

1096-G5-414

Eric B. Kahn* (ekahn@bloomu.edu), 222 Ben Franklin Hall, Dept. Mathematics, Comp. Sci. & Stat., Bloomsburg University, Bloomsburg, PA 17815, and **Tricia M. Brown.** *American Football and an Unexpected Introduction into Upper Level Mathematics.*

Guiding undergraduate mathematics majors through the transition from calculation based courses to proof based ones is arduous for the instructor as well as frustrating for the student. In this talk, we will discuss how an application of concepts from abstract algebra and enumerative combinatorics to American football can ease these tensions. First focusing on the rules of the game and how they can be used to define an equivalence relation, we set up a discussion of how to classify and count structurally different offensive formations. The talk will be accessible to undergraduate mathematics students and football and non-football fans alike. (Received September 03, 2013)