

Biology Success! - Landmark's Innovative New Manual

In 2001 the Landmark College Science Department applied for and received a grant from the National Science Foundation (NSF). That grant allowed us to begin creating a teaching manual, exploring the introductory Biology curriculum, designed for teachers, whose students learn differently. The manual, entitled BIOLOGY SUCCESS!, is in its final draft stages and will be completed by Fall, 2004.

The project began in the Fall of 2001 and involved not only Rich Grumbine (Principal Investigator) and Abigail Littlefield (Assistant PI) of our Science faculty, but four educators from other institutions, who were asked to assist us in the project. Judy Rubin, M.A. is a Keene, NH high school Biology Teacher; Bruce Abedon, Ph.D. and Susan Whittemore, Ph.D. are Biology Professors at Keene State College; Peter Dumont is a Junior at Keene State and is a volunteer with the project. He hopes to be a high school biology teacher after graduation. In addition, our own Linda Hecker of the National Institute also acts as a Principal Investigator, in the role of LD specialist, and provides administration oversight.

The team members (or "collaborators") each provide one full-time semester of teaching at Landmark College, plus four summer weeks during our summer program.

The goal of the manual is to provide a resource regarding pedagogy, techniques, methods and strategies for teaching introductory Biology, at the high school and college levels. Further, the manual will promote Biology literacy over a broad spectrum of learners, since these techniques and methods help all students learn more effectively, not just those who learn differently.

The collaborators returned to their institutions and field tested what has been developed thus far, thereby providing practical feedback, which in turn gets folded into the evolving manual.

Bruce Abedon "fell into the project" but is finding it very beneficial: "Techniques are for both general educators and marginal students, who are getting more excited about Biology as a result. The work here has dramatically affected my teaching repertoire and has made it much more inclusive."

Susan Whittemore is in her tenth year of teaching college Biology. She has not had much support over the years and has "self-synthesized" a great deal of her teaching material. "This is an excellent professional development opportunity for me. I'm excited to apply this approach across the board at Keene State. Twenty five percent of our graduates become teachers themselves and this program provides some really important information and skills."



Judy Rubin feels it's important "to keep as many kids interested in learning as we can. This diverse approach helps everyone, both teachers and students. It's very exciting and can be broadly applied to all curriculums, all subjects. It's a thoughtful improvement in how to present subjects more clearly and methodically, that will ultimately reach more students."

Peter Dumont has no special education training in his studies and finds "working with Dr. Whittemore on this manual is the best learning experience I can have."

Educators will be interested to learn exactly what the manual does: BIOLOGY SUCCESS! follows Landmark College's Six Educational Principles, which are the cornerstone of our success, as well as the foundation of the project. The manual:

- uses a diagnostic-prescriptive approach
- provides explicit instruction in skills and strategies

- creates a student-centered classroom
- addresses diversity in learning styles
- bases instruction and assessment on clear objectives
- fosters self-understanding and self-efficacy.

These principles: identify strengths and weaknesses in students; start at their particular points of readiness; use visual-spatial, kinesthetic and tactile modalities; and assess process as well as product progress and mastery. Numerous lesson plan designs are utilized.

Teaching methods such as: assessment; assistive technology; concept mapping; the master notebook; multi-modal techniques; Biology vocabulary and Biology textbook orientation, are utilized.

Four sections of the manual employ the same techniques (advance organizer, key concepts, key vocabulary, overall objective activities and exercises) to the key areas of cell biology, evolution, ecology and genetics.

Landmark College once again leads the field in developing and disseminating educational research and theory-based practices, that set the standard for educating students with learning disabilities and attention deficit disorders.

The Creators of BIOLOGY SUCCESS! Back Row (left to right): Susan Whittemore, Judy Rubin, Bruce Abedon. Front Row (left to right): Peter Dumont, Cindy Toman, Abigail Littlefield, Rich Grumbine