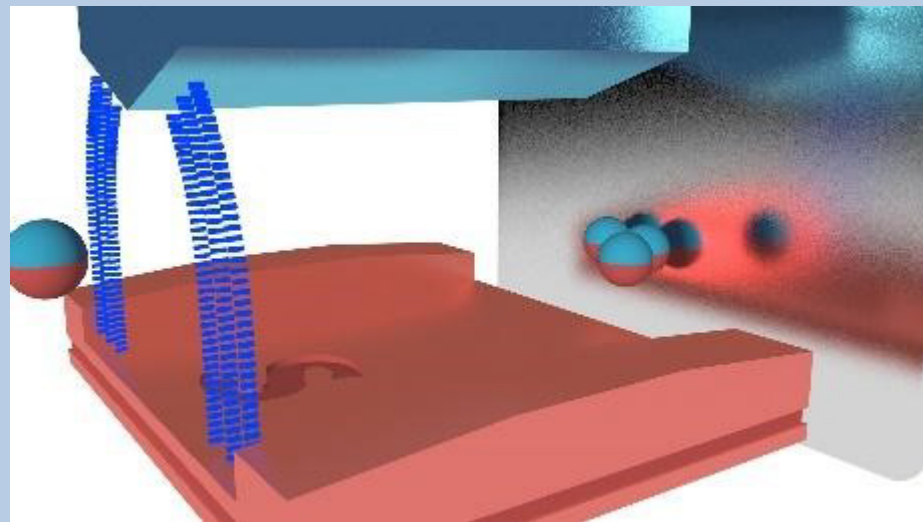




Sorbonne Université		Introduction to Quantum Mechanics (3P001)			
Course description	This course lays the foundations of quantum mechanics, from wave function to quantum gates.				
Domain	Physic				
Keywords	Schrodinger equation	Spin 1/2	2 level system	Quantum information	
Prerequisites	Linear algebra, wave equation, basic knowledge on Fourier analysis is a plus.				
Level	Bachelor (3rd year)				
Language	French with english subtitles				
Number of credits and workload	6 credits	8 hrs per week		64 hrs in total	
Semester period and Start date course	Semester 1	Start date: 3-Sep-18 Or indicate a period.			
Application deadline	3-Sep-18				
Full course description	After introducing the historical perspectives on quantum mechanics, we will introduce the Schrodinger formalism to describe fascinating phenomenon such as tunnel effect, one particle duality and quantum wells. In the second part we will review the Dirac formalism and the postulates of quantum. Applying this formalism to two-level system and quantum harmonic oscillator, we will study Rabi oscillations and opto-mechanics. Finally we will introduce the spin and Bloch sphere for application in MRI and quantum computing (Bell inequalities).				
Platform and link to course description	Moodle Sciences	https://moodle-sciences.upmc.fr			
Course description in study guide	http://www.licence.physique.upmc.fr/fr/nos_cursus_en_l3/les-ue-du-niveau-3.html				
Lecturer(s)	Samuel Deleglise, Quentin Glorieux, Thibaut Jacqmin, Emily Lamour				
Extra Course information	Information relevant for selection process or for students				

European Virtual Exchange

Picture of course



Final examination date and time /period	Examination date	Examination time	7-12 January 2019
		UTC + or -	
Examination registration deadline or drop-out deadline	Examination registration before If applicable, enter examination registration date. NO Drop- out deadline If applicable, enter last drop-out date. NO		
Type of examination	Written		
Midterm examination?	<input checked="" type="checkbox"/> yes <input checked="" type="checkbox"/> no	Additional information on midterm exam	
Previous exam papers available	<input checked="" type="checkbox"/> yes <input type="checkbox"/> no in french		
Specific rules for examinations	Give details if particular rules apply like no use of calculator, watches etc		
Resit? and date	<input checked="" type="checkbox"/> yes <input type="checkbox"/> no	Enter resit date. 11-17 June	
Grade release and transcript release	February	Transcript release date if more than 1 week after grade release.	

Available places 60 equally distributed to the partners		
	Interested	10 places per university
UC Louvain	<input type="checkbox"/> yes	Click or tap here to enter number
EPFL	<input type="checkbox"/> yes	Click or tap here to enter number
UC3M	<input type="checkbox"/> yes	Click or tap here to enter number
Leiden	<input type="checkbox"/> yes	Click or tap here to enter number
Wageningen	<input type="checkbox"/> yes	Click or tap here to enter number
TU Delft	<input type="checkbox"/> yes	Click or tap here to enter number

General information Sorbonne Université	
Date start academic year:	3-Sep-18
Semester periods:	1st from 3-Sep-18 to 21-Dec-18 Additional information on semester 1 2nd from 21-Jan-19 to 11-May-19 Additional information on semester 2
Application deadline semester 1:	3-Sep-18 or enter text
Application deadline semester 2:	21-Jan-19 or enter text
Holiday periods:	27.10.2018 to 04.11.2018 22.12.2018 to 06.01.2018 20.04.2019 to 05.05.2018
Student data required for application:	First and last name, email address, study level, home university
General web site	https://www.sorbonne-universite.fr/
Virtual Exchange web site	http://www.telesciences.upmc.fr/fr/european-virtual-exchange.html
Virtual Exchange contact person(s) operational	Sabine Bottin-Rousseau
Virtual Exchange Email address	bottin@insp.jussieu.fr
List of courses available per semester	<u>1st semester:</u> Introduction à la mécanique (BA1) Calculus (BA1) Si on parlait sciences (BA1) Thermodynamics (BA3) Introduction to Quantum Mechanics (BA3) Concurrent Programming (Bachelor3) Bases of functional analysis 1and2 (Master1) Programming on mobile platform IOS (Master2) <u>2nd semester:</u> Calcul matriciel (BA1) Systèmes mécaniques et systèmes électroniques (BA1)