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The Integration of Research, Teaching, and Learning: Preparation of the Future STEM Faculty

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Graduate students at research universities shape the future of STEM undergraduate education in the United States. These future faculty flow into the STEM faculties of several thousand research universities, comprehensive universities, liberal arts colleges, and community and tribal colleges. The Center for the Integration of Research, Teaching, and Learning (CIRTL) uses graduate education as the leverage point to develop STEM faculty with the capability and commitment to implement and improve effective teaching and learning practices. CIRTL has developed, implemented, and evaluated successful strategies based on three core ideas: teaching-as-research, learning communities, and learning-through-diversity. A decade of research demonstrates that STEM future faculty participating in CIRTL learning communities understand, use, and advance high-impact teaching practices. Today the CIRTL Network includes 43 research universities. Ultimately, CIRTL seeks a national STEM faculty who enable all students to learn effectively and achieve STEM literacy, whose teaching enhances recruitment into STEM careers, and whose leadership ensures continued advancement of STEM education.