UCL Faculté des sciences

SC

SC2510 Epistemology of the exact sciences

[22.5h] 2 credits

Teacher(s): Bernard Feltz, Michel Ghins
Language: french
Level: 2nd cycle course

Aims

To develop among future qualified teachers the ability to - describe different contemporary trends in the epistemology of science - outline the specific characteristics of the scientific approaches in use in the sciences and in different scientific disciplines - analyse science courses from the point of view of the scientific approaches adopted in them and of the image of the world that they promote

Main themes

The first part of the course offers an introduction to the epistemology of science in the context of training for secondary education. The mechanisms of acquiring knowledge most widely used in scientific disciplines are described and are situated within the development of scientific thought. The emphasis will be on the way in which these mechanisms have been transposed to the teaching of science. A distinction will be made between scientific discourse and ideological discourse and the possible ideological effects of a science course will be analysed. The relations between science and ethics will be examined.The second part will involve an introduction to the epistemology of different disciplines (biology, chemistry, geography, geology, mathematics, and physics) and attention will be drawn to their specific characteristics. The course will, for example, examine the development of scientific rigour, ideologies, forms of discourse, methods, and links with other disciplines.As well as lectures, the course will involve the analysis of science syllabi in secondary schools (both in Belgium and elsewhere), of school textbooks, and/or of course homework.

Other information (prerequisite, evaluation (assessment methods), course materials recommended readings, ...)

Obligatory course