

ECS129

Examples of Sequence Alignments Using Dynamic Programming

In all the example below:

- Fill in the matrix
- Write one of the alignments with optimal score

Example 1:

Match: +2; Mismatch 0; Gap 0

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

Example 2:

Match: +2; Mismatch 0; Gap -2 (no gap cost at the beginning)

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

Example 3

Match: +1; Mismatch: 0; Gap: -1 (no gap cost at the beginning)

| | I | N | D | U | S | T | R | Y |
|---|---|---|---|---|---|---|---|---|
| I | | | | | | | | |
| N | | | | | | | | |
| T | | | | | | | | |
| E | | | | | | | | |
| R | | | | | | | | |
| E | | | | | | | | |
| S | | | | | | | | |
| T | | | | | | | | |

Example 4

Match: +10; Mismatch: -5; Gap: -5 (no gap cost at the beginning)

| | I | N | D | U | S | T | R | Y |
|---|---|---|---|---|---|---|---|---|
| I | | | | | | | | |
| N | | | | | | | | |
| T | | | | | | | | |
| E | | | | | | | | |
| R | | | | | | | | |
| E | | | | | | | | |
| S | | | | | | | | |
| T | | | | | | | | |

Example 5:

Match: +10; Mismatch: +3; Gap: -8 (no gap cost at the beginning)