



## PHYS2391 Elements of physical oceanography

[15h] 2.5 credits

This course is taught in the 1st semester

**Teacher(s):** Thierry Fichefet  
**Language:** French  
**Level:** Second cycle

### Aims

Physical oceanography is the branch of oceanography that includes the geometric description of oceanic basins, the study of physical and chemical properties of the marine environment and of its movements, the study of energy exchanges between ocean and atmosphere and of the geographical distribution the ocean properties and movement. The aim of this course is to introduce to this discipline that is becoming more and more important in modern climatology. It is a course of general interest and of research formation for students interested by geosciences.

### Main themes

Basic formation in physical oceanography : air-sea interactions and thermohaline structure of the World Ocean, large-scale oceanic dynamics, oceanic circulation (surface, deep sea, general).

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

Prerequisites: Physics of fluids (PHYS 1121), Dynamics of geophysical and environmental fluids (PHYS 2223).

Support used by the professor: overhead transparencies, graphic animation and TV emissions.

Organization: Lecture of 1h per week during the first quadrimester. The handwritten course notes will be available. A list of questions helping the study is given to students.

Main reference books:

Garrison, T., Oceanography, Wadsworth Pub. Company, Belmont, 540 pp., 1993.

Mellor, G.L., Introduction to physical oceanography, 260 pp., AIP Press, New York, 1996.

Pedlosky, J., Ocean circulation theory, Springer, Berlin, 453 pp., 1996.

Pond, S., and G. Pickard, Introductory dynamical oceanography, 329 pp., Pergamon Press, Oxford, 1983.

Evaluation: oral examination.

### Other credits in programs

<b>FSA3DA</b>	Diplôme d'études approfondies en sciences appliquées	(2.5 credits)
<b>MAP23</b>	Troisième année du programme conduisant au grade d'ingénieur civil en mathématiques appliquées	(2.5 credits)
<b>PHYS21/T</b>	Première licence en sciences physiques (Physique de la terre, de l'espace et du climat)	(2.5 credits)
<b>PHYS22/G</b>	Deuxième licence en sciences physiques	(2.5 credits)