MCB422 Non-Mendelian Problems

This component is half research, half thinking. Relevant sources should be cited; clear cases of plagiarism will be submitted to the Dean of Students and awarded zero points. Points for this exercise arise not from doing, but from achieving key insights and visually communicating them.

Requirement	Description	Expectation	Loss of points if
Description of the phenomena **8 points total**	Statement of the biological *cause* of the genetic phenomenon in play and how it skews inheritance or appearances. Mechanism.	Include the aspects of these that underlie the difference whose consequences will allow you to distinguish vs. Mendelian	Imprecise, missing decisive insights, unclear, wordy, inaccurate
Real-life example **4 points**	A naturally occurring example of the phenomenon	Hopefully, not the same as everyone else's, but allowed if necessary	Wrong.
Key distinguisher **8 points**	This is the **key** that separates the two models; should take the form **"if model X, then after Y, will observe Z, whereas if model Q, will observe W"**	Brief statement about a never-fails, black-and-white distinguisher.	Rambling, imprecise, unclear, dependent on
Description likely with 1 or more classical genetic schemas: Punnett squares, pedigrees... **16 points**	A graphic, *perhaps* utilizing www.lucidchart.com that shows steps, key genotypes, actions, and histories (crosses) that could be followed to determine the underlying genetics REGARDLESS of starting materials	Ideally this should be a clean, spare presentation with visual elements as appropriate. If called upon, you should be able to explain your ideas and approach	Messy, incoherent, poorly thought out, lacking refinement; *could be enhanced by second draft*
Chi square results *or explanation why unnecessary* **3 points** equation **3 point** calculation **2 point** table look-up **2 points** statement of interpretation	Identification of the relevant hypotheses and predictions Filled-in equation shown before calculation Result and interpretation (reading value from table) either REASONABLE hypothetical data, or ACTUAL MendelPede of that case	IF unnecessary, statement indicating why (Example for IncDom: "The simple Mendelian case cannot account for 3 phenotypes from 1 gene/two alleles.")	Incorrect assignments of values, misinterpretation of result, inappropriately set up

2 points: Spelling, grammar, overall organizational clarity. Note that this is 10% of grade!!
2 excellence points: Insightfulness, spareness & clarity, wonderfulness of graphical presentation