The manuscript "Transformation of geological sciences and geological field methods course to remote delivery using manual, virtual, and blended tools in fall 2020", was submitted for review and was a delight to read, having had to do much of the same sort of work during 2020 and 2021, as well. This manuscript not only defines a contingent course design forced by public health considerations, but does so in terms of well-defined course learning objectives focused on geologic mapping skills development. Assessments are described in general and mapped to course learning outcomes. A logical spiraled course curriculum is also defined in a clear and succinct manner. Many of the course activities are traditional, transposed to an asynchronous format, while others are rather innovative and suggestive of further possible development.

Despite the strengths of this manuscript, there are a few shortcomings, none of which are fatal. They would simply strengthen the manuscript and broaden its utility to the field learning audience. As it stands, the manuscript is a rich narrative description of the design and delivery of what would normally be an immersive and experiential course experience, modified to fit an online delivery with asynchronous individual experiences. What is missing at the beginning is a justification of field instruction to start with, that is, providing a rationale for the considerable effort in organizing the course, rather than simply diverting students to a different type of offering.

Another shortcoming in this manuscript is the discussion of the assessments employed. There is a clear map of the assessment specifications to learning outcomes, but the specific details of the assessment instruments or tasks are limited. Scoring examinations can be straightforward, but how the artifacts or products were assessed is not presented – were there rubrics, and if so, can they be presented? An extension of the assessment discussion are the actual results, and the extent to which they represent the extent to which students met the intended outcomes. Furthermore, a comparison of these results compared to prior (normal) offerings of the course would provide support to the declarative statement in Line 333, where the effort was described as “very successful.” Given the relative lack of a theoretical framework or assessment results, it is difficult to accept this assertion.
Overall, this is a very well-written manuscript that can be made even better with a few more supporting details.