

**From:** [Andrew Herring](#)  
**To:** [Faculty Senate](#)  
**Subject:** Expression of interest  
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Introduction to research at Mines, Mines 201 ( or similar, this concept was stolen from Alexis)

With many departments offering Honors research tracks and research for credit at the 300 and 400 level, and the Mines @150plan's goal of 70% of students in some sort of honors program, there is a need to build excitement and introduce students to what research really is in the sophomore year. Such a program would make junior and senior students research ready and importantly make students at the sophomore level realize what it takes to do meaningful real research that is exciting and publishable in peer reviewed journals. The challenge is to find real learning research experiences that can result in real data, a way for students to actually do research from day one without a lot of pre-requisite skills. During this time the students are formally taught the research enterprise ( data collection, errors, reporting, ethics, repeatability, note book management, safety etc) but there is a real goal of a class paper published at the end of the class. There are two ways this can be accomplished, one there are large stranded data sets on campus, i.e. I have Gb of small angle X-ray scattering data that has never been analyzed, or two simple experiments using new materials. My lab can make new polymers for ion transport, these can be fabricated into membranes and simple e-chem devices can be designed and 3-D printed. Either for energy or water there are huge variations in experimental conditions under which these can be run. Students working in teams could collect all the data needed to fully describe the operation of membranes in these devices and once collated this could be published as new original research.

Andy

*My working hours may not be the same as your working hours. Please do not feel obligated to reply to me outside of your typical working hours.*

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Andy Herring, PhD., ACS Fellow, ECS Fellow  
Faculty Senate President and Professor  
Chemical and Biological Engineering  
**COLORADO SCHOOL OF MINES**  
Email: [aherring@mines.edu](mailto:aherring@mines.edu)  
<https://chemeng.mines.edu/project/andrew-herring/>