

# PhD course: Calculus of variations, isoperimetric inequalities, and eigenvalue problems (20 hrs, 4 CFR)

Lecturer: Marcello Lucia, Professor at the City University of New York

Location: Palazzo delle Scienze, via Ospedale 72, Cagliari

Room E, intermediate floor (mezzanine).

Summary. Calculus of Variations is a fundamental branch of Mathematical Analysis which has been deeply developed since its foundation. Born in connection with problems from Mathematical Physics, it is an extremely actual field of research due the theoretical defies it poses to the intellect as well as to its wide range of applications.

Subject: variational methods (including minimization of variational integrals and critical points theory) for solving partial elliptic equations of elliptic type, with applications to isoperimetric inequalities and eigenvalue problems.

The course is structured in 10 lectures of two hours each, and should be accessible with minimal prerequisites, i.e., a convenient number of the lectures is devoted to build up the necessary knowledge for a fruitful attendance of the subsequent ones.

WEEK 1			WEEK 3		
Lecture no.	Date	Hour	Lecture no.	Date	Hour
1	Monday, May 28 <sup>th</sup>	11:15 – 13:00	8	Monday, June 11 <sup>th</sup>	09:15 – 11:00
2	Tuesday, May 29 <sup>th</sup>	11:15 – 13:00	9	Tuesday, June 12 <sup>th</sup>	09:15 – 11:00
3	Thursday, May 31 <sup>st</sup>	09:15 – 11:00	10	Wednesday, June 13 <sup>th</sup>	09:15 – 11:00
	Friday, June 1 <sup>st</sup> :	INdAM Day			
WEEK 2					
Lecture no.	Date	Hour			
4	Monday, June 4 <sup>th</sup>	09:15 – 11:00			
5	Tuesday, June 5 <sup>th</sup>	09:15 – 11:00			
6	Thursday, June 7 <sup>th</sup>	09:15 – 11:00			
7	Friday, June 8 <sup>th</sup>	09:15 – 11:00			

