



PhD course Electron Microscopy



Monday 15 October 2012

Lecture Theater 31.01.38a

Time	Topic	Lecturer
09:00 – 09:30	Introduction	KQ
09:30 – 10:00	History of Electron Microscopy	PJE
10:00 – 10:15	Coffee	
10:15 – 11:15	Principles of Electron Microscopy	PJE
11:15 – 12:15	Practical diffraction	PJE
12:15 – 13:00	Lunch	
13:00 – 13:45	Electron sources/vacuum systems	RL
13:45 – 14:30	Biological Electron Microscopy I: Electron – specimen interactions	PCH
14:30 – 14:45	Coffee	
14:45 – 16:30	Biological Electron Microscopy II: Sample preparation	PCH
16:30 – 17:00	Questions, assign groups	

Tuesday 16 October

CFIM

Time	Topic	Lecturer
CFIM		
09:00 – 10:10	<i>Practical</i> 1) Lab specimen preparation TEM and SEM sample preparation 2) Ultramicrotomy 3) Negative staining, CM100 4) SEM alignment, XL 30 5) TEM alignment, CM 100	PCH GM/ZN KQ EB RL
10:10 – 10:25	Coffee	
10:25 – 11:35	<i>Practical continued</i>	
11:35 – 12:45	<i>Practical continued</i>	
12:45 – 13:30	Lunch	
13:30 – 14:40	<i>Practical continued</i>	
14:40 – 15:50	<i>Practical continued</i>	
15:50 – 16:05	Coffee	

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16:05 – 16:50	Modern SEM techniques	EB
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Faculty Club

17:30 – 18:45	<i>Evening Lecture</i> CLEM (Correlative light- and electron microscopy)	MK
19:00	Course dinner	

Wednesday 17 October

Time	Topic	Lecturer
Lecture Theatre 31.01.38a		
09:00 – 09:45	Imaging in 3D – FIB SEM	EB
CFIM		
09:45 – 10:00	Coffee	
10:00 – 11:00	<i>Practical</i> 1) SEM - Quanta 3D 2) TEM - CM100 (a) 3) TEM – Tecnai G2 20 4) Ultramicrotomy <i>cont.</i> 5) TEM – CM100 (b)	EB ML RL PCH KQ
11:00 – 12:00	<i>Practical continued</i>	
12:00 – 12:45	Lunch	
12:45 – 13:45	<i>Practical continued</i>	
13:45 – 14:45	<i>Practical continued</i>	
14:45 – 15:00	Coffee	
15:00 – 16:00	<i>Practical continued</i>	
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16:00 – 16:45	Capturing images – camera systems	EB/RF/KA

Thursday 18 October

Time	Topic	Lecturer
Lecture Theatre 31.01.38a		
09:00 – 09:45	Immunolabelling	PCH
09:45 – 10:00	Coffee	
10:00 – 11:00	Cryo TEM and SEM	RF
CFIM		
11:00 – 12:15	<i>Practical</i> 1) Cryo-TEM (Tecnai) 2) Cryo-SEM (Quanta) 3) Cryo ultramicrotomy 4) HPF, Freeze substitution	RF/RL EB/RL GM RF/ZN/PCH
12:15 – 13:00	Lunch	
13:00 – 14:15	<i>Practical continued</i>	
14:15 – 15:30	<i>Practical continued</i>	
15:30 – 15:45	Coffee	
15:45 – 17:00	<i>Practical continued</i>	

Friday 19 October

Time	Topic	Lecturer
Lecture Theatre 31.01.38a		
09:00 – 09:45	Imaging in 3D – electron tomography	PCH
09:45 – 10:30	Data handling and image analysis	KA
10:30 – 10:45	Coffee	
10:45 – 11:30	Data handling and image analysis continued	KA
CFIM		
11:30 – 12:30	<i>Practical</i> 1) Quanta 3D - FIB SEM slice'n'view 2) Tecnai G2 20 - Tomography 3) Image analysis software	KQ/ML RL/PCH KA
12:30 – 13:15	Lunch	
13:15 – 14:15	<i>Practical continued</i>	
14:15 – 15:15	<i>Practical continued</i>	
15:15 – 15:30	Coffee	
15:30 – 16:15	Quiz (prizes available!)	
16.15 – 17.00	Questions, evaluation	