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The most natural settings for many optimal controls are on metric spaces. This motivates the search of a Lagrange multiplier rule for constrained optimization problems on metric spaces. In this talk we present a multiplier rule for such optimization problems. The statement of the rule involves a new notion of derivative for maps on metric spaces. As a direct application, we give a unified proof for maximum principle of optimal controls with general state constraints (isoperimetric and pointwise). Other applications and prospects of the result will be discussed. (Received August 30, 2006)