Computerized Grade Calculations for Academic Advisors

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Advisees often want to know what their grade averages will be if they earn certain grades this term or what grades they need to reach a desired average. Computerized grade calculations can be used to answer these questions easily and accurately. Spreadsheet and HyperCard versions of grade calculation programs are described.

Students often ask their advisors, "It' I get these grades, what will my average be?" or "What grades do I need this term to avoid probation?" Manual calculations, even with a calculator, can be time consuming and inaccurate. Computerized calculations take less time and are more reliable. After covering some basics of grade average calculations, I will describe two computerized versions, one for common spreadsheet software and another using Hyper·<:art1 for the Macintosh, and will explain how these programs can be used in advising.

Grade Calculations

Although institutional terminology differs widely, a student's cumulative grade average is generally a weighted average of points awarded for grades received in courses, where the weights are the credit hours f'or these courses. Table 1 gives a simple illustration for a student who has taken four classes at an institution using a 4-point grading scheme (i.e., A = 4, B = 3, C = 2, D = 1, E/F = *0)*.

Grade Projections

A student's projected average is based on expected cumulative totals. For example, if the student in Table 1 takes four additional classes totalling 16 hours and expects to earn a total of 37 points for them, the projected average would be (32 + 37)/(15 + 16) = 69131 = 2.226.

However, complicating factors can arise, such as an institution's course repeat policy. At many institutions, when a student repeats a course, the first grade is ignored and only the second grade is used. In this case, the hour and point values for the course when it was taken initially must be excluded from cumulative totals. Continuing the example, suppose the student repeated the 4-hour course for which a D had been received. The student has officially attempted only (31—4) 27 hours and earned only (69—4) 65 points. The revised projected average, in light of this particular repeat policy, would be (65127) 2.407.

Grade Goals

Calculating the grades a student needs to reach a certain average is the reverse of grade projection calculations. Continuing the above example, the student has the goal of reaching a 2.50 cumulative average at the end of the term and is taking 16 hours, 4 of which are repeated hours for a D. The student has currently earned

TABLE 1
Computing Grade Averages

Course Grade	Grade Value	Course Hours	Course Points
A	4	3	12
D	1	4	4
C	2	5	10
C	2	3	6
Totals		15	32

Total Course Points/Total Course Hours = Grade Average

32115 = 2.133

32 points, from which we must subtract 4 points for the repeated course, leaving 28. To attain at least a 2.50 average, this student would need to earn at least 67.5 total points (2.50 x 27 official hours attempted), which must be rounded up to 68. This student would need to earn (68 - 28) 40 points in the current term to reach the goal, the equivalent of a (40116) 2.50 semester average.

Spreadsheet Calculations

Common spreadsheet software (e.g., Excel, Lotus 1-2-3, or Wingz) can be programmed to perform the above calculations. Table 2 shows how a spreadsheet for projected grades might look to a user. The user enters (a) a student's CURRENT totals for ATTEMPTED and POINTS, and (b) course information for what the student is taking now, namely the course HOURS, REPEAT (yes or no), FORMER POINTS in repeated courses (if'applicable), and EXPECTED GRADES. The spreadsheet uses formulae contained in its cells to calculate COURSE POINTS, term TOTALS, and PROJECTED values. It can even keep some cells blank (as Table 2 illustrates) or display simple messages. For example, a cell could display a student's projected academic standing (e.g., good, probation, or suspension), although complex policies regarding academic difficulty may require intricate programming.

The spreadsheet for grade goals is given in Table 3. The user enters the student's CURRENT values for attempted hours and points earned, HOURS ENROLLED, REPEAT HOURS, REPEATED POINTS, and DESIRED AVERAGE. The spreadsheet displays the term points needed to reach the desired cumulative average. HOURS ENROLLED, it should be noted, can be for any specified period of time, be it a semester, an academic year, or until graduation.

For both projected grades and grade goals, examining multiple scenarios (e.g., different expected grades or numbers of courses or enrolled hours) is simple. The user enters the revised information and recalculations occur immediately.

Hypercard Versions

It is possible to design more user friendly versions of these grade calculation programs, especially for student use, through Hypercard software for the Macintosh.

Our HyperCard program (stack) has three screens (cards), one for each type of calculation (i.e., projected grades and grade goals) and an opening menu. Each grade program prompts the user to enter the relevant information and then displays the results and special messages when certain conditions have been met. For ex-

TABLE 2
Projected Grades Spreadsheet

		CURRENT'	PROJECTED		
Attempted		15	27		
Points		32	65		
Average		2.133	2.407		
ENROLLED Course	Course Hours	Repeat (Y/N)	Former Points	Expected Grades	Course Points
Course 1	4	N		B	I2
Course 2	4	Y	4	B	12
Course 3	5	N		C	10
Course 4	3	N		D	3
	0				
	0				
	0				
Totals	16 Hours Enr	4 Repeat Hrs	4 Repeat Pts		37 Points

TABLE 3
Grade Goals Spreadsheet

	CURRENT	CUM GOALS	SEM GOALS
Attempted	15	27	16
Points	32	68	40
Average	2.133	2.519	**2.500**
HOURS ENROLLED	16		
REPEAT HOURS	4		
REPEATED POINTS	4		
DESIRED AVERAGE	2.500		

ample, if a student needed a 4.50 term average to reach a desired average, a message would be displayed saying that the term average is an impossibility. Further, during data entry the program catches values out of range (e.g., a desired average greater than 4.00 or a current average of 6.00 from 15 attempted hours and 90 earned points) and prompts the user to reenter the data.

Hypercard programs can prompt the user to select from available options. In the grade goals program, for example, the user selects (clicks the mouse on the correct button) from these options: Avoid Suspension, Avoid Probation, 2.00, 2.50, and Other. In the case of Other, the user is asked for a specific value: otherwise the calculations begin immediately. When calculations are complete, the user can select from (a) enter new student information, (b) enter different goals, (c) exit to the projected grades screen, or (d) exit the program.

The Next Generation

To make the grade calculations even more user friendly, a student's current academic information could be automatically entered from a database. The user would merely select which program to run — projected grades or grade goals — and proceed accordingly. These versions would prove especially useful to institutions with on-line student information. They could even be adapted for telephone, voice-response systems, although the utility of a visual display for advising would be lost.

Advising Contexts

The results generated from these programs are concrete and real to students. By examining various course grades or term goals, students begin to interact with their own academic situations and understand them better.

The case of students in academic difficulty is an obvious context. It is often daunting for a student to see on the screen that a 3.40 term average is needed to reach a 2.00 cumulative average when he or she has rarely earned a grade higher than a C in college. Students seeking to enter majors with eligibility requirements are another population; the goals program can indicate grades needed to reach the necessary average. Lastly, these programs can be used to help any student explore academic goals such as a desired graduation average.

Conclusion

Computerized grade calculations save time for advisors, ensure accuracy, concretize students' academic situations, and have great interactive value for a wide range of students. They should be part of every advisor's modernized toolbox. To develop spreadsheets or special programs suitable for the needs, computer systems, and academic policies of a particular institution, an advisor should network with that institution's computer staff, faculty, and students.

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