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Building Option Pricing Models

1. **Basic Notions**
   - Definition and Terms
   - Positions
   - Determinants

2. **Types of Options and Payoffs**
   - Plain Vanilla
   - Exotic
     - First generation
     - Second generation

3. **Cash Flow Valuation**
   - AD pricing
   - Adjusted rate
   - Adjusted expectation

4. **Fundamental Theories, Derivative Pricing, and Solutions**

5. **Underlying Process**
   - Statistical Properties

6. **Important Concepts – Terminology (1)**
   - Filtration
   - Adopted process
   - Martingales
   - Conditional expectation

7. **Expanding Wiener Process**
   - Generalized Wiener Process
   - Generalized Price Process
   - Interpretation of the Rates
   - Itô Process
   - ABM and Characteristics
   - Ornstein-Uhlenbeck Process
   - GBM and characteristics
   - Other Dynamics
     - Local Volatility (Dupire model)
     - Stochastic Volatility (Heston, GARCH, and SABR models)
     - Jump Diffusion (Merton Jump model)

8. **Noise Distributions**
   - HEX
   - Cauchy
   - Shifted Log Normal
   - Inverse Log Normal

9. **Important Concepts – Terminology (2)**
   - Stochastic Calculus
   - Taylor Expansion
   - Itô's Lemma

10. **Application: CSO**