Quality of Course Activities Rubric (#4)

The Math TLC is committed to developing courses in the master's program that includes activities that engage teachers in collectively analyzing, exploring and understanding culturally responsive mathematics pedagogy. In particular, as expressed in the Strategic Plan (Objectives 2.1, 2.2 & 2.3) the course development teams will jointly develop activities that engage teacher participants in "doing" mathematics that broadens their understanding of mathematics as a subject and a process by asking them to explore mathematics content outside the coursework they experienced as undergraduates. Additionally, the course instructor and other development team members will jointly develop activities that engage the teacher participants in broadening their exposure to mathematical ideas and in expanding their mathematical content knowledge in ways that deepen their understanding of topics that extend K-12 mathematics content.

A goal is that 90% of the teacher participants will self-report increased appreciation for mathematics and knowledge of how K-12 mathematics fits into the larger mathematical picture.

With this audience in mind, we develop activities that ask teachers to:

- Explore mathematics content outside the usual mathematics typically in programs that prepare secondary mathematics teachers.
- View mathematical ideas from the perspective of research mathematicians to help teachers appreciate the dynamic nature of mathematics as opposed to the static view offered in most secondary curricula.
- Experience interconnections between topics (e.g., look at symmetry from an algebraic perspective) to offset the separation of most secondary curriculum into algebra and geometry courses.
- Discover beauty, logical structure and applicability of mathematics.
- Relate to the historical and conceptual evolution of mathematics theory.

We also say that we will "deepen understanding of topics that extend K-12 mathematics." For this, we develop activities that ask teachers to explore:

- The theoretical underpinnings of traditional algorithms (e.g., division of fractions) and how these algorithms are specific examples of more general mathematical ideas (e.g., division rings).
- Ways content in secondary mathematics can be extended through the use of technology.
- How secondary mathematical concepts are generalized and extended to provide a broader perspective of secondary content (e.g., exploring parallelism in non-Euclidean.geometries).
- The applicability of mathematics in the real world so teachers can provide real answers when students ask "When will I ever use this?"

The following rubric is used by the Master's Program Team to determine the extent to which Course Development Teams were able meet these criteria.

Category	Advanced (4)	Proficient (3)	Developing (2)	Beginning (1)	Score
The activities engage teacher/participants in "doing" mathematics that broadens their understanding of mathematics (as a subject and as a process) and exposure to mathematical ideas (vs. memorization or computation only) by asking them to explore mathematics content outside the coursework they experienced as undergraduates	More than twelve occurrences, or over 75% of the course's mathematical activities that involves teacher/participants in "doing" mathematics, require participants to broaden their understanding of mathematics (as a subject and as a process) and exposure to mathematical ideas (vs. memorization or computation only) by asking them to explore mathematics content outside the coursework addresses mathematics content at a level above the undergraduate level.	Nine to twelve occurrences, or between 50% to 75% of the course's mathematical activities that involves teacher/participants in "doing" mathematics, require participants to broaden their understanding of mathematics (as a subject and as a process) and exposure to mathematical ideas (vs. memorization or computation only) by asking them to explore mathematics content outside the coursework addresses mathematics content at a level above the undergraduate level.	Five to eight occurrences, between 25%and 50% of the course's mathematical activities that involves teacher/participants in "doing" mathematics, require participants to broaden their understanding of mathematics (as a subject and as a process) and exposure to mathematical ideas (vs. memorization or computation only) by asking them to explore mathematics content outside the coursework addresses mathematics content at a level above the undergraduate level.	Up to 4 occurances, or up to 25% of the course's mathematical activities that involves teacher/participants in "doing" mathematics, require participants to broaden their understanding of mathematics (as a subject and as a process) and exposure to mathematical ideas (vs. memorization or computation only) by asking them to explore mathematics content outside the coursework addresses mathematics content at a level above the undergraduate level.	
The activities engage teacher/participants in expanding their mathematical content knowledge in ways that deepen their understanding of topics that extend K-12 mathematics content.	At least six occurrences or over 50% of the activities that engage teacher/participants in expanding their mathematical content knowledge in ways that deepen their understanding of topics, extend K-12 mathematics content.	Four to five occurrences, or between 25% and 50% of the activities that engage teacher/participants in expanding their mathematical content knowledge in ways that deepen their understanding of topics, extend K-12 mathematics content.	Two or three occurrences, or about 10% of the activities that engage teacher/participants in expanding their mathematical content knowledge in ways that deepen their understanding of topics, extend K-12 mathematics content.	One occurrence, or up to 10% of the activities that engage teacher/participants in expanding their mathematical content knowledge in ways that deepen their understanding of topics, extend K-12 mathematics content	