood Quality and Safety (Fish 497, 2 cr), Chemistry of Aquatic Food Products (Fish 480, 5 cr) Food Technology (FS 481, 4 cr), Food Technology Lab. (FS 491, 1 cr), Deteriorative Processes in Foods (FS 486, 3 cr), Food Safety (FS 498, 3 cr).

In addition, I taught several food safety short courses per year averaging two per month: e.g. FDA HACCP programs, GMPs, SSOPs, GAP, low acid canned food regulations, nutritional labeling). Average teaching evaluations: very good.

Non-Credit Classes, Workshops, Seminars, Invited Lectures., etc. I teach several food safety short courses per year averaging two per month. Invited lectures are included in a separate publication and presentation list.

STUDENTS ADVISED

Graduate Students (major supervisor or co-chair): Directly supervised and graduated 20 doctoral, 30 MS Food Science and 72 MS Ag students at WSU. Currently serving on one Wyoming PhD committee. Direct supervisor of 2 PhD and 10 MS at the University of Washington. Served on the graduate committee of 90 PhD and 108 MS students at 6 US institutions and 18 graduate students at foreign institutions. Supervised 11 undergraduate researchers and 35 post-doctoral research associates or visiting scientists.

PROFESSIONAL ACTIVITIES

Institute of Food Technologists, Professional Member (1980-present), Global Food Policy and Regulation Expert Panel (2006 – 2010) including Traceability Initiative (2012-2015); Executive Committee, Food Laws and Regulations Division, Institute of Food Technologists (1996-2000) - Chair 1998-1999)

Certified civil mediator (University of Idaho, 2006)

Other professional memberships: American Chemical Society, Food Drug Law Institute, American Bar Association, Washington State Bar Association (Recognition for *pro bono* service (2004 – 2022), King County (formerly) and Whitman County Bar Associations, World Aquaculture Association Pacific Aquaculture Caucus, Pacific Fisheries Technologists – Officer (1993-1998) including President (1997) Society of Sigma Xi, Who's Who in Technology Today; Who's Who Worldwide, Nutrition Information Network, Northwest Consumer Food Safety Council, Wyoming Stockgrowers Association, Wyoming Hunger Initiative

SERVICE TO THE PROFESSION:

- USDA Industry Advisory Board. Integrated Approach to Enhance US Food Sustainability via Cellular Agriculture, USDA NIFA 2021-2026.
- GCCA/GCCF WFLO Scientific Advisory Committee, 2022 –
- Institute of Food Technologists, Council of Food Science Administrators, 2014-2019
- Fellows Jury, Institute of Food Technologists, Awards Committee, 2017 – 2020, Aquatic Foods Judge, 2019.
- IFT-CFSA Working Group, 2018 – 2021.
- BPCS Coordinator Executive Board, Grocery Manufacturer's Association, 2018 – 2021,
- BPCS Executive Board Chair, 2019-2021.
- Instructor, Global Cold Chain Alliance. WFLO Institute. Refrigeration systems. 2017, 2018.
- Entrepreneurial Faculty Ambassadors, Washington State University, 2016-2019
- Technical Advisor and Board Member, Washington IMPACT, a Department of Commerce Manufacturing Technology Center, 2016 – 2019.
- Scientific Advisor: Global Cold Chain Alliance, World Food Logistic Organization, 2012 – 2020t.
- Executive Committee, Western Regional Aquaculture Consortium, (2005 – 2018), Chair Research Subcommittee, (2008- 2011), member Research Subcommittee (2012 – 2019).
- Advisor, National Congress of American Indians, Columbia River Intertribal Fish Commission: FSMA compliance, jurisdiction and impacts to small producers (2012 – 2020).
- USDA National Review Panel – Aquaculture and Fisheries (2013, 2014).
- National Food and Nutrition Security Policy, Federal Ministry of National Food Security and Research, Government of Punjab, Pakistan (2013).
- Trilateral Commission, US/Pakistan/Afghanistan. Trade Corridors Working Group. USDA FAS (2009 – 2013).

- Expert Panel for GCCA to FDA on hazard analysis and risk assessment for high and medium risk foods; Implementation of the Food Safety Modernization Act (2008-2015).
Expert Advisory Panel (GMA) to FDA on cGMPS & low acid food regulations (2014 - present).
- Expert Advisory Panel (IFT) to FDA: Traceability for aquatic foods GFSI. Draft guidance (2012-2015).
- Expert Advisory Panel, IIFSH and Preventive Controls for Human Food Alliance, International programs (2015)
- ~~Advisor, Sri Lanka Food Processors Association: International food safety compliance, national policy on food safety and strategies for building capacity in the agricultural sector (2013-2016).~~
- External dissertation examiner, several universities in India, Pakistan, Sri Lanka and Austria, 2015-2023
- Chair, Seafood/Aquaculture Safety Center of Excellence of the National Alliance for Food Safety (2001 – 2003).
- Institute of Food Technologists:
- Division Chair, Institute of Food Technologists, Food Laws and Regulations Division (1998 – 1999).
- Executive committee, Food Laws and Regulations: (1995- 2000), Global Regulations and Policy Division/Expert

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- Technical Advisor and Board Member, Washington IMPACT, a Department of Commerce Manufacturing Technology Center, 2016 – 2019.
- Scientific Advisor: Global Cold Chain Alliance, World Food Logistic Organization, 2012 – 2002t.
- Executive Committee, Western Regional Aquaculture Consortium, (2005 – 2018), Chair Research Subcommittee, (2008- 2011), member Research Subcommittee (2012 – 2019).
- Advisor, National Congress of American Indians, Columbia River Intertribal Fish Commission: FSMA compliance, jurisdiction and impacts to small producers (2012 – 2020).
- USDA National Review Panel – Aquaculture and Fisheries (2013, 2014).
- National Food and Nutrition Security Policy, Federal Ministry of National Food Security and Research, Government of Punjab, Pakistan (2013).
- Trilateral Commission, US/Pakistan/Afghanistan. Trade Corridors Working Group. USDA FAS (2009 – 2013).
- Expert Advisory Panel (GCCA) to FDA. On: Hazard analysis and risk assessment for high and medium risk foods; Implementation of the Food Safety Modernization Act; preventive measures (2010-2013).
- Expert Advisory Panel (GMA) to FDA on cGMPS & low acid food regulations (2014 - present).
- Expert Advisory Panel (IFT) to FDA: Traceability for aquatic foods GFSI. Draft guidance (2012-2015).
- Expert Advisory Panel, IIFSH and Preventive Controls for Human Food Alliance, International programs (2015)
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- Institute of Food Technologists:
- Division Chair, Institute of Food Technologists, Food Laws and Regulations Division (1998 – 1999).
- Executive committee, Food Laws and Regulations: (1995- 2000), Global Regulations and Policy Division/Expert

Current or Former Associate Editor for: *World Aquaculture Society, Journal of Aquatic Food Product Technology, International Journal of Aquatic Science, Journal Agriculture Research and Development, International Journal of Natural Resources and Marine Sciences (IJNRMS), Journal of Ocean University of China, Journal of Food Science and Nutrition, University of Idaho Fast Track Extension*

Publication Reviewer for: *J. Food Science, J. Agricultural and Food Chemistry, Analytical Chemistry, Applied and Environmental Microbiology, Aquaculture, Aquaculture Nutrition, Aquaculture Reviews, Aquaculture Trends, Bioprocess Technology, Bioresources and Technology, Cereal Chemistry, Compar. Biochem. & Phys., Critical ev Food Sci & Nutrition, EMS Microbiology Letters, Food Chemistry, Food Control, Food Hydrocolloids, Food Microbiology, Food Process. & Pres., J. Food Protection, Food Protection Trends, Food Reviews International, International J. Microbiology, J Agric. Food Chemistry, Bioterrorism and Food Defense, J Food Engineering, J Food Protection, J. Food Science Education, Pakistan J. Zoology, Process Biochemistry, Reviews in Fisheries Science, Sensing and Instrumentation, hermochimica Acta, World Aquaculture Society, PNW Extension Publications*

Reviewer for Governmental and Granting Agencies: BARD, General Accounting Office, Congressional Research Service, USDA – SBIR, USDA special grants, NSF, NSF- SBIR, USDA NRICGP, USDA NRI- NIFA, US Dept Commerce Saltonstall- Kennedy, Canada National Science Foundation

Other Activities

Ad hoc Advisor, Wyoming Department of Agriculture, Wyoming Fair Board, 2019-2023

APEC US representative, Fisheries Utilization, Conquimo Chile, 2018

HACCP Consortium. National HACCP Alliance. Committee for training materials, education, and program evaluation; train the trainer program, 1995 – 1998.

Codex Alimentarius Committee, Seafood, 2002, 2011.

Government Accounting Office, Expert Panel, Review of FDA Seafood HACCP program, 2003.

Executive Comm. & Treasurer, Pacific Fisheries Technol, 1997- 1998, 1998- 2001; Executive Comm, 2003- 2005. Shellfish Advisory Committee, Washington State Department of Health, 1996 – 2003.

Washington State Department of Agriculture, Advisory Committee, 1997 – 1999, 2017 (foods and edibles).

Administrative Law Subcommittee, Washington State Department of Health, 1996 – 1997.

Advisor, Northwest Consumer Food Safety Council, 1993 – 1999.

Scholarship committee, Puget Sound Institute of Food Technologists, 1990 – 1998.

Regional Advisory Council, Sheldon Jackson College, 1997 – 2000.

WAFDO-Seafood Alliance; food safety and seafood HACCP training, 1995 – 1998.

Better Process Control School, Instructor, 1989 – 1998, 2011 – 2022 including first programs in Pakistan, Sri Lanka and Korea

Seafood HACCP Training, over 350 classes including first course in nation on the new FDA regulations (Dec. 17, 1995). Food safety classes provided in: US/Canada, Afghanistan, Armenia, Azerbaijan, Bangladesh, Cambodia, China, Georgia, Korea, Pakistan, Russia, Sri Lanka, Tunisia, Thailand and UK including train-the-trainer classes. Related classes on GMPS, sanitation and marketing. FSMA compliance training in USA, China, Korea, Chile, Pakistan, Sri Lanka, Tunisia and UAE.