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STUDENTS' GRADE EXPECTATIONS IN PRINCIPLES OF ECONOMICS COURSES: HOW DO THEY VARY THROUGHOUT THE SEMESTER AND WHAT'S THE IMPACT OF FEEDBACK?

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ABSTRACT

Students often have wildly unrealistic grade expectations. Using a sample of students taking classes from eight professors across five universities, we examine students' expectations for grades in principles of economics courses. By assessing expectations at the beginning, middle and end of the semester, we evaluate how grade expectations change throughout the semester. We find that the average GPA expected initially was a 3.6, but grade expectations decreased throughout the semester. We also find that male students overestimated their final grades more than female students.

INTRODUCTION AND BACKGROUND

Students often form unrealistic expectations concerning final course grades they receive in their college courses. Svanum and Bigatti (2006) found that 95.5 percent of students enrolled in their abnormal psychology classes expected to receive a B or better. The student's average anticipated course GPA was a 3.6 (on a 4.0 scale). Upon assignment of final course grades, 70 percent of students had overestimated the grade they would actually earn.

Unrealistic grade expectations may yield severe consequences. Most notably, grade expectations and course evaluations have been shown to be highly correlated (see Feldman 1976, Marsh 1980, Marsh 1987, Millea and Grimes 2002, Johnson 2003, Isely and Singh 2005, McPherson 2006, Heckert et al. 2006, and Nowell, 2007). Because the teaching effectiveness of many professors, particularly untenured ones, is partially measured by student evaluations, grade expectations can play a significant role in the promotion, retention, and tenure of faculty members.

In this study, we contribute to the literature by assessing students' grade expectations in principles of economics courses. More specifically, we survey students at the beginning of the semester, midway through the semester, and a week before the end of the semester to have them estimate their final course grade. Students taking principles-level economics courses from eight professors at five different universities were asked about their grade expectations at three different points of the semester.

With our data, we provide further insight into three primary research questions. First, how accurate are students' pre-course grade expectations compared to the final course grades received upon completion of the course? Second, do students adjust their expectations as they gain information throughout progression of the course? (Theory predicts students' grade expectations should become more accurate as they receive graded feedback throughout the course.) Finally, do other factors such as gender, institution, or number of hours per week the student expected to study at the beginning of the course influence the accuracy of students' grade expectations?

BACKGROUND LITERATURE ON GRADE EXPECTATIONS

The focus of much of the expectations literature has been an attempt to connect students' grade expectations, actual grades, and the student's evaluations of their instructors (see Feldman 1976, Marsh 1980, Marsh 1987, Millea and Grimes 2002, Johnson 2003, Isely and Singh 2005, McPherson 2006, Heckert et al. 2006, and Nowell, 2007). The consensus is that expectations matter. Large, negative deviations from expected grades are strongly correlated with poor teaching evaluations. While unrealistic student expectations of grades can hurt faculty members in the form of bad teaching evaluations there are adverse effects for students to consider as well. Many principle students take a principles of microeconomics course as a requirement to graduate. Moreover, many business schools and degree

programs require a specific (non-failing) grade in order to pass the class and count towards graduation (for example, students may be required to earn a C- or better for the course to count towards their major). For students who choose to wait until the last semester before graduation to take such a course, forming unrealistic grade expectations could result in choices that prevent them from graduating on time.

Ewing (2012) measured the influence of students' relative expected grade on students' evaluations of teachers. Using information from the University of Washington's Office of Educational Assessment, Ewing found the coefficient associated with the relative expected grade variable was positive and significant. In other words, an increase in each student's expected relative grade lead to an increase in the professor's course evaluation score. Ewing also notes that, because professors likely know that expectations influence evaluations, professors have an incentive to grade less strictly, resulting in grade inflation as an effort to improve their evaluation scores.

Moving beyond the single-institution connection between grade expectations and evaluations, McCann et al. (2013) examined student grade expectations across types of institutions. The authors focused on three types of institutions: technical, community, and 4-year colleges/universities. They found that technical and community college students had higher expectations for final grades than students at 4-year universities. The authors also examined grade expectations within 4-year universities. They found students in lower level courses expected higher grades than those enrolled in upper level courses and females expected higher grades compared to their male counterparts.

Guillaume and Khachikian (2011) found that engineering students' expectations are overly optimistic, regardless of their GPA. The authors also found that the time and effort students exert is reliant on grades earned throughout the year. 'A' students exerted fairly consistent work throughout the semester; 'B' students ramped up effort toward the end of the semester; and 'C or worse' students contributed less effort after receiving poor grades on early assignments.

Matos-diaz (2012) used student course evaluation data from the University of Puerto Rico-Bayamon to analyze students' development of expected grades and the likelihood of students retaking a professor for future courses. The author reported three major findings. First, as hypothesized, a student's GPA is an important determinant in forming expected grades. Second, knowledge students acquire about the instructor's previous grading pattern does impact their expected grades. Finally, when students become more optimistic about their relative expected grade they are more likely to take that professor for future classes. Matos-diaz discussed higher enrollment in classes and improved evaluation scores as potential outcomes emerging from this last result.

Svanum and Aigner (2011) explore the standardized pathways and relationships between students' goals, cumulative GPA, grade expectations, course effort, course grades, and course satisfaction. They find that expectations are positively influenced by external and internal goal orientation and cumulative GPA. Grade expectations are then positively associated with course effort, course grades, and (indirectly via course grades) course satisfaction.

Snyder and Chair (1976) explore the rationale behind the grade-evaluation connection. Using a controlled experiment, the authors found that students who received higher grades gave themselves the most credit for their success, while students earning lower grades were more likely to blame the instructor.

SURVEY AND ECONOMETRIC MODEL

This study includes grade expectations survey results from six hundred thirty-four students in principles of economics courses across five universities (Susquehanna University, Benedictine College, East Tennessee State University, University of Wisconsin La Crosse, and Colorado School of Mines).⁸³ Students took the survey at three points in time during the spring semester of 2014: the beginning of the course, the midpoint of the course, and just before the course concluded. The surveys were straightforward and concise, taking students only a couple of minutes to complete. The survey asked students "What grade do you expect you'll receive in this class?" Additional survey questions included asking students the number of hours they expected to spend studying for the course (in the beginning survey) along with whether the course was required for their major. Other variables included are the student's gender, the student's mid-term course grade and the student's final course grade. For grades, we used the GPA scale (A = 4.0, A- = 3.667,

⁸³ This research was approved by the Susquehanna University Institutional Review Board (IRB). The survey used for the data collection is provided in the Appendix.

A/B = 3.5, B+ = 3.333, B = 3.0, etc.)⁸⁴ to quantitatively analyze the grade expectations relative to actual grades received in the class.

Consider an OLS regression examining students' grade expectations at the beginning of the semester, as shown in equation 1:

$$(1) \text{ expected grade}_i = \beta_0 + \beta_1 H_i + \beta_2 F_i + \sum_{j=1}^4 \theta_j U_{i,j} + \varepsilon_i.$$

H_i indicates the hours the student planned on studying at the beginning of the course; F_i is equal to one if the student is a female; U_i^j are dummy variables for the four universities at which the experiments were conducted (with SU excluded as a reference university); and β and θ are the parameters to be estimated.

We also used OLS regressions to explore which factors influence the gap between students expected grade at the end of the course and their final course grade, as shown by equation 2:

$$(2) \text{ Gap between grade and expected end grade}_i = \beta_0 + \beta_1 H_i + \beta_2 EX_i + \beta_3 MTG_i + \beta_4 F_i + \sum_{j=1}^4 \theta_j U_{i,j} + \varepsilon_i.$$

H_i indicates the hours the student planned on studying at the beginning of the course; EX_i is the student's initial grade expectations at the beginning of the semester; MTG_i is the gap between the student's midterm grade and their expected grade at the middle of the course; F_i is equal to one if the student is a female; U_i^j are dummy variables for the four universities at which the experiments were conducted (with SU excluded as a reference university); and β and θ are the parameters to be estimated.

We then estimated a model examining how students' grade expectations changed over the course. Our dependent variable for equation 3 is the difference between students' expected grades at the beginning of the course and students' expected grades at the end of the course.

$$(3) \text{ Change in grade expectations}_i = \beta_0 + \beta_1 H_i + \beta_2 EX_i + \beta_3 MTG_i + \beta_4 F_i + \sum_{j=1}^4 \theta_j U_{i,j} + \varepsilon_i.$$

All the right-hand side variables are as previously defined in Equation (2).

Previous research revealed (e.g. Svanum and Bigatti, 2006) that most students overestimate their expected grades. Consequently, we examine the factors that impacted the probability a student overestimated their grade. We estimated a probit model as shown in the following equation:

$$(3) \text{ Prob (Overestimated}_{i=1}) = f(\beta_0 + \beta_1 H_i + \beta_2 EX_i + \beta_3 MTG_i + \beta_4 F_i + \sum_{j=1}^4 \theta_j U_{i,j} + \varepsilon_i).$$

In (4), *overestimated* equals one if a student's expected grade at the beginning of the semester was higher than the final grade they received and a zero otherwise. All the right-hand side variables are as previously defined in Equation (2).

RESULTS

Descriptive statistics are presented in Table 1. At the beginning of the semester, the mean grade expected by students was close to an A-. (GPA=3.59, where 3.67 is an A-) The mean expectations did drop as the semester progressed, with students' mean expectations slightly above a B+ at midterms (3.37, where 3.33 is a B+) and 3.2 at the end of the semester. There is significant variation in expectations and changes in expectations across universities. For example, students' expectations at Susquehanna University and the University of Wisconsin La Crosse were persistently high throughout the semester. These results contrast dramatically with students at Benedictine University and East Tennessee State University, who had expectations that were dramatically lower by the end of the course.

⁸⁴ ⁸⁴ Different universities in our data collection used different grading scales. Most used a system that contained A, A-, B+, B, B-, etc. One university used an A, A/B, B, B/C, etc. scale.

Table 2 presents the results of the OLS regression examining the students' expectations at the beginning of the semester. Neither gender nor hours studied has a statistically significant impact on initial grade expectations. There are differences across universities, however. Table 3 reports the results of the OLS regressions that examine the gap between the grade students expected to receive at the end of the course and their final course grade. Four items are of note. First, females had more realistic expectations than males. The gap between females' expected grades and final course grades was significantly smaller than that for men.

Second, there are dramatic differences across universities. Students at East Tennessee State University had a larger difference between expected and actual final grades than students at Susquehanna University, while students at the Colorado School of Mines and the University of Wisconsin La Crosse had a smaller difference between expected and actual final grades.

Third, we examine the impact of the gap between a student's actual midterm grade and the grade they expected to receive at midterms.⁸⁵ Theory is not clear whether a student who overestimates their grade at the middle of the course would be more likely to overestimate their grade at the end of the course. On one hand, students overestimating their grade at midterms might also be more likely to overestimate their grade at the end of the course. However, students who overestimate their midterm receive feedback that their expectations are too high. The coefficient of 0.28 signifies that if a student expects a grade at the middle of the course that is a full letter grade lower than their midterm grade (e.g., the student expected a B+ and received a C+), they will overestimate their final grade by about a third of a letter grade.

Finally, higher grade expectations at the beginning of the course reduced the gap between final expected grades and final grades received in the course, although this coefficient is only statistically significant in one of the two models. Given the overall high expectations of our sample, this provides some evidence that those with more unrealistic expectations aren't those who expect the highest grades (A or A-), but rather are those C or D students who initially expected to earn a B or B+. To further examine the overestimation of final grades based on initial expectations, we chart in Figure 1 the final grade earned for those who expected an A- or A for a final grade and we chart the final grade earned for those who expended a final grade below an A-. Over 50% of students who expected an A or an A- earned a B+ or better; 75% earned a B or better. For those who initially said they expected lower than an A-, only about 55% earned a B or better, with a much higher percentage earning a D or F.

Table 4 presents results from OLS regressions where the dependent variable is the change in students' grade expectations from the beginning of the semester to the end of the semester. We find that females adjust their grade expectation downward more than males throughout the semester and that those who expect higher grades initially adjust their expectations more throughout the semester. We also find that significant differences exist across universities. Furthermore, we find that the gap between what a student received for a midterm grade and their expected grade at the beginning of the semester had a positive and statistically significant effect on how much students' expectations adjusted throughout the semester. This indicates that students whose expectations were off in the middle of the semester adjusted their expectations more than students whose expectations were more accurate. Similar to the unconditional results, we find differences across universities. This should make sense, as these dummy variables contain information on the professors and the student body, and previous research has shown these can influence expectations (Chonko et al. 2002, Acchiardo and Mateer 2015).

Table 5 presents the results from the probit model. Students who initially had higher grade expectations were more likely to overestimate the final grade they received. We find no statistically significant difference in the probability a student overestimated their grade based on gender or the hours spent studying. Once again, however, there were differences in students across universities. The difference across universities is driven by the fact that while little difference was noticed in grade expectations at the beginning of the semester across universities, final grades varied considerably.

⁸⁵ Students received official midterm grades from some of the universities. Students received the actual letter grade they were earning to that point in the course.

CONCLUSION AND DISCUSSION

This study contributes to the literature in several important ways. First, consistent with results from previous research, this study provides evidence that students wildly overestimate their course grades (e.g., see Svanum and Bigatti 2006). However, this is the first study to our knowledge to examine how students' grade expectations change throughout a course and vary across multiple universities. We examine the changes in expectations by surveying students at the beginning, middle, and just before the end of the course. We found that grade expectations did adjust: as expected, grade expectations fell as the semester progressed and feedback in the form of midterm grades influenced expectations. The farther the student's midterm grade was from her initial expected grade, the more the student adjusted their expectations. That said, students with greater overestimates of their grade at the middle of the semester still had greater overestimates of their grade at the end of the course.

We found no evidence to suggest that the propensity to overestimate course grades differed by gender. Our results provide evidence that men and women were equally likely to expect a grade that was higher than the one they actually received. However, for those who did overestimate their grade, we found that male students overestimated their grades by more than female students.

Finally, by utilizing a research design that employs professors across multiple universities, we ensure that the results are not specific to the peculiarities of any one professor or the student body of a particular institution. Our multi-university approach was crucial because we found significantly different results across institutions. Using results from only one university or professor could result in vastly different findings that are not robust to a variety of educational environments. When possible, we advise other pedagogical researchers to follow the same format.

There is future research that could be done in this area. First, while our sample did contain several universities, it notably lacked top research universities or community colleges in the samples. It is possible those students' grade expectations would be different, and future research to assess such differences would be useful. We were also unable to collect GPA information on our students. It is possible that a student's GPA could be correlated with their expected grade or the inaccuracy of their grade expectations.

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Figure 1: Final grades earned by those who expected an A- or better at the beginning of the semester and those who expected lower than an A- at the beginning of the semester.

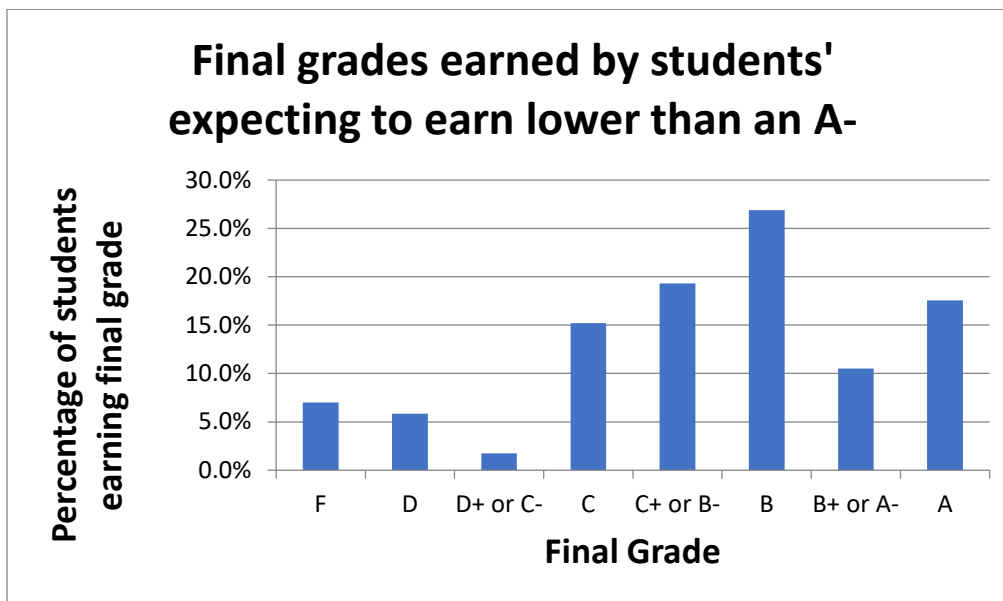
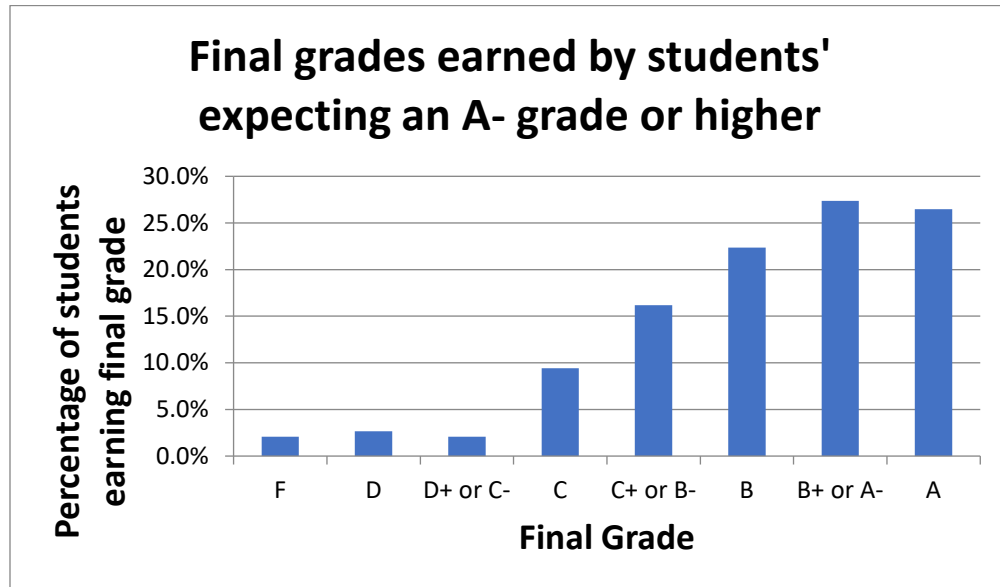


Table 1: Univariate Statistics

Variable	Overall N=634	Susq N=200	Bend N=37	ETSU N=81	UW-LC N=41	Colo Mines N=275
Expected Grade: Beginning of Course	3.59	3.40	3.47	3.69	3.54	3.73
Expected Grade: Middle of Course	3.37	3.53	3.33	3.30	3.45	3.26
Expected Grade: End of Course	3.20	3.33	2.11	2.90	3.49	3.17
Actual Course Midterm Grade	2.70	2.82	2.56	2.36	2.94	NA
Actual Course Final Grade	2.87	2.85	2.34	2.21	3.44	3.03
Percent of students that overestimated their final grade	0.69	0.62	0.84	0.79	0.41	0.73
Hours the student expected to study at beginning of course	4.74	5.34	5.19	4.27	5.70	4.24
Hours studying at end of course	4.21	4.93	3.19	4.27	3.73	3.89
Female	0.37	0.38	0.49	0.38	0.39	0.35

Table 2: OLS regression. Dependent variable: Students grade expectations at the beginning of the semester.

	Model 1 (N=624)
Intercept	3.44*** (0.07)
Female	-0.04 (0.04)
Hours student planned to study at the beginning of the semester	0.00 (0.01)
Dummy variable =1 if student from Benedictine	0.06 (0.10)
Dummy variable =1 if student from ETSU	0.28*** (0.07)
Dummy variable =1 if student from UWLC	-0.13 (0.09)
Dummy variable =1 if student from CSM	0.32*** (0.05)

- * Statistically significant at 0.1 level
- ** Statistically significant at 0.05 level
- *** Statistically significant at 0.01 level

Table 3: OLS regression. Dependent variable: Gap between student’s expectations for grades at the end of the course and final course grade.

	Model 1 (N=624)	Model 1a (N=624)	Model 2⁺ (N=349)	Model 2a (N=349)
Intercept	0.48*** (0.08)	0.72*** (0.18)	0.38*** (0.09)	1.20*** (0.21)
Female	-0.13** (0.05)	-0.14** (0.05)	-0.24** (0.07)	-0.26** (0.07)
Hours student planned to study at the beginning of the semester	0.01 (0.01)	0.01 (0.01)	0.00 (0.01)	0.00 (0.01)
Expected grade at beginning of semester		-0.07 (0.05)		-0.24*** (0.06)
Gap between grade student expected at the beginning of the semester and midterm grade			0.28*** (0.03)	0.30*** (0.03)
Dummy variable =1 if student from Benedictine	0.01 (0.11)	0.02 (0.11)	0.07 (0.11)	-0.06 (0.11)
Dummy variable =1 if student from ETSU	0.22*** (0.08)	0.25*** (0.09)	0.01 (0.02)	0.07 (0.09)
Dummy variable =1 if student from UWLC	-0.42*** (0.11)	-0.42*** (0.11)	-0.43*** (0.04)	-0.40*** (0.11)
Dummy variable =1 if student from CSM	-0.33*** (0.06)	-0.31*** (0.06)		

- + Sample size differs because CSM did not give midterm grades
- * Statistically significant at 0.1 level
- ** Statistically significant at 0.05 level
- *** Statistically significant at 0.01 level

Table 4: OLS regression. Dependent variable: Difference between expected grade at beginning of course and expected grade at the end of the course.

	Model 1 (N=624)	Model 2 (N=624)	Model 3 (N=349)	Model 4 (N=349)
Intercept	0.08 (0.08)	-1.59*** (0.19)	-0.22*** (0.08)	-1.58*** (0.16)
Female	0.10* (0.06)	0.11** (0.05)	0.14** (0.06)	0.16*** (0.05)
Hours student planned to study at the beginning of the semester	-0.01 (0.01)	0.00 (0.01)	0.00 (0.01)	0.00 (0.01)
Expected grade at beginning of semester		0.48*** (0.05)		0.37*** (0.02)
Gap between grade student expected to receive at the beginning of the semester and midterm grade			0.40*** (0.02)	0.37*** (0.02)
Dummy variable =1 if student from Benedictine	0.27** (0.12)	0.24** (0.12)	0.13 (0.10)	0.11 (0.09)
Dummy variable =1 if student from ETSU	0.70*** (0.09)	0.57*** (0.09)	0.41*** (0.07)	0.32*** (0.07)
Dummy variable =1 if student from UWLC	-0.03 (0.12)	-0.10 (0.11)	-0.04 (0.09)	-0.09 (0.08)
Dummy variable =1 if student from CSM	0.48*** (0.07)	0.33*** (0.06)		

* Statistically significant at 0.1 level
 ** Statistically significant at 0.05 level
 *** Statistically significant at 0.01 level

Table 5: Probit model. Dependent variable: Probability a student overestimated the grade they would receive in the course.

	Model 1 (N=624)	Model 2 (N=624)
Intercept	0.32 (0.17)	-1.11 (0.38)
Female	-0.03 (0.11)	-0.02 (0.11)
Hours student planned to study at the beginning of the semester	-0.01 (0.02)	-0.01 (0.03)
Expected grade at beginning of semester		0.42*** (0.10)
Dummy variable =1 if student from Benedictine	0.72*** (0.26)	0.70*** (0.27)
Dummy variable =1 if student from ETSU	0.53*** (0.18)	0.43** (0.19)
Dummy variable =1 if student from UWLC	-0.48** (0.22)	-0.55** (0.22)
Dummy variable =1 if student from CSM	0.35*** (0.13)	0.22* (0.13)

* Statistically significant at 0.1 level
 ** Statistically significant at 0.05 level
 *** Statistically significant at 0.01 level