

## Lesson Plan: CPBS771, Sequence Alignment & Search

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### Learning Goals:

After today's lecture, you should

- (1) know why sequence alignment and search are important tools in biological research
- (2) be familiar with the basic variants of pairwise sequence alignment
- (3) understand the use of dynamic programming for efficient computational alignment
- (4) be able to utilize the BLAST tool for sequence search based on alignments, and manipulate its parameters

### Questions:

- What does sequence alignment represent? Why is it a problem we might be interested in solving?
- What complicates sequence alignment?
- What counts as similarity?
- What is the purpose of using dynamic programming in sequence alignment?
- Can sequence alignment be utilized as a basis for database search?

	gap	A	C	D
gap	0	-5	-7	-9
A	-5	5	0	-5
A	-7	0	4	1
C	-9	-5	7	2
A	-11	-4	2	8
D	-13	-9	-3	9
C	-15	-14	-2	-4
D	-17	-14	-7	5