



REN^{PRO} Method Course:

Ralph Witzgall (Universität Regensburg): Electron microscopy

- Date:** 4 days; March 10 – 13, 2025
- Place:** Universität Regensburg
- Target group:** PhD students of the TRR 374,
open for medical doctoral students, PostDocs and Clinician Scientists in the TRR 374, and for interested doctoral students (via the graduate schools)
- Credit Points:** Full participation can be counted as a method course with 1.2 CPs within the Curriculum of the Graduate Schools (RIGel, BioMediGS, life@FAU)
- Registration:** by February 2, 2025

via the following link (password-protected form):

<https://terminplaner6.dfn.de/de/b/2756ca069890d2027ca18cdaefc48145-1016973>

Non-TRR-members (doctoral students from the graduate schools) please register informally by email to: michaela.kritzenberger@ur.de

Please note: Course places will be given preferentially to TRR members. You will be informed of your course participation shortly after the registration deadline.

Maximum number of participants: 12 (first come first serve)

Contents & Schedule:

| Day 1: | | Room |
|----------------|--|---|
| 09:00 – 12:00 | Welcome, introductory remarks (Seminar room) Perfusion of mice by perfusion fixation (GA/FA), preparation of kidney, postfixation (over night) Cell culture (cover slips; Mattek dish): chemical fixation | VKL 5.1.01 VKL 5.1.09 VKL 5.1.04 |
| 12:00 – 13:00h | Lunch | |
| 13:00 – 15:00h | Kidney in fixans — Cells: contrasting, dehydration, resin embedding | VKL 5.1.04 |
| 15:00 – 15:30h | Coffee break | |
| 15:30 – 17:00h | Lecture: Methods — Preparation of tissues and cells for electron microscopy | VKL 5.1.01 |

| Day 2: | | Room |
|----------------|--|---------------|
| 09:00 – 12:00 | „Kidney into Epon“: kidney dissection; contrasting (OsO ₄ , Uac) Lecture: Introduction to TEM Cells in Resin: preparation for ultramicrotomy (removal of support, re-mounting) | VKL 5.1.04 |
| 12:00 – 13:00h | Lunch | |
| 13:00 – 15:00h | Kidney: dehydration, start of embedding Lecture: Introduction to SEM | |
| 15:00 – 15:30h | Coffee break | |
| 15:30 – 17:00h | Demo: Instrumentation TEM - SEM - microtomes | |

| Day 3: | | Room |
|----------------|---|------------|
| 09:00 – 12:00 | Kidney embedding into resin Sectioning of embedded samples: coarse trimming, sectioning for LM; fine trimming for ultra for EM, thicker for tomography (start of carbon coating in vacuum) | |
| 12:00 – 13:00h | Lunch | |
| 13:00 – 15:00h | Demo: Richardson-stained kidney sections (LM) Demo: EM images in the EM atlas: cell biology, kidney histology and ultrastructure | Histo-Saal |
| 15:00 – 15:30h | Coffee break | |
| 15:30 – 17:00h | Thick sections for STEM tomography (carbon, gold fiducials) Lecture: Introduction to tomography | |

| Day 4: | | Room |
|----------------|--|-----------------------------|
| 09:00 – 12:00 | TEM imaging of ultra at TEM 1 – STEM tomography at TEM 2 (JEOL), searching, tuning of TEM, data recording Demo: Tomogram Podocyte, and prox. Tubulus | VKL 3.1.18 3.1.21 |
| 12:00 – 13:00h | Lunch | |
| 13:00 – 15:00h | Reconstructing a tomographic dataset: data conversion, start, fine tuning Demo: Segmenting of a final tomogram (AMIRA); visualization | VKL 3.1.29 3.1.07 |
| 15:00 – 15:30h | Coffee break | |
| 15:30 – 17:00h | Summary | 5.1.01 |

Lunch: 1x Unikat, and Catering Studentenwerk; 1x diner in town (e.g. Cafe Lila)