## Department of Mathematics <br> Maths 190 and Maths 190G <br> Playing Dodge Ball

This is a game for two players. Player 1's goal is to produce a set of sequences (of X's and O's), any one of which matches the single sequence of Player 2. Player 2's goal is to produce a sequence that is not anywhere in the list of Player 1.

Start the game by deciding who is Player 1 and who is Player 2. Player 1 begins by putting a sequence of X's and O's in the first row of the Player 1 game board (see below). Player 2 responds by filling just one box of the Player 2 game board (trying to `dodge' the sequence of Player 1). Player 1 then enters another sequence, after which Player 2 fills in the second box (dodging both sequences of Player 1). Play continues until all sequences are complete. Player 1 wins if any row matches the sequence of Player 2. Player 2 wins if there is no match.

## GAME 1:

## Player 1's game board

| $\mathbf{1}$ |  |  |  |  |  |  |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $\mathbf{2}$ |  |  |  |  |  |  |
| $\mathbf{3}$ |  |  |  |  |  |  |
| $\mathbf{4}$ |  |  |  |  |  |  |
| $\mathbf{5}$ |  |  |  |  |  |  |
| $\mathbf{6}$ |  |  |  |  |  |  |

## Player 2's game board

| $\mathbf{1}$ | $\mathbf{2}$ | $\mathbf{3}$ | $\mathbf{4}$ | $\mathbf{5}$ | $\mathbf{6}$ |
| :--- | :--- | :--- | :--- | :--- | :--- |
|  |  |  |  |  |  |

## GAME 2:

Player 1's game board

| $\mathbf{1}$ |  |  |  |  |  |  |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $\mathbf{2}$ |  |  |  |  |  |  |
| $\mathbf{3}$ |  |  |  |  |  |  |
| $\mathbf{4}$ |  |  |  |  |  |  |
| $\mathbf{5}$ |  |  |  |  |  |  |
| $\mathbf{6}$ |  |  |  |  |  |  |

Player 2's game board

| $\mathbf{1}$ | $\mathbf{2}$ | $\mathbf{3}$ | $\mathbf{4}$ | $\mathbf{5}$ | $\mathbf{6}$ |
| :--- | :--- | :--- | :--- | :--- | :--- |
|  |  |  |  |  |  |

