

Grading Policies and Evaluations in a Freshman Experience Class

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Abstract – The Erik Jonsson School of Engineering and Computer Science at the University of Texas at Dallas introduced a freshman experience class as a degree requirement for all its majors in Fall 2011. The class had enrollments of 667 in Fall 2011, 584 in Fall 2012 with about 600 projected for Fall 2013. Grading policy (both directly and indirectly) has been debated at length and has been a central issue in the makeup and delivery of the class, both of which are continuously evolving. In this paper we discuss several aspects of grading policy and its effect on the delivery of the class, teaching evaluations, and retention. We contrast the grading policy in ECS 1200 with that in UNIV 1010, a university wide freshman experience class that was also introduced as a graduation requirement in Fall 2011. We also discuss the interplay between grading policy and teaching evaluations and a value-added approach to evaluating teaching effectiveness.

Index Terms – Grading Policy, Freshman Experience Class, Retention, Teaching Evaluations.

INTRODUCTION

The Erik Jonsson School of Engineering and Computer Science at the University of Texas at Dallas (UTD) was established in 1986 by moving an existing Computer Science Program from the School of Natural Sciences and Mathematics (Math Department) to Engineering and starting a new Electrical Engineering program. Over the years, the School has experienced tremendous growth with total Fall enrollments going from about 600 in two undergraduate programs in Fall 2006 to 2,057 in seven undergraduate programs in Fall 2011 (2,272 in Fall 2012). Freshman retention has been receiving increasing attention in recent years especially since the retention rates have not matched what would reasonably be expected given the high quality of the freshman class (among the best in the state of Texas in terms of average SAT scores).

In parallel with the introduction of the 2-credit hour ECS 1200 in Fall 2011, the University revamped its freshman orientation class by introducing UNIV 1010, a zero-credit hour class that is a graduation requirement for FTIC (First-Time-In-College) freshmen starting in Fall 2011. Students with majors in the School of Engineering

and Computer Science satisfied the UNIV 1010 requirement by passing the ECS 1200 class.

For Fall 2012, the UNIV 1010 class was modified by adding a 1-credit hour class specific to each School; for example, students majoring in a program delivered by the School of Natural Science and Mathematics enrolled in a section of UNIV 1010 and a section of NSM 1100; the UNIV 1010 sections were delivered by undergraduate student leaders trained in Spring 2012 and the 1100 sections were delivered by instructors provided by the corresponding schools. The move to a model similar to ECS 1200 was motivated by feedback from students indicating that they did not like having to take a class that had no credit associated with it and that the content was too general. ECS 1200 faced similar pressure (mainly from the instructors, programs rather than the students) to go to major-specific sections but remained a School-wide class.

TABLE 1
FRESHMAN RETENTION HISTORY

Year	Entering ECS FTIC	Enrolled ECS next Fall	% retained at School
2000	328	237	72.3%
2001	447	308	68.9%
2002	339	229	67.6%
2003	332	214	64.5%
2004	354	243	68.6%
2005	313	215	68.7%
2006	313	229	73.2%
2007	301	233	77.4%
2008	307	225	73.3%
2009	329	235	71.4%
2010	373	254	68.1%
2011	474	343	72.4%

Table 1 shows a 12-year history of freshman retention in the School of Engineering and Computer Science (ECS) for its FTIC freshman cohort. A gain of 4 percentage points in freshman retention was recorded for the Fall 2011 class. While that is a positive outcome and it can, at least partially, be attributed to the introduction of the ECS 1200 class in Fall 2011, it should be noted that freshman retention had been higher in the past when ECS 1200 was not a factor.

GRADING ISSUES AND DELIVERY MODELS

While retention is widely tracked [1], grading policy can be a significant factor in a freshman experience class [2]. On one hand, a freshman experience class should be a “feel-good” class implying that high grades are the norm; on the other, the freshman experience class should deliver specific content and serve to identify students that “belong”. A potential advantage of a freshman experience class in a “gateway” role is that closer contact with the students may serve to encourage weak students that are unlikely to succeed to switch to other majors; switching earlier in their academic careers may improve their chances of completing a degree (and be retained at the university level).

While Calculus is the usual gateway class in Engineering programs and has played that role here as well, Programming classes have emerged as nearly equal partners in the past few years. Grading policy and grade-related issues have often been the focus or served as a vehicle for discussions on the delivery model of the ECS 1200 class. In its first delivery (Fall 2011) the heavy weight assigned to attendance was a cause of considerable debate and ultimately dissatisfaction with several instructors. The arrangement for ECS 1200 to cover the UNIV 1010 graduation requirement resulted in a common grading scale for all ECS 1200 sections that ended up allocating 60% of the total grade to satisfying the UNIV 1010 requirements (including attendance). Several instructors of ECS 1200 felt that the small remaining portion of the grade limited their ability to motivate the students to do assignments, projects.

ECS 1200 started with a similar attendance policy (more than 4 unexcused absences would result in an F for the class) mainly to set the standard and address a common feeling among faculty that students do not succeed in classes mainly due to poor attendance. Past the mid-point of the semester, it became apparent that UNIV 1010 would not keep to its strict attendance requirement; eventually a 70% attendance rate was deemed sufficient to get credit for the class. The attendance policy for ECS 1200 was also discussed internally but it was decided to keep it almost as strict as the original (the adjustment was that 5-8 absences would result in 0 points on 25% of the grade; more than 8 in a grade of F for the class). At the end of the semester, a couple of the instructors pledged to never teach ECS 1200 again as long as a significant tie to UNIV 1010 was in place.

In Fall 2012, the ECS 1200 class was delivered in two parts. Instructors contributed by the academic programs taught a lecture component (75 minutes a week) while advisors and student teaching interns mostly handled a lab component (75 minutes a week). The lectures delivered more of the content including the team project and coverage of design, ethics and computational methods (MATLAB) while the lab sections focused on advising-related issues and “soft” skills. Grading policy again surfaced as an issue because the grades from the two portions of the class had to be combined. While regular meetings of the instructors during the semester resulted in agreement on how to

combine grades and on the goal of reducing the spread in Grade Point Average (GPA) among sections, after final grades and teaching evaluations were posted, grading became a point of contention with most instructors desiring full control of their grades.

For Fall 2013, the third delivery of the ECS 1200 class will have a mostly new team of instructors (only one retained from Fall 2012 – the same number as from Fall 2011 to Fall 2012). We have scheduled 10 lecture sections on Mondays (50 minutes each and with expected enrollment of about 60 each); each lecture group will be split into two attached lab sections at the same time on Wednesday, Friday with about 30 enrolled in each; the lecture sections and the attached labs will be delivered by instructors contributed by the programs and will deliver nearly all of the content (and assign the final grade).

In Fall 2011 we had significant variation in grading among sections. The percentage of A grades ranged from a high of 80% to a low of 29%; DFW rates from 3% to 40%; section GPA from 3.72 (more than A-) to 2.23 (below C+). In Fall 2012 we combined grades from lecture, lab for each student; overall we had 43.6% As (vs. 63.7% in 11F), 9.5% DFW (16.8% in 11F) and class GPA of 3.02 (3.10 in 11F) with smaller variations among sections/instructors.

In terms of retention from Fall 2011 to Spring 2012, we had 619 ECS majors taking ECS 1200; they were retained at a rate of 84% in their ECS major, 91.6% in ECS, 94.5% at UTD. For Fall 2012 to Spring 2013, we had 428 ECS majors in ECS 1200 and they were retained at rates of 93% in ECS and 95.7% at UTD. Fall to Fall retention for the Fall 2011 FTIC cohort was 72.4% in ECS (85% at UTD).

TEACHING EVALUATIONS

Table 2 lists the rating for the three main questions from the on-line evaluations. In terms of context, the ratings for the 1100 classes (new in Fall 2012 for the other Schools at UTD) are also included. All are (non-weighted) averages of all the sections in each group.

TABLE 2
COURSE EVALUATIONS

- Q1: Overall, the Course was excellent
Q2: Overall, this instructor was excellent
Q3: This course inspired me to learn more

Quest.	ECS 1200 11F	ECS 1200 12F-lab	ECS1200 12F-lec	UNIV 1010 12F
1	3.52	3.25	2.68	3.42
2	4.21	3.65	3.37	3.68
3	3.53	3.06	2.81	3.57

VALUE-ADDED TEACHING ASSESSMENT

A “value-added” approach to assessment takes a longer term view of the role of a class in the student’s academic career. Grading and standard teaching evaluations take place in the class itself and lack the longer term perspective which may be equally or even more important. Table 3 has data on the first class in a sequence of two that had three sections scheduled for the semester measured. Two parameters are listed as measures of “readiness” for the class: the GPA at the end of the prior semester and the GPA in the prerequisite class. Measures of “effectiveness” for the class include the GPA in the 2nd class in the sequence, the GPA in two other follow-up classes, the GPA at graduation (or the most recent GPA for those that did not graduate at the time of the check), and retention statistics. For most measures the next row (marked “N”) shows the number of students included in the measurement.

TABLE 3
EXAMPLE OF CLASS ASSESSMENT

Section	A	B	C
Enrolled	35	27	33
Entering GPA	3.081	2.874	3.01
N	25	19	25
Prereq-GPA	2.947	2.521	3.067
N	19	16	20
latest GPA	3.076	2.775	2.94
# of FW grades (%)	1 (2.9)	5 (18.5)	2 (6.1)
Section GPA	2.905	2.319	2.678
GPA in class-II	2.667	3.13	2.773
N	25	18	25
GPA-2 other classes	3.000	3.323	2.865
N	46	31	37
BS-ECS-GPA	3.355	3.332	3.172
# with BS-ECS	19	14	14
% graduated ECS	54.29	51.85	42.42
# left-ECS-UTDdeg	4	3	4
# non ECS degree	3	0	5
# progressing-ECS	2	2	5
# left-ECS-progr.	2	2	0
# left-UTD	5	6	5

A measure of teaching effectiveness suggested by the table is to compare the GPA in classes that follow the class that is evaluated (e.g. have the class as a prerequisite) with the GPA in its prerequisites; that would be a measure of the value contributed to the students by the class. Some mix of factors considered in admission (e.g., SAT scores, High School class rank) could be used for entry level classes (in place of the GPA in prerequisite classes) while measures like graduation GPA, job/graduate school placements could be used for senior classes (in place of the GPA in follow-up classes).

Obvious shortcomings of this approach include the work involved, the time lag in evaluating a class and the fact that there can be very wide differences in the connection between a class and a prerequisite class. A longer term view is needed to get a more accurate evaluation and weights could be assigned to prerequisites according to their perceived impact on the class. Note that this approach could also be used to evaluate the appropriateness of a prerequisite. A positive characteristic of this approach is that it reduces/avoids the connection between grading and evaluation scores and the associated grade inflation, reduced expectations that are widely reported [3, 4, 5]. Note that a high class GPA followed by low GPAs in follow-up classes would be a clear sign that the class was not effective and that could serve as incentive to reduce/eliminate grade inflation. By the way, the effectiveness scores for the three sections reported in Table 3 are much different than the standard teaching evaluation scores reported for them.

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