

Implementing a flipped-classroom, spaced-repetition course in Bioinformatics

Samuel Coulbourn Flores, Institutionen för biokemi och biofysik (DBB)

Oral presentation

Abstract

The flipped-classroom concept assigns individual online study of readings, videos, and other materials first, followed by an interactive discussion. Spaced-repetition involves examining the same topic multiple times, preferably in different ways. We combine these two concepts, using automated examinations to both reinforce learning and ensure students arrive prepared for discussion. As part of the project we also virtualised laboratory exercises making our computer lab obsolete and enabling asynchronous work. To further reduce the failure rate, an SI-PASS (Peer Assisted Student Study) leader was employed to coach small study groups. As a result, a course that was in crisis of low evaluations and high failure rate, soon attained high evaluations and a very low failure rate.

References

Baker, J. Wesley, "The "Classroom Flip": Using Web Course Management Tools to Become the Guide by the Side" (2000). Communication Faculty Publications. 15.

Glenberg, A.M., Lehmann, T.S. Spacing repetitions over 1 week. *Memory & Cognition* 8, 528–538 (1980). <https://doi.org/10.3758/BF03213772>

B. Price Kerfoot, Harley E. Baker, Michael O. Koch, Donna Connelly, David B. Joseph, Michael L. Ritchey, Randomized, Controlled Trial of Spaced Education to Urology Residents in the United States and Canada, *The Journal of Urology*, Volume 177, Issue 4, 2007, <https://doi.org/10.1016/j.juro.2006.11.074>.

Blanc, Robert A., Larry E. DeBuhr, and Deanna C. Martin. "Breaking the Attrition Cycle: The Effects of Supplemental Instruction on Undergraduate Performance and Attrition." *The Journal of Higher Education* 54, no. 1 (1983): 80–90. <https://doi.org/10.2307/1981646>.