



## CHIM2471 Nuclear chemistry

[22.5h+0h exercises] 2 credits

This course is taught in the 1st semester

**Teacher(s):** Jean Ladrière  
**Language:** French  
**Level:** Second cycle

### Aims

The course aims at giving an extended knowledge of the atomic nucleus, stable and unstable, in order to master the theoretical concepts related to, and the various applications of isotopes, radioactivity and nuclear reactions. This course is proposed to all students wanting to acquire or complete a basic formation in fields where radioactivity and ionizing radiations are used.

### Main themes

The course contains a description of fundamental physical properties of the atomic nucleus allowing an in-depth analysis of stability or of different modes of nuclear decays of the isotopes of all elements. It also describes the basic principles of nuclear reactions used to produce radioelements or nuclear energy. Finally, the use of tracers and the measurement of their radioactivity are applied in various fields (chemistry, biology, medicine, archaeology).

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

Prerequisites: candidature in sciences.

Evaluation: written examination.

Support: syllabus and overhead transparencies used by the teacher.

### Programmes in which this activity is taught

**ESP3DS/R** Diplôme d'études spécialisées en santé publique  
(radioprotection, experts pour établissements de classe 1)  
**RPR9CE** Certificat universitaire en radioprotection et en application des rayonnements ionisants

### Other credits in programs

<b>CHIM22</b>	Deuxième licence en sciences chimiques	
<b>ESP31DS/RC</b>	Première année du diplôme d'études spécialisées en santé publique (Contrôle physique en radioprotection)	Mandatory
<b>ESP31DS/RE</b>	Première année du diplôme d'études spécialisées en santé publique (Radioprotection de l'environnement)	Mandatory
<b>ESP31DS/RP</b>	Première année du diplôme d'études spécialisées en santé publique (Physique d'hôpital)	Mandatory
<b>INCH22</b>	Deuxième année du programme conduisant au grade d'ingénieur civil chimiste	(2 credits)
<b>RPR9CE/C</b>	Certificat universitaire en radioprotection et en application des rayonnements ionisants (Contrôle physique en radioprotection)	Mandatory
<b>RPR9CE/R</b>	Certificat universitaire en radioprotection et en application des rayonnements ionisants (Radiopharmacie)	Mandatory