



Human Spaceflight and Exploration, 7.5 ECTS

2– 20 August 2010

Preliminary schedule

This course is financed by the Swedish Government and is run at the Swedish Institute of Space Physics in Kiruna. It is sponsored with services in kind by the European Space Agency.

<p>2 Aug. M Regular bus departs bus station 9:10 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 (Rick & Carol) 13:30 – 16:25 History of manned spaceflight I (Aulan, Sven Grahn) 18:30 – 19:30 Ice breaker: Bowling</p>	<p>3 Aug. T 8:45 – 11:45 History of manned spaceflight II (Aulan, Sven Grahn) 13:00 – 16:25 Basics of gravitation & Rocket laboratory & Introduction to group project (Aniara, Carol) Regular bus departs 16:35, arrives Sportshall 16:45 17:00 Visit to Kiruna Study Centre via entrance B (Auditorium, Maria Délice Fredriksson)</p>	<p>4 Aug. W Meet 9:45 at the Folkets Hus. 10:00 – 12:00 Visit to the LKAB underground mine to be confirmed. 13:30 – 16:00 Rocket building lab (Auditorium, Parkskolan, Carol)</p>	<p>5 Aug. T 9:45 – 11:45 The Space Environment (Aniara Carol) 12:45 – 13:45 The effects of space travel on the human body (Aniara, Carol) 14:00 – 16:25 Crew selection workshop (Aniara, Carol)</p>	<p>6 Aug. F 09:00 – 10:00 The aurora borealis (Auditorium, Parkskolan) 10:00 – 12:30 Computer-based radiation laboratory (Parkskolan, CN)</p>
<p>9 Aug. M 09:45 – 10:45 The International Space Station 11:00 – 12:00 Space tourism (Aniara, Carol) 13:00 – 16:30 Preparations for rocket launching on Friday (Aniara, Carol)</p>	<p>10 Aug. T 8:45 – 11:45 Microgravity research, parabolic flights and Columbus (Aniara, Gail Iles), 13:00 – 16:00 Space exploration at the Swedish Institute of Space Physics (Aniara, Hans Nilsson)</p>	<p>11 Aug. W 9:45 – 11:45 Student presentations of rocket calculations (Aniara, Carol) 13:00 – 16:00 Astronaut employment (Aniara, Hansulrich Steimle)</p>	<p>12 Aug. T 9:45 – 11:45 Space exploration (Aula, Olle Norberg) 12:00 – 14:00 Time for lunch and final preparations for rocket launching 14:00 – 16:30 Mars 500 project (Aula, Jennifer Ngo-Anh)</p>	<p>13 Aug. F Approx 09:15 chartered coach transport to Swedish Space Corporation Esrange. Tour and Model Rocket Launching. Return approximately 15:30.</p>

16 Aug. M 8:45 – 11:45 Space suits I (Aula, Ingemar Skoog) 12:45 – 14:45 Space Exploration Strategy (Aula, Gerhard Thiele) 15:00 – 16:30 Spaceball riding (Atrium on the Space Campus, Johan Arvelius & Carol & assistents)	17 Aug. 8:45 – 11:45 Space Exploration Strategy continued (Aula, Gerhard Thiele) 12:45 – 14:45 Space suits II (Aula, Ingemar Skoog) 15:00 – 16:30 Spaceball riding (Atrium on the Space Campus, Johan Arvelius & Carol & assistents)	18 Aug. W 8:45 – 11:45 Life support systems (Aula, Ingemar Skoog) 12:30 – 14:30 Student project presentations. (Aula) 15:00 – 16:30 European Astronaut Selection (Aula, Gerhard Thiele & Hansulrich Steimle)	19 Aug. T 9:00 – 11:00 A flight on the Space Shuttle (Auditorium, Parkskolan Gerhard Thiele)	20 Aug. F 9:00 -12:00 EXAM (Auditorium, Parkskolan)
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Busses from town arrive at the Swedish Institute of Space Physics at 8:35 (on the street) & 9:30. They leave at 16:35 & 17:45 (from the road)

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

Mr. Sven Grahn, Evergreen Engineering, Sweden

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

Dr. Gail Iles, European Astronaut Centre, Cologne, Germany

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

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

Dr. Olle Norberg, Swedish National Space Board

Dr. Jennifer Ngo-Anh, Manager Mars 500 project, European Space Agency, The Netherlands

Dr. Å Ingemar Skoog, Programme manager for European spacesuit development, Astrium GmbH, 1986-1994. Co-author of *Russian Spacesuits*, 2003, Springer-Praxis
Johan Arvelius, Physicist, Swedish Institute of Space Physics, Kiruna, Sweden

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. He was trained to carry out a spacewalk should there have been a need to make one.

Course coordinator and examiner

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

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