



1st Semester : 30 credits

UE	Contents	Credits	Hours
UE1	Maths for science I Functions: limits, continuity, derivative - Calculus integrals- real and complex numbers - 2 variables functions - Scalar and vector products	6	Lecture: 18 h Tutorials: 36 h
UE2	Introductory chemistry - Atoms: Emission and absorption, wave functions, periodic table- Molecules: Lewis and VSEPR models, covalent and ionic bonds, weak bonds - Solution chemistry: Acids and bases in aqueous solutions, Redox equilibria	6	Lecture: 24 h Tutorials: 36 h Laboratory class: 9h
UE3	Introductory physics Kinematics - Dynamics: Newton laws - Mechanical energy - Introduction to thermodynamics: 1 st Law - Laboratory classes I : mechanical oscillators, free fall, friction	6	Lecture: 24 h Tutorials: 24 h Laboratory class: 18 h
UE4	Introductory computer science Introduction to algorithms and program languages	4	Lecture: 12 h Practical class: 12 h
UE5	General French language	4	Tutorials: 48 h
UE6	Scientific French	4	Tutorials: 15 h



2nd Semester : 30 credits

UE	Contents	Credits	Hours
UE1	Maths for science 2 Taylor expansions - Differential equations - Vector spaces, linear applications, Matrices - Complex numbers	6	Lecture: 18 h Tutorials: 36 h
UE2	Chemistry 2 Solution, organic and thermochemistry - Conductimetry- pH and Redox titrations - 1 st and 2 nd laws of thermochemistry: Application to chemical reactions Chemical potential- Phase changes in pure substances Introductory organic chemistry - Electronic structure of organic compounds. Stereochemistry	6	Lecture: 27 h Tutorials: 32 h Laboratory class: 12 h
UE3	Physics Thermodynamics: 2 nd law and heat engines - Fluid mechanics: hydrostatics, hydrodynamics, viscosity- Kinetic momentum - Central forces: application to planet motions - Laboratory classes 2 : Fluids - Laboratory classes 3 : Rotations, stellarium, collisions	6	Lecture: 24 Tutorials: 32 Laboratory class: 21 h
UE4	Computer science Introduction to programming	4	Lecture: 12 h Practical class: 12 h
UE5	General French language	4	Tutorials: 48 h
UE6	Scientific French	4	Tutorials: 15 h