



# Flour sales for experts



## What you will learn

You will learn basic milling processes – from intake to the finished product. This includes flour, dough and bread analytics, laboratory analysis and cereal science.

Spend time at our fully operational school mill to see how the milling process works in practice. Spend a day at our Bakery Innovation Center to learn the basics of breadmaking.

Get to know and explore some of our latest milling machines

## Required skill level

Moderate technical knowledge of a flour mill. This course is well-suited for flour sales experts, mill manager and mill owners.



## Next course dates and more information

Scan the QR code or go to [buhlergroup.com/academy](https://buhlergroup.com/academy)

## Price

CHF 2'350.00 per person / 1 week

## What is included

- Invitation letter for visa application
- Hands-on access to some of our latest milling machines
- Practical experience of milling and baking at our fully operational school mill and Bakery Innovation Center
- Printed training documents
- One social event with dinner each course week
- Unlimited access to Wi-Fi and Internet

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## Detailed program



### Monday

#### Welcome at the Milling Academy

- Formalities and administrative matters

#### Trends in the milling industry

#### Practical: Cleaning of wheat for milling on Tuesday

#### Introduction into the world of milling I

- Wheat, kernel structure and properties
- Wheat cleaning section
- Conditioning of wheat (ideal preparation for milling)
- The milling process
- Different yields and production of different flour
- Flour quality, standard analysis, and starch damage

### Tuesday

#### Introduction into the world of milling

- Protein shifting
- Thermal and hydrothermal treatment of flour

#### Practical: Operation of the school mill

- Set-up of flour recipe
- Short mill run
- Sampling of different flours for baking tests

#### Structure-property relationships in dough and bread

- Role of gluten in dough formation and gas holding
- Role of starch during baking and staling
- Changes of gluten and starch upon milling and flour maturation
- Role of minor components (pentosans, lipids & enzymes)
- Dough and bread tailoring by ingredients and additives
- Analytical characterization of grain, dough and bread
- Specialty flours: properties and functionality
- Whole wheat flours, biscuit & cake flours
- Flours for refrigerated and frozen dough

#### Nutritional aspects and food safety issues

- Protein value and gluten intolerance
- Vitamins and minerals, flour fortification, and dietary fiber
- Mycotoxins and microorganisms

#### Social event in the evening

### Wednesday

#### Selected flour, dough & bread analytics

- Moisture and ash content
- Wet gluten content
- Dough rheology: farinograph and extensograph
- Enzymatic activity in flour: falling number
- Quantification of damaged starch
- Characterization of starch gelatinization by RVA
- Texture characterization of bread
- Particle size analytics of flour
- Microstructure of flour and bread by microscopy

#### Visit to JOWA bakery

### Thursday

#### Fundamentals of bread process

- Adding gluten - presentation Cargill
- The world of baking
- Introduction flour correctors
- Baking exercise with different flour qualities
- Flour compounds, product demonstration

### Friday

#### Bread process

- Hands-on training
- Swiss bread, product demonstration
- Bread evaluation

#### Course evaluation, summary and outlook

#### Working hours

08.00 – 09.30 / 10.00 – 12.00  
13.15 – 15.00 / 15.15 – 17.00

We reserve the right to adjust the schedule for organizational reasons.

