Section I: Chart Development and Analysis

1. Charts - Understanding Data Intervals
   - Employ a sequence of multiple data intervals to identify trends
   - Compare the typical construction of weekly and monthly interval charts
   - Review challenges related to consistent data sampling using time-based intraday intervals
   - Interpret general trend relationships in charts with multiple price-data sets
   - Interpret the significance of the data points in a scatter plot

2. Additional Charting Methods
   - Describe the construction of the types of charts in this chapter
   - Compare the axes and intervals of these charts
   - Analyze trends and price action using these charts
   - Demonstrate how point-and-figure charts help minimize “noise”
   - Distinguish between charts with defined and undefined x-axes
   - State the basic principles behind Market Profile

3. Moving Averages
   - Contrast various types of moving averages used in trend analysis
   - Illustrate four ways moving averages are used by technicians
   - Analyze trend movement using Directional Movement Indicators
   - Compare common envelope, channel and band indicators

4. Time-Based Trend Calculations
   - Examine methods for forecasting price direction
   - Calculate a simple approach to momentum
   - Inventory various weighting methods for moving averages
   - Explain the drop-off effect and its impact on technical indicators
5. Trend Systems Part 1

- Explain three reasons why trend systems work
- Demonstrate appropriate asset selections based on trend and forecast
- Diagram how buy and sell signals are used with indicators and tools for measuring trend, such as: Moving Averages, Bollinger Bands, Keltner Channels, Percentage Bands, Volatility Bands, and combinations of bands and other indicators
- Illustrate use of the 10-day moving average rule in a trading system

6. Trend Systems Part 2

- Analyze how a trader or investor would go about selecting the right moving average, trend method, and speed
- Compare the role of each moving average in a two-trend or three-trend method of trading
- Contrast two general rules for generating an exit signal when using moving averages, and explain which one of the two is considered better than the other
- Describe the “Golden Cross” and the “Death Cross”

7. Momentum and Oscillators

- Differentiate between momentum and rate of change studies in technical analysis
- Distinguish among various calculations of momentum
- Demonstrate use of momentum for trend indication and associated signals
- Demonstrate use of momentum for finding price extremes and associated signals
- Illustrate the use of MACD to generate trading signals
- Compare various oscillators and their trading signals including RSI, stochastics and TRIX

8. Price Trends and Volume

- Describe the four phases of price-volume trends
- Interpret volume in the context of price trends
- Interpret price and volume to identify the current phase
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Section I: Chart Development and Analysis

9. Volume and Breadth

Compare various volume indicators such as On-Balance Volume, Accumulation Distribution and VWAP
Analyze changes in breadth in the context of price trends
Interpret breadth indicators such as the McClellan Oscillator
Interpret indicators that combine breadth with volume such as Arms Index and Thrust Oscillator
Examine approaches to incorporating volume and breadth into systematic methods

10. Bar Chart Patterns

Critique the controversy over whether tradeable patterns exist in technical analysis
Discuss the influence that computer technology has had on the study of patterns
Diagram classic chart patterns such as triangles, and double and triple tops and bottoms
Draw rounding chart patterns such as head-and-shoulders
Illustrate “half-mast” chart patterns such as flags and pennants
Demonstrate methods for determining price objectives from patterns

11. Short Term Patterns

Analyze reversals in longer-term trends using short-term price patterns
Interpret the significance of various types of gaps that occur on price charts
Compare and analyze wide-range and narrow-range bars and their implications for volatility
Diagram one and two-bar reversal patterns
Draw common candlestick patterns and analyze their significance within a trend

12. Single Candle Lines

Interpret market psychology from candle shapes
Diagram and interpret notable individual candles: hammer, hanging man, doji and others in this chapter
Demonstrate the importance of such candles in the context of trends
Differentiate between the buying and selling activity represented by real bodies and shadows in these candles
13. Multi-Candle Patterns
Diagram and interpret notable patterns formed by multiple candles: engulfing, stars, windows and others in this chapter
Demonstrate the importance of the prevailing trend when interpreting candle patterns
Differentiate between the buying and selling activity represented by real bodies and shadows in these candle patterns
Interpret candle patterns for support and resistance

14. Candle Pattern Forecasting and Trading Techniques
Analyze candle patterns on charts for indications of trend reversal and continuation
Interpret candle patterns for support and resistance indications and confirmation
Illustrate how to combine Western chart analysis with candles
Employ candlestick analysis for risk management
Demonstrate using candles in multiple time frames

15. Concepts in Cycle Theory
Illustrate the causes of the “mid-cycle dip” and “3/4 cycle high”
Analyze the implications of an inversion
Examine the cyclical explanation for rounded tops and “V-bottoms”
Interpret the implications of left and right translation
Calculate a centered moving average (CMA) envelope
Demonstrate the use of a valid trend line (VTL)

16. Applied Cycle Analysis
Diagram the steps to a comprehensive cycle analysis
Differentiate tools that find cycles from tools that phase cycles
Illustrate how to identify a dominant cycle with a spectrogram
Compare the phasing of smaller harmonics to larger harmonics
17. Options

- Explain the purpose of options markets
- List the major terms of an option contract
- Describe “the Greeks”
- Define implied volatility

18. Understanding Implied Volatility

- Contrast historical and implied volatility when used in price analysis and forecasting
- Interpret implied volatility as the market’s estimate of possible future asset prices
- Calculate single-day implied volatility
- List the inputs to an option pricing model

19. About the VIX Index

- Explain how the VIX is impacted by put-call parity and options supply
- Interpret VIX as an indication of market sentiment
- Interpret changes in VIX as part of a market forecast
- Calculate expected 30-day movement of an index or a stock
20. Prospect Theory

- Compare utility theory and prospect theory
- Describe loss aversion
- Describe the single greatest limitation of prospect theory

21. Perception Biases

- Describe each of the four perception biases covered in this chapter
- Illustrate how each of these biases might affect investor behavior

22. Inertial Effects

- Describe each of the three inertial effects covered in this chapter
- Illustrate how each of these might affect investor behavior

23. Analyzing Sentiment in the Stock Market

- Analyze the impact of insider activity on a security's price action
- Compare insider buying vs insider selling
- Analyze short interest and the short interest ratio
- Interpret sentiment as drawn from surveys of investors and professionals

24. Analyzing Sentiment in Derivatives Markets

- Interpret changes in futures open interest in the context of price action
- Analyze the Commitments of Traders report
- Employ options put/call ratios as sentiment indicators
- Interpret volatility data drawn from the options market
25. Inferential Statistics

- Compare descriptive and inferential statistics
- Demonstrate the use of hypothesis testing to frame statistical tests
- Explain confidence intervals, statistical significance and the base rate fallacy
- Compare coefficients of correlation and determination
- Differentiate between correlation and causation
- Examine the use of regression analysis in technical studies

26. Correlation

- Compare Pearson's and Spearman's methods
- Describe the importance of linearity and normality to useful correlation studies
- Analyze the effect of outliers on a regression study

27. Regression

- Interpret values generated by regression, multiple regression and tolerance calculations
- Demonstrate the process of selecting meaningful predictor variables for multiple regression studies

28. Regression Analysis

- Analyze the concept behind the ARIMA method
- Describe the ARIMA process
- Employ the results of the ARIMA forecast to generate trading signals
- Demonstrate use of linear regression to generate trading signals
- Illustrate the use of linear regression for relative strength studies
29. Selection of Markets and Issues
- Differentiate between buy-and-hold, position, swing and day trading and the use of technical analysis in each
- Compare significant factors in trading stocks versus futures
- Distinguish between bottom-up and top-down approaches
- Contrast secular and cyclical emphasis
- Explain the basic concepts of intermarket analysis
- Explain the principles behind relative strength analysis
- Compare four methods for calculating relative strength

30. Intermarket Analysis
- Interpret the rotation of stocks, bonds and commodities in the typical business cycle
- Describe methods of determining intermarket relationships
- Illustrate the importance of measuring correlation for portfolio diversification and asset selection

31. Relative Strength Strategies for Investing
- Illustrate a general approach to a momentum strategy using relative strength
- Analyze the use of hedging and non-correlated assets in a long-only relative strength model

32. A Stock Market Model
- Define an environmental model
- Contrast internal and external indicators
- Sketch the basic components of Davis’ Fab Five model

33. A Simple Model For Bonds
- Categorize each of the four indicators in Zweig’s original model as internal or external
- Categorize the additional indicator in the modified version as internal or external, trend following or mean reversion

34. Perspectives on Active and Passive Money Management
- Differentiate between alpha and beta
- Compare the Efficient Market Hypothesis with general concepts in behavioral finance and with the Adaptive Markets Hypothesis
35. The Statistics of Backtesting

- Analyze the statistical challenges faced when backtesting
- Appraise four important statistical features of time-series price data
- Illustrate why log returns are often used in backtesting
- Analyze three statistical concerns in backtesting
- Differentiate between signal testing and backtesting

36. The Scientific Method and Technical Analysis

- Examine the possibilities and challenges of applying the scientific method to traditional technical analysis
- Analyze the three forms of the EMH as to their information content
- Explain “null hypothesis” as used in the scientific method
- State the five stages of the hypothetico-deductive method
- Critique the three consequences, articulated in this chapter, of adopting the scientific method in technical analysis

37. Theories of Nonrandom Price Motion

- Analyze why the existence of nonrandom price motion is a premise of technical analysis
- Describe an “efficient market”
- Analyze behavioral finance as a theory of nonrandom price motion
- Illustrate the two foundations of behavioral finance
- Interpret feedback loops in price action

38. Case Study of Rule Data Mining for the S&P 500

- Examine data mining and data-mining bias in testing trading rules
- Define and examine data-snooping bias in testing trading rules

39. System Design and Testing

- Differentiate between discretionary and nondiscretionary systems
- Illustrate the advantages and disadvantages of nondiscretionary trading systems
- Inventory the five initial decisions for constructing a trading system per the authors of this chapter
- Distinguish between four types of technical trading systems
- Compare various metrics for evaluating trading systems such as profit factor, percent profitable and average trade net profit
- Differentiate between methods of optimization
- Define “robustness” as it applies to trading systems
- Examine risk-adjusted performance metrics such as Sharpe, Sterling and Sortino ratios