University of Toledo   Toledo, OH

Product Used   MyStatLab
Course Name   Introduction to Statistics
Credit Hours   Three

KEY TAKE-AWAY

Required use of MyStatLab's online discussion board feature promotes increased communication and collaboration among UT students. This teaching and learning best practice contributes to significantly improved pass rates, D/F/W rates, and final exam scores.

Textbook in Use

Essentials of Statistics, 3e, Mario F. Triola

Course Implementation

Course Design

Introduction to Statistics is a fully online course, in which all work is completed in MyStatLab. Most students work from home. Assignments have set due dates with limited extensions; students are encouraged to work ahead.

Assessments

- Required discussion postings   10 percent
- Up to eight required homework assignments   15 percent
- Four tests   40 percent
- Final exam   35 percent

Students have several opportunities throughout the term to complete bonus assignments for extra points.

All assessments are graded and recorded by MyStatLab. Students review their results and if they think there is an error, may email or phone the instructor for a review.

Use of MyStatLab

Prior to fall 2006, the course was presented using WebCT for homework and tests using the algorithmic capabilities for writing problems and MyMathLab for videos. Since full adoption of MyStatLab in spring 2007, all work is done in MyStatLab: required homework, tests, and the final exam. Students participate via discussion postings in MyStatLab, and when needed, the instructor creates a virtual classroom.

Use of MyStatLab contributes to 100 percent of a student's final grade.

Results and Data

Prior to 2005, Introduction to Statistics was offered without the benefit of any Pearson MyLab product. According to Gwen Terwilliger, professor emeritus, since the addition first of MyMathLab and then MyStatLab, final exam scores and retention rates for the course have significantly increased. Table 1, which contains data from the time of adoption of MyMathLab in fall 2005 through spring 2009, reflects a consistent increase in both.

"MyMathLab offered my students more tools and more ways to learn," says Terwilliger. "Then MyStatLab provided two more big improvements: Help Me Solve This and the algorithmic function. Help Me Solve This has resulted in a huge upswing in learning. Because questions are specific, I am able

to give the kind of targeted clarification students would receive in a face-to-face classroom setting. It's drastically reduced the number of emails I receive looking for help and, more important, has enabled my students to go further on their own and come test time."

Terwilliger attributes the learning increases illustrated in Table 1 to the best practices enabled by MyStatLab.

- Required postings to MyStatLab's online discussion board promote increased communication and collaboration among the students. This kind of peer-to-peer advising is another way students reinforce what they know and gain valuable confidence in themselves as capable learners.

MyStatLab saves me from using class time to explain and reexplain how to solve problems. Because students are more prepared to learn and more proactive in their learning, I can convey more-complicated, robust concepts to them. It makes the course more fun to teach.

—Gwen Terwilliger, Ph.D., Professor Emeritus
University of Toledo

Semester	Enrollment	Percentage of As, Bs, Cs Earned	Drop/Fail Withdrawal Rate	Average Final Exam Score	Standard Deviation
Spring 2009	52	90.4	7.7%	86.3	15.6
Fall 2008	40	90.0	10.0%	89.8	13.5
Spring 2008	59	84.7	0.0%	90.0	8.8
Fall 2007	46	89.1	8.7%	86.1	1.6
Spring 2007	49	93.8	4.1%	84.3	15.2
Fall 2006	26	73.0	23.1%	68.4	9.06
Spring 2006	43	79.0	20.9%	68.5	8.68
Fall 2005	45	73.3	20.0%	66.5	8.05

Table 1. Comparison of Student Success and Drop/Fail/Withdrawal Rates from Fall 2005 through Spring 2009

- MyStatLab's immediate feedback keeps students informed of their progress in the context of learning. Students can rework problems until they earn 100 percent. Terwilliger reports that nearly all her students "go for the 100." As a result, students gain more practice and are more prepared for tests.

The Student Experience

Whether used in class or online or as a supplement or a complete course, MyStatLab provides students with everything they need to succeed in one convenient location.

Student feedback on Terwilliger's online format is positive.

- "I really like the format of our class homework on [MyStatLab], particularly the wide assortment of tools to help us master the material. I've found the Similar Exercise, Help Me Solve This, and View an Example links most helpful. This is my first interactive online course, and I really like it. The more helpful insight and tools, the better!"

Conclusions

By reinforcing proactive learning and teaching students how to study, MyStatLab helps students learn how to apply themselves, effectively problem solve, and skillfully learn.

"I'm so glad I have MyStatLab," says Terwilliger. "I knew it was helping students, but I didn't realize its full impact until I averaged the final exams. The correlation between final exam scores and course grades is extremely high."

Terwilliger plans to further hone her MyStatLab adoption by making more use of its multimedia features—including more use of the discussion board, animations, and required assignments using StatCrunch. "I suspect that having students become familiar with StatCrunch from the start will help them at the end of the term, when the problems are more complex," she says. "I'll assign it as homework with a specific data set."

Submitted by Gwen Terwilliger, Ph.D., Professor Emeritus
University of Toledo