



Human Spaceflight and Exploration, 7.5 ECTS

1– 19 August 2011, Provisional Schedule

This course is financed by the Swedish Government and is run at the Swedish Institute of Space Physics in Kiruna.

<p>1 Aug. IRF Regular bus departs bus station 09:10 9:45 – 10:30 General information and course registration. 10:45 – 11:15 Presentation of the Swedish Institute of Space Physics (Aulan, Rick McGregor). 11:20 – 12:00 Tour of the Space Campus 13:30 - 16:30 Introduction to the European Space Agency and space exploration (Aulan, Olle Norberg) Regular bus departs 16:35 17:00 Visit to Kiruna Study Centre via entrance B (Auditorium, Maria Délice Fredriksson)</p>	<p>2 Aug. Parkskolan 9:00 – 12:00 Basics of gravitation & Rocket laboratory & Introduction to group project (Parkskolan, Carol) 13:00 – 15:00 Students work on space history, (Room B35, Parkskolan) 15:00 – 17:00 Student presentations on space history. 18:30 – 19:30 Ice breaker: Bowling</p>	<p>3 Aug. Parkskolan 10:00 – 13:00 Visit to the LKAB underground mine followed by lunch in Restaurant Magnetiten courtesy LKAB Depart 10:00 from Folkets Hus. 13:30 – 15:00 Student presentations on space history continue. (Auditorium, Parkskolan, Carol) 15:00 – 17:00 Rocket building lab (Auditorium, Parkskolan, Carol)</p>	<p>4 Aug. IRF 9:00 – 12:00 Space exploration at the Swedish Institute of Space Physics (Hans Nilsson, Aniara) 13:00 – 14:30 The space environment: radiation (Aniara Carol) 15:00 – 17:00 Crew selection workshop (Aniara Carol)</p>	<p>5 Aug. Parkskolan 09:00 – 10:00 The space environment continued (Auditorium, Parkskolan, Carol) 10:00 – 12:30 Computer-based radiation laboratory (Room B35, Parkskolan, Carol)</p>
---	---	---	--	--

8 Aug. IRF 09:45 – 12:00 Overview of microgravity research, (Aulan, Peter Preu) 13:00 – 14:00 Drop towers (Aulan, Peter Preu) 14:00 - 16: 30 Preparations for rocket launching on Thursday. (Aniara)	9 Aug. IRF 09:45 – 10:45 Parabolic flights 11:00 – 12:00 ISS (Aulan, Peter Preu) 13:00 – 16:00 The Space Environment continued (Aniara Carol)	10 Aug. IRF 09:45 – 10:45 ISS & Shenzou (Aulan, Peter Preu) 11:00 – 12:00 Sounding rockets & Foton/Bion (Aulan, Peter Preu) 12:00 – 16:30 Time for lunch and final preparations for rocket launching. Provisonally - Spaceball	11 Aug. Estrange Approx 09:15 chartered coach transport to Swedish Space Corporation Estrange. Tour and Model Rocket Launching. Return approximately 15:30.	12 Aug. IRF 09:45 – 12:00 Manned Spaceflight Operations (Aniara, Hansulrich Steimle) 13:00 – 14:30 Spaceport Sweden (Provisional)
--	---	--	--	---

15 Aug. IRF 9:45 – 11:05 Symposium on Integrated Modeling of Complex Optomechanical Systems (Aulan) 11:15 – 12:00 Space suits (Aniara, Ingemar Skoog) 12:45 – 13:30 13:40 – 14:25 Space suits continued (Aniara, Ingemar Skoog) 15:00 – 16:30 Astronaut employment (Aniara, Hansulrich Steimle)	16 Aug. IRF 9:45– 10:30 10:40 – 11:25 Space suits continued (Aniara, Ingemar Skoog) 11:30 – 12:30 Space exploration strategy (Aniara, Gerhard Thiele) 13:30 – 14:30 Space exploration strategy continued (Aniara, Gerhard Thiele) 15:00 – 16:30 Astronaut employment continued (Hansulrich Steimle)	17 Aug. IRF 9:45 – 10:30 10:40 – 11:25 11:35– 12:20 Life support systems (Aula, Ingemar Skoog) 13:30 – 16:30 European Astronaut Selection (Aniara, Gerhard Thiele & Hansulrich Steimle)	18 Aug. Parkskolan 9:00 – 11:00 A flight on the Space Shuttle (Auditorium, Parkskolan Gerhard Thiele) 11:00 – 12:00 13:00 – 15:00 Student project presentations. (Auditorium)	19 Aug. Parkskolan 9:00 -12:00 EXAM (Auditorium, Parkskolan)
--	--	---	--	--

Bus number 501 leaves from the bus station in the centre of town at 09:10, arriving at the Swedish Institute of Space Physics at 9:30. The bus returns at 16:25.

Hfr M-F	Hfr M-F	HÅLLPLATSER			Hfr M-F	Hfr M-F
09.10	15.25	avg KIRUNA	Busstation ank	▲	10.10	16.55
09.13	15.28	KIRUNA	Sjukhus		10.05	16.50
09.30	15.50	KIRUNA	IRF		09.50	16.35
09.35	15.52	LAXFORSEN			09.41	16.26
09.40	16.05	ank JUKKASJÄRVI	Icehotell avg		09.40	16.25

From 15 to 17 August the Symposium on Integrated Modeling of Complex Optomechanical Systems (<http://www.astro.lu.se/~torben/im-symposium/>) will take place on the Space Campus in Kiruna.

Participating staff

Dr Carol Norberg, Reader in Space Physics, Lecturer in Physics Umeå University & Swedish Institute of Space Physics, Kiruna, Sweden

Dr. Rick McGregor Research & Development Officer, Swedish Institute of Space Physics, Kiruna, Sweden

Maria-Delice Fredriksson, Assistant Education Manager, Kiruna Study Centre, Sweden

Dr. Hans Nilsson, Physicist, Swedish Institute of Space Physics, Kiruna, Sweden

Dr. Peter Preu, Head of Microgravity Research and Life Sciences, German Aerospace Center, DLR

Hansulrich Steimle, Space Consultant, Germany. Previously Director for Manned Space Operation at the German Aerospace Center

Dr. Olle Norberg, Director General Swedish National Space Board

Dr. Å Ingemar Skoog, Programme manager for European spacesuit development, Astrium GmbH, 1986-1994. Co-author of *Russian Spacesuits*, 2003, Springer-Praxis

Dr. Gerhard Thiele, Resident Fellow with the European Space Policy Institute in Vienna, Austria. Dr. Thiele participated as mission specialist in the STS-99 Mission.

Course coordinator and examiner

Dr. Carol Norberg, Umeå University, Department of Physics & Swedish Institute of Space Physics.

E-mail: Carol.Norberg@irf.se

Telephone +46-980-79187, Fax: +46-980-79190, Mobile +46-70-2793999

Document updated 11 July 2011.