1. Demonstrate mastery of the core physical concepts (Classical Mechanics, Electricity & Magnetism, Quantum Mechanics, and Statistical Mechanics).

2. Evaluates or synthesizes information pertaining to questions or challenges in physics.

3. Engages appropriately and communicates clearly with other research professionals in physics.

4. Formulates and plans original research.

5. Creates research, scholarship, or performance that makes a substantive contribution to the field of physics.

6. Gains a broad awareness of the status of contemporary research beyond the student's area of specialization.