1145-VK-2883   **Cathy M Frey*** (`frey@norwich.edu`), Norwich University, Department of Mathematics, 150 Harmon Drive, Northfield, VT 05663. *Using Videos Created with an iPad Pro to Flip the Classroom in an Introductory course in Number Theory and Cryptology.* Preliminary report.

Mathematics 240 is an introduction to fundamental topics in number theory, including the real number system, prime numbers, modular arithmetic, the Euclidean Algorithm, Fermat's Theorem, Euler's Theorem, Euler's Phi Function. Topics will be applied to Caesar, affine and RSA ciphers and the Chinese Remainder Theorem.

During the fall semesters 2004 to 2012 this class was taught with a traditional lecture format with weekly quizzes, individual programming projects, three one-hour exams and a final examination. During the fall semester 2015 and 2016, I used a mixture of lecture and a flipped classroom. During the fall semesters 2017 & 2018 the classroom was completely flipped. Students watch video lectures created with an iPad Pro before coming to class, and we completed daily in class group projects. Students also were required to complete individual and group programming projects and had three one-hour exams as well as a final exam.

Preliminary analysis of the results flipped classroom format as compared to those with the traditional lecture format suggests significant improvement using the flipped format on both the final exam as well as the final course grade. (Received September 25, 2018)