Salem State College offers a graduate Master of Arts in Teaching program in Middle School Mathematics (MSM). In the spring semester of 2008 I taught the MSM Discrete Mathematics course exclusively through guided discovery. The course was structured around a set of notes designed for undergraduate math majors, originally written by Kenneth Bogart and later adapted by Mary Flahive. In this talk I will describe the practical logistics of teaching the course and adapting the materials for the middle school teachers. I will also discuss student response to the non-traditional format of the text and the unconventional instructor/student roles in the classroom, as well as benefits and challenges to using discovery-based learning with this audience. (Received September 15, 2008)