

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 26 Sep	ARRIVAL DAY 1: Check-in at Motel L						Free Time	Dinner *
Sat 27 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 28 Sep	Breakfast	Mathematical Foundation 5 Kim Lefmann,	Mathematical Foundation 6 Kim Lefmann,	Lunch	Solid State Physics Foundation Kim Lefmann,	Magnetism Foundation Kim Lefmann,	FREE	WELCOME RECEPTION Start: 19:00
	ARRIVAL DAY 2: Check-in at Motel L							
Mon 29 Sep	Breakfast	Welcome to the School - Practicals, Examination Process - How to write a proposal (45 min) - Safety at large-scale facilities Kim Lefmann, KU Martin Månsson, KTH	L0: Overview of the course - The Neutron/scattering experiment - Production / “Filters” / Detection - Elastic/Inelastic - Brief overview of the techniques Martin Månsson, KTH	Lunch	L1.1: Intro - Basic interaction mechanism (+x-rays) - Scattering from 1 & 2 nuclei - Coherent / Incoherent / Absorption Kim Lefmann, KU	L1.2: Intro - Scattering from 1 & 2 Nuclei - Coherent / Incoherent Kim Lefmann, KU	Free Time	Dinner *
Tue 30 Sep	Breakfast	L2: Neutron Sources & Instrumentation - Sources Moderators - Monochromators / choppers - Collimation / Filters / Guides - Detection Kim Lefmann, KU	Ex. 1 Wiki problem: Pinhole collimation Quiz: Neutron detection Quiz: Test your knowledge of neutron sources and instrumentation (e-learning)	Lunch	L3: Neutron Interaction with Matter - Cross Section, Isotope Sensitivity - Elastic / Inelastic - X-rays/electrons - Multiple Scattering Kim Lefmann, KU	Ex. 2 Quiz: The neutron cross section Wiki problem: Selection of materials (e-learning)	Free Time	Dinner *
Wed 1 Oct	Breakfast	L4: Magnetic Scattering - Magnetism - Nuclear/Magnetic Scattering Kim Lefmann, KU	L5: Reflectometry I - Introduction - X-ray vs Neutrons - Specular/Off-Specular Samira Dorri, KTH	Lunch	Ex. 3 Simulation quiz: Reflectometer (e-learning)	L6: Reflectometry II + GiSANS - Instrumentation - Neutron Mirrors - Applications - Plan for NR beamtime Samira Dorri, KTH	Free Time	Dinner *
Thu 2 Oct	Breakfast	L11: SANS I - Instrumentation2 - Scattering Length Density - Form-/Structure Factor - Approximations Andrew Jackson, Lund University / ESS	Ex. 8 Simulation quiz: Small Angle Neutron Scattering - Resolution (wavelength vs. angle) - Data Treatment (e-learning)	Lunch	L12: SANS II - Geometrical models - Contrast Variations - Time-resolved / stroboscopic - Applications Andrew Jackson, Lund University / ESS	<u>Mockup Beamtime Proposal Committee Meeting</u> Martin Månsson, etc.	Free Time	Dinner *
Fri 3 Oct	Breakfast	Group #1: arrive at 09:00 (get badges) <u>Lectures Group #1</u> 9:15 – 10:00 ForMAX (Shun Yu, RISE) 10:00 – 10:45 Spectr. (Yasmine Sassa, KTH)	Tour Group #1 MAX IV 11 – 12 Group #2 arrives just before lunch	G. #1 G. #2 Lunch 12-13	13:00-14:00 Tour Group #2 MAX IV <u>Lectures Group #2</u> 14:15 – 15:00 ForMAX (Shun Yu) 15:00 – 15:45 Spectrosc. (Yasmine Sassa, KTH)	Catch up on assignments/e-learning and inquire about things you did not understand + possible questions about proposal writing. TBC	Free Time	GALA DINNER 19:00

Venues:

27 September – 2 October & 5-8 October: LINXS – “The Loop”

3 October: MAX IV

9 – 10 October: ESS



Sat 4 Oct	FREE DAY							
Sun 5 Oct	Breakfast	L10: Neutron Imaging - Instrumentation - Radiography / Tomography - In operando - Neutrons / x-rays Luise Theil Kuhn, DTU	Ex. 7 Simulation quiz: Bragg Edge Imaging on Viking Sword (e-learning)	Lunch	L7: Crystallography - Crystallography - k-space - Brillouin Zone Elisabetta Nocerino, Stockholm Univ./PSI	Ex. 4 “Reciprocal lattice of Ni” Quiz: Reciprocal lattice of Ni Simulation quiz: Diffraction from powder (e-learning)	Free Time	Dinner *
Mon 6 Oct	Breakfast	L8: Diffraction I - Intro - Neutrons vs. X-rays Elisabetta Nocerino, Stockholm Univ. / PSI	L9: Diffraction II - Magnetism - Total Scattering - Etc. Elisabetta Nocerino, Stockholm Univ. / PSI	Lunch	Ex. 5 - TUTORIAL - The Rietveld method - Foolproof intro + start of refinement Elisabetta Nocerino, Stockholm Univ. / PSI	Ex. 6 - Foolproof refinement continued When is Xray or Neutron diffraction suitable? Wiki problem: Bragg scattering from non-Bravais lattices Elisabetta Nocerino, Stockholm Univ. / PSI	Free Time	Dinner *
Tue 7 Oct	Breakfast	L13: INS I “Intro” - Instrumentations (TAS/ToF) - Direct / Indirect geometry - Pulsed/Continuous - E/p conservation - k-space (reminder) - Examples (nuclear / magnetic) Kim Lefmann, KU	Ex. 9 Simulation quiz: Ni single crystal in a Triple Axis Spectrometer Quiz: Phonons of Ni (e-learning)	Lunch	L14: INS II “Nuclear” - Phonons (basics) γ / μ domain - Cross sections - Applications David Voneshen, ISIS	L15: INS III “Magnetic” - Spin waves - Magnetic Cross Section - Applications Kim Lefmann, KU	Free Time	Dinner *
Wed 8 Oct	Breakfast	L16: Polarized Neutron Scattering: BASICS - Polarizing/Flipping/Detecting the neutron spin (theory & technologies) - Basic theory - Examples (Elastic & Inelastic) Werner Schweika, ESS	L17: QENS - Instrumentation - Energy/timescales - Coherent / Incoherent - Diffusion, Molecular dynamics - Cross section & Isotope labeling Mark Telling, STFC/ISIS	Lunch	Ex. 11 - TUTORIAL - Polymer Dynamics (dynamics / diffusion) - Isotope labeling Mark Telling, STFC/ISIS	Ex. 11 (continued) - Polymer Dynamics (dynamics / diffusion) - Isotope labeling Mark Telling, STFC/ISIS	Free Time	Dinner *
Thu 9 Oct	Breakfast	Start at 08:00 !!! Tour of ESS	L21: Keynote Lecture: “Challenge 1” Neutrons for Engineering Robin Woracek ESS	Lunch	L19: Keynote Lecture: “Challenge 2” Neutrons for Quantum Matter Henrik Rønnow EPF Lausanne, Switzerland	L20: Keynote Lecture: “Challenge 3” Neutrons for Life Trevor Forsyth LINXS, Sweden	Free Time	End Din- Ner 19:00
Fri 10 Oct	Breakfast Check-out Motel L	Help for Proposal Writing + Free Discussion	L18: Keynote Lecture: “Challenge 4” Neutrons for Sustainability Martin Månsson KTH Royal Institute of Technology Sweden	Lunch	L22: Key-Note Lecture: “ESS” Future Science at ESS Giovanna Fragneto, ESS	Departure		

* 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