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ASTRO 101 Labs and the Invasion of the Cognitive Scientists¹

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Since the mid 1800's there has been widespread agreement that we should be about the business of engaging students in the practices of scientific research in order to best teach the methods and practices of science. There has been significantly less agreement on precisely how to teach science by mimicking scientific inquiry in a way that can be empirically supported, even with our "top students." Engaging "ASTRO 101 students" in scientific inquiry is a task that has left our astronomy education research community more than a little stymied, to the extent that it is difficult to find non-major science students practicing anything other than confirmation exercises in college labs. Researchers at the CAPER Center for Astronomy & Physics Education Research have struggled with this problem as well, until in our frustration we had to ask: "Can research tell us anything about how to get students to do research?" This talk presents an overview of the cognitive science that we've brought to bear in the ASTRO 101 laboratory setting for non-science majoring undergraduates and future teachers, along with the results of early studies that suggest that a "backwards faded scaffolding" approach to instruction in Intro Labs can successfully support large numbers of students in enhancing their understanding of the nature of scientific inquiry.

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