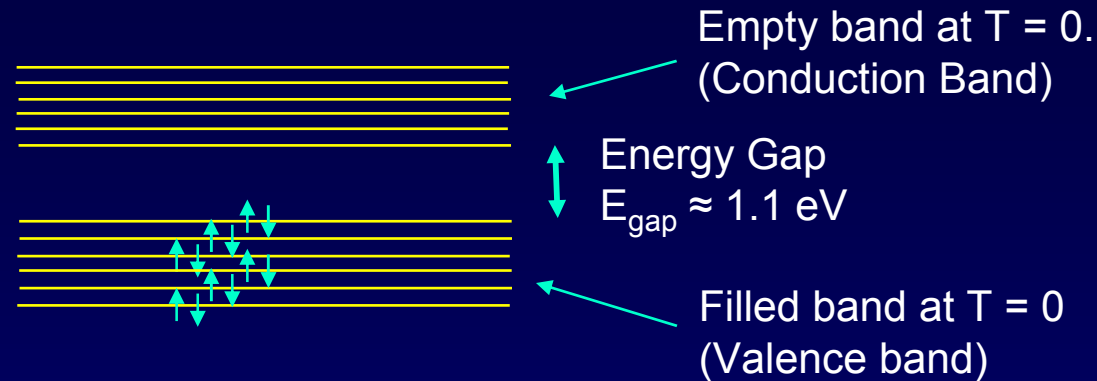
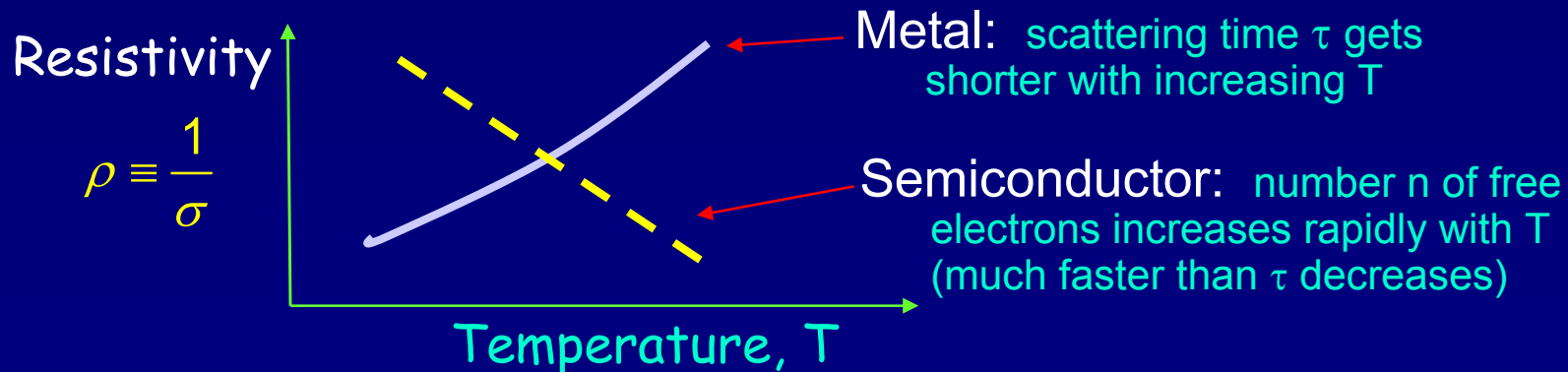


Semiconductors



The electrons in a filled band cannot contribute to conduction, because with reasonable E fields they cannot be promoted to a higher kinetic energy. Therefore, at $T = 0$, pure semiconductors are actually insulators.

At higher temperatures, however, some electrons can be thermally promoted into the conduction band.



This graph only shows trends. A semiconductor has much higher resistance than a metal.