UCL Faculté des sciences

SC

MATH2391 Théorie des catégories (première partie)

[22.5h] 2.5 credits

This course is taught in the 2nd semester

Teacher(s): Francis Borceux, Enrico Vitale (coord.)
Language: french
Level: 2nd cycle course

Aims

In the courses of algebra, geometry and logic of the baccalaurean years we met different examples of universal constructions and adjoint functors.
At the beginning of the course, starting from these examples, we recognize a mathematical theory that will unify and express them in a clear and rigorous way: the theory of categories.
Then, we try to express and solve, using categorical methods, problems coming from algebra and geometry.
The last step is to push the solutions we found to their highest level of generality; in other words, we will try to recognize the categorical structure that comes into play in an essential way to solve tha particular problems.

Main themes

1. Examples of universal constructions: kernel, quotient group, tensor product, vector space and free affine space, etc.
2. The language of categories: categories, functors, natural transformations, limits and co-limits, adjoint functors, equivalence of categories.

Other credits in programs

MATH21/G	Première licence en sciences mathématiques (Général)	(2.5 credits)
MATH22/E	Deuxième licence en sciences mathématiques (Economie mathématique)	(2.5 credits)
MATH22/G	Deuxième licence en sciences mathématiques	(2.5 credits)
MATH22/S	Deuxième licence en sciences mathématiques (Statistique)	(2.5 credits)