

- The capacity of the white Gaussian channel bandlimited to  $[0, W]$  is

$$W \log \left( 1 + \frac{P}{N_0 W} \right) \quad \text{bits per unit time.}$$

- For the white Gaussian channel bandlimited to  $[f_l, f_h]$ , where  $f_l$  is a multiple of  $W = f_h - f_l$ , apply the [bandpass version of the sampling theorem](#) to obtain the same capacity formula.
- This model is called the [bandpass white Gaussian channel](#).
- When  $f_l = 0$ , the bandpass white Gaussian channel reduces to the bandlimited white Gaussian channel.