Pearson

# MyLab Operations Management educator study examines homework and exam scores at University of Florida

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| **School name**<br>University of Florida, Gainesville, FL | **Timeframe**<br>Spring 2017 |
| **Course name**<br>Operations and Supply Chain Management | **Educator**<br>Adam Munson, Senior Lecturer |
| **Course format**<br>Hybrid | **Results reported by**<br>Candace Cooney, Pearson Customer Outcomes Analytics Manager |
| **Course materials**<br>MyLab Operations Management with *Operations Management* by Heizer and Render | |

## Key Findings

- Munson's goal in assigning MyLab homework is to provide students with additional exposure to the quantitative material necessary to prepare for exams and to provide more varied practice opportunities.
- Students who earned above-average MyLab assignment scores earned higher average exam and final course scores than students who earned MyLab scores below average.
- 80 percent of student survey respondents agreed that use of MyLab helped them earn higher exam scores.

## Setting

- Locale: large, suburban, four-year public institution located in North Central Florida
- Enrollment: more than 50,000 students
- Undergraduates: 67 percent
- First-year retention rate: 96 percent
- Four-year graduation rate: 66 percent
- Student-faculty ratio: 21:1
- Class size: 49 percent of classes have fewer than 20 students
- Gender: 55 percent female
- Total minority: 42 percent

## About the Course

Adam Munson has been teaching in the Department of Information Systems and Operations Management at the University of Florida (UF) for over eight years. Operations and Supply Chain Management is a four-credit, one-semester course enrolling approximately 700 students per semester both on campus and online. It is one of seven core courses business students are required to take, and it is the capstone course comprised mostly of graduating seniors.

Operations management is the design of the system that develops outputs by transforming input resources into outputs (both products and services) and the management of this system. Supply chain management is the management of the material flow from suppliers through customers. This course provides an introduction to the concepts and applications of both and is a survey of the major decision tools and methods used in operations and supply chain management.

Upon satisfactory completion of this course, students should be able to:

- Specify and implement a framework for identifying a business problem;
- Develop alternative solutions and a set of evaluation criteria; and
- Assess the outcomes of a course of action and make appropriate adjustments.

# Challenges and Goals

With very large lecture classes, it was nearly impossible for instructors at University of Florida to grade and manage homework. However, instructors believed that students still needed the practice that is achieved through assigned and graded homework, so they looked to add an online homework program to their course that would both manage and grade assignments. MyLab was being used successfully in other departments at UF, and students were familiar with the program, so Munson and his colleagues decided to adopt MyLab™ Operations Management for Fall 2012 classes. By requiring MyLab homework for a portion of the final grade, the faculty hoped to encourage student participation and awarded credit for practicing course content.

# Implementation

Each of the seven core business courses at University of Florida are taught by an individual instructor to provide consistency of experience to all students taking the course, regardless of format (face to face or online). Munson's course is live-taped every course period so that students may attend the lecture in person or view the recording at a later date and time. He indicates that most students opt to view the recording at a time of their own choosing, with just 25–30 students attending class in person. Class time is spent exploring concepts, tools, and methods through slide-supported lectures that reinforce the chapter content and reading assignments, punctuated with occasional solved examples and worked-out problems. The lecture and course assignments are identical in both the online and face-to-face courses.

**First day access and experience**

Pearson's Learning Management System (LMS) integration service gives students and instructors easy access to MyLab from their existing school LMS. Munson chose to integrate his MyLab course with Canvas for the following reasons:

- Single sign-in process: students are ready to work in MyLab on the first day of class;

- Grade transfer: grades are easily transferable from MyLab to Canvas, and there is one single gradebook for the course; and
- Content linking: ability to link to MyLab directly from Canvas.

Munson's students have just one access code and a single sign-on process instead of the need to log in to Canvas and additionally sign in to MyLab. This results in a simple way for students to start their MyLab assignments, ensuring that they are ready to work from the first day of class.

Munson invites a Pearson representative to attend the first day of class to walk students through the MyLab registration process and model how to navigate the homework assignments, eText, videos, and other resources. Providing students with resources for the first day of class is a MyLab best practice that gives students a positive start to their digital homework experience and may lead to fewer questions and confusion during the critical start-up period.

**MyLab assignments**
MyLab Operations Management is required; the program is used primarily by students working at home on a personal computer. Students use MyLab for understanding content, homework assignments, and additional practice. Munson's expectation is that students will spend approximately 1.5–2 hours per week working in MyLab, which may include reading the eText and completing assignments. On the Pearson student MyLab Operations Management national survey, a voluntary, end-of-semester survey taken in Fall 2016 by 523 students, 65 percent of respondents indicated that more than 50 percent of their total study hours allocated to their course was spent working in MyLab.

Munson's goal in assigning MyLab homework is to provide students with additional exposure to the quantitative material necessary to prepare for exams and to provide more varied practice opportunities.

- MyLab homework problems: Students complete 10 assignments comprised of end-of-chapter questions, problems, and video questions, with a due date prior to each exam. Students have multiple attempts at completion, and learning aids are turned on. Learning aids provide hints and assistance on a just-in-time basis as students work through an assignment. On the national, end-of-semester survey, 85 percent of respondents indicated they used at least one learning aid, with 77 percent reporting use of Help Me Solve This. One student on the survey shared, "Help Me Solve This walked me through problems I had difficulty starting."

- OM simulations: These self-contained simulations help students employ critical thinking and analysis to make operations management decisions in realistic business contexts, gaining exposure to how OM works in the real world. Munson assigned two simulations on quality management and inventory. Simulations take approximately 20–40 minutes to complete.

**Additional assessments**
Three exams are taken electronically using the course website and proctored through ProctorU, which offers a secure online-testing service allowing for greater academic integrity in testing. Students need a webcam, speakers, microphone, and reliable speakers, and a wireless internet connection is not recommended. Exams are comprised of 25 multiple-choice and numerical-response questions. Munson creates most of his own exam questions but does choose

8–10 from the Pearson test bank, which are similar in format and difficulty to MyLab homework questions. Exams are not cumulative, and students have 2.5 hours for completion.

YellowDig is a social-learning platform that acts as a collaborative discussion board with a news-feed feel where students connect and share ideas from any source, including videos, articles, and blogs. Students earn up to 100 points per week depending upon their participation, earning points for posting links, commenting on other posts, or liking a post in a format similar to Facebook.

Additionally, students taking the course in the Spring take the ETS® Major Field Test for Bachelor's Degree in Business, a national exam administered to graduating business students to measure student learning outcomes of the business program. While not specific to the field of Operations Management, the exam is administered during this course because it is the final capstone course before graduation.

### Assessments

- 75% Exams (3)
- 10% MyLab homework assignments (10) and simulations (2)
- 10% YellowDig discussion board
- 5% National ETS Major Field Test

## Results and Data

Students were divided into two groups based on the average MyLab assignment score. Students who scored above average earned higher exam and final course scores than students who scored below average (figure 1).

- Students who earned higher than average MyLab scores earned average exam scores nine percentage points higher than students who had MyLab scores below average.
- Students who earned higher than average MyLab scores earned final exam scores 11 percentage points higher than students who had MyLab scores below average.
- 81 percent of students earned MyLab scores above average ($n$=517)

A *t*-test, which measures whether the means of two groups are statistically different (in this study, the two groups are students who scored above and students who scored below the average MyLab assignment score), identified that both differences in figure 1 are statistically significant.

- Students earning above average MyLab scores (mean = 75 percent) scored higher on average exam grades than students earning below average MyLab scores (mean = 66 percent), where $t(160) = 7.71$ and $p<.05$.
- Students earning above average MyLab scores (mean = 81 percent) scored higher on final course grades than students earning below average MyLab scores (mean = 70 percent), where $t(151) = 9.99$ and $p<.05$.

**Relationship between average MyLab score and average exam and final course scores**

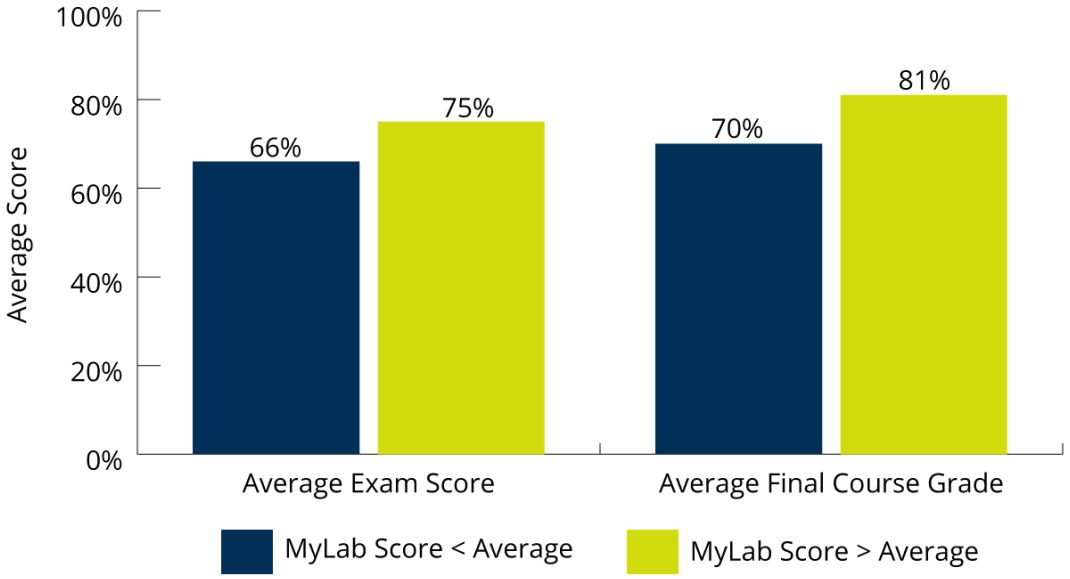


Figure 1. Relationship between Average MyLab Score and Average Exam and Final Course Scores, Spring 2017 (*n*=637)

## The Student Experience

The following responses are from the Fall 2016 national Pearson student MyLab Operations Management survey, taken by 523 students from both two- and four-year schools:

- 80 percent of respondents strongly agree or agree that use of MyLab helped them earn higher exam scores.
- 81 percent of respondents would recommend that their instructor continue to use MyLab in their course.
- 72 percent of respondents reported using the eText, and 87 percent of eText users indicated that the eText was helpful when studying.

Student survey responses to the question, "What did you like most about MyLab?" include:

- *"If I got a homework question wrong, MyLab provided an explanation and an equation that would help guide me to the right way to complete the problem."*
- *"The immediate feedback during homework was really helpful, and also the learning aids that directed me to the textbook or videos when I was having trouble."*
- *"Help Me Solve This took the mystery out of mastering the material, it broke down the problems even more for my benefit."*
- *"[I liked] seeing if my answer was correct or incorrect, it was like a mini quiz with immediate results, with the instructor right there for me to ask questions, if necessary."*
- *"It was an incredible integrated platform that allowed me to access the information and material about my course that was most important to me."*

## Conclusion

Large class sizes can create a barrier to meaningful homework assignment and completion. Knowing that students need practice to be successful in their course, instructors at University of Florida sought a digital solution to their homework dilemma. MyLab offered Munson and his colleagues the opportunity to assign problems and simulations that would give students practice, while also providing just-in-time tutoring with learning aids like Help Me Solve This that are part of the program. Students have the advantage of the eText and other self-study tools through MyLab as well. Munson believes that exposure and repetition assists students in being successful on exams, and the homework in MyLab offers that to his students.