

Registration Information

- \$1,200 Early-bird Registration Fee (U.S.) by June 14, 2021
- \$1,300 Regular Registration Fee (U.S.)

For course registration, please go to the IGP website (www.grains.ksu.edu/igp) and under "Upcoming Courses" click on the "IGP-KSU Extrusion Processing" link.

Hotel rooms and meals other than those mentioned in the course outline are not included in the registration fee.



Hotel Information

Holiday Inn at the Campus

1641 Anderson Avenue, Manhattan, KS
Phone: 785-539-7531

Single/Double Room: \$94.00 + tax

A block of rooms has been reserved at the Holiday Inn at the Campus at a special rate until July 14, 2021.

Reserve room directly with the hotel. It is important to mention group code EXT and the IGP Extrusion Course to obtain the special rate.

Discounts and For-Credit Enrollment

If two or more people from the same organization enroll, each is entitled to a 10% discount. College students will receive a 20% discount on providing written endorsement of student status from a professor in their department. Students have the option of receiving two KSU Global Campus credits. Tuition and Global Campus charges will apply in that case, in addition to the course fee. For more details on registration for Global Campus credits, contact Dr. Sajid Alavi salavi@ksu.edu.

Questions or Special Needs

Please contact one of the following if you have a special dietary need or are physically limited:

IGP, igp@ksu.edu

Phone: 785-532-4070/Fax: 785-532-6080
or

Sajid Alavi, Course Instructor, salavi@ksu.edu
Dept. of Grain Science and Industry
Phone: 785-410-9051
www.grains.ksu.edu/extrusion

Who Should Attend

Technical and managerial personnel in the food, pet food, and feed industries and ingredient companies desiring training in fundamentals and operations; entrepreneurs who want to set up an extrusion-based business and would like to develop a business plan; and researchers interested in learning the latest trends in extrusion processing. The course is tailored for U.S. and international participants, and presents an excellent opportunity to develop contacts with experts and industry professionals from all over the world.

Comments from Past Participants

"Every aspect was informative and some sections gave in-depth knowledge on application/processing... I have several suggestions/recommendations to take back to my company."

"This short course was really wonderful. Please tell me every time whenever these type of courses (are) held. I'll be grateful to join them."

"Awesome! Real world case studies (in the business planning session) are great. This separates this extrusion course from any other I have attended. Perfect!"

"I had fun and learned a lot (at the hands-on sessions). I was able to adjust fat, BPV (back pressure valve), and RPM (screw speed)."

"Good hands-on experience with the extruders."

"An excellent course. I would love to recommend (this to) anyone ... for an enrichment of fundamentals (of extrusion)."

"Very good high level overview (of ingredient functionality)."

"Good examples and practical problems (covered under troubleshooting)."



IGP Institute

Extrusion Processing: Technology and Commercialization



August 10-13, 2021

IGP Institute Conference Center
Dept. of Grain Science and Industry
Kansas State University
Manhattan, Kansas USA

**Optional Supplement:
Pet Food Workshop**

August 9, 2021

**KANSAS STATE
UNIVERSITY**



Course Description

This course will cover topics including:

- principles of extrusion processing
- raw material selection
- equipment and control systems
- post-processing operations
- extruded products (including breakfast cereal, snacks, textured soy protein, pet food, and feed for poultry, animal and aquatic species)
- business planning and commercialization
- lab sessions and hands-on experience with pilot-scale extrusion equipment

This is the 12th year this course is being offered. More than 300 industry participants from 30 countries representing 6 continents have attended the KSU extrusion processing course. For more information and pictures from past courses please visit the course registration site and click on the link ‘Previous Course Information’. The course is jointly organized by the departments of grain science and agricultural economics at KSU, with active support by industry partners. The Kansas State Extrusion Lab has a strong emphasis on service, research and teaching and is primarily housed in the Bioprocessing and Industrial Value-Added Program building. It has a variety of facilities including lab-scale and pilot-scale twin and single screw extruders, and a pilot-scale gas-fired dryer.

Learn the Basics of Extrusion and Business Aspects

Extrusion processing of food and feed products is a multibillion dollar industry in the U.S. and Europe. This course will cover the state-of-the-art technology including different types of extruders, dryers and control systems. The processing of various food, pet food and feed products will be described. Participants will be exposed to sensory evaluation of foods, a critical step in the product development process, through a special hands-on lab session. The intricacies of setting up an extrusion-based business will be addressed including capital decision making and strategic planning. Case studies will be conducted with emphasis on both U.S. and developing world markets.

Speakers

Martin Talavera, Assistant Professor
Sensory Analysis Center, KSU

Sajid Alavi, Professor
Grain Science and Industry, KSU

Vincent Amanor-Boadu, Professor
Agricultural Economics, KSU

Topher Dohl, Research Coordinator
Wenger Manufacturing, Inc., Sabetha, KS

Keith Erdley, Drying Technical Service
Wenger Manufacturing, Inc., Sabetha, KS

Eric Maichel, Extrusion Lab Manager
Grain Science and Industry, KSU

Brian Plattner, Process Engineering Manager
Wenger Manufacturing, Inc., Sabetha, KS

Brad Strahm, Principal
The XIM Group, LLC, Sabetha, KS

Note: A significant feature of the IGP–KSU Extrusion Course is a hands-on session on the science and practice of sensory evaluation and consumer acceptance studies for new products.

Course Outline

Day 1 – August 10 (Tuesday)

7:30 a.m. Registration

8:00 a.m.

- Ingredient Functionality
- Extrusion Hardware and Design
- Extrusion Operation and Process Variables
- Extrusion Applications – Food

12:30 p.m. Group Luncheon

1:00 p.m.

- Extrusion Applications – Feed and Pet Food
- Hands-on Session on Pilot-Scale Extruders

6:00 p.m. Banquet

Day 2 – August 11 (Wednesday)

8:00 a.m.

- Business Plan: Capital Decision Making
- Business Plan: Strategic Planning
- Business Plan: Case Study and Active Interaction
- Principles of Die Design

12:30 p.m. Group Luncheon

1:00 p.m.

- Extrusion Troubleshooting
- Hands-on Session on Pilot-Scale Extruders

Day 3 – August 12 (Thursday)

7:15 a.m. Field trip to Wenger Manufacturing

- Textured Protein/Plant-based Meat Ingredients
- Extrusion Application – Textured Protein/Plant-based Meat Products
- Wenger Plant Tour

3:00 p.m. Hands-on session

- Pilot-scale Extrusion for Textured Protein/Plant-based Meat

Day 4 – August 13 (Friday)

8:00 a.m.

- Sensory Aspects of Extrusion Products
- Drying and Toasting
- Instrumental/Analytical Techniques and
- Troubleshooting
- Overview of the Product Development Process

12:30 p.m. Group Luncheon and Certificate Distribution

Optional Supplement

Pet Food Workshop August 9, 2021

Register for an optional supplemental one-day Pet Food Workshop on August 9, 2021. This workshop can be attended as a stand-alone participation or together with the Extrusion Processing: Technology and Commercialization Course.

The Pet Food Workshop will consist of industry experts and academic speakers from the area of pet nutrition and processing, and will provide latest information on pet food ingredient trends, nutritional requirements for dogs and cats, specialty treats, sensory evaluation/palatability tests and safety/HACCP issues. It will also include a “capstone lab session” involving formulation exercises for pet food recipes.

Registration Information

*(Only for Optional Supplement:
Pet Food Workshop)*

* \$275 Early-bird Registration Fee (U.S.)
by June 14, 2021

* \$325 Regular Registration Fee (U.S.)

No registration discounts other than the “Early-bird” discount applicable for the Optional Supplement. To register for the Pet Food Workshop on August 9, visit the IGP website (www.grains.ksu.edu/igp) and under “Upcoming Courses” click on the “IGP–KSU Pet Food” link. For more details on this Supplemental Pet Food Workshop, please contact Dr. Sajid Alavi (salavi@ksu.edu).