Do we need to redefine the role of the laboratory experience in the undergraduate program?

Dave Berry
Let’s Talk About Teaching 2013

Let’s revisit the goals of a lab course

Formats often used

<table>
<thead>
<tr>
<th>Model</th>
<th>Examples</th>
<th>Pros</th>
<th>Cons</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lock-step</td>
<td>Tutorials &amp; problem sessions; Experiments that everyone does at the same time.</td>
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<tr>
<td>Station rotation</td>
<td>All experiments run simultaneously; students switch on a schedule.</td>
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<tr>
<td>Projects</td>
<td>Individually or group; Individual work with combined data; Mini research with guided procedures.</td>
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<td>Research participation</td>
<td>Join a research group; Grad student mentor or co-op workterm</td>
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The financial squeeze

• Larger student : instructor ratios
• Less lab time; fewer experiments; reduced report marking; more registration problems

Leading to:
  less experienced GTAs
  less of an experience for GTAs
  less program continuity from loss of staff
  a vastly poorer experience for the student
Where do we go from here?

- Cut a little from everything?
- Reshape requirements?
- Remove some lab courses completely?  
  Eg senior courses, service courses or perhaps first year?

- Question the lec-lab connection?
- (More) independent lab courses?

- Teaching the lecture in the lab?
- Flipping the lab?

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An essay by Adam Chapnick of What the best college students do by Ken Bain in University Affairs, August 2013: pg6.

"You don't learn from experience. You learn from reflecting on experience."