The visible spectrum of AuO has been recorded in the 16700 - 18700 cm⁻¹ region using Intracavity Laser Spectroscopy (ILS). The gas phase AuO molecules were produced using a gold-lined hollow cathode in a helium-based electric discharge with 5-8% oxygen. Numerous bands were observed in the spectrum. We have identified 5 bands with a similar branch structure and regular spacing as being part of a vibrational progression of a new electronic transition which we have identified as the b ¹Π₃/₂ – X ²Π₃/₂ transition. Results of the analysis will be presented.