

## SAW Three-Month Workshop:

### Mathematical Practices in relation to the Astral Sciences

#### Abstract

February 27, 2015

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*Ptolemy's approximation technique for computing the parameters of the models of the outer planets. Selections from Almagest X.6-7*

**Abstract:** Because of the displacement of the center of uniform motion from the center of motion itself in the planetary models, known as the equant, Ptolemy does not have all of the values he needs to compute the parameters of the model - that is the ratio of eccentricity, and the angle of apogee. He gets around this issue by starting with an approximate value, given by the geometry of the figure, and computing an initial set of values for eccentricity, and apogee. He can then use these to compute new starting values. In this way, he develops an iterative computation that quickly converges on the parameters of the model. In this talk, I will look closely at Ptolemy's development of this iterative technique, focusing on the language he uses and the types of computations that he makes.