Human Spaceflight and Exploration,
7.5 ECTS

6 – 24 August 2007
Umeå (6-17 August) & Kiruna (20-24 August),
Sweden.

The Department of Physics at Umeå University invites students from Sweden and abroad to come to Umeå and Kiruna to participate in our summer university during long summer days. The university is pleased to have European Space Agency astronaut Dr. Christer Fuglesang as Honorary Doctor. In December 2006 he became the first Scandinavian to travel into space and he has been an inspiration in the development of the course. During the first two weeks of the course, lectures will be held both on the university’s campus in Umeå and in the university’s own
observatory, Umeavatoriet. During the weekend between the 2nd and 3rd weeks all course participants will move north to Kiruna, 160 km above the Arctic Circle. The town’s northerly location makes it an ideal place to observe auroral phenomena, which has lead to the establishment of space research organisations, industry and space educations there.

The aim of this course is to give students insight into the historical development of human spaceflight, an understanding of the technical requirements to be met in order to send humans into space and to present the current status of European activity in human spaceflight. The development of space tourism is also discussed, including the plans for the development of Spaceport Sweden in Kiruna: the spaceport was inaugurated by Sweden’s deputy prime minister in January of this year (www.spaceportsweden.com).

Course contents:
- History of human spaceflight
- The space environment and its effects on the human body in space
- Life support systems and space suits
- Astronaut selection and training
- Manned space operations
- Preparing for manned missions to Mars
- Space tourism
- Space research in the Kiruna area, including visits to the Swedish Institute of Space Physics (www.irf.se) and the European Space Range, Esrange (www.ssc.se).

Participating lecturers will include: Sven Grahn, Space Consultant; Åke Ingemar Skoog, expert on space suits, formerly employed by Astrium in Germany; Hansulrich Steinle, Aerospace Consultant formerly responsible for selection and training of German astronauts; Dr. Olle Norberg, Head of Esrange Space Center & Spaceport Sweden; Professor Ingrid Sandahl, Swedish Institute of Space Physics; Dr. Carol Norberg, Reader in Space Physics, Umeå University. We also expect a European astronaut to participate in the teaching. The course consists of lectures, practical and project assignments. The course language will be English. A detailed programme for the course will be made available on our web page in June.

This course is for students studying on traditional science and engineering degree programmes as well as medical students and school teachers interested in technology and space. There is no fee for the course, however students must cover their own travel and living costs while attending. Don’t miss this opportunity to meet some of Europe’s space experts!
Credit system
The course has a value of 7.5 ECTS credits, where ECTS stands for “European Credit Transfer and Accumulation System”. ECTS is based on the principle that 60 credits measure the workload of a full-time student during one academic year. More details of the system can be found on the web pages of the European Commission.

Locations
Umeå and Kiruna are respectively about 50 and 90 minutes by plane from Arlanda, Stockholm’s international airport, and can also be accessed by train and bus. Students should plan to arrive in Umeå during the weekend preceding the course and to depart from Kiruna at the end of the course. We intend to hire a bus to transport students the 600 km from Umeå to Kiruna, making stops along the way at for example the Arctic Circle. Kiruna is the home of the world famous Ice Hotel and even in the summer one can experience arctic temperatures by visiting the Ice Hotel Art Centre and Ice Bar where drinks are served in glasses carved from river ice.

Accommodation
We have reserved a number of student rooms for course participants within walking distance of the university in Umeå and close to the Kiruna town centre. We expect that the total price for the accommodation for 3 weeks will be about 2250 Swedish kronor (approximately 245 Euro) per person for a single room with internet. You can download an application form for accommodation from the course web site.

Eligibility Requirements
To be eligible to attend the course applicants must satisfy the general eligibility requirements. These are for foreign students:
1) A completed foreign Upper Secondary Education with eligibility to University Studies (e.g. Abitur, Baccalaureate, GCSE O and A levels) and corresponding to the Swedish National Programme (gymnasium) is required.
2) Proof of knowledge in English provided by for example one of the following international recognised language proficiency tests:
   - TOEFL test (Test of English as a Foreign Language) with a final result of normally no less than 500 points paper-based or 173 points computer-based.
   - IELTS test (the International English Language Testing Service) with a minimum of 5.5 and with no individual score below 4.5, taken after 1 January 2004.
   - Cambridge/Oxford - First Certificate in English grade A or B is also accepted.
   NB! Language Proficiency tests are not required for students from, North America, Australia, New Zealand. European students, who have learned English in upper secondary school for at least 8 years and students who have English as their mother tongue, do not need to take an English proficiency test (exception Spain, Italy and Greece). However, students from European countries are required to have obtained a pass in an English language course in their upper secondary school leaving certificate. Note that even British students must send proof of obtaining O-level, GCSE English or equivalent.

In addition students should satisfy the special eligibility requirements for the course, which is a physics major at Upper Secondary School level and AS level mathematics or similar qualifications (For Swedish students: Grundläggande behörighet samt Ma D & Fy B).
Application Procedure

Applications will be accepted as long as places are available. Students with a Swedish civil registration number can apply on-line via www.studera.nu. For foreign students, the application form can be obtained by sending your name and address to summer@space.umu.se. The course code to use when applying for the course in Human Spaceflight and Exploration is UMU-95138.

Mail the completed application form together with the appropriate documentation to:
Antagningen
833 82 Strömsund
Sweden

It is very important that applicants send the appropriate documentation of eligibility together with the application form i.e. Certified copy of High School diploma, proof of English proficiency and any previous university credits. Students must send supporting documentation of both general and special eligibility together with the application form! When sending proof of Upper Secondary Education or proof of knowledge in English, witnessed copies of certificates are required. A notaris publicus, an executive of your university or similar should witness the certificates as being true copies of the originals. Please ask them to give a telephone number where they can be contacted in the event of a question arising. If you have someone at your home university to witness the copies ask them to place the documentation in a university envelope and sign the envelope in a way that it will be clear that it has not been opened. The same procedure is valid for those who must send documentation of university studies. Note in particular that you must send your application and supporting documentation by regular post and that scanned or faxed copies will not be accepted.

More details about the application procedure can be found on the web page:
http://www.umu.se/studentcentrum/iao/summer_application_and_deadlines.html
If you have questions regarding international admissions you can contact the admissions office at the address: international.admissions@adm.umu.se

For more information about any aspect of the course you are welcome to contact the course coordinator, Carol Norberg at summer@space.umu.se, or on the telephone number +46-70-279 3999.

Web addresses

Up-to-date information about the course is available at:
www.irf.se/link/summer_university
For information about European activities in Human Spaceflight and Exploration see:
www.esa.int
For information about activities in Umeå see: www.visitumea.se
Information about Kiruna can be found at: www.lappland.se,