

## Points of Emphasis in M214

Often, coursework with error and variability is focused on performing statistical measures, such as standard deviation and interquartile range, sometimes by hand. Instead, students should be given continuous access to:

- tools within spreadsheets and coding languages that allow for a sharp focus on understanding how to analyze predictive models, rather than computing error and variability by hand (LP 7).
- online tools and resources such as databases, integrated development environments, videos, and data analysis platforms to allow for model validation (LP 7).

Specifically, in M214, students should:

- decipher which validation methods are appropriate for various types of predictive models (LP 1).
- use multiple validation methods for one model to gain multiple perspectives about its validity or for two models in order to determine which model is better (LP 1).
- represent the findings from their validation methods using graphical representations and written/spoken explanations (LP 3).
- explain what next steps are needed to improve predictive models using their validation method findings as justification (LP 3).
- be able to explore contexts containing predictive models that are organized around different scientific, social, or other topics for their predictive models, then validate these models using validation methods (LP 5).
- recognize sources of error in their surrounding environment in connection to a self-chosen predictive modeling task that is meaningful to them, allowing students to have agency in their learning (LP 5).
- make their thinking visible as they collaboratively work to validate predictive models in order to answer questions of interest (LP 2).
- have opportunities to share their reasoning with partners or in groups, allowing for practice sharing, critiquing, and revising other students' predictive model improvements and including social interaction as part of the learning process (LP 2).

Students should also be given opportunities to understand the ways to assess the accuracy of predictive models that authentically involve real-world situations and reflect on the relevance of their findings (LP 6).