Université de Liège

Study programmes 2016-2017

Faculty of Sciences

Master in space sciences (120 ECTS)

Cycle view of the study programme

		Bl	Or	Th	Pr	Au	Cr
Compulsory course (B2 : 27Cr)							
SMEM0029-1	*Final thesis* - COLLÉGIALITÉ	B2	TA	-	-	-	**27**
Optional courses (B1 : 60Cr, B2 : 33Cr)							
Choose, in agreement with the Jury, courses totalling 63 ECTS from the lists below, including at least one of these first two courses of each list : (B1 : 60Cr, B2 : 3Cr)							
Space sciences : interdisciplinary courses							
SPAT0017-1	*Seminars on topical issues* (english language) - Aida ALVERA AZCARATE, Christian BARBIER, JeanRené CUDELL, Benoît HUBERT, Damien HUTSEMEKERS	B1	TA	-	30	-	**3**
SPAT0035-1	*Space exploration* (english language) - Grégor RAUW	B1	Q1	30	10	-	**4**
SPAT0001-1	*Plasma physics* (english language) - Benoît HUBERT	B1	Q2	25	5	-	**3**
SPAT0018-1	*Ideas evolution in astronomy* - Yaël NAZÉ	B1	Q1	14	6	-	**2**
SPAT0036-1	*Celestial mechanics and space trajectories* (english language) - Grégor RAUW	B1	Q1	20	10	-	**3**
SPAT0039-1	*Spectroscopy in astrophysics and geophysics* (english language) - Jerôme LOICQ	B1	Q1	20	10	-	**3**
SPAT0040-1	*Fluid mechanics* (english language) - Pierre DAUBY	B1	Q1	20	10	-	**3**
Cosmology and astroparticle							
SPAT0021-1	*Introduction to astroparticles* (english language) - Joseph CUGNON	B1	Q1	20	10	-	**3**
SPAT0012-1	*General relativity, Part 1: Introduction* - Yves DE ROP	B1	Q1	20	-	-	**2**
SPAT0010-1	*Theoretical physical cosmology* (english language) - Christian BARBIER, Michel TYTGAT **Corequisite :** SPAT0012-1 - Relativité générale SPAT0021-1 - Introduction to astroparticles	B1	Q2	40	-	-	**4**
SPAT0012-2	*General relativity, Part 2: Mathematics methods* - Yves DE ROP **Corequisite :** SPAT0012-1 - Relativité générale	B1	Q1	20	-	-	**2**
SPAT0012-3	*General relativity, Part 3: supplement* - Yves DE ROP **Corequisite :** SPAT0012-2 - Relativité générale	B1	Q2	20	-	-	**2**
SPAT0019-1	*Special Relativity* - Jean SURDEJ	B1	Q1	15	-	-	**2**
SPAT0060-1	*Astroparticles, Part 1 : the Standard Model* (english language) - JeanRené CUDELL **Corequisite :** SPAT0062-1 - Quantum field theory	B1	Q1	20	10	-	**4**
SPAT0060-2	*Astroparticles, Part 2 : gravitational effects* (english language) - JeanRené CUDELL **Corequisite :** SPAT0012-2 - Relativité générale SPAT0012-1 - Relativité générale SPAT0062-1 - Quantum field theory	B1	Q2	10	5	-	**2**
SPAT0061-1	(pas organisé en 2016-2017) *Group theory and astroparticles* (english language) - N... **Corequisite :** PHYS2012-1 - Mécanique quantique et statistiques relativistes	B1	Q2	30	-	-	**3**
SPAT0062-1	*Quantum field theory, Part 1 : quantum electrodynamics* (english language) - JeanRené CUDELL	B1	Q1	20	10	-	**4**

	Corequisite : SPAT0019-1 - Relativité restreinte PHYS2012-1 - Mécanique quantique et statistiques relativistes						
SPAT0062-2	*Quantum field theory, Part 2 : introduction to renormalization* (english language) - JeanRené CUDELL **Corequisite :** SPAT0062-1 - Quantum field theory	B1	Q2	10	5	-	**2**
PHYS2012-1	*Relativistic quantum mechanics and relativistic statistics* - Peter SCHLAGHECK	B1	Q1	20	5	-	**3**
Astrophysics							
SPAT0033-1	*Astrophysics* (english language) - Pierre MAGAIN	B1	Q1	30	15	-	**5**
SPAT0044-1	*Stellar structure and evolution I* (english language) - MarcAntoine DUPRET	B1	Q1	20	20	-	**3**
SPAT0005-1	*Stellar stability and asteroseismology* (english language) - MarcAntoine DUPRET **Corequisite :** SPAT0040-1 - Fluid mechanics SPAT0044-1 - Stellar structure and evolution I	B1	Q2	30	10	-	**4**
SPAT0006-1	*Stellar atmospheres* (english language) - Grégor RAUW **Corequisite :** SPAT0039-1 - Spectroscopy in astrophysics and geophysics	B1	Q2	20	10	-	**3**
SPAT0007-2	*Variable stars* (english language) - Grégor RAUW	B1	Q1	20	10	-	**3**
SPAT0008-1	*Interstellar medium* (english language) - Damien HUTSEMEKERS, Yaël NAZÉ	B1	Q1	20	10	-	**3**
SPAT0009-1	*High-energy astrophysics* (english language) - Grégor RAUW	B1	Q1	25	5	-	**3**
SPAT0011-1	*Extragalactic astrophysics* (english language) - Pierre MAGAIN **Corequisite :** SPAT0033-1 - Astrophysics	B1	Q2	20	10	-	**3**
SPAT0020-2	*Astrochemistry* (english language) - Michaël DE BECKER	B1	Q2	30	10	-	**4**
SPAT0045-1	*Stellar structure and evolution II* (english language) - MarcAntoine DUPRET **Corequisite :** SPAT0044-1 - Stellar structure and evolution I	B1	Q2	20	20	-	**3**
SPAT0064-1	*Solar physics, activity phenomena and Sun-Earth relations* (english language) - Frédéric CLETTE **Corequisite :** SPAT0044-1 - Stellar structure and evolution I SPAT0039-1 - Spectroscopy in astrophysics and geophysics	B1	Q2	20	10	-	**3**
SPAT0069-1	*Radio astrophysics* (english language) - Michaël DE BECKER, Dominique SLUSE	B1	Q2	15	10	-	**3**
Planetary science and planetary systems							
SPAT0055-1	*Atmosphere of the Earth* (english language) - Denis GRODENT	B1	Q1	30	15	-	**5**
SPAT0063-1	*Introduction to exoplanetology* (english language) - Olivier ABSIL, Michaël GILLON **Corequisite :** SPAT0033-1 - Astrophysics	B1	Q2	20	5	-	**3**
SPAT0023-1	*Terrestrial magnetosphere and polar lights* (english language) - Benoît HUBERT	B1	Q2	30	10	-	**4**
SPAT0028-2	*Planetary magnetospheres and aurorae* (english language) - Denis GRODENT **Corequisite :**	B1	Q2	20	10	-	**3**

	SPAT0055-1 - Atmosphere of the Earth						
SPAT0029-1	*Space environment* (english language) - Denis GRODENT **Corequisite :** SPAT0055-1 - Atmosphere of the Earth	B1	Q1	15	15	-	**3**
SPAT0043-1	*The small bodies of the solar system* (english language) - Emmanuel JEHIN	B1	Q2	15	5	-	**2**
SPAT0056-1	*Planetary and exoplanetary atmospheres* (english language) - JeanClaude GÉRARD, Denis GRODENT **Corequisite :** SPAT0055-1 - Atmosphere of the Earth	B1	Q2	30	15	-	**5**
GEOL0263-1	*Astrobiology* - Philippe CLAEYS, Véronique DEHANT, Moreno GALLENI, Emmanuelle JAVAUX, Yaël NAZÉ, Annick WILMOTTE (Even years)	B1	Q2	30	15	-	**5**
GEOL0304-1	*Introduction to neotectonics, seismology and physical volcanology* (english language) - HansBalder HAVENITH - [2d FW]	B1	Q1	25	15	[+]	**5**
SPAT0066-1	*Internal geophysics of the Earth and terrestrial bodies of the solar system* (english language) - Véronique DEHANT	B1	Q1	25	-	-	**3**
Climate, environment and oceanography							
SPAT0027-3	*Climate change and impacts* - Louis FRANÇOIS, Guy MUNHOVEN	B1	TA	15	45	-	**5**
OCEA0071-1	*Geophysical fluid dynamics - part 1* (english language) - JeanMarie BECKERS	B1	Q2	30	15	-	**5**
SPAT0024-2	*Meteorology* - Louis FRANÇOIS	B1	Q1	40	20	-	**6**
SPAT0025-1	*Environmental modelling* (english language) - Louis FRANÇOIS, Guy MUNHOVEN	B1	Q2	20	10	-	**4**
SPAT0026-1	*Paleoenvironment and evolution of the Earth system* (english language) - Louis FRANÇOIS	B1	Q2	30	10	-	**4**
SPAT0032-2	*remote sensing* (english language) - Christian BARBIER	B1	Q1	30	30	-	**6**
SPAT0058-1	*Observing Earth from space* (english language) - Christian BARBIER	B1	Q1	15	-	-	**2**
GEOG0037-1	*Global Navigation Satellite Systems* (english language) - René WARNANT	B1	Q1	40	15	-	**5**
GEOG0038-1	*Advanced space geodesy* (english language) - René WARNANT **Corequisite :** GEOG0037-1 - Global Navigation Satellite Systems	B1	Q2	20	-	-	**2**
OCEA0045-1	*Statistical methods of analysis of oceanographic data* (english language) - Aida ALVERA AZCARATE	B1	Q1	20	10	-	**3**
OCEA0087-1	*Satellite oceanography* (english language) - Yves CORNET	B1	Q1	15	15	-	**3**
OCEA0072-1	*Geophysical fluid dynamics - part 2* (english language) - JeanMarie BECKERS **Corequisite :** OCEA0071-1 - Geophysical fluid dynamics - part 1	B1	Q1	30	15	-	**5**
OCEA0081-1	*Numerical Methods in Geophysics - Part 2* (english language) - JeanMarie BECKERS	B1	Q1	15	30	-	**5**
Instrumentation and methods for space siences							
SPAT0057-1	*Observing the sky* (english language) - Jean SURDEJ - [2d FW]	B1	Q1	20	20	[+]	**5**
PHYS0124-1	*Instrumental optics I* (english language) - Serge HABRAKEN	B1	Q1	20	15	-	**4**
SPAT0002-1	*Programming techniques, numerical methods and machine learning* (english language) - Benoît BOVY, Dominique SLUSE	B1	Q2	10	20	-	**3**
SPAT0014-1	*Introduction to time series analysis* (english language) - Eric GOSSET	B1	Q2	20	5	-	**3**

SPAT0015-1	*Signal acquisition and processing : application to embedded systems* - Christian SERVAIS	B1	Q2	10	30	-	**4**
AERO0018-3	*Space experiment development* (english language) - Jerôme LOICQ	B1	Q2	30	30	-	**5**
PHYS0125-3	*Instrumental optics II* (english language) - Serge HABRAKEN **Corequisite :** PHYS0124-1 - Instrumental optics I	B1	Q2	25	15	-	**4**
PHYS0931-1	*Data processing* - Pierre MAGAIN	B1	Q2	15	30	-	**5**
SSTG0043-1	*Placement* - Christian BARBIER, Yaël NAZÉ, Grégor RAUW	B1	TA	-	140	-	**10**
SPAT0067-1	*Atmospheric and adaptive otpics* (english language) - Olivier ABSIL **Corequisite :** SPAT0057-1 - Observing the sky PHYS0124-1 - Instrumental optics I	B1	Q2	15	5	-	**2**
SPAT0068-1	*Mission of astrophysical observations* (english language) - Jean SURDEJ - [5d FW]	B1	Q2	5	20	[+]	**5**

[...] 3 credits of optional courses in block 1

Single focus (B2 : 1Nbr)

Research Focus (B2 : 30Cr)

[...] Choose courses that haven¿t already been chosen, for a total of 30 ECTS, from the curriculum of the Faculty of Science or Faculty of Applied Sciences (in particular from the curriculum for the Master in Aerospace Engineering) at ULg and/or from the curriculum of another institution. These choices must be justified by a coherent curriculum plan, which must be approved by the jury.