

This project aimed to research, design, and create a series of 3D-printable models of historical astronomical instruments including an armillary sphere, astrolabe, and astronomical quadrant, for use in History and Classics courses with a focus on the history of science. All three instruments were successfully modelled and tested on a 3D-printer. Their development required a significant amount of research into both modern and historical texts on the subject.

The development of the astrolabe, for instance, required research into texts ranging from Chaucer's 14th century *Treatise on the Astrolabe* and Sévère Sebokht's 7th century Syriac handbook on the astrolabe to the comprehensive technical work of the late James Morrison in his 2007 book *The Astrolabe*. Further research into current astronomical data was also necessary in order to ensure that the stellar positions reflected in the astrolabe were not anachronistic and that the tool could indeed be used in present day observations and at Edmonton's latitude. The design process itself included multiple drafts of each part as the restrictions of Cameron Library's printing specifications and the technical limitations of the modelling software were reconciled with the spatial demands of the geometries involved.

The completed instruments were designed to be printed in five or fewer pieces, and have been made specially to comply with Cameron Library's current 3D-printing criteria. However, the models are also sufficiently detailed so that- should Cameron Library ever offer increased variety in the maximum dimensions and resolution of prints- the models can easily be scaled. Once printed, students can assemble the various components with only minimal household craft materials. It is hoped that this process will help to build not only an appreciation of the workmanship involved historically, but also a stronger understanding of each instrument's precise make-up and function. Options for best distributing the model files to students in the relevant courses are still being explored.