Where and When do Students do Their Most Important Learning?

- In the lab
- With their peers
- With their TAs
- In the classroom
- At home
In the lab - pros

• The “best” environment to collaborate and engage
  • must prepare, perform, report on each experiment, thus many hours invested by each student

• Students open up to TAs, perhaps moreso than to instructors
Groupwork in the Lab

• Groups of 3-5 possible, no leader required, TA collects and displays data; data is then shared by email
• Students learn to express their views to their peers
In-lab assignments

• Done in groups, related to the current experiment
• Designed to keep students on track at critical times during the experiment
• Fills in time gaps in long labs e.g. during a reflux
• “Just in time” teaching
In the lab - cons

• Expensive, difficult to expand or to make substantial changes, or to make labs relevant
• Cookbooks needed in first year, other techniques only appropriate in upper years
• Lab intros are important, but not always well done
• Answers to questions are not anonymous (unlike clicker questions in a classroom)
• Too much material available online – deters thinking
• Should we teach labs at all?
In the classroom - cons

• Need to take notes, little time to digest material or relate it to anything real
• Large classes make it difficult to ask questions
• Should we change the lectures to synchronize with the labs?
• Should we teach lectures at all?
On Campus

• Need more meeting spaces, hotspots for students – they learn a lot from their peers in such situations.
At home

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