PRECLINICAL IMAGING

# Bruker Magnetic Resonance Imaging Learning Journey

## Your Path to MRI Expertise

Innovation with Integrity

Bruker's Magnetic Resonance Imaging Learning Journey guides users step-by-step from foundational skills to advanced imaging proficiency. Designed for learners at all levels, the journey combines self-paced e-learning, hands-on training, and access to the knowledge base within the Bruker PCI Community (PCIC).

**Advanced**
**Advanced Imaging Course** offers e-learning of advanced MRI aspects.

**Certificate of Advanced MRI Proficiency**

**Competent**
**Initial System Introduction and Training** prepares users for routine MRI work and to run projects for increased proficiency.

**Fundamentals**
**Basic Imaging Course** offers self-paced e-learning of general aspects of MRI.

**Certificate of Fundamental MRI Proficiency**

**PCI Community (PCIC)** - Supports you throughout your leaning journey with free learning materials, tutorials, webinars, best practices & user discussions.

## 1. Fundamentals: Basic Imaging Course

**Format:** *Self-paced e-learning*
**Cost:** *Free upon registration*
**Benefit:** *Build a strong foundation in MRI fundamentals and obtain an optional Certificate of Fundamental MRI Proficiency (awarded upon successful completion of the course test).*

The Basic Imaging Course provides a clear and structured introduction to preclinical magnetic resonance imaging (MRI) for new users as well as those seeking a refresher. Participants learn the foundational principles of MRI - from understanding Bruker MRI equipment and acquiring artifact-free images to exploring common applications.

**You will learn:**
- Introduction to Bruker MRI equipment
- Foundational contrast mechanisms & image formation
- Common sequences and their applications
- Basic image optimization and the mitigation of artifacts
- Introductory safety standards and good operational practice

The Basic Imaging Course is an ideal first step in your MRI learning journey.

## 2. Competent: Initial System Introduction & Training

**Format:** *Instructor-led on-site, hybrid, or remote training*
**Cost:** *This is a paid training service. Contact your Bruker Sales Representative or Application Support to order and schedule your training.*
**Benefit:** *Practical foundations for routine MRI work and preparation for advanced applications*

The Initial System Introduction & Training provides practical, hands-on skills for confident MRI system operation.

**You will learn:**
- System setup and daily operation
- Starting studies, building scan programs, adjusting parameters, and saving protocols in ParaVision® 360
- Basics of relaxometry and generating parametric maps
- Optimization of EPI acquisitions and use of higher-order shimming
- Fundamentals of key applications such as spectroscopy, diffusion, fMRI, or cardiology (based on selected modules)

This step connects theory to practice and prepares users for productive MRI work.

## 3. Advanced: Advanced Imaging Course

**Format:** *Self-paced and instructor-led e-learning*
**Cost:** *This is a paid training service. Contact your Bruker Sales Representative to order your training.*
**Benefit:** *Advanced MRI capabilities and deepened understanding of complex workflows. Certificate of Advanced MRI Proficiency awarded upon successful completion of the course test.*

The Advanced Imaging Course offers a practical, application-oriented deep dive into optimizing preclinical MRI acquisitions. The course is intended for customers using ParaVision® 360.

**You will learn:**
- Complete workflow of a preclinical MR experiment - from scan setup to image processing and data evaluation
- Protocol and module customization to achieve different image contrasts
- Parameter adjustments to optimize image quality, scan time & resolution
- Generation of parametric images (e.g., relaxation time mapping, ADC, rCBF, velocity maps), assessment of dynamic experiments (e.g., cardiac, perfusion imaging)

The Advanced Imaging Course is designed for users who want to elevate their MRI capabilities and deepen their understanding of complex workflows.

## Bruker PCI Community (PCIC)

**Format:** *On-demand digital content enriched with peer exchange and guidance from Bruker specialists*
**Cost:** *Free access upon registration*
**Benefit:** *Stay up to date with best practices across the global PCI user community.*

The PCI Community (PCIC) is your ongoing support and knowledge hub.

**The PCIC offers:**
- Exclusive learning materials & best practice guides
- Tutorials, troubleshooting resources & tips
- Webinar recordings and expert presentations
- Peer-to-peer exchange with the global PCI user base
- Insights from Bruker Application Specialists

The PCIC helps you deepen your MRI knowledge beyond formal courses.

## ParaVision® 360 Programming Course

**Format:** *Self-paced and instructor-led e-learning*
**Cost:** *This is a paid training service. Contact your Bruker Sales Representative to order your training.*
**Benefit:** *Ability to independently modify and expand Bruker methods (certificate of attendance).*

The ParaVision® Programming Course provides deep insight into ParaVision® 360 pulse programming and method development.

**You will learn:**
- Core spectrometer control, acquisition parameters & pulse program commands
- How to build custom pulse programming examples
- Fundamentals of ParaVision® Method (PVM) programming
- Creating user-friendly experimental interfaces for routine work
- Working with RF pulses, parameter groups & modules
- Structure of the reconstruction and possible modifications

The ParaVision 360® Programming Course is designed for advanced MRI users who want to develop their own experimental methods.

## Start Your Learning Journey Today

Empower your research with structured MRI training designed to grow your skills step-by-step - from fundamentals to advanced imaging.

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