

Time	Monday, 02.09.	Tuesday, 03.09.	Wednesday, 04.09.	Thursday, 05.09.	Friday, 06.09.
09:00 – 10:30	Molecular Tumor Biol. K. Lauber 10:00-11:30	Radiation Protection W. Rühm	Radiology W. Kunz	Nuclear Medicine I H. Ilhan	Prostate/Bladder M. Li
10:30 – 11:00					
11:00 – 12:30	Radiation Biology A. Friedl 11:45-13:15	Oncology - Basics D. Fleischmann	Rad. Effects on Healthy T. K. Trott	Nuclear Medicine II H. Ilhan	Breast E. Fallenberg
12:30 – 13:30					
13:30 – 15:00		Chemotherapy/System. E. Rückel	Radiotherapy I C. Straube	Lung C. Eze	Abdomen K. Kraus
15:00 – 15:30		Precision Oncology (45') B. Westphalen 15:15-16:00			Org. Structures (30') T. Fey 15:15-15:45
15:30 – 17:00			Radiotherapy II C. Straube	Palliative Care C. Bausewein	
Location: Klinikum Großhadern, Marchioninstr. 15, Hörsaal 1					

Time	Monday, 09.09.	Tuesday, 10.09.	Wednesday, 11.09.	Thursday, 12.09.	Friday, 13.09.
09:00 – 10:30		Translational Research P. Jost	Head and neck S. Pigorsch		
10:30 – 11:00					
11:00 – 12:30		Brain D. Fleischmann	Written Exam		
12:30 – 13:30					
13:30 – 15:00		Cervix, Brachytherapy S. Corradini			
15:00 – 15:30					
15:30 – 17:00					
Location: LMU Faculty of Physics, Schellingstr. 4, Room H U123					

Lecturers

<p>Prof. Dr. Claudia Bausewein Head / Direktorin Dept. of Palliative Medicine, LMU</p>	<p>PD Dr. Steffi Corradini Consultant / Oberärztin Dept. of Radiation Oncology, LMU</p>
<p>Dr. Chukwuka Eze Resident / Assistenzarzt Dept. of Radiation Oncology, LMU</p>	<p>PD Dr. Eva Fallenberg Consultant / Oberärztin Head of Section „Mammography“ Dept. of Radiology, LMU</p>
<p>Dr. Theres Fey Center Coordinator Comprehensive Cancer Center CCC LMU</p>	<p>Dr. Daniel Fleischmann Resident / Assistenzarzt Dept. of Radiation Oncology, LMU</p>
<p>PD Dr. Anna Friedl Group Leader “Radiobiology” Dept. of Radiation Oncology, LMU</p>	<p>Dr. Harun Ilhan Consultant / Oberarzt Dept. of Nuclear Medicine, LMU</p>
<p>Prof. Dr. Philipp Jost Consultant / Oberarzt Group Leader „Mechanisms of Tumor Cell Survival“ Dept. III of Internal Medicine, Hematology and Oncology, TUM</p>	<p>Dr. Dr. Kim Kraus Resident / Assistenzärztin Dept. of Radiation Oncology, TUM</p>
<p>PD Dr. Wolfgang Kunz Consultant / Oberarzt Head of Oncologic Imaging Dept. of Radiology, LMU</p>	<p>Prof. Dr. Kirsten Lauber Group Leader “Molecular Oncology” Dept. of Radiation Oncology, LMU</p>
<p>Dr. Minglun Li Consultant / Oberarzt Dept. of Radiation Oncology, LMU</p>	<p>Dr. Steffi Pigorsch Managing Senior Physician / Geschäftsführende Oberärztin Dept. of Radiation Oncology, TUM</p>
<p>Dr. Ewa Rückel Resident / Assistenzärztin Dept. III of Internal Medicine, Hematology and Oncology, LMU</p>	<p>Prof. Dr. Werner Rühm Group Leader “Medical and Environmental Dosimetry” Institut für Strahlenmedizin, HMGU</p>
<p>Dr. Christoph Straube Consultant / Oberarzt Dept. of Radiation Oncology, TUM</p>	<p>Prof. Dr. Klaus Trott Advisor Dept. of Radiation Oncology, TUM</p>
<p>Dr. Benedikt Westphalen Resident / Assistenzarzt Coordinator Clinical & Translational Research CCC Munich / Dept. III of Internal Medicine, Hematology and Oncology, LMU</p>	

Locations

First week (02.-06.09.2019):

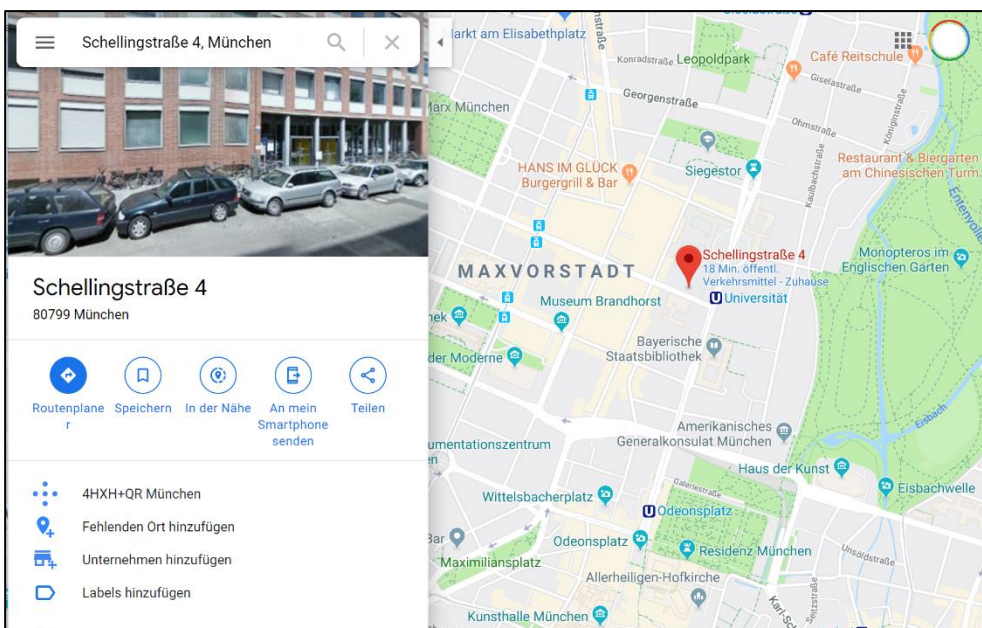
Klinikum Großhadern, Marchioninstr. 15, Hörsaal 1

Directions: Haupteingang -> go upstairs to Level 01 ("Besucherstraße") -> Hörsaaltrakt is at the other end



Second week (10.-11.09.2019):

LMU Faculty of Physics, Schellingstr. 4, Room H U123



Block Course “Medical Oncology for Physicists”

September 2nd – 11th, 2019

Part I: General Aspects

Topic	Lecturer
Molecular Tumor Cell Biology 1x 90min Hallmarks of Cancer	K. Lauber
Radiation Biology 1x 90min Molecular mechanisms involved in the pathogenesis or radiation-induced malignant diseases Molecular mechanisms involved in the induction and repair of DNA damages Molecular signaling pathways in the induction of functional and structural radiation injury in irradiated cells Fractionation Hypoxia, LET, RBE, TCP, NTCP	A. Friedl
Radiation Protection 1x 90min Dose definitions (equivalent dose, effective dose) Epidemiological evidence of long-term health effects in population cohorts exposed to radiation in medicine, occupation and nuclear accidents Legal regulations and organizations of radiation protection Radiation protection of the general population, professionals exposed to radiation and patients	W. Rühm
Oncology – Basics 1x 90min Epidemiology (Robert-Koch-Inst. data for cancer in Germany, worldwide statistics) Diagnostic strategies Staging (incl. procedures), TNM system Grading, molecular characterization Ways of metastasis Therapeutic strategies, e.g.: <ul style="list-style-type: none"> - the pillars of cancer therapy: surgery/irradiation/systemic - curative/palliative - Oligometastasis - adjuvant/neoadjuvant, R0/R1/R2 Evidence-based medicine (EBM) Guidelines (e.g. S3, NNCN, consensus), SOPs	D. Fleischmann
Chemotherapy/Systemic therapy/Personalized Medicine – Clinical Principles 1x 90min Indications Mechanisms of action Targeted therapies Dosage, Delivery Efficiency Adverse Effects	E. Rückel
Precision Oncology 1x 45min	B. Westphalen

<p>Organisational structures 1x 30min Comprehensive Cancer Centers (CCCs) Cancer registries</p>	T. Fey
<p>Radiation Effects on Healthy Tissue 1x 90min The development of early and late morbidities in the different irradiated organs after radiotherapy: clinical manifestations, dose-volume relationships, pathogenesis, therapy, prognosis</p>	K. Trott
<p>Radiology - Clinical Principles 1x 90min Indications, Clinical Examples, Strengths/Weaknesses, Pitfalls, Artefacts, Comparison with other imaging modalities for - Computed Tomography (CT) - Magnetic Resonance Imaging (MRI) - Ultrasound (US) Contrast Enhancement in CT, MRI, US Interventional Radiology (vascular / non-vascular)</p>	W. Kunz
<p>Radiotherapy I & II – Clinical Principles 2x 90min Overview of the radiation therapy process Technical Equipment (60Co, linear accelerators) Imaging for treatment planning Patient fixation and positioning Treatment planning (registration, segmentation of target and OARs, dose calculation, optimization) IMRT, Image-guided radiotherapy, adaptive radiotherapy Stereotactic Radiotherapy Particle therapy (protons, heavy ions) Review of a radiation treatment plan (dose statistics, DVH, isodose lines, colorwash) Interactions of radiotherapy and chemotherapy Second primary malignancies after chemotherapy or/and radiotherapy</p>	C. Straube
<p>Nuclear Medicine I & II – Clinical Principles 2x 90min Measuring technology (e.g. Gamma Camera, SPECT, PET, hybrid systems) Radiopharmaceutical Chemistry Overview of Diagnostic Indications in Nuclear Medicine - Focus on Oncology: Unspecific/specific radiopharmaceuticals, Indications, Examples, Sentinel Lymphnodes Overview of Therapeutical Indications in Nuclear Medicine - Focus on Oncology: Radioiodine therapy, new developments</p>	H. Ilhan
<p>Translational research in Oncology 1x 90min Molecular aspects of lung carcinogenesis Mutational profiling, Driver mutations, Immunoncology Translational research concepts</p>	P. Jost

Part II: Tumor-specific Aspects

Topic	Lecturer
<p>Brain tumors 1x 90min Basic disease characteristics (e.g. Incidence/Prevalence, Etiology/risk factors, Clinical Symptoms) Basic regional anatomy Diagnostic workup Multimodal radiological imaging of the tumor and surrounding anatomy Tumor characteristics, e.g. radiosensitivity, metastasis tendency Therapeutic strategies</p> <ul style="list-style-type: none"> - Which treatment modalities, in which combination, indications, contraindications - where applicable, tumor-specific challenges for radiation treatment planning and dose application <p>Prognosis Aftercare including tumor-specific challenges (e.g. DD radiation-induced changes / progression)</p>	D. Fleischmann
<p>Head and Neck tumors 1x 90min Content: analog to brain tumors</p>	S. Pigorsch
<p>Lung Cancer 1x 90min Content: analog to brain tumors</p>	C. Eze
<p>Breast Cancer 1x 90min Content: analog to brain tumors</p>	E. Fallenberg
<p>Tumors of the Abdomen (e.g. Stomach, Liver, Pancreas, Colorectal) 1x 90min Content: analog to brain tumors</p>	K. Kraus
<p>Cervical carcinoma, Brachytherapy 1x 90min Content: analog to brain tumors, plus brachytherapy</p>	S. Corradini
<p>Prostate and Bladder Cancer 1x 90min Content: analog to brain tumors</p>	M. Li
<p>Palliative Care 1x 90min Definition, Organisational Structures (e.g. Palliative Ward, Hospice), Treatment of Symptoms (e.g. pain, cachexia, fatigue), special procedures for oncology patients (e.g. stabilization of bone met.)</p>	C. Bausewein