Poker Theory and Analytics Syllabus

Course Description

The purpose of this course is to apply probability and statistical models to optimize strategy in the game of No Limit Texas Hold'em. First we will introduce the basics of poker and fundamental strategies and explore the statistical foundations that govern the game. Then we will expand upon this initial framework and study concepts such as range analysis, exploitative playstyles, and frequencies as they relate to optimal strategy. Finally we will conclude the course with a discussion and application of tournament play.

Course Details

Prerequisites: None

Credits: 1

Seats: 20

Lecture Time: TBD

Location: TBD

Semester: Fall 2019

Textbook: Notes will be provided by the facilitator

Course Facilitator: John Horine

Faculty Advisor: Dr. Wiseley Wong

Contact Information

Course Facilitator: John Horine – jhorine@umd.edu

Faculty Advisor: Dr. Wiseley Wong – wwong123@math.umd.edu

Goals of the Course

- Create an environment for study of poker theory without the need for real-money wagering.
- Develop the basic foundation for decision-making in poker.
- Allow students to assess their own level of play and have a framework for improvement.
- Provide an understanding of the current poker environment and how students might leverage talent for poker in the future.

Schedule			
Lecture	**General Topic**	**Specific Topics**	**Activities**
1	Syllabus and Poker Basics	hand hierarchy, statistical basis, available actions	Introduction lecture
2	Basic Strategy and vocabulary	positions, pot odds, implied odds, equity, ranges	Basic strategy lecture, quiz 1, play
3	Preflop Analysis	general preflop strategy based on position	Preflop Analysis lecture, quiz 2, play
4	Range analysis	range analysis software, combinatorics	Range analysis lecture, quiz 3, play
5	Advanced strategy	playing against different playstyles, blockers	Advanced strategy lecture, quiz 4, play
6	Adjustments for table dynamic	Common player types, playstyle exploitations	Adjustments lecture, quiz 5, play
7	MIDTERM exam	N/A	MIDTERM exam
8	Buckets and board texture	betting frequencies, how events change strategy	Buckets and board texture lecture, quiz 6, play
9	bankroll management and psychology	Responsible bankroll management, poker "tilt"	bankroll management lecture , quiz 7, play
10	Tournament play	turbos and Multitable Tournaments (MTTs), ICM implications	Tournament play lecture, quiz 8, play
11	Day 1 in class MTT	N/A	Day 1 in class MTT, quiz 9, play
12	Day 2 in class MTT	N/A	Day 2 in class MTT
13	Day 3 in class MTT	N/A	Day 3 in class MTT
14	Review Session	N/A	Review Session
15	FINAL Exam	N/A	FINAL Exam

Grading

- Participation- 40%
- Quizzes- 20%
- Midterm- 20%
- Final- 20%

Policy on Collaborations and Academic Integrity

You may interact with fellow students when preparing your homework solutions. However, you must write up solutions on your own. Duplicating a solution that someone else has written or providing solutions to be copied is not acceptable. If you do collaborate on homework, you

must cite, in your written solution, your collaborators. If you use sources beyond the course materials in one of your solutions, you must also cite such sources.

About the Facilitator

John Horine is a senior biochemistry major with a talent and passion for statistics and game theory, specifically No Limit Texas Hold'em. He is the Vice President of the Maryland Poker Society at UMD and has been playing poker for 3 years. This course is designed to teach students the mathematical and statistical basis of poker and give students a fun way to apply probability.

Disability Support Accommodations

See the section titled "Accessibility" available at Course Related Policies via http://www.ugst.umd.edu/courserelatedpolicies.html

Academic Integrity

Cases of academic dishonesty will be pursued to the fullest extent possible as stipulated by the Office of Student Conduct. Note that academic dishonesty includes cheating, fabrication, and plagiarism, but also includes helping other students commit acts of academic dishonesty by allowing them to obtain copies of your work. It is very important for you to be aware of the consequences of cheating, fabrication, facilitation, and plagiarism. Learn more about the Code of Academic Integrity and the Student Honor Council via http://www.shc.umd.edu

Excused Absence and Academic Accommodations

See the section titled "Attendance, Absences, or Missed Assignments" available at Course Related Policies. Available at http://www.ugst.umd.edu/courserelatedpolicies.html

Course Evaluations

As this course is brand new, we welcome any suggestions to improve the course both throughout the semester and after it is done. Throughout the semester feel free to contact the course instructor or the faculty advisor at any point to discuss possible suggestions or changes. At the end of the course, please go to https://courseevalum.umd.edu/ to fill out the course evaluation, as the feedback is essential for the improvement of the course.