

18th *in vivo* NMR course

September 26–30, 2022

Center for Image Sciences, UMC Utrecht, Utrecht, the Netherlands

Scope of the course

The aim of this course is to introduce PhD students, post-docs, and other scientists in the principles of modern *in vivo* MR imaging (MRI) and spectroscopy (MRS) as applied to living systems in biomedical and biological research. The course will consist of lectures by experts in the field, as well as theoretical and practical exercises and demonstrations.

Program

Day 1 - 3: Basic MRI and MRS

- Fundamentals of MRI and MR spectroscopy
- Basic contrast mechanisms and pulse sequences
- k-space
- Exercises and practicals (including RF coil building workshop with WaveTronica)

Day 4 - 5: Applications and advanced topics

- Diffusion, perfusion, flow
- Ultra-high field
- Neuroimaging
- Cardiovascular MRI
- Multi-parametric MRI in clinical practice
- and more ...

Registration

Registration costs are €350 for PhD students and post-docs, and €700 for medical physicists and other participants. Fees cover attendance to the lectures and practicals, as well as lunch and coffee/tea, and the dinner on Wednesday evening. Total number of participants is limited to 24.

Register [on this website](#).

We anticipate this to be an **in-person** meeting. The course will **NOT** be held online in case COVID regulations do not allow an in-person meeting. A full refund of registration costs will then be provided.

Contact

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Location

UMC Utrecht
Utrecht, the Netherlands

We reserve the right to cancel with too little attendees. If so, a full refund of registration costs will be provided.



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Day 1 (Monday September 26) Conference Room Radiotherapy (Q.0S.2.26)

8.45 - 9.15	Walk-in and coffee	
9.15 - 9.30	Welcome and course introduction	Jeanine Prompers
9.30 - 12.00	Basics of MRI, Part I	Bram Coolen
12.00 - 13.00	Lunch	
13.00 - 14.15	Basics of MRI, Part II	Bram Coolen
14.30 - 17.30	MRI practicals and assignments	Bram Coolen, Annette van der Toorn, Hans Hoogduin, ...

Day 2 (Tuesday September 27) Van Peperzeel Zaal (Q.0S.3.01)

9.00 - 10.45	k-space and imaging principles	Tom Scheenen
11.00 - 12.00	MRI contrast mechanisms	Bram Coolen
12.00 - 13.00	Lunch	
13.00 - 14.00	Steady-state sequences	Bram Coolen
14.15 - 17.30	MRI practicals and assignments	Bram Coolen, Annette van der Toorn, Hans Hoogduin, ...

Day 3 (Wednesday September 28) Van Peperzeel Zaal (Q.0S.3.01)

9.00 - 11.00	MR spectroscopy	Jeanine Prompers
11.15 - 12.30	MR hardware & RF coils	Alexander Raaijmakers
12.30 - 13.30	Lunch	
13.30 - 17.30	RF coil building practical	WaveTronica
18.00 - ...	Social event (dinner)	

Day 4 (Thursday September 29) Conference Room Radiotherapy (Q.0S.2.26)

9.00 - 10.00	Musculoskeletal MRI	Hermien Kan
10.15 - 11.15	Diffusion MRI	Martijn Froeling
11.30 - 12.30	Vascular imaging & 4D flow	Pim van Ooij
12.30 - 13.30	Lunch	
13.30 - 14.30	<i>In vitro</i> and <i>ex vivo</i> MRI	Camilla Terenzi
14.45 - 15.45	Image analysis & AI	Hugo Kuijf
16.00 - 17.00	Multi-parametric MRI in oncology	Tom Scheenen

Day 5 (Friday September 30) Van Peperzeel Zaal (Q.0S.3.01)

9.00 - 10.00	Small animal neuroimaging	Geralda van Tilborg
10.15 - 11.15	Accelerated MRI	Gustav Strijkers
11.30 - 12.30	Cardiac MRI and MRS	Ot Bakermans
12.30 - 13.30	Lunch	
13.30 - 14.30	Neuroimaging & fMRI	Jaap Jansen
14.45 - 15.45	Ultra-high field MRI	Jaco Zwanenburg
16.00 - 17.00	Perfusion MRI	Thijs van Osch

Coffee and tea will be available during the breaks and lunch will be provided.

The sessions with practicals and assignments on Monday-Wednesday afternoons will take place in the *In vivo* NMR facility, Building Nw Gildestein, Bolognalaan 50, Utrecht.