

UNDERWRITING LAS VEGAS

Success in underwriting requires:

- A deep understanding of the nature of risk, probability, and uncertainty
- The self-awareness to know when your instinct could be steering you wrong
- The discipline to know when and where to go for it, and when and where to pass
- Luck! (Especially in the short term)



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UNDERWRITING LAS VEGAS

- Introduction — why “the house always wins” is a half-truth
- The gambler’s fallacy at the roulette table
- Complexity and simplicity at the craps table
- Omission bias at the blackjack table
- Risk selection at the sports Book
- Hands-on training — let’s play!

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INTRODUCTION

House Edge

- = average amount kept by the casino ÷ amount bet
- = 100% - (average winnings paid ÷ amount bet)



INTRODUCTION

House Edge

- = average amount kept by the casino ÷ amount bet
- = 100% - (average winnings paid ÷ amount bet)

Look familiar???



INTRODUCTION

- Example — calculating House Edge for a \$10 roulette bet on “red”

OUTCOME	PROBABILITY	CASINO PAYS	CASINO KEEPS
Red (win)	18/38 = 47.4%	\$20	
Black (lose)	18/38 = 47.4%	\$0	
Green (lose)	2/38 = 5.3%	\$0	
Average		\$9.47	\$10 - \$9.47 = \$0.53

- House Edge = $\$0.53 \div \$10 = 5.3\%$
- Casino keeps an average of \$0.53 per \$10 bet



DOES THE HOUSE ALWAYS WIN?

The “average” or “expected” result
 + / -
 Randomness (“good luck” OR “bad luck”)
 =
The Actual Result



DOES THE HOUSE ALWAYS WIN?

Example – \$10 roulette bet on “Red”

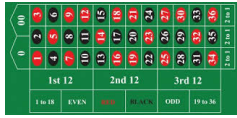
	# OF REPEATED BETS	PROBABILITY OF A NET WIN
More impacted by randomness / luck	1	47.4%
	5	45.1%
“The law of large numbers”	11	42.9%
	51	35.3%
	101	29.8%
	501	11.9%
	1,001	4.8%
	5,001	0.01%
Less impacted by randomness / luck	10,001	0.000007%





ROULETTE

- **Rules:** Just pick where you think the ball will land!
 - Can pick individual numbers, red/black, even/odd, etc.



- **Strategies:** None

- **House Edge:** 5.3% on ALL bets



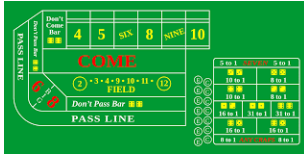
ROULETTE





CRAPS

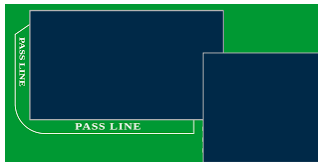
Craps is Complicated!



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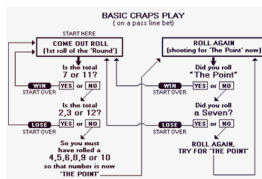
CRAPS

Craps is Simple!



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CRAPS PASS LINE BET



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CRAPS ODDS BET

IF "THE POINT" IS...	MAX ODDS BET	WIN PROBABILITY	ODDS BET PAYS	HOUSE EDGE
4 or 10	3 x Pass Line Bet	1 / 3	2 to 1	0%
5 or 9	4 x Pass Line Bet	2 / 5	3 to 2	0%
6 or 8	5 x Pass Line Bet	5 / 11	6 to 5	0%

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CRAPS STRATEGY

Bet small on the PASS LINE and bet the maximum on the ODDS BET!
House edge: 0.4%

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BLACKJACK

- Goal: Get to a higher total than the dealer, without going over 21
- Your options:
 - Hit
 - Stand
 - Double down (on your first 2 cards only)
 - Split (on your first 2 cards only)
- Dealer hits on 16 or lower, and on "soft" 17 (a hand that can be 7 or 17)
- You play first, so if you "bust" then you lose
- All face cards are worth 10
- Aces can be used as 1 OR 11
- "Blackjack" – first 2 cards equal 21, this beats any other 21 and pays 3 to 2

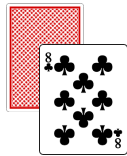


BLACKJACK

Your cards



Dealer's cards



If you hit, you will likely bust!
 If you stand, the dealer will likely beat you!
What do you do?

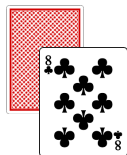


BLACKJACK

Your cards



Dealer's cards



Many people would stand because they don't want to bust!
House Edge of Blackjack with "Never Bust" strategy: 3.9%



SPORTS BOOK HOUSE EDGE

BET	WIN PROBABILITY	WIN PAYS	HOUSE EDGE
\$10 on Giants +120	?	\$22.00	
\$10 on 49ers -140	?	\$17.14	

The true probabilities are not known — you have to judge them for yourself!
(Sound familiar?)

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SPORTS BOOK HOUSE EDGE

BET	WIN PROBABILITY	WIN PAYS	HOUSE EDGE
\$10 on Giants +120	43.8%	\$22.00	3.6%
\$10 on 49ers -140	56.2%	\$17.14	3.6%

The view of the oddsmakers (and the market)

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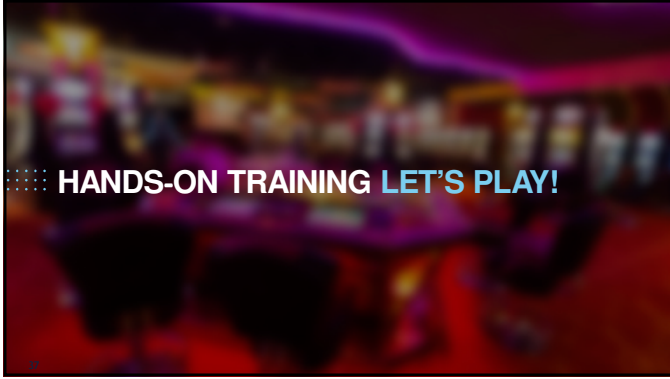
WHAT IF...

BET	WIN PROBABILITY	WIN PAYS	HOUSE EDGE
\$10 on Giants +120	47%	\$22.00	-3.4%
\$10 on 49ers -140	53%	\$17.14	9.1%

"Player Edge"
"+EV"
"Adverse Selection"


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BEWARE

"The proliferation of Triple Zero Roulette is just the latest in an ongoing trend among Las Vegas Strip casinos to squeeze every penny they can out of tourists who they perceive as either oblivious or who don't care about the house edge. Let's call them 'fun players.'" — Robert DellaFave, Gambling Industry Analyst





House Edge: 5.3% → 7.7%



House Edge: 0.5% → 1.8%

Don't get squeezed – watch out for and avoid tables with less favorable rules!





QUESTIONS?
THANK YOU