





2 credits

15.0 h + 7.5 h

Q2

Teacher(s)	Dehant Véronique coordinator ;Lampens Patricia ;
Language :	French
Place of the course	Louvain-la-Neuve
Prerequisites	<i>The prerequisite(s) for this Teaching Unit (Unité d'enseignement – UE) for the programmes/courses that offer this Teaching Unit are specified at the end of this sheet.</i>
Main themes	This course will provide students with introductory knowledge in relation to the Earth and the universe in general; it will give a glimpse into the evolution up to recent developments in studies related to spherical astronomy, geometric and dynamic geodesy, the rotation of the Earth, the geophysics of the Earth and the planets and astrophysics.
Aims	<p>a. Course contribution to the LO reference framework (programme LO) LO1: 1.1, 1.3, 1.4, 1.5, 1.6, 1.7, 1.8 LO2: 2.1, 2.2, 2.4 LO3: 3.1, 3.2, 3.3, 3.4, 3.5, 3.6 LO4: 4.1, 4.2, 4.3 LO6:6.4.</p> <p>b. Specific formulation of programme LOs for this course At the end of this course:</p> <ol style="list-style-type: none"> 1. The student will have acquired an introductory knowledge of the Earth and the universe in general. 2. The student will be aware of the fundamental principles of astronomy and planetary science and of the Earth's physics and dynamics. 3. The student will be aware of the main developments in these areas up to recently. 4. The student will be up-to-date on the latest discoveries made by astronomers, geophysicists or planetary scientists, and by the best space missions. 5. The student will be able to calculate hours of sunrises and sunsets or time period of sunshine. 6. The student will be able to locate a star in the sky on the basis of a star catalogue, or conversely identify a star he or she has observed using coordinate transformations and star catalogues. 7. The student will understand the different motions moving the Earth in space (rotation of the Earth, precession, nutations, motion of the Earth's pole and motion of the Earth around the Sun). 8. The student will be able to identify the main characteristics of the planets and take an interest in the latest space missions around planets or moons in the solar system. 9. The student will be able to identify the fundamental characteristics of the stars, and to discuss their formation and evolution, in addition to the general structure of the universe. He or she will be up-to-date with the latest discoveries in relation to exoplanets. <p>----- <i>The contribution of this Teaching Unit to the development and command of the skills and learning outcomes of the programme(s) can be accessed at the end of this sheet, in the section entitled "Programmes/courses offering this Teaching Unit".</i></p>
Evaluation methods	<p>The students will have an exam exercise where 3D vision and understanding is necessary, and they will have the opportunity to acquire this by going to the Planetarium session.</p> <p>We will also ask theoretical questions and inquire the students to characterise a planet or moon from the solar system in their words and with the terminology learned during the course, at the Planetarium of Brussels, or that they have found on the web.</p> <p>We will request an exercise with a current news application, such as the periods of sunlight calculated for solar panels or for football matches. The students must apply the formulae seen and developed during the course and in the exercises.</p>

<p>Teaching methods</p>	<p>During our astronomy and geophysics course we invite students to the Planetarium of Brussels where we have (1) a dedicated session where we undertake exercises related to the course (the students will have a 3D view of what we have explained in the course); and (2) a classic session chosen from the list of sessions offered by the Planetarium. The Royal Observatory of Belgium offers this to the students.</p> <p>In the sections of the course that is related to the planets, we will conduct a presentation with 3D glasses that will allow us to see magnificent images of the planets and moons in our Solar System. These 3D glasses will be provided to the students by the Royal Observatory of Belgium.</p> <p>The instructors have access to unprecedented images and first-hand data. They will pass them on to the students.</p> <p>The instructors have important roles in space missions and in ground and space observations. They have priority access to data and information before the general public is made aware of them and even before the majority of the scientific community. They will share this exclusive exciting information.</p> <p>They will also apply the theory advanced in the lectures to current news cases.</p>
<p>Content</p>	<p>This course will provide students with introductory knowledge in relation to the Earth and the universe in general; it will give a glimpse into the evolution up to recent developments in studies related to spherical astronomy, geometric and dynamic geodesy, the rotation of the Earth, the geophysics of the Earth and the planets and astrophysics.</p>
<p>Faculty or entity in charge</p>	<p>PHYS</p>

Programmes containing this learning unit (UE)				
Program title	Acronym	Credits	Prerequisite	Aims
Bachelor in Physics	PHYS1BA	2	LPHYS1111	
Minor in Physics	LPHYS100I	2		
Minor in Scientific Culture	LCUSC100I	2		
Additionnal module in Mathematics	LMATH100P	2		
Additionnal module in Mathematics	TMATH100P	2		