

## **The structure of the course *Hold'em Poker Mathematics***

### **Module 1 – Basic mathematical notions (8 lessons)**

- Lesson 1. Sets and operations with sets. Combinations
  - Lesson 2. Combinatorial calculus specific to the poker game. Partitioning combinations
  - Lesson 3. Events, field of events. Simple and complex events from poker.
  - Lesson 4. Probability on a finite field of events. The probability fields from poker
  - Lesson 5. Probability as a limit and as a measure. Interpretations of probability
  - Lesson 6. Basic properties of probability. Probabilities and odds
  - Lesson 7. The inclusion-exclusion principle
  - Lesson 8. Recap exercises and problems
- Knowledge evaluation test

### **Module 2 – Probability calculus of simple events of Hold'em Poker (9 lessons)**

- Lesson 9. Starting hands probabilities. Immediate probabilities
  - Lesson 10. The own hand probabilities in the flop stage
  - Lesson 11. The own hand probabilities in the turn stage
  - Lesson 12. The opponents' hands probabilities in the river stage
  - Lesson 13. Probability formulas with variables. Exporting them to Excel
  - Lesson 14. The opponents' hands probabilities in the turn stage
  - Lesson 15. The opponents' hands probabilities in the flop stage
  - Lesson 16. External resources with precalculated results. Using the tables.
  - Lesson 17. Recap exercises and problems
- Knowledge evaluation test

### **Module 3 – Methods of estimating and weighting the probabilities of complex events of Hold'em Poker (5 lessons)**

- Lesson 18. Selecting the relevant information. Selecting dominant probabilities. Selecting types of card formations
- Lesson 19. Reducing the calculation formulas. The permission of summing the partial probabilities
- Lesson 20. Approximating the probability of an union through the inclusion-exclusion principle
- Lesson 21. Probability-based analyses of concrete Hold'em hands
- Lesson 22. Recap exercises and problems

### **Module 4 – Hand evaluation and the implementation of the mathematical results in a strategy (6 lessons)**

- Lesson 23. The strength of a hand. Numerical indicators for evaluation
  - Lesson 24. Software programs and their use
  - Lesson 25. Numerical indicators specific to Hold'em bets. Pot Odds. Implied Odds. Pot equity.
  - Lesson 26. Expected value (EV)
  - Lesson 27. The strategic criteria. The relativity of the strategy.
  - Lesson 28. Recap exercises and problems
- Knowledge evaluation test

### **Rules, terms, and conditions**

- The lessons are delivered on a biweekly basis, usually Tuesday and Friday.
- The question-answer sessions take place following each lesson, having as their subject the previous lesson. All questions (maximum 5) should be sent together in one message, having in the subject line your name and the number of the lesson to which they apply (example: "John Smith – lesson 3"). The questions should concern issues of understanding and unclear points from the previous lesson, with no requests for calculations or solutions to problems. Students will receive answers to their questions in email before the next lesson; the answers cannot stand as a basis for new questions.

- The knowledge evaluation tests can be completed and sent by the student at any time: tests will be corrected and returned no more than 3 days from receiving them. It is recommended that each test be completed and returned prior to the next lesson.
  - Course fees should be paid in advance, in full or in part. A partial payment must cover at least one module and is not refundable. If payment for several modules was made and the student decides to withdraw from the course, the student will be refunded only the amount corresponding to the modules not yet started. A student may, however, temporarily suspend participation and resume at a later date.
  - The organizers of the course may change – as they consider necessary – the order of the lessons or their names, as well as their delivery dates. Deviations from the delivery timeframe are possible, depending on the undetermined working volume of the interactive sessions (answering questions and test corrections); however, such a delay will not exceed 3 days for a lesson.
  - The course will have a 2-week break in the summer time; participants will receive prior notice of the dates for the break.
  - The delivered lessons and the evaluation tests hold the copyright of their authors. Copying, distributing, or posting them on the internet are not allowed. Any such attempt will be subject to legal action against the copyright infringer.
- Submission of the registration form constitutes awareness and acceptance of these terms and conditions.

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