

Bachelor in Physics



At ULB, an emphasis is put on understanding the scientific method and students are well prepared for careers in both pure and applied research. Teaching follows the most recent research results.

During the three first years (BA), students receive the necessary basic education in mathematics (32%), physics (51%) and chemistry (6%). This is complemented by English (3%), computer science (5%) and some optional subjects (3%), aiming to either broaden the students' scientific culture or to increase their knowledge of English. An ability to take initiative is very important and will be exercised both when it comes to your individual work or to placement within a research team in the physics department, per your choice.

The various topics covered are:

- > Classical and 20th century physics
- > Quantum mechanics
- > Statistical and non-linear physics
- > Astronomy and astrophysics
- > Fundamental interactions and materials physics

Bloc 1 | BA-PHYS

Cours obligatoires

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| CHIM-F101 | Chimie générale Laurence RONGY (Coordinator), François RENIERS and Thierry VISART DE BOCARME
<small>🕒 10 credits [lecture: 72h, tutorial classes: 36h, practical work: 12h, project: 24h] 📅 first and second terms 🗨️ French</small> |
| MATH-F101 | Calcul différentiel et intégral I Bruno PREMOSELLI (Coordinator) and Mélanie BERTELSON
<small>🕒 15 credits [lecture: 90h, tutorial classes: 90h] 📅 first and second terms 🗨️ French</small> |
| MATH-F121 | Géométrie analytique et calcul matriciel Joost VERCRUYSSSE (Coordinator) and Anna Vanden Wyngaerd
<small>🕒 5 credits [lecture: 24h, tutorial classes: 24h] 📅 first term 🗨️ French</small> |
| MATH-F122 | Algèbre linéaire Joost VERCRUYSSSE (Coordinator) and Samuel FIORINI
<small>🕒 10 credits [lecture: 54h, tutorial classes: 54h] 📅 academic year 🗨️ French</small> |
| PHYS-F110 | Physique générale I et II Pascal VANLAER (Coordinator), Michele SFERRAZZA and Sophie VAN ECK
<small>🕒 20 credits [lecture: 96h, tutorial classes: 102h, practical work: 42h] 📅 first and second terms 🗨️ French</small> |

Bachelor in Physics

Bloc 2 | BA-PHYS

Cours obligatoires

- INFO-F207 **Informatique** | Sébastien CLESSE (Coordinator)
 5 credits [lecture: 24h, tutorial classes: 24h] 📅 first term 🗨️ French
- LANG-F201 **Anglais scientifique I** | Alexander CORNFORD (Coordinator), David Albert BEST and Hugh MURPHY
 5 credits [tutorial classes: 48h] 📅 second term 🗨️ English
- MATH-F201 **Calcul différentiel et intégral II** | Antoine GLORIA (Coordinator) and Guillaume DUJARDIN
 10 credits [lecture: 60h, tutorial classes: 60h] 📅 first and second terms 🗨️ French
- MATH-F204 **Mécanique analytique** | Frank FERRARI (Coordinator) and Glenn BARNICH
 10 credits [lecture: 60h, tutorial classes: 60h] 📅 first and second terms 🗨️ French
- PHYS-F201 **Thermodynamique** | Nicolas CHAMEL (Coordinator)
 5 credits [lecture: 36h, tutorial classes: 24h] 📅 second term 🗨️ French
- PHYS-F202 **Relativité, électromagnétisme et optique ondulatoire** | Petr TINIAKOV (Coordinator)
 10 credits [lecture: 72h, tutorial classes: 48h] 📅 first and second terms 🗨️ French
- PHYS-F203 **Introduction à la mécanique quantique** | Serge MASSAR (Coordinator)
 5 credits [lecture: 30h, tutorial classes: 30h] 📅 second term 🗨️ French
- PHYS-F210 **Laboratoires, statistique appliquée à la physique expérimentale et projet** | Ioana Codrina MARIS (Coordinator), Juan Antonio AGUILAR SANCHEZ, Stéphane CLEMMEN, Sébastien CLESSE and Thomas Van himbeeck
 10 credits [lecture: 24h, tutorial classes: 24h, practical work: 72h, project: 72h] 📅 academic year 🗨️ French

Bachelor in Physics

Bloc 3 | BA-PHYS

Cours obligatoires

- MATH-F314 **Mathématiques pour la physique** | Riccardo ARGURIO (Coordinator), Denis BONHEURE, Clément Cerovecki and Bernard KNAEPEN
 10 credits [lecture: 66h, tutorial classes: 54h] first term French
- PHYS-F302 **Mécanique quantique** | Frank FERRARI (Coordinator) and Sébastien CLESSE
 10 credits [lecture: 66h, tutorial classes: 54h] first and second terms French
- PHYS-F303 **Physique statistique** | Pierre GASPARD (Coordinator) and Bortolo Matteo MOGNETTI
 10 credits [lecture: 60h, tutorial classes: 60h] first and second terms French
- PHYS-F304 **Spectrophysique et Astrophysique** | Sophie VAN ECK (Coordinator) and Pierre-François COHEUR
 5 credits [lecture: 44h, tutorial classes: 16h] second term French
- PHYS-F305 **Physique des particules et Physique Nucleaire** | Laurent FAVART (Coordinator) and Pierre DESCOUVEMONT
 5 credits [lecture: 42h, tutorial classes: 18h] first and second terms French
- PHYS-F308 **Soft Matter and Solid State Physics** | Patricia Maria LOSADA PEREZ (Coordinator) and Simone NAPOLITANO
 5 credits [lecture: 40h, tutorial classes: 20h] first and second terms English
- PHYS-F311 **Laboratoires et Stage de recherche** | Barbara CLERBAUX (Coordinator), Juan Antonio AGUILAR SANCHEZ, Gilles DE LENTDECKER, Patricia Maria LOSADA PEREZ, Ioana Codrina MARIS, Simone NAPOLITANO and Simona TOSCANO
 10 credits [practical work: 72h, field trips: 24h] second term French

Cours optionnels

One course chosen from the following

- BIOL-F102 (optional) **Biologie générale** | Patrick MARDULYN (Coordinator) and Etienne MEYLAN
 5 credits [lecture: 48h] second term French
- ENVI-F1001 (optional) **Sciences de la Terre, Environnement et Société** | Pierre REGNIER (Coordinator), Jean-Michel DECROLY and Frank PATTYN
 5 credits [lecture: 48h] first and second terms French
- ETHI-F201 (optional) **Sciences, éthique, histoire et société** | Grégoire Wallenborn (Coordinator) and Eric MURAILLE
 5 credits [lecture: 48h] second term French
- ETHI-F301 (optional) **Science et Société : analyse de controverses scientifiques** | Patrick MARDULYN (Coordinator) and Grégoire Wallenborn
 5 credits [lecture: 24h, project: 70h] first term French
- LANG-F301 (optional) **Anglais scientifique II** | Hugh MURPHY (Coordinator), David Albert BEST and Alexander CORNFORD
 5 credits [tutorial classes: 48h] first term English
- PHYS-F105 (optional) **La structure de l'univers** | Alain JORISSEN (Coordinator) and Rodrigo ALVAREZ
 5 credits [lecture: 48h] first term French
- PHYS-F314 (optional) **Electronique** | Gilles DE LENTDECKER (Coordinator), Juan Antonio AGUILAR SANCHEZ and Yifan YANG
 5 credits [lecture: 24h, tutorial classes: 6h, practical work: 30h] first term French

PHYS-H302
(optional)

Eléments d'optique physique | Marc HAELTERMAN (Coordinator)

🕒 5 credits [lecture: 24h, tutorial classes: 12h, practical work: 24h] 📅 second term 🗣️ French

TEMP-0000
(optional)

Cours extérieurs au programme

🕒 5 credits 📅 academic year 🗣️ French

