DEPARTMENT OF MATHEMATICAL SCIENCES

MVB100   The Mathematical guide to Ganymedes, 7.5 credits

Matematikens guide till Ganymedes, 7,5 högskolepoäng

First Cycle

Confirmation

This course syllabus was confirmed by Department of Mathematical Sciences on 2014-09-24 to be valid from 2015-01-01, spring semester of 2015.

Field of education: Science 100%
Department: Department of Mathematical Sciences

Other participating department
Physics

Position in the educational system

The course is given as a freestanding course and is for everyone with an interest in mathematics and physics. The course cannot be included in the course requirements in the main field of study for a bachelor's degree in Mathematics or Physics.

Main field of studies	*Specialization*
-	G1N, First Cycle, has only upper-secondary level entry requirements

Entry requirements

General entrance requirements

Learning outcomes

After completion of the course, the student is expected to be able to:

Knowledge and understanding

After completion of the course, the student will be able to

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- be familiar with basic facts about historical and present-day models for the planets and the movements of the sun
- be familiar with basic facts about the solar system
- be familiar with the principles of calculation of distances and the orbits of planets and space vehicles
- understand how the planets influence one another via gravitation and the effects of this on geology and climate
- know what a stay on Ganymede might be like

Course content

The course consists of two parts. Each part contains a lecture in astronomy and one in mathematics on the same theme.

- Overview of the solar system, Jupiter and its moons (Astronomy)
- The apparent journey of the planets over the firmament (Mathematics)
- Space flight in the solar system, thoughts about colonisation (Astronomy)
- To measure distance, orbit calculations, Newton's law of gravitation, and Kepler's laws (Mathematics)
- Climate today and in the future in the solar system (Astronomy)
- Pertubation theory, influence of the gas giants on the internal planets with regard to geology and climate (Mathematics)
- Colonising Ganymede (Astronomy)
- Earth's orbit, which explains the journey of the sun over the firmament on earth. Days, years, seasons and Earth's orbit on Ganymede

Form of teaching

Language of instruction: Swedish

Assessment

The course is examined through a written examination at the end of the course.

If a student, who has failed the same examination component twice, wishes to change examiner before the next examination, a written application shall be sent to the department responsible for the course and it shall be granted unless there are special reasons to the contrary (Chapter 6, Section 22 of Higher Education Ordinance).

Grades

The grading scale comprises: Pass with Distinction (VG), Pass (G) and Fail (U).

Course evaluation

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Course evaluation is done with a questionnaire and conversation with student representatives.