## Final Report

In class this semester, you have worked to create synthetic DNA sequences. These DNA pieces will be assembled into a larger genome, and it is therefore crucial that we know what portion of the genome you are sequencing and whether you were successful, because each portion will need to be completed eventually. In your final report, please provide the following information:

1. Using the Saccharomyces Genome Database, describe the portion of the genome you synthesized. Be sure to include the following information for **each** segment of DNA that you were assigned in the production phase of the course (you do not need to include information from the boot camp phase):

1. What are the sequence coordinates in the yeast genome of your DNA segment? What is its overall GC content?

2. What DNA elements (open reading frames, tRNAs, retrotransposons, and ARS elements) are present in your DNA sequence? For each DNA element, indicate:

a. both the standard (if available) and systematic names

b. whether it is encoded on the Watson or the Crick strand

c. whether it is essential in the yeast genome

d. its sequence coordinates

e. its function (if known)

f. something that you find cool/interesting in the description of this DNA element

2. What problems you encountered in the synthesis of your DNA elements. Indicate:

 1. What was the problem with your original reactions

2. What was your hypothesis for why this step did not work?

3. What did you change to try to get your reactions to work (annealing temp changes, extension temp changes, additional rounds of PCR, etc.)? Remember, each of these DNA segments must be synthesized eventually, so as much information as you can give us about what has already been tried to troubleshoot will be very helpful.

4. What was the result and how would you interpret it? Is this DNA segment now synthesized and ready to sequence? If not, why not?