## Class Exercise:

Align the following sequences: TGGACGAATA and TCGACCATA
Use an arbitrary gap penalty of -1 per base
Use the simple identify matrix with a score of 2 for a match and -1 for a mismatch.

1. Work through the Dynamic Programming solution (Needleman-Wunsch)
2. What is the score of the alignment?
3. How many alignments give this score?
4. Map one of these alignments.

|  |  | T | G | G | A | C | G | A | A | T | A |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  |  |  |  |  |  |  |  |
| T |  |  |  |  |  |  |  |  |  |  |  |
| C |  |  |  |  |  |  |  |  |  |  |  |
| G |  |  |  |  |  |  |  |  |  |  |  |
| A |  |  |  |  |  |  |  |  |  |  |  |
| C |  |  |  |  |  |  |  |  |  |  |  |
| C |  |  |  |  |  |  |  |  |  |  |  |
| A |  |  |  |  |  |  |  |  |  |  |  |
| T |  |  |  |  |  |  |  |  |  |  |  |
| A |  |  |  |  |  |  |  |  |  |  |  |

