

**Course Schedule**

**Course Title: Molecular methods for detection of food- and waterborne pathogens**  
**(Agnes Sjöberginkatu 2, EE-building, Seminar room SH 11-12, 2<sup>nd</sup> floor, UH, Helsinki)**

Date	Time	Activity	Teachers
<b>Day 1</b> <b>7.3.2016</b>	11-12 <b>12-13</b>	Registration <b>Lunch</b>	<b>SO</b>
	13.00-14.00 (SH 11-12) 14.00-14.15 14.15-17.00 (Lab, 4 <sup>th</sup> floor)	Lecture: Introduction to real-time qPCR (instructions for student presentations) <i>Coffee break</i> Lab: Real-time PCR, (Food sample, nucleic acid extraction demo, PCR analysis: SYBRgreen and Taqman assay for adenovirus)	<b>LM</b>  <b>LM, SO, KS</b>
<b>Day 2</b> <b>8.3.</b>	9.00-10.00 (Lab, 4 <sup>th</sup> floor)	Lab: Real-time PCR results, interpretation, discussion about pre task	<b>LM</b>
	10.15-12.00 (Walter hall) <b>12-13</b>	Lecture: Sample preparation and the concept of pre-PCR processing <b>Lunch</b>	<b>PR</b>
	13.00-14.30 (SH 11-12) 14.30-15.00 15.00-17 (SH 11-12) 20.00	Lecture: PCR optimisation and primer design Lecture: Absolute and relative quantification <i>Coffee break</i> Lecture: Controls and quality assurance in real-time PCR Lecture: High throughput qPCR/RT-qPCR Dinner in the evening	<b>PR</b> <b>PR</b>  <b>GJ</b> <b>FV</b>
<b>Day 3</b> <b>9.3.</b>	9.00-12.00 (SH 11-12)	Lecture: PCR applications: Detection of foodborne pathogens (bacteria) Lecture: PCR applications: Detection of waterborne pathogens (viruses)	<b>GJ</b>  <b>LM</b>
	<b>12-13</b>	<b>Lunch</b>	
	13.00-14.30 (SH 11-12)  14.30-15.00  15.00-17 (Lab 4 <sup>th</sup> floor)	Lecture: Pro-cons of RT-qPCR, RNAseq and microarray technology Lecture: Future detection methods: Community 16SrRNA amplicon sequencing using Illumina technology <i>Coffee break</i>  Lecture: Introduction to multiplex PCR Lab: multiplex PCR (External/Internal control)	<b>FV</b>    <b>SO, LM, HK, (YD)</b>
<b>Day 4</b> <b>10.3.</b>	9.00-10.30 (Course room 2)	Student presentations I Multiplex PCR results, interpretation	<b>Students</b>
	10.30-10.45 11.00-12.00 <b>12-13</b>	Lecture: Introduction to digital PCR (if necessary) Excursion: Visit to see ddPCR equipments (Viikki campus) <b>Lunch</b>	<b>LM</b>
	13.00-14.00 14.00-14.15 14.15-15.00	Student presentations II <i>Coffee break</i> Discussion, feedback, evaluation	<b>Students</b>  <b>LM, SO</b>

**Teachers:**

LM	Leena Maunula	(HU-V)
PR	Peter Rådström	(University of Lund, Sweden)
GJ	Gro Johannessen	(Norwegian Veterinary Institute, Norway)
FV	Finn Kvist Vogensen	(University of Copenhagen, Denmark)
SO	Satu Oristo	(HU-V)
(YD	Yagmur Derman	(HU-V))
KS	Kirsi Söderberg	(HU-V)
HK	Hanna Korpunen	(HU-V)