

Biol 47800/59500 Homework 4

Work individually on this assignment. Feel free to write a program to perform the alignments if you like (it took me about 1.5 hr to do so).

1. BLOSUM scoring

- a. Explain the meaning of the suffixes 100, 80, 62, etc in the BLOSUM series (i.e., BLOSUM100, BLOSUM80, BLOSUM62).
- b. Calculate the BLOSUM100 and BLOSUM80 scoring matrix for the block of sequences shown below. Indicate which sequences you cluster together in each case.

```
ACGCTAGCTG
TCCCCTGATG
AAGCAAGCTC
TCCCCGGCTG
ACGCATGATG
```

2. Using the first two sequences, above, show the local dynamic programming matrix and alignment using your BLOSUM80 matrix from question 3. Round the values in the scoring table to 1 decimal point and multiply by 10 to make this easier.

gap open = 0

gap extend = -1