

Points of Emphasis in M215

In M215, students should be given constant opportunities to:

- use virtual simulations through coding software to visualize and employ sampling distributions, with and without bootstrapping methods (LP 7).
- calculate p-values and confidence intervals using coding software or spreadsheets in order to focus on understanding the values' meanings in context, instead of attending so much to how these values are calculated by hand (LP 7).

Additionally, in M215, students should:

- regularly encounter real-world tasks involving the need for a parameter estimate that require them to compute and make sense of p-values or confidence intervals (LP 1).
- use open-ended tasks to reason about the context, allowing them to make decisions about what type of inference procedure and conclusion is appropriate based on the given context (LP 3).
- be able to choose tasks or entire courses that are organized around different scientific, social, or other topics, allowing students to have agency in their learning (LP 4).
- have opportunities to share their reasoning with partners or in groups, allowing for practice sharing, critiquing, and revising their arguments and including social interaction as part of the learning process (LP 2).
- regularly engage with tasks that do not require any computation, but instead focus on understanding and reasoning with the results of a study in order to draw a conclusion. For example, students should:
 - understand that causal conclusions can only happen when there is random assignment of treatment;
 - understand that generalizations to a population can only happen when there is random selection of a sample;
 - recognize that various significance levels have different potential consequences of making Type I and Type II errors;
 - interpret p-values, confidence intervals, and confidence levels;
 - use likelihood estimates to support or reject hypotheses;
 - check that appropriate conditions are met for certain inference procedures (LP 3).

Students should also be given opportunities to understand and reflect on the ways that inference and conclusion making authentically involves real-world situations (LP 6).