From 1994 to 2000, the Mathematics Department at Winthrop University used a component system to schedule its college algebra courses. We will discuss this system in brief, and explain why this system was eventually abandoned by the institution. Since the component system differentiated students by skill level as the course proceeded, we have been able to analyze the differences between students who succeeded in the course, students who struggled with portions of the course, and students who failed the course. The results of that analysis and suggestions for improving student readiness for college mathematics will also be included in this talk. (Received September 11, 2000)