

# Virtual Exchange Global Alliance



EPFL		Plasma Physics (PHYS-445)	
<b>Course description</b>	The goal of the course is to provide the physics and technology basis for controlled fusion research, from the main elements of plasma physics to the reactor concepts.		
<b>Domain</b>	basic sciences		
<b>Prerequisites</b>	undergraduate math at the level of electrical engineering or physics majors undergraduate physics.		
<b>Level</b>	Master		
<b>Number of credits and workload</b>	4 credits	4 hrs per week	56 hrs in total
<b>Semester period and Start date course</b>	Semester 1	Start date: 19 Sept	
<b>Application deadline</b>	29-Sep-18		
<b>Full course description</b>	<p>Plasma, the fourth state of matter, is by far the most abundant form of known matter in the universe. Its behavior is very different from the other states of matter we are usually familiar with. To understand it, a rigorous formalism is required. This is essential not only to explain important astrophysical phenomena, but also to optimize many industrial and medical applications and for achieving fusion energy on Earth.</p> <p>This physics course, taught by world-renowned experts of the field, gives you the opportunity to acquire a basic knowledge of plasma physics. A rigorous introduction to the plasma state will be followed by a description of the models, from single particle, to kinetic and fluid, which can be applied to study its dynamics. You will learn about the waves that can exist in a plasma and how to mathematically describe them, how a plasma can be controlled by magnetic fields, and how its complex and fascinating behavior is simulated using today's most powerful supercomputers.</p>		

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Platform and link to course description	edX	<a href="https://www.edx.org/course/plasma-physics-introduction">https://www.edx.org/course/plasma-physics-introduction</a>
Course description in study guide	<a href="#">MA</a>	
Lecturer(s)	Ambrogio Fasoli	
Extra Course information	This course is the first of two courses introducing plasma physics and its applications. After completing this course, you will have the prerequisites to enjoy Plasma Physics: Applications, which deals with plasma applications in astrophysics, industry, medicine, nuclear fusion and laser-plasma interaction.	
Final examination date and time /period	TBA	
Examination registration deadline or drop-out deadline	Examination registration before: 24-Nov-18 Drop- out deadline 24-Nov-18 Same as exam registration deadline	
Type of examination	Oral	
Midterm examination?	<input type="checkbox"/> yes <input checked="" type="checkbox"/> no	
Previous exam papers available	<input type="checkbox"/> yes <input checked="" type="checkbox"/> no	
Specific rules for examinations	Video conference is necessary	
Resit? and date	<input type="checkbox"/> yes <input checked="" type="checkbox"/> no	
Grade release and transcript release	TBA	