

## Game Theory with Applications to Starcraft

**Course Facilitator:** Alan Feng ([integral\\_king@berkeley.edu](mailto:integral_king@berkeley.edu)), Anthony Chen ([phase.ac@gmail.com](mailto:phase.ac@gmail.com))

**Units:** 2 units, Pass/No Pass, CCNs TBA in class or by email

### Time and Place:

Fridays 7-9pm at Haas C210

Lab/Discussion: TBA

### Course Description:

UC Berkeley students with an interest in real-time strategy games and the competitive gaming landscape are encouraged to participate in this class.

This course will go in-depth into the theory and strategy behind the real-time strategy game Starcraft. There will be lecture on various aspects of the game, from the viewpoint of pure theory to the more computational aspects of how exactly battles are conducted. Furthermore, the class will apply the theoretical part of Starcraft to the real world by analyzing games and replays to reinforce decision-making skills. Class will start with lecture on the more theoretical side of Starcraft and usually include special discussions on select replays and recorded games to reinforce the lecture topics. At the end of lecture, there may be time to analyze student-submitted replays to illustrate a point or to improve analysis. Homework will be assigned at the end of each class and is due at the beginning of each lecture.

### Course Learning Objectives and Goals:

What may look like complex topics are just ways we want you to think more deeply about the game to derive a greater satisfaction from playing. Furthermore, this understanding should have applications in real life, to further synthesize new information from limited inferences. The primary goal is for students to learn, enjoy the art of competitive StarCraft, and have fun. Overall, students will be applying critical thinking, quick decision-making, and game theory skills throughout the sessions. Students will also learn what to look for in a replay or game to learn most effectively.

### Other Resources:

*The Theory of Starcraft* by Alan Feng

Suggested:

*The Art of War* by Sun Tzu

[www.teamliquid.net](http://www.teamliquid.net)

[wiki.teamliquid.net](http://wiki.teamliquid.net)

[www.gosugamers.net](http://www.gosugamers.net)

**Grading:**

Over the course of the semester, students must complete a total of 40 class credits to pass the class. Class credits are given in the following manner:

+1 class credit for going to class

+1 class credit for going to lab

+1 class credit for doing a homework assignment\*

+1 class credit for turning in 2 replays (maximum 1 credit per week)\*

Additional ways to earn class credits may be announced in class.

\*Homework and replays can be submitted online to [starcraftdecal@gmail.com](mailto:starcraftdecal@gmail.com)

In addition to class credits, a final project is required to pass the class.

**Final Project:**

There will be a final project where students will have the chance to contribute back to the Starcraft community. The final project will either be a presentation or an essay detailing a new aspect of the game, calculations, or an in-depth analysis of a significant game. Whichever final project is chosen will be displayed or published on a public forum for peer criticism.

**Course Outline:**

**Week 1:** Introduction

**Week 2:** Resources / Units and Buildings

**Week 3:** Unit-scale Micro-management

**Week 4:** Army-scale Micro-management

**Week 5:** Macro-management

**Week 6:** Build Orders and Early Strategy

**Week 7:** Scouting and Counters

**Week 8:** Harass

**Week 9:** Overloading the Enemy, Multi-plays

**Week 10:** Division of Attention

**Week 11:** Advanced Timing + Deception/Mind Games

**Week 12:** Tournament + Presentations

**Week 13:** Thanksgiving Break

**Week 14:** Tournament + Presentations