

Time / Date	7:00 – 8:30	Lecture Session I 8:30 – 10:00	Exercise Session I 10:30 – 12:00	12:30 – 14:00	Lecture Session II 14:00 – 15:30	Exercise Session II 16:00 – 17:30	17:30 – 19:00	19:00 – ...
Fri 25 Sep	ARRIVAL DAY 1: Check-in at Motel L						Free Time	Dinner *
Sat 26 Sep	Breakfast	Mathematical Foundation 1 Kim Lefmann,	Mathematical Foundation 2 Kim Lefmann,	Lunch	Mathematical Foundation 3 Kim Lefmann,	Mathematical Foundation 4 Kim Lefmann,	Free Time	Dinner *
Sun 27 Sep	Breakfast	Mathematical Foundation 5 Kim Lefmann,	Mathematical Foundation 6 Kim Lefmann,	Lunch	Solid State Physics Foundation Kim Lefmann,	Magnetism Foundation Kim Lefmann,	Free Time	Dinner *
ARRIVAL DAY 2: Check-in at Motel L								
Mon 28 Sep	Breakfast	<b>Welcome to the School</b> <ul style="list-style-type: none"> <li>Practicals, Examination Process</li> <li>How to write a proposal (45 min)</li> <li>Safety at large-scale facilities</li> </ul> Kim Lefmann, KU Luise Theil Kuhn, DTU Martin Månsson, KTH	<b>L0: Overview of the course</b> <ul style="list-style-type: none"> <li>The Neutron/scattering experiment</li> <li>Production / “Filters / Detection</li> <li>Elastic/Inelastic</li> <li>Brief overview of the techniques</li> </ul> Martin Månsson, KTH	Lunch	<b>L1.1: Intro</b> <ul style="list-style-type: none"> <li>Basic interaction mechanism (+x-rays)</li> <li>Scattering from 1 &amp; 2 nuclei</li> <li>Coherent / Incoherent / Absorption</li> </ul> Kim Lefmann, KU	<b>L1.2: Intro</b> <ul style="list-style-type: none"> <li>Scattering from 1 &amp; 2 Nuclei</li> <li>Coherent / Incoherent</li> </ul> Kim Lefmann, KU	Free Time	<b>WELCOME RECEPTION</b> Start: 19:00 @ Motel L Lobby Bar
Tue 29 Sep	Breakfast	<b>L2: Neutron Sources &amp; Instrumentation</b> <ul style="list-style-type: none"> <li>Sources Moderators</li> <li>Monochromators / choppers</li> <li>Collimation / Filters / Guides</li> <li>Detection</li> </ul> Kim Lefmann, KU	<b>Ex. 1</b> <ul style="list-style-type: none"> <li><a href="#">Wiki problem: Pinhole collimation</a></li> <li><a href="#">Quiz: Neutron detection</a></li> <li><a href="#">Quiz: Test your knowledge of neutron sources and instrumentation</a></li> </ul> (e-learning)	Lunch	<b>L3: Neutron Interaction with Matter</b> <ul style="list-style-type: none"> <li>Cross Section, Isotope Sensitivity</li> <li>Elastic / Inelastic</li> <li>X-rays/electrons</li> <li>Multiple Scattering</li> </ul> Kim Lefmann, KU	<b>Ex. 2</b> <ul style="list-style-type: none"> <li><a href="#">Quiz: The neutron cross section</a></li> <li><a href="#">Wiki problem: Selection of materials</a></li> </ul> (e-learning)		
Wed 30 Sep	Breakfast	<b>L4: Magnetic Scattering</b> <ul style="list-style-type: none"> <li>Magnetism</li> <li>Nuclear/Magnetic Scattering</li> </ul> Kim Lefmann, KU	<b>L7: Crystallography</b> <ul style="list-style-type: none"> <li>Crystallography</li> <li>k-space</li> <li>Brillouin Zone</li> </ul> Elisabetta Nocerino, Stockholm University	Lunch	<b>Ex. 4 “Reciprocal lattice of Ni”</b> <ul style="list-style-type: none"> <li><a href="#">Quiz: Reciprocal lattice of Ni</a></li> <li><a href="#">Simulation quiz: Diffraction from powder</a></li> </ul> (e-learning)	<b>L8: Diffraction I</b> <ul style="list-style-type: none"> <li>Intro</li> <li>Neutrons vs. X-rays</li> </ul> Elisabetta Nocerino, Stockholm University		
Thu 1 Oct	Breakfast	<b>L9: Diffraction II</b> <ul style="list-style-type: none"> <li>Magnetism</li> <li>Total Scattering</li> <li>Etc.</li> </ul> Elisabetta Nocerino, Stockholm University	<b>Ex. 5 - TUTORIAL</b> <ul style="list-style-type: none"> <li>The Rietveld method</li> <li>Foolproof intro + start of refinement</li> </ul> Elisabetta Nocerino, Stockholm University	Lunch	<b>Ex. 6</b> <i>Foolproof refinement continued</i> <ul style="list-style-type: none"> <li><a href="#">When is Xray or Neutron diffraction suitable?</a></li> <li><a href="#">Wiki problem: Bragg scattering from non-Bravais lattices</a></li> </ul> Elisabetta Nocerino, Stockholm University		Free Time	Dinner *
Fri 2 Oct	Breakfast	<b>Group #1: arrive at 09:00 (get badges)</b> <b>Lectures Group #1</b> 9:15 – 10:00 ForMAX (Shun Yu, RISE) 10:00 – 10:45 Spectr. (Yasmine Sassa, KTH)	<b>Tour Group #1 MAX IV 11 – 12</b>  <b>Group #2 arrives just before lunch</b>	G. 1/2 Lunch 12-13 @MAX IV	<b>13:00-14:00 Tour Group #2 MAX IV</b> <b>Lectures Group #2</b> 14:15 – 15:00 ForMAX (Shun Yu) 15:00 – 15:45 Spectrosc. (Yasmine Sassa, KTH)	<i>Catch up on assignments/e-learning and inquire about things you did not understand + possible questions about proposal writing.</i> <b>TBC</b>	Free Time	GALA DINNER 19:30 M & D

Sat 3 Oct	FREE DAY							
Sun 4 Oct	Breakfast	<b>L5: Reflectometry I</b> <ul style="list-style-type: none"> <li>Introduction</li> <li>X-ray vs Neutrons</li> <li>Specular/Off-Specular</li> </ul> <p>TBA</p>	<p>Ex. 3</p> <ul style="list-style-type: none"> <li><a href="#">Simulation quiz: Reflectometer</a></li> </ul> <p>(e-learning)</p>	Lunch	<b>L6: Reflectometry II + GiSANS</b> <ul style="list-style-type: none"> <li>Instrumentation</li> <li>Neutron Mirrors</li> <li>Applications</li> <li>Plan for NR beamtime</li> </ul> <p>TBA</p>	<b>L11: SANS I</b> <ul style="list-style-type: none"> <li>Instrumentation2</li> <li>Scattering Length Density</li> <li>Form-/Structure Factor</li> <li>Approximations</li> </ul> <p>Andrew Jackson, Lund University / ESS</p>	Free Time	Dinner *
Mon 5 Oct	Breakfast	<p>Ex. 8</p> <ul style="list-style-type: none"> <li><a href="#">Simulation quiz: Small Angle Neutron Scattering</a></li> <li>Resolution (wavelength vs. angle)</li> <li>Data Treatment</li> </ul> <p>(e-learning)</p>	<b>L12: SANS II</b> <ul style="list-style-type: none"> <li>Geometrical models</li> <li>Contrast Variations</li> <li>Time-resolved / stroboscopic</li> <li>Applications</li> </ul> <p>Andrew Jackson, Lund University / ESS</p>	Lunch	<b>L10: Neutron Imaging</b> <ul style="list-style-type: none"> <li>Instrumentation</li> <li>Radiography / Tomography</li> <li>In operando</li> <li>Neutrons / x-rays</li> </ul> <p>Luise Theil Kuhn, DTU</p>	<p>Ex. 7</p> <ul style="list-style-type: none"> <li><a href="#">Simulation quiz: Bragg Edge Imaging on Viking Sword</a></li> </ul> <p>(e-learning)</p>	Free Time	
Tue 6 Oct	Breakfast	<b>L13: INS I "Intro"</b> <ul style="list-style-type: none"> <li>Instrumentations (TAS/ToF)</li> <li>Direct / Indirect geometry</li> <li>Pulsed/Continuous</li> <li>E/p conservation</li> <li>k-space (reminder)</li> <li>Examples (nuclear / magnetic)</li> </ul> <p>Kim Lefmann, KU</p>	<p>Ex. 9</p> <ul style="list-style-type: none"> <li><a href="#">Simulation quiz: Ni single crystal in a Triple Axis Spectrometer</a></li> <li><a href="#">Quiz: Phonons of Ni</a></li> </ul> <p>(e-learning)</p>	Lunch	<b>L14: INS II "Nuclear"</b> <ul style="list-style-type: none"> <li>Phonons (basics)</li> <li><math>\gamma</math> / domain</li> <li>Cross sections</li> <li>Applications</li> </ul> <p>David Voneshen, ISIS</p>	<b>L15: INS III "Magnetic"</b> <ul style="list-style-type: none"> <li>Spin waves</li> <li>Magnetic Cross Section</li> <li>Applications</li> </ul> <p>Kim Lefmann, KU</p>	Free Time	Dinner *
Wed 7 Oct	Breakfast	<b>L16: Polarized Neutron Scattering: BASICS</b> <ul style="list-style-type: none"> <li>Polarizing/Flipping/Detecting the neutron spin (theory &amp; technologies)</li> <li>Basic theory</li> <li>Examples (Elastic &amp; Inelastic)</li> </ul> <p>Werner Schweika, ESS</p>	<b>L17: QENS</b> <ul style="list-style-type: none"> <li>Instrumentation</li> <li>Energy/timescales</li> <li>Coherent / Incoherent</li> <li>Diffusion, Molecular dynamics</li> <li>Cross section &amp; Isotope labeling</li> </ul> <p>Mark Telling, STFC/ISIS</p>	Lunch	<p>Ex. 11 - TUTORIAL</p> <ul style="list-style-type: none"> <li>Polymer Dynamics (dynamics / diffusion)</li> <li>Isotope labeling</li> </ul> <p>Mark Telling, STFC/ISIS</p>	<p>Ex. 11 (continued)</p> <ul style="list-style-type: none"> <li>Polymer Dynamics (dynamics / diffusion)</li> <li>Isotope labeling</li> </ul> <p>Mark Telling, STFC/ISIS</p>	Free Time	Dinner *
Thu 8 Oct	Breakfast	<p>Writing + Free Discussion</p>		Lunch	<b>L19: Keynote Lecture: "Challenge 2"</b> <b>Neutrons for Quantum Matter</b> Henrik Rønnow EPF Lausanne, Switzerland	<b>L20: Keynote Lecture: "Challenge 3"</b> <b>Neutrons for Life</b> Trevor Forsyth LINXS, Sweden	Free Time	End Dinner 19:00 VED
Fri 9 Oct	Breakfast Check-out Motel L	<p>Start at 08:00 !!!</p> <p><b>Tour of ESS Help for Proposal</b></p>		Lunch at ESS	<b>L22: Key-Note Lecture: "ESS"</b> <b>Future Science at ESS</b> Giovanna Fragneto, ESS	<p>Departure</p>		

\* Dinners during the normal lecture days are your own responsibility. SwedNess/NNSP/WISE are only organizing the "Welcome Reception" and "Gala Dinner" + Lunch is included.

"End Dinner" is only for organizers and Keynote Lecturers

Venue: 26 September – 1 October LINXS

2 October MAX IV (TBC)

9 October ESS