

The Directorate of Human Spaceflight, Microgravity and Exploration, ESA supports the **SpaceMaster programme** with the following contributions:

- **ESA grants** – annual grants for 6 European students from the ESA Member States who are not eligible to receive financial support from the EU within the Erasmus Mundus Programme
- **ESA stages** – stages for 2 students at ESA ESTEC in support of the preparation of the final thesis
- **ESA lectures** – an annual seminar of lectures presented by ESA staff on topics related to human space flight and exploration

The students are required to attend and complete the full 2 years SpaceMaster programme, and to carry out a final thesis, on a topic relevant to the Human Exploration Promotion Programme within the Directorate of Human Spaceflight, Microgravity and Exploration, ESA. The topic for the final dissertation should be agreed with ESA.

The awarded students will have the possibilities to attend a stage at ESA's premises in the Netherlands (ESTEC), in support of the preparation of their final thesis.

The awarded students have an obligation to reflect the ESA's contribution to the SpaceMaster programme in the form of acknowledgement in their publications, presentations and final thesis.

ESA's relevant topics

Space Habitation System Design (dealing with all aspects of human presence in space)

- Identification of the environment (gravity, temperature, radiation etc.)
- Identification of the mission (location, duration, transport)
- Establishment of human factors requirements
- Architectural aspects
- Space Habitat Design

Inflatable Structures for Space Applications

- Mission benefits
- Materials
- Production technologies
- Secondary structures
- Leakage detection and repair

- Packaging, launch and deployment

Life Support

- Open loop systems for short duration missions
- Regenerative systems for air, water and waste (physiochemical, biological and hybrid systems)
- Food Production (as part of regenerative life support system)
- Spin off to terrestrial applications

EVA systems for Planetary Applications

- History of EVA
- Pressure suit system (in reality an inflatable structure)
- Life Support System
- Thermal Control system
- Communications
- Mobility issues
- Spin off to terrestrial applications

Human Research for Exploration

- Use of ISS research for human exploration preparation
- Use of analogue environments for human exploration preparation

More information about the Directorate of Human Spaceflight, Microgravity and Exploration can be found on ESA's homepage <http://www.esa.int/esaHS/index.html>

Contact person: Dr. Victoria Barabash Victoria.barabash@ltu.se
Ph: +46 980 79024

Academic year 2007 / 2008: 6 grants and 2 stages (duration of 3-4 months) at ESTEC with start in January 2008 are available.