

## CHAPTER OVERVIEW

### 4: State Functions in Thermodynamics

- 4.1: Free Energy Functions
- 4.2:  $\Delta A$ ,  $\Delta G$ , and Maximum Work
- 4.3: Gibbs Energy Determines the Direction of Spontaneity at Constant Pressure and Temperature
- 4.4: The Maxwell Relations
- 4.5: Volume Dependence of Helmholtz Energy
- 4.6: Pressure Dependence of Gibbs Energy
- 4.7: Temperature Dependence of A and G
- 4.8: The Enthalpy of an Ideal Gas is Independent of Pressure
- 4.9: When Two Variables Change at Once

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