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A Green Analytical Curriculum for Renewable STEM Education

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Abstract : We have incorporated green components into existing analytical chemistry curriculum with the aims to present a more environment benign approach in both teaching laboratory and undergraduate research. These include the use of cheap, sustainable, and market-available material; minimized waste disposal, replacement of non-aqueous media; and scale-down in sample/reagent consumption. Model incorporations have covered topics in quantitative chemistry as well as instrumental analysis, lower division as well as upper level, and research in traditional titration, spectroscopy, electrochemical analysis, and chromatography. The green embedding has made chemistry more daily life relevance, and application focus. Our approach has the potential to expand into all STEM fields to make renewable, high-impact education experience for undergraduate students.

Keywords : green analytical chemistry, pencil lead, mercury, renewable
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