1077-N5-2211   **Manmohan Kaur*** (`mkaur@ben.edu`), Department of Math and CS, 5700 College Road, Lisle, IL 60532. *Undergraduate research in a Real Analysis course.* Preliminary report.

In order to motivate undergraduates to study real analysis, an essential yet technically difficult part of the mathematics curriculum, we involve students in expository or original research. Our goal is to convince the student that the hard work that goes into learning this topic is worth it because of all the wonderful ways in which it continues to change our world. In the second semester of our real analysis sequence, apart from learning the analytic techniques, the students pick a topic of their interest to research on. Although most students tend to choose topics that expose applications of analysis to chemistry, medicine, music, photography, fingerprinting, etc, some students pick more traditional topics like applications of the Banach fixed point theorem, the intricacies of fractals and the Thomae's function. A relatively new development is in the field of quantum information systems. This topic is of interest to undergraduates not only because of its theoretical beauty but also because of its ground breaking potential to help make quantum computers a reality. The topic especially lends itself to undergraduate research because some calculations can be performed by undergraduates. In this talk we will share our experiences with the undergraduate research in our course. (Received September 21, 2011)