

Does Investing in Interim-Terms Pay Dividends?

Lise Graham and Thomas Krueger

Abstract

Interim-term course offerings are becoming more common as universities attempt to respond to student demand for courses outside the traditional semester time frames and to more fully utilize their resources (both faculty and facilities). One of the concerns with these courses is that the compressed time frame may compromise student learning, in terms of both learning within the course and knowledge retention. This paper considers these issues by comparing the performance of finance majors enrolled in the principles course in an interim session with that of students taking this course in a traditional term. For students in our study, we find that there is no statistical difference in the two groups' performance within the principles class itself or in the subsequent courses required of all finance majors.

I. Introduction

The University of Wisconsin-La Crosse has offered undergraduate courses during interim sessions (January and May) since 1995. Offering courses during these time intervals allows administrators to maximize course availability, instructors to obtain additional income, and students the chance to catch up on courses, take courses which otherwise would not fit into their program, or get a head start on the next semester. It appears to be a win-win-win situation for all of the parties involved.

But is it? Are students learning as much as they would during a semester-long class? Krueger (2002) reports that a majority of students taking J-term courses felt that they had sufficient time between instruction periods to master the material. Fewer than ten percent of the students felt they had gotten less out of the J-term experience than out of a normal semester-long course.

Despite these opinions, the true value of interim session courses is still debatable. Some argue that, without effective study habits, students may be unable to handle the unique challenges arising from the focus required to do well in a concentrated learning course. Others claim that students simply do not have enough time to fully understand the information presented in these compressed time formats. Conversely, some argue that the intensive, single-course immersion results in greater long-term benefits. A faculty committee at the university was charged with evaluating these abbreviated classes to ensure they do not compromise student education. Gauging the value of interim terms thus becomes a significant assessment issue.

As Finance faculty, one of our concerns was that those students who completed the principles course in an interim session not be at a disadvantage relative to those who completed a traditional course. To examine this, we compared the performance in subsequent courses of students taking Principles of Financial Management in an interim term with that of students taking this course in a traditional term. In our curriculum, Principles of Financial Management is the prerequisite for Corporate Finance, Investments, and Financial Institutions, which are in turn prerequisites for the capstone course, Problems and Cases in Finance. An analysis was also made of additional characteristics that could impact the relative ability to benefit from interim offerings, including gender, prior grade point average, and university experience. With over 500 students that had completed interim-session finance courses at the time of the study, although a majority of them were not finance majors, we now had a sufficient sample to contrast the

performance of these finance majors in subsequent courses to those that had taken prerequisites during traditional semester periods.

Assessment is critical in the educational environment, regardless of accreditation concerns. Faculty members attempt to enhance their performance and verify that efforts are paying off in the form of improved student understanding. The results of this research have provided critical input to decision making regarding the proper format of the College of Business' interim-term offerings. In addition, since interim-term courses are taught in most disciplines, the results are of interest to a wide array of academic professionals.

II. Literature Review

The relationship between time and learning is uncertain. Given that human development and the acquisition of knowledge take place over time, time may be a necessary, but not a sufficient, condition of learning. Furthermore, effort or "time on task" is probably a critical determinant of learning. Krueger (1993) refers to this phenomenon as a "motivation effect" and finds that students employed for less than ten hours per week do better than unemployed students. At higher employment levels, a "substitution effect" reduces study time and class grades.

Most published studies of the relationship between time and learning have focused on weekly hours of study time without regard to course length. Both Schmidt (1983) and Gleason and Walstad (1988) find that total study time is unrelated to course achievement. Specifically, Gleason and Walstad's (1988) findings do not support the hypothesis that there exists a student perception of an inventory of study time that is then consciously allocated among courses in order to maximize overall GPA.

In economics education, Murphy (1979) compared pre-course and post-course scores on the Test of Understanding College Economics (TUCE) for enrollees in a two-week summer institute to a national TUCE norming group in semester-long courses and found no difference. Research began to address the relationship between course length and student learning in the 1980s. Course intensity and duration variables are positive and negative an equal number of times in Watts and Lynch's (1989) study of 2,800 economics students at Purdue University. Watts and Lynch also find that more committed students sign up for the intensive "Maymester" education format more frequently. Grimes and Niss (1989) compared the learning of students that watched two *Economics USA* videos a week to a control group with only one exposure and a discussion session. Although students in the multiple-video class studied more per week, across the course the control group studied more. Grimes and Niss found no significant difference in student performance on standardized tests. Furthermore, Van Scoyoc and Gleason (1993) mention several institutional studies showing that students in intensive summer sessions enrolled in various subjects have performed at least as well as those who took the course during the regular term at Indiana University, the University of Minnesota, and the University of Nebraska.

One of the biggest steps forward was Van Scoyoc and Gleason's (1993) analysis of economic learning in courses that were largely identical except for course length. As with the current study, they compared a 3-week "term" where students met five times a week for three hours each day and a more traditional 14-week semester where students met twice a week for one and one-half hours. Van Scoyoc and Gleason's dependent variable was the post-course TUCE test, while the independent variables included pre-course TUCE test, pre-course GPA, pre-course credits, gender, student age, instructor, and session length.

These variables were able to explain one-third of the variation in post-course TUCE scores. As expected by Van Scyoc and Gleason, the regression coefficients on GPA and pre-course TUCE variables were positive and significant. An unexpected result was that the gender term was significant, with male students learning more than women. In their study, the 3-week students did 10.5 percent better than the 14-week students. In a test of grades in the economics course, Van Scyoc and Gleason find better grades among students with higher GPA, higher pre-course TUCE scores, and those taking the course during the abbreviated time period.

More important than end-of-course performance is information retention. To assess retention, Van Scyoc and Gleason gave the TUCE test to students at the beginning of their intermediate economics course. Once again, prior GPA, course grade, and student gender were significant. However, the number of prior credits and the length of time since the economics course were not significant. Also, most importantly, the regression coefficient on the length of the principle's course term was insignificant, suggesting that students taking the 3-week course retain knowledge from the principles of economics course as well as the 14-week students do.

Despite its importance and relevance to university calendars, Van Scyoc and Gleason's research has seldom been cited. In a subsequent test of economic literacy, Gleason and Van Scyoc (1995) find that adult males remember more economic information than females, but unfortunately do not question whether the adults had learned economics in traditional or concentrated teaching environments. Lage and Treglia (1996) cite Van Scyoc and Gleason's (1993) gender findings and demonstrate that the difference between male and female performance is reduced by including the latest scholarship on women in the economics course.

Only a few articles in the finance literature have analyzed the teaching interval's impact on knowledge retention. The Spring 2002 issue of Research for Educational Reform (Krueger, 2002) published results of a survey of student perceptions regarding the January term. Approximately eighty percent of the students taught during J-term felt that they had sufficient time between instruction periods to master the material. A plurality of students with an opinion, including three that felt they had insufficient time to master the subject matter, felt they got more out of the J-term class than out of a normal semester's course. Only ten percent of the students felt they had gotten less out of the J-term experience than out of a normal semester-long course.

This is the first study of success in concentrated interim terms in the finance discipline. The present study improves upon Krueger's efforts in several ways, including:

- focuses on finance majors, who have the most to lose through experiencing a poor teaching environment in the principles course,
- examines actual performance, not perceived performance,
- considers performance before, during and after the principles course,
- looks at a variety of other factors beyond course duration that could influence student

performance,

- has a much larger sample size, and
- considers an updated time period.

III. Methodology

The study examines the performance of finance majors who graduated in the time period spanning May 1998 through May 2005. This time period was chosen because the first time

students graduated who had been enrolled in a May or January-term finance course was in May 1998. Two hypotheses were tested:

H₁: Finance majors who take the principles course in interim sessions will exhibit the same performance (as measured by grades) as those finance majors who take the course in traditional sessions.

Although students are taking the course in a more compact time frame, the total number of hours in the classroom (3 hours per day x 5 days per week) is equivalent to a typical 15-credit full time load. Consequently, there was no reason to expect that the first null hypothesis would not be supported.

H₂: Finance majors who take the principles course in interim sessions will exhibit the same performance in their major courses (FIN core) as those students who complete the course in a traditional semester.

Every principles course at the university is required to offer 770 minutes of instruction (approximately 14 hours) per credit, whether taught during a traditional or interim time period. In addition, our department has worked hard to ensure that we teach with the same learning objectives in mind and do not compromise on our expectations or requirements. Furthermore, students have indicated that they reduce their outside commitments in order to have more hours of study time per day. Consequently, there was no reason to expect that the second null hypothesis would not be supported.

IV. Results

Comparison of Student Grades

The first hypothesis investigated the performance differences of the finance majors in the principles class itself. Population characteristics are detailed in Table 1. Approximately ten percent of the finance majors in the study had taken advantage of the interim offerings of Principles of Financial Management. A 1994 Department of Education monograph summarizes a variety of studies by stating that most, but not all, research concludes that “grades are related to cognitive development and academic learning” (Gardiner, p.66). Comparison of each of the grade-related rows of Table 1 suggests that learning is very similar across the two samples.

A t-test for difference in means was done for each of the above variables, with the null hypothesis that the mean was zero. In each case, the observed differences were statistically insignificant. In other words, finance students who enrolled in the interim sessions and those who enrolled in traditional offerings had, on average, the same grade point average at the time they enrolled in the principles course. Unlike Watts and Lynch’s (1989) findings, there does not appear to be a tendency for better students to sign up for interim classes. Unlike Van Scyoc and Gleason (1993), we do not find better performance of students during the interim class.

Analysis of Subsequent Student Performance

Even if student performance is similar across the duration of their principles course, there may be different factors influencing their academic performance. To investigate the impact of several variables, the second hypothesis was tested using the following regression equation:

$$\text{FIN CORE GPA} = \beta_0 + \beta_1 \text{ INTERIM} + \beta_2 \text{ GRADE} + \beta_3 \text{ GPA} + \beta_4 \text{ CREDITS} + \beta_5 \text{ FEMALE}$$

The dependent variable, FIN CORE GPA, was the average of the student's grades in the four courses comprising the core of the finance major – Corporate Finance, Investments, Money and Capital Markets, and the capstone class, Problems and Cases in Finance. INTERIM was a dummy variable that equaled 1 if the student completed the principles class in a compressed time format (either a January or May interim session) and 0 otherwise. GRADE was the student's grade in the principles course, while GPA was the student's cumulative grade point average at the time he or she enrolled in the principles course, as measured on a four-point scale. CREDITS referred to the number of credits the student had earned prior to enrolling in the principles course. Finally, FEMALE was a dummy variable with a value of 1 if the student was female, 0 otherwise. This variable's inclusion arose from the importance of gender in several of the reviewed articles.

Because the primary concern of the study was whether students who took the interim courses performed as well in their subsequent finance classes as those who enrolled in more traditional offerings, the coefficient for the dummy variable INTERIM was of most interest in this equation. A significant negative coefficient would indicate that students who completed such courses performed below those who completed a traditional length course; a significant positive coefficient would indicate a higher level of subsequent performance for students completing an interim course.

The results of the regression are set forth in Table 2 below. The R square of 0.557 means that 55 percent of the variation in the finance core grades was explained by the independent variables in the equation. The F-statistic of 72.96 was significant at the 0.01 level.

The coefficients for the students' principle course grade (GRADE) and cumulative grade point average prior to taking the course (GPA) were both positive and statistically significant at the 0.01 level. This indicates that a student's general academic achievement level and the performance in the principles class are directly related to student performance in the subsequent classes. The dummy variable coefficient for the interim sessions was positive, but not statistically significant. Although the interim variable's sign is consistent with Van Scyoc and Gleason's finding that interim students perform better, the difference found here is insignificant. The coefficient for the number of credits earned prior to enrolling in the principles class was not significant, perhaps because most finance majors take this course as soon as they are eligible to do so, in order to satisfy the prerequisite requirements of the later courses. Finally, gender does not appear to be significant in influencing performance in the remainder of the finance core classes.

V. Summary

The principles course in finance serves two purposes: It is the foundation for the remainder of the finance major and it provides non-finance majors with the basics of financial management. There has been concern that students enrolled in compressed time sessions are receiving a less rigorous course and that the level of learning may be less than that in traditional 14-week semesters. If so, it might disadvantage those students relative to their peers in terms of their ability to be successful in the subsequent classes. After examining the performance of finance majors in the core finance classes for this time period, it appears that there was no difference in grades in the subsequent required finance classes between those who complete the compressed time principles courses and others.

Table 1. Sample size and grades across educational time frames		
	Finance Majors Enrolled in Interim Terms	Finance Majors Enrolled in Traditional Terms
Total students	27	250
Average Pre-Principles GPA	2.976	3.009
Average Principles grade	2.963	2.954
Average FIN core GPA	3.089	3.075
A t-test for difference of means found no statistically significant differences in the above GPAs.		

Table 2. Regression Results						
Regressors	Intercept	Interim	Grade	GPA	Credits	Female
Coefficient	0.7066***	0.0239	0.3025***	0.4798***	0.0004	0.0114
t-statistic	3.6960	0.2988	7.9824	7.1252	0.2356	0.2311
	R ² = 0.557		F-statistic = 72.96			
Asterisks denote level of significance using the following scale: *** = .01 ** = .05 * = .10						

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