

SCIENTIFIC PROGRAMME

Course Director

Søren M. Bentzen (USA)

Faculty

Ane L. Appelt (UK)

C. David Fuller (USA)

Johannes A. Langendijk (NL)

Ivan R. Vogelius (DK)

Guest Lecturer

Richard Pötter (AT)

Virtual pre-meeting: Thursday, November 14, 2024

Time	Lecture	Speaker
16:00-17:00 (CET)	Course presentation and preparation	Faculty

DAY 1 – Sunday, December 1, 2024

Time	Lecture	Speaker
8:15 - 9:00	Registration & Course Intro	
Theme 1: Dose-response and Outcomes Modeling		
9:00 - 09:45	Intro – Models and Modeling	Søren M. Bentzen
09:45 - 10:30	Dose-response models	Ane L. Appelt
10:30 - 11:00	<i>Coffee/Tea break</i>	
11:00 - 11:30	NTCP models	Ane L. Appelt
11:30 - 12:15	Evaluation and validation of models	Ivan R. Vogelius
12:15 - 13:00	Hot topic: Model-based selection of patients for proton therapy	Johannes A. Langendijk
13:00 - 14:00	<i>Lunch</i>	
Theme 2: Working with Data		
14:00 - 14:45	Data sharing - why and how	David Fuller
14:45 - 15:45	Practical exercise: Osteoradionecrosis modeling	Faculty
15:45 - 16:15	Pitfalls in statistical coding and promise and perils of large language models	Bentzen and Vogelius
16:15 - 16:45	<i>Coffee/Tea break</i>	
16:45-18:00	Meet-the-professor - Bring Your Own Science	Attendees/All faculty

DAY 2 – Monday, December 2, 2024

Time	Lecture	Speaker
8:30 - 9:00	Summary & Intro	
Theme 3: Statistics I		
9:00 - 09:45	Intro and parameter estimation/model fits	Ivan R. Vogelius
09:45 - 10:30	Statistical estimation: regression, correlation & survival statistics	Søren M. Bentzen
10:30 - 11:00	<i>Coffee/Tea break</i>	
11:00 - 11:45	Cox PHM	Søren M. Bentzen
11:45 - 12:30	Exercise: Sample size & power	Ivan R. Vogelius

12:30 - 13:00	Bayesian statistics	Søren M. Bentzen
13:00 - 14:00	<i>Lunch</i>	
Theme 4: Clinical trials I		
14:00 - 14:45	Clinical trials in Radiation Oncology	Johannes A. Langendijk
14:45 - 15:30	Novel trial designs, adaptive designs, biomarkers trials	Søren M. Bentzen
15:30 - 16:15	Testing new technologies	C. David Fuller
16:15 - 16:45	<i>Coffee/Tea break</i>	
16:45 - 18:00	Elective block – topics proposed by attendees	All faculty

DAY 3 – Tuesday, December 3, 2024

Time	Lecture	Speaker
8:30 - 9:00	Summary & Intro	
Theme 5: Real world data and clinical embedded evidence generation		
9:00 - 09:45	Lessons from QUANTEC, Hytec and PENTEC	Søren M. Bentzen
09:45 - 10:30	Quantitative analysis of images	C. David Fuller
10:30 - 11:00	<i>Coffee/Tea break</i>	
11:00 - 12:15	Debate: real world data vs. randomization	Attendees
12:15 - 13:00	Why most trials fail?	Faculty
13:00 - 14:00	<i>Lunch</i>	
Theme 6: Performance metrics		
14:00 - 14:45	Diagnostic tests, PPV, NPV, sensitivity and specificity	Ane L. Appelt
14:45 - 15:30	Endpoints for treatment outcome	Johannes A. Langendijk
15:30 - 16:15	Models in clinical practice	C. David Fuller
16:15 - 16:45	<i>Coffee/Tea break</i>	
16:45 - 18:00	Group exercise: Designing a trial	

DAY 4 – Wednesday, December 4, 2024

Time	Lecture	Speaker
8:30 - 9:00	Summary & Intro	
Theme 7: Generating Evidence		
9:00 - 09:45	Guest lecture: EMBRACE as a model for clinical research	Richard Pötter
09:45 - 10:30	An infrastructure for clinical radiation research	Johannes A. Langendijk
10:30 - 11:00	<i>Coffee/Tea break</i>	
11:00 - 11:45	Ethics and regulatory oversight (Workshop)	
11:45 - 12:30	Data presentation + competing risks	Ivan R. Vogelius
12:30 - 13:00	How do early-career faculty in a busy clinic get involved in evidence generation?	Johannes A. Langendijk
13:00 - 14:00	<i>Lunch</i>	
Theme 8: Concluding sessions		
14:00 - 14:45	Meta-analysis	Ivan R. Vogelius
14:45 - 15:30	Pitfalls	Søren M. Bentzen
15:30 - 16:00	Course evaluation	