Our ***Research Questions****,* organized into categories below, have been formulated below both as short-term (S) and long-term (L) questions. (Short-term questions are those for which we will have findings within the lifetime of the project.) Due to limitations of space, the research design in Section 6e only addresses only a few of the 17 research questions listed below.

**GROUP A: The Common Core, Associated Pedagogy, Course Coverage, and Student Performance**

1. On which aspects of the (Tennessee version of the) CCSSM, end-of-course (EOC) tests, and specially designed tests do our students perform better than the control group? (S)
2. On which aspects of the CCSSM and EOC tests do students trained in the traditional format perform better than those in our project? (S)
3. At which grade levels and in what courses does ICTCM-style integration prove to be most effective? (S)
4. How can our courses be delivered without sacrificing coverage of CCSSM standards and EOC content? (S)
5. Do our interventions have an impact on students learning the CCSSM Standards of Mathematical Practice Numbers: 1, 4, and 5? (S)
6. What pedagogical methods are used in integrating computing and mathematics, and how successful are they? (S)

**GROUP B: Diversity of Student Learners and Learning Environments**

1. What groups of students are most positively affected by our interventions? (S)
2. Do male and female students succeed at the same rates? (S)
3. In what environment of the same course (e.g. blended or integrated STEM versions of Algebra 1) does the ICTCM project lead to best outcomes? (S)
4. For the same mathematics course, which computing language succeeds best? (S)
5. Can our courses be successfully taught in a low-bandwidth internet environment? (S)

**GROUP C: Learning Outcomes for Students and Teachers (these are the key project questions)**

1. How do student attitudes toward mathematics change when taught in the integrated track? (S)
2. To what extent do students in the treatment group acquire a computational mindset? (S, L)
3. Compare students from Math+C courses to the control group on transition to university. (L)
4. How and according to what timeline do teachers gradually make a transition from being relatively “clueless”; to being accepting; to acquiring a deep understanding; to being trainers for other teachers? (S,L)

**GROUP D: Computational Math vs. Computer Science**

1. Are traditional computer science languages such as Java and C++ (Ex: Algebra 1+C at UC Davis) more effective than traditional computational science languages such as Python, R, and Matlab vis-a-vis integration of computing and mathematics in high school level mathematics? (L)

**GROUP E: Dissemination**

1. Will others tend to create their own Math+Computing materials, or do they use those available freely at our password protected site? Can the dissemination effort be improved? (L)