

Biology 3210 – Assignment #4

Value: 5% (of course grade)

Due: December 5, 2018 (Wednesday), no later than **12:01pm**

Format: Typed hard copy using a standard 12 pt font

Complete this assignment individually using the results obtained from the *Detection of Genetically Modified Maize* laboratory exercise. Answer the following questions as **thoroughly as possible**, using any resources you have available (do not forget about your controls).

1. You examined the DNA isolated in lab by spectrophotometric analysis. What is(are) the advantage(s) to this technique? Are there any disadvantages to using this technique? If so, explain. Consider the gels run with the genomic preps when answering this question (Gels E, F, K, & L).
2. Is there any single food sample you would be relatively confident in claiming was made from GMOs? If so, clearly identify the sample (identity AND gel/lane designations) and thoroughly explain why you can make this claim. If not, thoroughly explain why you cannot make this claim for any single sample.
3. Is there any single sample you would be relatively confident is free of GMOs (within the confines of this lab exercise)? If so, clearly identify the sample (identity AND gel/lane designations) and thoroughly explain why you can make this claim. If not, thoroughly explain why you cannot make this claim for any single sample.
4. PCR products commonly contain small fragments due to the dimerization of unused primers within the reaction (called primer dimers), as is observed for many of the reactions performed in lab (i.e., fragments smaller than 100 bp). Also present in numerous lanes are larger fragments that the primers were not designed to amplify. Provide a *plausible* explanation for these additional larger fragments and at least two (2) methods to optimize our PCRs to eliminate/reduce these larger fragments.
5. Hand in your lab book with this assignment.