

Gaussian Beams (classes 10-15)

After taking this course, students will be able to:

- understand and be able to explain the various amplitude and phase components of a Gaussian beam in a physical, graphical , and mathematical sense
- describe and predict the behavior of a Gaussian beam as it propagates in free space and through lenses and other optical components
- understand the significance of the “q” parameter and how characterizing the Gaussian beam with it allows easy book-keeping of the beam parameters
- use ABCD matrices to evaluate how lens, mirrors, dielectric interfaces change Gaussian beams.
- calculate and visualize higher order Gaussian Beams
- appreciate how well Gaussian beams can model laser beam propagation
- analyze various interferometer configurations and determine what these devices can measure.

