

# **Statistics 98: The Card Counting Decal: Beating Blackjack and the Statistics Behind it.**

## **Syllabus Fall 2017**

**Meetings:** 340 Evans, 6:00-7:30pm on Monday every week from 9/11/17-11/27/17

**Facilitators:** Nicholas Tango ([ntango@berkeley.edu](mailto:ntango@berkeley.edu))  
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**Unit Value:** 2 Units

Welcome to The Card Counting Decal! Have you seen movies like Rain Man, The Hangover, or 21, and wanted to know how to count cards? Or maybe you've never even heard of counting cards or the game of blackjack, and are just curious. Well this decal aims to teach students how to play blackjack, how to count cards, and the statistics behind it all. We hope that students' interests in card counting will spark them to learn more about the field of statistics and the other benefits statistics has to offer. Over these next 12 weeks we intend to teach students how to count cards and beat the game of blackjack by flipping the odds in the player's favor.

### **Course content and learning outcomes:**

- content: learn about blackjack and its history
- learn about statistics behind the strategy
- learn how to play basic strategy, in addition to counting, and deviations
- learn team play and other advantage play

By the end of the course, students should be able to successfully play optimal blackjack and be able to count cards in an informal or casino setting. In addition, students should gain a thorough understanding of the history of blackjack and card counting, as well as the statistical underpinnings of casino games and card counting.

### **Methods of instruction:**

The class will be structured around a lecture and practice format. The first half of most classes will consist of a lecture, in which the facilitators will teach and demonstrate the various aspects of counting cards and the history and statistics of card counting. This will be followed by the second half, which will consist of practice where those aspects and lessons are implemented by students.

**Reading, Assignments, and Tests:**

The main evaluations of the class will come from one written test and two practical tests distributed throughout the semester. These tests will assess the three main aspects of successful blackjack play and card counting: basic strategy, the count, and deviations. The details of the tests will be described later in class two weeks before the test. Tests will take place during set class times and take anywhere from 5-15 minutes, or longer if necessary.

In addition to the tests, we will be assigning a mandatory book report and film report. Students will read “Beat the Dealer” by Edward Thorpe, and watch the “Holy Rollers Card Counting” documentary, to gain a better understanding of blackjack, card counting, the statistics behind it, and the experience that comes with it. A one page minimum report on the book will be due by the week of Sep. 25, and a one page minimum report on the film will be due by the week of Oct. 16.

**Course Grading:**

A Pass grade can be achieved in the class through successful completion of the three tests, the book and film report, and attendance. Should a student fail to pass a test, they will have to retake the test either in the next class meeting or during office hours during the next two weeks after the test date.

Grading is weighted as follows:

Basic Strategy Test: 15%

Card Counting Test: 15%

Deviations and Final Test: 25%

Book Report: 10%

Film Report: 10%

Attendance: 25%

**Attendance:**

Due to the cumulative nature of the course, mandatory attendance is required. The course will meet for 1.5 hours every week. Special circumstances can be taken into account, and facilitators must be notified at least 24 hours prior to the next class. Two or more unexcused absences may result in a No Pass.

**Reading and Film List:**

Reading: “Beat the Dealer: A Winning Strategy for the Game of Twenty One” by Edward O. Thorpe.

Film: "Holy Rollers: The True Story of Card Counting Christians"

**Office Hours:**

In addition to the normal class meeting time, the facilitators will be holding weekly office hours. These office hours will be used as a tool to allow students to have more formal practice with course material, in addition to open discussion and questions with facilitators as necessary. The office hours will also be used as makeup times for tests should students not pass or miss a test.

**Class Expectations:**

Contrary to popular belief, card counting is not an inherently complex skill and it does not require a genius-level intellect to succeed. Even those with a basic or intermediate knowledge of math or statistics can still be successful at card counting. However, the only way to be successful in counting cards is to practice, and practice a lot! Speed and precision are the keys to playing optimal positive strategy in blackjack, and the best way to improve these is through consistent practice. We will have time to practice each week in class, and to pass the tests you will HAVE to practice outside of class as well. We recommend at least half an hour a day of practice outside of class. Most importantly, we'd like everyone to have fun! Card counting is a unique and rewarding skill and through practice and effort, everyone taking the class should be thoroughly proficient by the end of the semester.

**Commonly Asked Questions:**

*Is card counting illegal?*

No! In no state or casino is card counting illegal. You will never be arrested or charged for card counting at either a casino or another setting. Fundamentally, card counting is simply a way of using your brain to play by the rules that casinos set, without breaking any rules or cheating in any way. It is illegal to use a phone or other device to aid in card counting at a casino, but we will not teach or recommend that in this class.

*Don't you need to be super smart to count cards?*

Nope! No prerequisite in math, statistics, or any other field is necessary to learn to count cards. All that is required is an enthusiasm to learn, an ability to pick up concepts quickly, and a willingness to practice skills as necessary.

*Isn't card counting just gambling and throwing your money away?*

Gambling is defined as the wagering of money on an event with an uncertain outcome with the intent of winning money or other material goods. When an individual is card counting with correct strategy, they are utilizing a certain positive outcome and have a positive expected return. Card counting can really be thought of as more as a blackjack strategy that ensures success and expected profit, rather than taking a chance and losing money. In addition, we will not be using legal tender in the class and we do not condone gambling.

**Weekly Schedule:**

Please note this is a provisional schedule. We may change the course timeline if it is deemed appropriate. In case changes are made, facilitators will notify students via email.

Week	Week of	Tentative Subject	Notes
	Aug 21		
	Aug 28		
	Sep 4	Labor Day	No class
Week 1	Sep 11	Introduction, course objectives, syllabus, history of blackjack, our experience. Introduction to blackjack and statistics.	Begin Reading
Week 2	Sep 18	Basic strategy and probability.	
Week 3	Sep 25	Basic strategy practice, book report due.	Watch Film
Week 4	Oct 2	testing week (basic strategy)	
Week 5	Oct 9	Introduction to card counting (+/-) and conditional probability.	
Week 6	Oct 16	Counting practice (both running through 1 deck and with full table), film report due.	
Week 7	Oct 23	Testing week (counting)	
Week 8	Oct 30	Deviations and practice and more probability	
Week 9	Nov 6	Intro to different systems, practical considerations (real world spread, actually playing in casinos) and practice (with team play)	
Week 10	Nov 13	Testing week (final)	
Week 11	Nov 20	No class during week of Thanksgiving	
Week 12	Nov 27	Optional playing week, casino simulation	
	Dec 4		
	Dec 11		