**Beach Drinks Monopolistic Competition Game  
Teaching Notes**

How it works:

You and your group are at the beach and you are considering starting a business selling alcoholic drinks. People are distributed unevenly on the beach. A lot of people are attracted to the regions of the beach with volleyball, sea lions and sand castles. People are more sparsely distributed in between these attractions. The distribution of people is given on the next page. Each person on the beach will buy their drink(s) at the nearest stand, and each person’s demand for drinks at that stand depends on the price:  
P = $5-2Q.

The cost of the license to sell drinks on this beach is $8,000 per day. The cost of producing a drink is $1. Let Q be the choice variable when solving for the optimal price to charge.

Among the groups that would prefer to be first to choose a spot on the beach, I will randomly select an actual first mover. Same goes for groups who would prefer to be last. Apart from that, we will draw randomly to decide the order teams will go. Once the team before you choose a spot, you have 30 seconds to place your business on the map (the white board) before you lose your opportunity to get into the game.

We will play two rounds of this game. In the second round, you will be allowed to re-locate your business, leave the beach, or to enter the market for the first time. After the two rounds are done, you will calculate your team’s profit or loss.

Calculating profit: You will need to figure out how many people will buy drinks from you. People will go to the nearest drink stand to their location on the beach. If two teams are equidistant from a mile of people, those two teams split the business of that mile. The table below tells how many people will be at each mile on the beach. The total number of people at the beach (e.g. in this table) is 22,169. There are ten teams in the class considering opening a drink business.

Questions to figure out with your team:

1. How many drinks will each person buy? One drink
2. What price will you charge for your drinks? $3
3. How much would you personally need to make in order to be willing to work all day (8 hours) at the beach (as opposed to enjoy spring break)? (Subjective)   
   Discuss why people have different values, and how that influences who will become an entrepreneur.
4. You can place yourself anywhere between mile 1 and 100. Other teams will also be placing themselves in the beach. What will be your strategy for placing yourself if you go first? If you go last? If you are somewhere in between?   
   After the experiment, students should have figured out that the last person should place themselves right next to another drink stand. This relates to the Median Voter theorem and you can walk them through the logic.
5. Would you prefer to be the first team to choose a spot on the beach or the last team to choose a spot on the beach?   
   There is a last-mover advantage in this game, and students will have figured that out after playing the experiment. You can contrast this with the first-mover advantage of Bertrand and Cournot oligopolies.
6. How much drink-selling profit is available on the beach? (Do not take the $8,000 license into account when calculating this number).   
   Drink stands make $2 per person and there are 22,169 on the beach, leading to $44,337.40 in drink-selling profit. If all 10 teams were on the beach paying $8,000 per license, the license expenses would be $80,000. There is not enough profit for all 10 teams to sell drinks, and some will drop out. This can lead to a discussion of zero profit. It is important to refer them to part (c) because they would not do the work of selling drinks for $20 in accounting profit. The firms will have zero profit once you account for their answers in part (c).
7. Based on the number of teams in the class, how many do you expect to be selling drinks after all is said and done? Why?   
   They may answer “5 teams” ($44,337.40/8000 = 5.54), but this is likely wrong since it doesn’t account for team-mates’ opportunity cost. A proper calculatuion would take into account how much each person needs in order to be willing to work 8 hours on the beach. If teams have 3 people each, and if all of them need $500 to forgo a day of their spring break, then $1,500 should be added to the $8,000. Thus $44,337.40/9,500 = 4.66. In this case, only 4 teams may survive to equilibrium.

Number of people located at each mile of the beach: E.g. “219 people are at mile 68.”



**Spread of people across the beach**

