

Advanced MR Physics

Course

Course for postgraduate students
(7.5 hp)



December 12-16

National 7T facility
Klinikgatan 13b, Lund

Course for postgraduate students - Advanced MR physics

The course amounts to 7.5 credits.
Registration deadline 25 November 2022

Course content

This post-graduate course is aimed at doctoral students of MR Physics aiming to broaden their knowledge in the field. Basic knowledge of MRI is required. The course will cover, for example, the following topics and methods: *Fast imaging, sparse sampling, post-processing methods, silent MR, QSM, QMRI, diffusion, perfusion, resting state fMRI, magnetization transfer, spectroscopy, low-field MRI, ultra-high-field MRI and applications.*

Teaching

The course is based on comprehensive lectures and hands-on demonstrations. The participants will also prepare an individual in-depth review of a specific method, which is to be presented in a seminar. This individual work shall also be submitted in written form.

Assessment

Participants will be assessed based on the presence during the lectures and demonstrations, participation in the seminar (i.e., presentation of individual work and active involvement in discussions), as well as a written report.

When

Lectures will be held December 12-16 2022. The Seminar will take place in January 2023.

Venue

National 7T facility, Lund

Social events

Social events will be part of the program

Language of instruction

The course is given in English.

Course responsible

Associate Professor Markus Nilsson,
Department of Diagnostic Radiology
Lund University

Professor Linda Knutsson,
Department of Medical Radiation Physics,
Lund University

Application: Send an email to Linda.Knutsson@med.lu.se

Preliminary Schedule

	Monday 12/12	Tuesday 13/12	Wednesday 14/12	Thursday 15/12	Friday 16/12
09:00-09:15	Introduction				
09:15-10:00	Fast imaging & sparse sampling	Diffusion I	Ultra-high field	Magnetisation Transfer I	Special MR-systems I
10:00-10:30	Coffee	Coffee	Coffee	Coffee	Coffee
10:30-11:15	Silent MRI	Diffusion II	Low-field MRI	Magnetisation Transfer II	Special MR-systems II
11:15-12:00	Post-processing – motion correction, denoising	Resting State fMRI	Pre-Clinical MRI	Advanced MRI - The research radiographers's perspective	Meet the teachers
12:00-13:00	Lunch	Lunch	Lunch	Lunch	Lunch
13:00-13:45	QMRI	Perfusion I	MRS I	Cardiac MRI	Hands-on demonstration- Hyperfine
13:45-14:30	QSM	Perfusion II	MRS II	Applications in oncology	
14:30-15:00	Meet the teachers	Meet the teachers	Meet the teachers	Applications in dementia	
15:00-15:30	Information Student Project			Meet the teachers	

Additional information

For students admitted to doctoral studies at another higher education institution than Lund university, please fill out the form at <https://www.naturvetenskap.lu.se/internt/sites/naturvetenskap.lu.se.internt/files/blankett-sarskilt-tillstand-delta-forskarutbildning.pdf> and send it to linda.knutsson@med.lu.se. This will make LU the examiner for this course.

People not yet enrolled in a PhD program can be admitted if there are free spaces. Note, however, that no credits will be awarded to participants not admitted to doctoral studies. It is the responsibility of such participants to check with their prospective home institution whether and how the course can be credited to their PhD studies.

No course fee