Aligning teaching methods and students learning need
Active learning vs. traditional classrooms

Armin Schikorra

dB-SERC lunch discussion, 08/06/2018
What?

Course

- **Calculus 1** (approx. 15 sections; each 75 students)
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- “personalizing undergraduate education”
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Teaching Design

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- Ryan Alvarado (Postdoc, Math, Pitt)
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▶ everybody learns differently
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## Layout

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<table>
<thead>
<tr>
<th>Mo/We/Fr</th>
<th>Tuesday</th>
<th>Thursday</th>
</tr>
</thead>
<tbody>
<tr>
<td>75 students</td>
<td>3× 25 students</td>
<td>75 students</td>
</tr>
<tr>
<td>Frontal lecture</td>
<td>Recitation (Quiz, Q&amp;A)</td>
<td>(online homework)</td>
</tr>
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<tr>
<th>Mo/We</th>
<th>Fr</th>
<th>Tu</th>
<th>Th</th>
</tr>
</thead>
<tbody>
<tr>
<td>75 stud.</td>
<td>75 stud.</td>
<td>(unchanged)</td>
<td>75 stds</td>
</tr>
<tr>
<td>mini-lect. (10 min)</td>
<td>summarizing lect.</td>
<td></td>
<td>videos</td>
</tr>
<tr>
<td>group work (40 min)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 TA</td>
<td>0 TA</td>
<td>1TA/25ppl.</td>
<td>1 TA/75 ppl</td>
</tr>
<tr>
<td>1 UTA</td>
<td>0 UTA</td>
<td></td>
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Assessment

current assessment

<table>
<thead>
<tr>
<th>Ca. 10 Quizzes</th>
<th>online hw</th>
<th>Midterm 1, 2</th>
<th>Final</th>
</tr>
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<tbody>
<tr>
<td>10%</td>
<td>10%</td>
<td>25%</td>
<td>30%</td>
</tr>
<tr>
<td>instructor</td>
<td>departmental</td>
<td>instructor</td>
<td>departmental cumulative letter grade ±1</td>
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Material

- All material available to both (active learning and traditional learning)

videos

- Lightboard-solution preferable
- use also of available online videos
Main Challenges

dangers/challenges
▶ working sheets to keep students engaged
▶ making groups work
▶ moving between groups (8 groups per instructor, moving rapidly, only 80 minutes of group work)

in progress:
▶ preparation of working sheets
▶ preparation of videos