Reinventing Calculus

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The calculus reform movement goes back 40 years. While it introduced new kinds of problems, it forgot to change the "laundry list" structure of the curriculum. The result of this is too often a fragmented unimaginative curriculum that fails to prepare most of our students for the world they are entering. I will explain what I mean by "the structure of the curriculum" and will illustrate this with a couple of examples.

The Laundry List

Calculus I, First Semester

Calculus II, Second Semester

Calculus III, Third Semester

Whitehead (1922)

On “necessary antecedence”:
It is impossible to read Hamlet until you can read; and the study of integers must precede the study of fractions. And yet even this firm principle dissolves under scrutiny. The danger of the principle is that it is accepted in one sense, for which it is almost a necessary truth, *and it is applied in another sense for which it is false.* You cannot read Homer before you can read: but many a child, and in ages past many a man, has sailed with Odysseus over the seas of Romance by the help of the spoken word of a mother, or of some wandering bard. The uncritical application of the principle of the necessary antecedence of some subjects to others has, in the hands of dull people with a turn for organization, produced in education the dryness of the Sahara.