

Block view of the study programme

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Block 1

THIS MASTER IS ONLY ACCESSIBLE TO STUDENTS ENROLLED BEFORE THE 2022-2023 ACADEMIC YEAR.

Compulsory courses

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| PHYS0974-1 | <i>Materials physics and biophysics</i> - Maryse HOEBEKE, Alejandro SILHANEK | Q1 | 30 | - | - | 5 |
| PHYS0930-1 | <i>Atomic physics</i> - Thierry BASTIN, Peter SCHLAGHECK | Q1 | 30 | - | - | 5 |
| PHYS0975-1 | <i>Introduction to soft matter and complex systems</i> - Nicolas VANDEWALLE | Q1 | 30 | - | - | 5 |
| PHYS0983-1 | <i>Seminars in advanced physics I</i> (english language) - <i>Materials physics and biophysics</i> - COLLÉGIALITÉ - <i>Atomic physics</i> - COLLÉGIALITÉ - <i>Physics of soft matter and complex systems</i> - COLLÉGIALITÉ | TA | 10 | - | - | 4 |
| SMEM0027-1 | <i>Final thesis</i> - COLLÉGIALITÉ | TA | - | - | - | 17 |

Optional courses

In agreement with the jury, chose courses for a total of 24 credits from among:

Atomic and nuclear

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| PHYS0932-1 | <i>Cold atoms and atomic clocks</i> - Thierry BASTIN Corequisite : PHYS0930-1 - Physique atomique | Q2 | 20 | 10 | - | 4 |
| PHYS2027-2 | <i>Ultracold atoms and Bose-Einstein condensates</i> - Peter SCHLAGHECK Corequisite : PHYS3021-1 - Mécanique quantique avancée PHYS0930-1 - Physique atomique | Q2 | 25 | - | - | 4 |
| PHYS0235-2 | <i>Introduction to quantum optics</i> - John MARTIN Corequisite : PHYS0930-1 - Physique atomique PHYS3021-1 - Mécanique quantique avancée | Q2 | 20 | 10 | - | 4 |
| PHYS0949-1 | <i>Atomic structures modelling</i> - Pascal QUINET Corequisite : PHYS0930-1 - Physique atomique | Q2 | 10 | 10 | - | 4 |
| PHYS0941-2 | <i>Theoretical physics : Nuclei and particles</i> - JeanRené CUDELL | Q1 | 30 | - | - | 4 |
| PHYS3021-1 | <i>Advanced quantum mechanics</i> - Thierry BASTIN, John MARTIN, Peter SCHLAGHECK | Q1 | 30 | - | - | 4 |
| PHYS0997-1 | <i>Quantum information and computation</i> (english language) - François DAMANET | Q1 | 30 | - | - | 4 |

Soft Materials / Statistical Physics

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| PHYS0969-1 | <i>Introduction to biophotonics</i> - Laurent DREESEN | Q2 | 20 | 10 | - | 4 |
| PHYS0939-2 | <i>Physics of non-linearities, chaos and fractals</i> - Nicolas VANDEWALLE Corequisite : PHYS0975-1 - Introduction à la matière molle et aux systèmes complexes | Q2 | 15 | 15 | - | 4 |
| PHYS3020-1 | <i>Digital tools of soft matter</i> - Geoffroy LUMAY, Eric OPSOMER | Q2 | 15 | 15 | - | 4 |
| PHYS0948-1 | <i>Microgravity</i> - Nicolas VANDEWALLE - [3d FW] Corequisite : PHYS0975-1 - Introduction à la matière molle et aux systèmes complexes | Q2 | 10 | 20 | [+] | 4 |

Materials / Solid State

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| PHYS3003-1 | <i>Physics of functional oxides</i> (english language) - Philippe GHOSEZ Corequisite : PHYS0974-1 - Physique des matériaux et biophysique | Q1 | 20 | 10 | - | 4 |
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| PHYS0980-1 | <i>Spectroscopy of materials</i> (english language) - Matthieu VERSTRAETE Corequisite : PHYS0974-1 - Physique des matériaux et biophysique | Q1 | 20 | 10 | - | 4 |
| PHYS3004-1 | <i>Physics of nanomaterials</i> (english language) - JeanYves RATY Corequisite : PHYS0974-1 - Physique des matériaux et biophysique | Q1 | 20 | 10 | - | 4 |
| PHYS0982-1 | <i>Physics of semiconductors</i> (english language) - Ngoc Duy NGUYEN Corequisite : PHYS0974-1 - Physique des matériaux et biophysique | Q1 | 15 | - | - | 2 |
| PHYS3023-1 | <i>Physics of magnetic materials</i> (english language) - Eric BOUSQUET Corequisite : PHYS0974-1 - Physique des matériaux et biophysique | Q2 | 20 | 10 | - | 4 |
| PHYS0981-1 | <i>Quantum modelling of materials properties</i> (english language) - Philippe GHOSEZ, Matthieu VERSTRAETE Corequisite : PHYS0974-1 - Physique des matériaux et biophysique | Q1 | 20 | 10 | - | 4 |
| CHIM0202-2 | <i>Physical Chemistry</i> - Christian DAMBLON, Bernard LEYH | Q2 | 30 | - | - | 4 |
| PHYS0987-1 | <i>Physics of materials for energy</i> (english language) - Philippe GHOSEZ, Ngoc Duy NGUYEN | Q1 | 30 | - | - | 4 |
| PHYS0988-1 | <i>Intrinsic and induced topological properties of matter</i> (english language) - Bertrand DUPÉ | Q2 | 20 | 10 | - | 4 |
| Quantum Physics and Relativity | | | | | | |
| PHYS2012-1 | <i>Relativistic quantum mechanics and relativistic statistics</i> - Peter SCHLAGHECK | Q1 | 20 | 5 | - | 4 |
| SPAT0012-1 | (pas organisé en 2022-2023) <i>General relativity, Part 1: Introduction</i> - N... | Q1 | 20 | - | - | 4 |
| SPAT0012-2 | (pas organisé en 2022-2023) <i>General relativity, Part 2: Mathematics methods</i> - N... Corequisite : SPAT0012-1 - Relativité générale | Q1 | 20 | - | - | 2 |
| SPAT0012-3 | (pas organisé en 2022-2023) <i>General relativity, Part 3: supplement</i> - N... Corequisite : SPAT0012-2 - Relativité générale | Q2 | 20 | - | - | 2 |
| Experimental Physics | | | | | | |
| PHYS0250-2 | <i>Experimental statistical physics</i> - Stéphane DORBOLO Corequisite : PHYS0975-1 - Introduction à la matière molle et aux systèmes complexes | Q2 | 10 | 20 | - | 4 |
| PHYS3019-1 | <i>Techniques of experimental physics</i> - Geoffroy LUMAY | Q2 | 20 | 20 | - | 4 |
| PHYS0943-1 | <i>Spectroscopy of electronic paramagnetic resonance</i> - Maryse HOEBEKE Corequisite : PHYS0974-1 - Physique des matériaux et biophysique | Q2 | 15 | 15 | - | 4 |
| PHYS0095-1 | <i>The physics of accelerators and vacuum technologies</i> - David STRIVAY | Q2 | 10 | 10 | - | 4 |
| PHYS0931-1 | <i>Data processing</i> - Pierre MAGAIN | Q2 | 15 | 30 | - | 4 |
| PHYS3037-1 | <i>Nanofabrication: principles and techniques</i> (english language) - Ngoc Duy NGUYEN, Alejandro SILHANEK - [15h Labo.] Corequisite : PHYS0974-1 - Physique des matériaux et biophysique | Q2 | 25 | 15 | [+] | 4 |
| Optics and Imaging | | | | | | |
| PHYS0942-3 | <i>Ionising radiations and imaging</i> - Alain SERET | Q1 | 20 | 5 | - | 4 |
| PHYS0938-1 | <i>Physics and cultural heritage</i> - David STRIVAY | Q1 | 15 | 5 | - | 4 |

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| PHYS0048-2 | <i>Coherent and incoherent optics</i> (english language) - <i>Coherent optics and lasers applications</i> - Serge HABRAKEN - <i>Laser physics</i> - Serge HABRAKEN | Q1 | 10 | 15 | - | 4 |
| | | | 5 | 5 | - | |
| PHYS0048-3 | <i>Coherent and incoherent optics, Instrumental optics I</i> (english language) - Serge HABRAKEN | Q1 | 20 | 15 | - | 4 |

Didactics

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| PHYS0979-1 | <i>Conceptual approach to basic physics</i> - Hervé CAPS, Maryse HOEBEKE | Q1 | 30 | - | - | 4 |
| AESS0241-1 | <i>Introduction to physics didactics</i> - Maryse HOEBEKE | Q1 | 20 | - | - | 4 |

[...] Up to 8 ECTS can be chosen in another study path or in another institution

Bloc d'aménagement du programme de l'année

Additional ECTS (max 15-60) Master in physics (60 ECTS)

Optional courses

The update course, worth a maximum of 60 credits, will be determined based on students' prior training.

[...] Between 15 and 60 ECTS of courses from "Bachelier en sciences physiques"