

## ABSTRACT

**THESIS:** W Ursae Majoris Variables from the Northern Sky Variability Survey

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This study presents the investigation and modeling of two W Ursae Majoris binary systems: NSVS 3971593 and NSVS 7680691. Both were selected from the Northern Sky Variability Survey. Observations in three band-pass filters, Johnson B, Johnson V and Cousins R were completed using the 0.4 meter and 0.5 meter telescopes at the Cooper Science Observatory located on the Ball State University campus in Muncie, Indiana. The Image Reduction and Analysis Facility (IRAF) software was used to reduce photometric data and to perform differential aperture photometry. Light curves generated by IRAF were analyzed by the PERANSO software and by the PDM task in IRAF to determine the orbital period of each binary system. Finally, other orbital parameters of the binary systems were established using the PHOEBE software which implements the Wilson-Devinney code.