Recently, there has been a push for more inquiry-based laboratory work; however, there are limited research studies on how students experience this environment. Students experience the laboratory environment in a variety of distinct ways, which can affect how they learn or what they take away from the laboratory. This study characterized undergraduate students’ perceptions of a project-based/guided inquiry organic chemistry laboratory using student interviews. We also characterized what students’ viewed as the purpose of the laboratory and how they defined success in the laboratory. By using how students defined successes, we were able to interpret the lab using phenomenological approach. Eighteen participants were interviewed in a semi-structured interview format to collect their perspectives on the Organic Chemistry Lab. Each interview was subjected to open coding and the constant comparison method then further evaluated using thematic analysis. This includes key words and themes that were either repeated or held meaning in the students’ experiences. Georgia State University’s large ethnically diverse student population allowed for a large range of perspectives to be analyzed. To that extent, we present the different ways students experience labs and their perspective on the purpose and success associated with the lab. This can be used for further investigations on how to develop new labs or assist in enhancing current labs. This research allows for instructors and administrators to understand the benefits and downfalls of project-based labs and how they affect students.