

# **ERROR CORRECTION**

**30 SEPT 15**

# ANNOUNCEMENTS

# FINAL PROJECT

- Groups of 3-5. No more than 1 grad per group.
- Can use data from published manuscript, downloaded from ENA, your own data.
- I approve topic (Oct14)
- Presentations last week of class
- Written paper due last day.

# FINAL PROJECT EXAMPLES

Genome

Transcriptome

Expression

Comparative Genomics

# EXAM REVIEW

Evolution is:

The 4 mechanisms are:

# ERROR CORRECTION



# ERROR CORRECTION

TATACAAATTCGTTTTATGAAAACTCCTAAAAGCAAACAATTTACCAACAAATCCTTGCAACGAAAATAACCGATTCATTTAAGCATTCGTCCTATTTATACAAATTCGTTTTATGAAAACTCCTAAAAGCAAACAATTTACCAACAAATTCCTTGCAACGAAAATAACCGATTCATTTAAGCATTCG



ACTGTCATTCGGACTA  
ACTGTCATTCGGACTA  
ACTGTCATTCGGCCTA  
ACTGTCATTCGGACTA  
ACTGTCATTCGGACTA  
ACTGTCATTCGGACTA  
ACTGTCATTCGGACTA  
ACTGTCATTCGGACTA  
ACTGTCATTCGGACTA  
ACTGTCATTCGGACTA  
ACTGTCATTCGGACTA

Consensus= ACTGTCATTCGGACTA

# ERROR CORRECTION

TATACAAATTCGTTTTATGAAAACTCCTAAAAGCAAACAATTTACCAACAAATCCTTGCAACGAAATAACCGATTCATTTAAGCATTCGTCCTATTTATACAAATTCGTTTTATGAAAACTCCTAAAAGCAAACAATTTACCAACAAATCCTTGCAACGAAATAACCGATTCATTTAAGCATTCG

ACTGTCATTCGGACTA  
ACTGTCATTCGGACTA  
ACTGTCATTCGGCCTA  
ACTGTCATTCGGACTA  
ACTGTCATTCGGACTA  
ACTGTCATTCGGACTA  
ACTGTCATTCGGACTA  
ACTGTCATTCGGACTA  
ACTGACATTCGGACTA  
ACTGACATTCGGACTA  
ACTGTCATTCGGACTA

Consensus= ACTG{A,T}CATTTCGGACTA



# ERROR CORRECTION

TATACAAATTCGTTTTATGAAAACTCCTAAAAGCAAACAATTTACCAACAAATCCTTGCAACGAAATAACCGATTCATTTAAGCATTCGTCCTATTTATACAAATTCGTTTTATGAAAACTCCTAAAAGCAAACAATTTACCAACAAATCCTTGCAACGAAATAACCGATTCATTTAAGCATTCG



ACTGTCATTCGGACTA  
ACTGTCATTCGGACTA  
ACTGTCATTCGGCCTA  
ACTGTCATTCGGACTA  
ACTGTCATTCGGACTA  
ACTGTCATTCGGACTA  
ACTGTCATTCGGACTA  
ACTGTCATTCGGACTA  
**GCTGATAAC**CGGACTA  
ACTG**A**CATTCGGACTA  
ACTGTCATTCGGACTA

Consensus= ACTGTCATTCGGACTA

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Hamming Distance:

[http://en.wikipedia.org/wiki/Hamming\\_distance](http://en.wikipedia.org/wiki/Hamming_distance)

# ERROR CORRECTION

3 different strategies

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Kmer-spectra based

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Suffix tree based

# ERROR CORRECTION

MSA based

# ERROR CORRECTION

Evaluation of Correction