

Product Name [MasteringBiology](#)  
 Course Name [General Biology I](#)  
 Credit Hours [Six](#)

**Key Results** Students recognize the value of completing MasteringBiology assignments, resulting in more-engaging classroom discussions, more time for active learning, and consistently higher exam scores.

### Text

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### Implementation

General Biology I is the first of a two-course sequence for biology, biochemistry/molecular biology, and marine biology majors. It is a traditional course taught on campus and incorporates a course management system, MasteringBiology, lecture recordings, and online quizzing.

When I first started using MasteringBiology, all assignments were completed post-lecture. I noticed a slight improvement on exam and quiz scores, and the students reported that they enjoyed using the program. However, I assign homework to ensure that students have done the assigned reading and are prepared for class discussions and activities. Giving homework on material already covered in class didn't accomplish that, so I experimented with requiring that assignments be completed *before* lecture.

Today, a short (no more than 20-minute) assignment comprising tutorials and activities is due before every class, except when an exam is scheduled. To successfully complete the assignments, students must have done the reading and watched the animations and tutorial videos. Students now come to class with a basic understanding of the concepts and can work efficiently in groups utilizing this knowledge to solve problems posed in class.

I *always* consult the MasteringBiology diagnostics before class—not only to see what the students got wrong, but also to determine what misconceptions likely led to their incorrect answers. I often walk into class and say, “I saw your Mastering homework, and you all appear to understand concept x. Is that right?” If no one raises a question, we move on. I have

eliminated material from my class because student performance on the homework showed they already understood the material. Conversely, when the Mastering diagnostics indicate misconceptions or misunderstandings, I spend more time in class on those concepts until I am confident that the students have gained a stronger understanding.

### Assessments

61 percent	Quizzes (10), unit exams (three), and a comprehensive final
19 percent	Partial lab papers and research papers
10 percent	Pre- and post-lab assignments
10 percent	MasteringBiology homework

*“My students appreciate that I tailor the class sessions to meet their needs. I appreciate having more time for active learning exercises.”*

### Results and Data

Figure 1 illustrates consistent improvement in exam scores since MasteringBiology was implemented in 2008, and supports the hypothesis that MasteringBiology improves student learning. The improvement is most noticeable when the homework is assigned prelecture (2010–12). Note that the final exam for this class is a secure exam that changes very little from year to year.

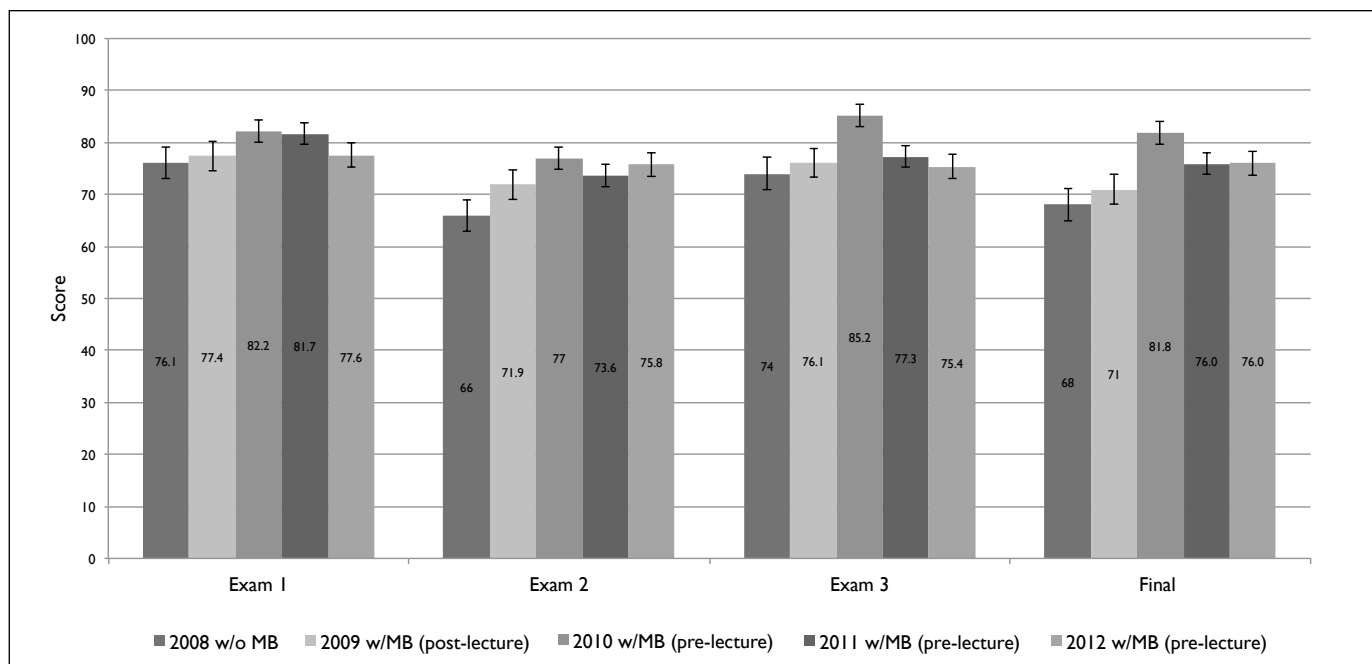


Figure 1. General Biology I Exam Scores before and after MasteringBiology Implementation, 2008–2012

	Strongly Agree		Agree		Disagree		Strongly Disagree		N/A	
	2009	2011	2009	2011	2009	2011	2009	2011	2009	2011
MasteringBiology homework assignments enhanced my learning in this course.	38%	49%	58%	44%	4%	7%	–	–	–	–
The MasteringBiology Study Area enhanced my learning in this course.	24%	44%	54%	43%	10%	2%	4%	–	8%	11%
MasteringBiology should be utilized in this course in the future.	48%	51%	46%	41%	2%	7%	4%	–	–	1%

Table 1. Student Survey Results, 2009 and 2011

## The Student Experience

MasteringBiology helps my students to work more efficiently. I utilize the drag-and-drop and sorting questions in the program as much as possible because they require that students analyze and evaluate information. In this way, they may be studying the same amount of time as other students, but their time is being used more effectively.

I conducted a student survey in 2009, the first year I used MasteringBiology. I administered the same survey again in 2011 when prelecture homework was part of the course assessment. The survey results indicate that the majority of students strongly agree or agree that the use of MasteringBiology

enhanced their learning and should continue to be utilized in the course. See table 1.

## Conclusion

MasteringBiology enables me to lecture less and teach more—I'm more efficient now at helping my students learn. It appeals to the students and enhances their learning. They actually tell me they want more homework! Anything that helps them do more biology and enjoy it is great in my book.

*Submitted by Eileen Gregory  
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