

Check out the basics of Lagrange multipliers at the corresponding [Wikipedia page](#).

The important things are

1. We can solve a constrained optimization problem of the form $\min_x f(x), s.t. g(x) = 0$ where $g(x)$ is an equality constraint.
2. The constraints can be absorbed into a single objective function, the Lagrangian, which combines the original loss function and the constraints as $L(x, \lambda) = f(x) - \lambda g(x)$. λ is called a Lagrange multiplier.
3. We solve the constrained optimization problem by computing the partial derivatives $\partial L / \partial x$ and $\partial L / \partial \lambda$, setting them to 0 and solving for λ and x .

Lagrange multipliers are covered in more detail in the *Mathematics for Machine Learning: Linear Algebra* course in this specialisation. For a referresher, see [this quiz](#).