Overview:

1) Background
   a) Laplace: \[ f_n(y) \approx f_n(\tilde{y}) \frac{(2\pi)^{d/2}}{\sqrt{\text{det}(\mathbf{G})}} e^{-\frac{1}{2} y^T \mathbf{G}^{-1} y} \]
   b) More: \[ f(\tilde{y}; \theta) \approx \frac{e^{n \tilde{y}^T \theta}}{(2\pi)^{d/2} \sqrt{\text{det}(\mathbf{G})}} \]
   c) Taylor: \[ f(\hat{\theta}; \theta) \approx f(\tilde{\theta}; \theta) + \sum_{i=1}^{d} \frac{\partial f(\tilde{\theta}; \theta)}{\partial \theta_i} (\theta_i - \hat{\theta}_i) + \frac{1}{2} \sum_{i,j=1}^{d} \frac{\partial^2 f(\tilde{\theta}; \theta)}{\partial \theta_i \partial \theta_j} (\theta_i - \hat{\theta}_i)(\theta_j - \hat{\theta}_j) \]
   d) Log model Taylor expansions

2) Course objectives: Use of above, further development with the tools from research papers

3) Achieved:
   a) Explor model, reference dist clean linear interest
   b) Third derivatives: skewness & effect on inference

4) Paper
   a) Summary:
   b) Current: Amiz UWO Preliminary
   c) Preliminary