

# PLUS/MINUS GRADING AND GRADUATE EDUCATION

## I. GRADUATE STUDENT GRADING AT PEER INSTITUTIONS

Graduate student grading systems at our designated peer institutions and other similar public research universities are comparable to the proposed UM plan. Three of our five peers use the same grading system as the Provost's proposed plan, and the majority of institutions use some version of plus/minus grading. Only a few institutions award higher grade points for A+ than for A grades. Universities using plus/minus grading commonly use it for both undergraduate and graduate students.

Institution	Grading Policy
UCLA	Same as proposed UM policy
UC Berkeley	Same as proposed UM policy
UIUC	Same as proposed UM policy
UNC	Assigns High pass, Pass, Low pass, and Fail
Michigan	Majority of programs are on a 9.0 GPA scale, with A+ awarded 9 points, A = 8 points, A- = 7 points, B+ = 6, etc.
U Delaware	Does not award A+, but otherwise grading system is similar to proposed UM system
U Minnesota	Does not award A+, but otherwise grading system is similar to proposed UM system
Ohio State	Does not award A+, but otherwise grading system is similar to proposed UM system
Virginia Tech	Does not award A+, but otherwise grading system is similar to proposed UM system
Penn State	No A+ or C-, otherwise grading system is similar to proposed UM system
U Iowa	A+ is awarded as 4.33, otherwise same as proposed UM policy
UVA	Same as proposed UM policy
Rutgers	Graduate programs use different grading systems (some programs award plus grades, others do not award minus grades)

## II. EFFECTS OF PLUS/MINUS GRADING ON GRADUATE STUDENTS

### A. Summary

Implementation of plus/minus grading will produce a minimal reduction in cumulative GPA, three to four one-hundredths of a GPA point (0.03 – 0.04), based on analysis of all masters and doctoral students admitted in the period of Fall 2006-Fall 2010 over their first three years of

study. This because slightly more minus grades than plus grades have been awarded to graduate students.

The Graduate School requires students to have a 3.0 GPA to remain in good academic standing. Implementation of plus/minus grading with B- equaling 2.7 will produce a slight increase in the number of students falling below 3.0. To offset this effect, we propose a change in the graduate policies for Academic Probation and Dismissal.

## **B. Analysis**

### **1. Senate Proposals for Plus/Minus Grades in Grade Point Average (GPA) Calculations.**

The University Senate has twice approved plus/minus grading and its use in GPA calculations. An extensive study of plus/minus grading was conducted in years 1999-2000 by a University task force, including campus-wide discussion and surveys of undergraduate and graduate students and faculty. The proposal was passed by the Senate on April 6, 2000, and approved by President Mote on August 28, 2000. Implementation was deferred. The Senate again approved plus/minus grading on December 25, 2005, with presidential approval on April 26, 2006. Implementation was again deferred.

The Senate Academic Procedures and Standards Committee (APAS) recommendation for plus/minus grading differs from the prior Senate approved policies only by assigning 4.0 grade points for an A+ rather than 4.3 grade points. The APAS proposal is as follows:

<b>Grade</b>	<b>Grade points</b>
A+	4.0
A	4.0
A-	3.7
B+	3.3
B	3.0
B-	2.7
C+	2.3
C	2.0
C-	1.7
D+	1.3
D	1.0
D-	0.7
F	0

### **2. Static and Dynamic Effects on Students**

The simplest illustration of effects on GPA compares cumulative GPA for students throughout their period of study under the University's existing policy without plus/minus grade points and under the Provost's proposed plan of plus/minus grading with A and A+ grades given four grade points. Grades awarded for the period of Fall 2006-Fall 2010 are used in the analysis.

**a. Grade Distributions at the University of Maryland.** Differences in outcomes associated with a plus/minus grading system depend on the distribution of plus/minus grades at the University. For the period Fall 2006-2010 there were more minus grades awarded to graduate students than plus grades (See Table 1).

Sixty-nine percent of grades awarded to graduate students in graduate level courses were either A+, A, B, C, or D. Of the remaining ~ thirty percent, twenty percent carried minuses (A-, B-, C-, or D-), and ten percent carried pluses (B+, C+, or D+). The ten percent differential suggests that the overall effect of the proposed grading system (without accounting for numbers of credit hours) would be a decline in cumulative graduate GPAs at the University.

**b. GPAs for New Graduate Student Cohorts, Fall 2006-Fall 2010, Over Three Years of Study.** Cumulative effects on GPA can be shown by analyzing cumulative GPAs for incoming masters and doctoral students in five cohorts (Fall 2006-Fall 2010) as those students concluded subsequent academic years at the University. Had plus/minus grading been in place, it would have had the following effects on GPA for students at the end of each of their first three years at the University (See Table 2).

The average change in GPA for these five cohorts at the end of their first year of study is a negative four one-hundredths of a GPA point (-0.04) for new doctoral students and negative three one-hundredths of a point in GPA (-0.03) for new masters students. Average effects remain at this same level for the cohorts of doctoral and masters students who have completed two years. Average effects remain the same for masters students who have completed three years and change slightly to negative three one-hundredths of a GPA point (-0.03) for doctoral students after three years.

Effects on GPA of the proposed plus/minus grading plan are similar for students across race/ethnicity categories, with average GPA changes ranging from negative one one-hundredth of a GPA point (-0.01) to negative five one-hundredth of a GPA point (-0.05) for new students after finishing their first year.

**c. Number of Students with Cumulative GPA Below 3.0.** The Graduate School requires students to have a 3.0 GPA to remain in good academic standing and to avoid probation or dismissal. Under a plus/minus grading system in which B- equals 2.7, the number of students whose cumulative GPA falls below 3.0 would increase slightly, with the largest increase following completion of the first year of study. For the five cohorts, an average of 10 additional doctoral students (1.4%) and 33 additional masters students (2.0%) *per cohort* would drop below a 3.0 GPA following completion of their first year under the proposed plus/minus system. For the five entry cohorts together, a total of 52 additional doctoral students and 163 additional masters students would drop below a 3.0 GPA (See Table 3).

An additional very small number of students would drop below a 3.0 GPA following completion of their second year at the University. An average of 3 additional doctoral students and 9 additional masters students would drop below a 3.0 GPA after finishing their second year. For four of the entry cohorts together, a total of 10 additional doctoral students and 35 additional masters students would drop below a 3.0 GPA. The numbers are even smaller for students following completion of their third year.

Small differences occur across race/ethnicity categories in the proportion of students whose GPA falls below 3.0 under a plus/minus grading system in which B- equals 2.7, with full-time Black/African American: U.S., Hispanic: U.S., and Foreign students showing slightly higher rates of cumulative GPAs below 3.0 than in the current grading system: an additional 1.6% for full-time doctoral students, 1.4% for full-time masters students, and 3.3% for part-time masters students following completion of their first year. Sample sizes are small, however, and comparisons do not include the most recent entry cohort (Fall 2010), when a new system for coding race/ethnicity was introduced at the University and nationally.

To offset this effect of plus/minus grading, and to factor in the lower number of credits taken by graduate students (as opposed to undergraduates), we have proposed the following change in the graduate policies for Academic Probation and Dismissal: a student whose cumulative grade point average falls below 3.0 will not be placed on probation until s/he completes 12 credits or two semesters, whichever comes first.

**d. Effect on Currently Enrolled Students in the Transition.** There are two issues: calculating cumulative GPA; and estimating the magnitude of change in cumulative GPA.

A current student's cumulative GPA will include grade points awarded under the prior and the new system. The grades and grade points already received by current students under the previous official grade policy will remain unchanged. Current students will receive grade points under the new policy when it becomes effective, and the University transcript will include an explanation. A survey of registrars at other institutions indicated that numerous universities have used this method in introducing plus/minus grades over an extended period of time. Major research institutions that have used this method recently are the University of Georgia (2006), Purdue University (2008), and the University of Texas (2009).

The effect of the change in grading policy on cumulative GPAs for current students will depend on how long a student has been at the University. For recently admitted students, cumulative GPA over time will largely reflect grades received under the new policy. For more advanced students, fewer grades will be awarded under the new policy, and effects on cumulative GPA will be smaller.

**Table 1: Full Distribution of Grades Awarded to Graduate Students in Fall and Spring Terms in Graduate Courses (Fall 2006 through Spring 2011)**

Course Grades	N of Grades	% of Total Grades
A+	17,454	8%
A	98,070	47%
A-	36,514	17%
B+	20,429	10%
B	27,079	13%
B-	5,735	3%
C+	755	0%
C	1,907	1%
C-	315	0%
D+	30	0%
D	209	0%
D-	35	0%
F	701	0%
XF	19	0%
<b>Total</b>	<b>209,252</b>	<b>100%</b>

**Please Note:** Includes all letter grades A+ through F in graduate level courses (e.g. course numbers 500-899) awarded to graduate students during Fall 2006 through Fall 2010.

**Table 2: Effect on Cumulative GPA for Entering Graduate Students, by Years Completed at the University**

Years Completed	Fall Cohorts	Graduate Entry Level	Cohort N	N Students with Courses	Avg Effect
Year 1	Fall 2006-2010	New Doctoral	3,936	3,633	-0.04
		New Masters	9,177	8,288	-0.03
		Subtotal	13,113	11,921	-0.04
Year 2	Fall 2006-2009	New Doctoral	3,202	2,527	-0.03
		New Masters	7,045	5,096	-0.03
		Subtotal	10,247	7,623	-0.03
Year 3	Fall 2006-2008	New Doctoral	2,448	1,382	-0.03
		New Masters	5,159	1,162	-0.03
		Subtotal	7,607	2,544	-0.03

**Please Note (for this table and subsequent tables):** Full-/part-time masters and doctoral students were grouped in cohorts based on the fall term associated with their entry into the University. Students were counted for each entry into the University between Fall 2006-Fall 2010. Thus, a student who started as a masters student and continued onto a doctoral program at the University would be counted in the New Masters and New Doctoral cohort. In addition, grades were only included from terms where the major code matched the student's entry major code to reflect how SIS calculates graduate GPAs; this does not account for graduate programs that changed their major code between Fall 2006-Spring 2011. At the end of each year completed, students were included only if they had received a letter grade (e.g. A+ through F) in the given year-end term (e.g. first, second, or third spring term). The "Cohort N" and "N Students with Courses" excludes students whose entry college of advising was the Office of Professional Studies or the Graduate School. The "Avg Effect" displays the average net change in cumulative GPAs at the university level, where students with increasing and decreasing cumulative GPAs may cancel each other out in the overall average. The "Additional Students with New GPA less than 3.0" displays the net effect of the proposed GPA calculation, which means there were more students with less than a 3.0 cumulative GPA under the proposed calculation method than in the current method. The letter grade values as specified in the recent University Senate Proposal (Document Number 10-11-11) were used in calculating the proposed cumulative GPAs, where an A+ letter grade receives a 4.0.

**Table 3: Changes in the Number of Graduate Students with a Cumulative GPA Below 3.0, by Years Completed at the University and Graduate Entry Level**

Years Completed	Fall Cohorts	Graduate Entry Level	Cohort N	N Students with Courses	Add'l Students with New GPA less than 3.0 (Net Effect)	
					N	% of Students with Courses
Year 1	Fall 2006-2010	New Doctoral	3,936	3,633	52	1.4%
		New Masters	9,177	8,288	163	2.0%
		Subtotal	13,113	11,921	215	1.8%
Year 2	Fall 2006-2009	New Doctoral	3,202	2,527	10	0.4%
		New Masters	7,045	5,096	35	0.7%
		Subtotal	10,247	7,623	45	0.6%
Year 3	Fall 2006-2008	New Doctoral	2,448	1,382	*	*
		New Masters	5,159	1,162	8	0.7%
		Subtotal	7,607	2,544	*	*

**Please Note:** The "Entry Enrollment Status" refers to whether students initially enrolled in their program as a part- or full-time student. Any cells with fewer than five students were masked with an asterisk to protect from presenting individually identifiable information. In addition, data points were masked if through arithmetic it could be determined that fewer than five students were in a given cell.