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How People Learn (National Academies Press) Meets Bioinformatics

Amy Mulnix

Biology Department, Earlham College, Richmond IN 47374 USA
(**amymul@earlham.edu**)

A wealth of information is available about how students learn (e.g. How People Learn). From these, suggestions bout how to improve classroom and laboratory teaching can be drawn. At the same time, it is becoming increasingly important to expose undergraduate students to the abundant information in molecular databases. At Earlham College we have designed a freshman-level, multi-week, computer-based laboratory exercise that has students work in small groups to trace the effect of a mutation on mRNA production, protein expression and activity and the cellular/organismal consequences of disruption of a gene. Databases used include: Gene Entrez, HPRD, GenCards, and OMIM. In addition to introducing students to bio-informatics, this exercise is used to re-enforce material covered in the lecture of an introductory genetics course in ways consistent with our better understanding of how students learn: increased time on task, repetition of material in a new context, application and extension of material, elements of discovery, modeling of expert knowledge process, and personalization of material.

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